Olmsted Brothers
Bound April 1923
$ 2.75

THE ARCHITECTURAL FORUM

AN ILLUSTRATED ARCHITECTURAL MONTHLY DEVOTED TO THE ART, SCIENCE, AND BUSINESS OF BUILDING

NEW YORK ROGERS AND MANSON COMPANY, Publishers BOSTON

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THE ARCHITECTURAL FORUM

VOLUME XXIX NUMBER 1

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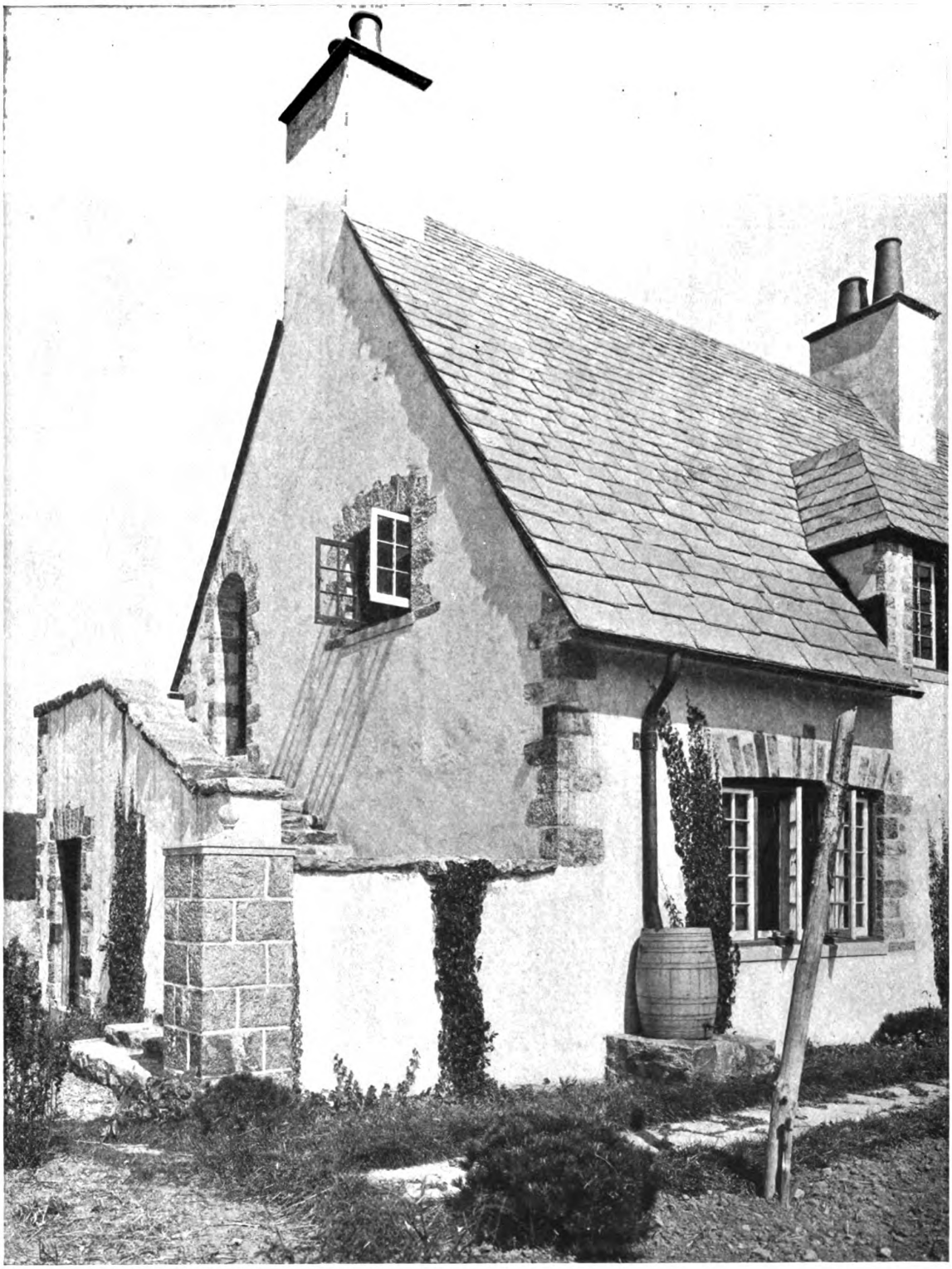
LETTERPRESS

Published Monthly by
ROGERS AND MANSON COMPANY
85 Water Street, Boston, Mass.
Advertising Department, 42 West 39th Street, New York

Yearly Subscription, payable in advance, U.S.A., Insular Possessions and Cuba $5.00
Canada ..... $5.50 Foreign Countries in the Postal Union 6.00
Single Copies ..... 50 cents All Copies Mailed Flat

Trade Supplied by American News Company and its Branches. Entered as Second Class Matter, March 12, 1892, at the Post Office at Boston, Mass.



DETAIL FROM A FARM COTTAGE

LEWIS COLT ALBRO, ARCHITECT

See article, "The Importance of Color and Texture in Building Materials"

THE ARCHITECTURAL FORUM
FOR QUARTER CENTURY THE BRICKBUILDER
VOLUME XXIX JULY 1918 NUMBER 1

The Importance of Color and Texture in Building Materials

PART I

By C. MATLACK PRICE

IN broad consideration of design as taught by the schools, and in studious consideration of design as taught by travel, as well as by the schools, a disproportionately small amount of attention has been paid to certain properties of building materials.

For the purpose of simplifying the main theme of these notes, they will be confined to the field of domestic architecture, and will be directed primarily toward the development of a practical appreciation of the values of *texture* in building materials, and of the significance of certain materials as *units of design*.

There has been a marked tendency, especially on the part of lay critics, to compare the expressive values commonly attained by English country-house architects with the absence of expressive values often apparent in the work of our own country-house architects. Those who would excuse the latter have hastened to bring forward the contention that the English architect is more fortunate in that he has at hand a greater variety of interesting local materials, such as slates, tiles, and native stones. Those who would condemn the American architect lay the matter squarely at his own door, affirming that the English architect enjoys no greater possibilities in the choice of interesting and picturesque materials.

There is so much truth in both contentions that the case must be restated, impartially. It is true that England has long been rich in expressive building materials, but it is also true that recent years have seen the development, in this country, of varied and excellent manufactured materials. It is true that the first of these two facts has conspicuously aided the English architect; but it is also true that our own architects, until recent years, have largely failed to avail themselves of such materials as were actually obtainable.

By way of throwing into clear relief the great importance of texture and identity in building materials, it is illuminating to recall for a moment the practices (well within the span of memory) which were designed to contradict and even quite to obliterate the textures and identities of materials.

Of these practices we recall most readily the one-time popularity of the ideal of uniformity in brickwork. It was called uniformity, but its real name was monotony. Real names, however, were no more respected or esteemed in those days than real textures or real materials. Bricks were made of absolutely uniform color and smoothness, and were laid up with corresponding uniformity. There were no incidents or surprises, and a brick house was as uninteresting as a plain clapboard house and less architectural than the modern factory building. Brickwork was painted; wood and cast iron were "sanded" to masquerade as stone. All three lost their proper identities and received in return a fictitious guise which held no natural or honest meaning. Cheap interior woods were "grained" to imitate (whether well or ill) expensive interior woods.

The offenses of the period were not only against superficial appearance and fundamental ethics, but against common sense; and taste, certainly, was at its lowest ebb along the sands of architecture.

A better day for brickbuilding was, perhaps, the first to dawn, and the reversion to older and more honest ideals is attributed to Stanford White. We will take brick, then, as the first material for discussion, observing in sequence the current developments in the architectural possibilities of slates, tiles, fireproof blocks, stucco, native stone and wood.

The dawn of the era of better brickbuilding came with the observation of some of the oldest buildings at Harvard University in Cambridge. In the days when those buildings were erected, brick was not to be had so easily that the masons could throw out all that were "imperfect," including those with burnt ends which had been in contact with the fires as they were stacked for firing. These ends were discolored in a range of beautiful natural shades, from black through blues, dark and light, purples, and deep olive greens. Imperfect machinery added a desirable element of character to each individual brick, and a wall laid up with burnt ends appearing here and there at random was rich in values of color and texture.

At a later time, when the manufacture of brick became a flourishing industry, and the material was to be had in unlimited quantity, the ideal of monotony came into favor, and discolored bricks were thrown out entirely as unfit for use, or used only

An excellent example of interest in texture obtained by frank use of ordinary materials — common brick, cement casts, troweled stucco

Frederick Sterner, Architect

for foundation work below grade, drains, and filling. The face-brick was carefully selected with a view to achieving perfect and unbroken monotony.

With the discovery at Harvard, however, began a better time, and the rejected burnt bricks soon came to be demanded in specifications and used as incidents, either for random introduction or for contriving simple patterns by regular recurrence in bonding. It was seen at once that the whole idea of a brick wall is that it is built of bricks. It was also seen that diversity, not monotony in brickwork, must be the true ideal of the brickbuilder, and that a single brick might, conceivably, be more interesting than a whole wall. In other words, there came into being the now familiar idea of *texture* in bricks and brickwork.

A natural division appears between the texture of the individual brick and the texture of the entire wall: the first being the province of the manufacturer; the second the province of the architect and the mason. When manufacturers realized that the demand for burnt-end bricks was more than a passing fad, it was not long before they began making special bricks, baked in a fine variety of æsthetic colors and cast in an equally fine variety of interesting textures. With these there could be no further excuse for uninteresting and inexpressive brickbuilding, for a wall might now be rich in all the colors of an old Oriental rug, and laid up in any sort of pattern, whether simple or intricate in its character.

Coincidentally with the rediscovery of texture in brick came the rediscovery of texture in brickwork. Once attention came to be focused upon the fact that a brick must rightly be considered as a unit of design, the manner in which bricks were laid up became expressive of this identity as a unit. The raked joint became popular, because its shadow threw each brick into relief, and effected, as well, an honest and agreeable texture for the whole wall.

It is doubtful, now, if even a serious decline in architectural taste and sanity could place brickbuilding back again at its one-time dead level of stupidity and dishonesty. *Texture*, it is safe to say, has come to be regarded as an essential property of both brick and brickwork, and one finds on every hand examples of technique as expressive, as idiomatic, as full of interest as any which could be cited in the realm of recent English domestic architecture.

Like brickwork, the old idea of a slate roof showed a distressingly stupid and unintelligent neglect of the inherent possibilities of the material. Colored slates were used, it is true, but were used in patterns as stupid and as inexpressive as oilcloth, and the monotone slate roof, like brickwork, was kept to an absolute uniformity of size and color in the slates, so that the slate as a unit could not assert itself.

Excellent possibilities, however, have arisen with the slates which are called "graduated," and which offer a fine range of natural color in addition to their variations in size. The colors are in low tones of gray, purple, and gray-blue, and the largest slates are used at the eaves, graduating in size to the smallest at the ridge. The edges are rough and irregular, so that a roof of graduated slate has a natural texture and an expressive degree of ruggedness which have added distinct character to a number of recent buildings.

It is not that a new material has been devised, but that we have given back to an old material some of its natural properties, and have allowed it to aid architectural design by frankly expressing these qualities.

The building of slate walls has not been at all common in this country, as it has been in certain parts of England, though many examples have been seen in which slatelike stone, with natural cleavage, has been split up to lay in thin courses. A slate wall naturally possesses peculiar values in texture and color; but unless the material be plentiful in the immediate locality, the quantity required for any considerable building project would render its use impractical.

In the matter of roofing tiles we have still a great and unrealized field. We have long had "Spanish" and "Italian" tiles, which have been an obvious aid to the architects of the Pacific Coast, but for the most part these have been too uniform and too machine

made. Their insistent regularity made it very difficult to achieve soft and irregular roof lines: they suffered from being too well made.

Shingle tiles have but recently been available, and in variegated size and color in this roofing material lie excellent possibilities for the imaginative manufacturer. The best values in texture will come from using tiles which most closely approximate the old hand-made tiles, whose irregularity was their greatest charm. An advantage of this form of tile lies in its lightness, not necessitating the support of a very heavily framed roof.

As in the case of brick, a marked variety in coloring, as produced by accidentally uneven firing, or by firings of carefully regulated difference, will be far better than a monotonous uniformity of color. Since we know that tiles, from their nature, are separate pieces of burnt clay, like bricks, why in the name of art and architecture should they be so mechanically and unimaginatively baked as to produce a roof which looks as though it had been fired all in one piece? It would do nearly as well to use stamped metal, paint it red, and call it a tile roof.

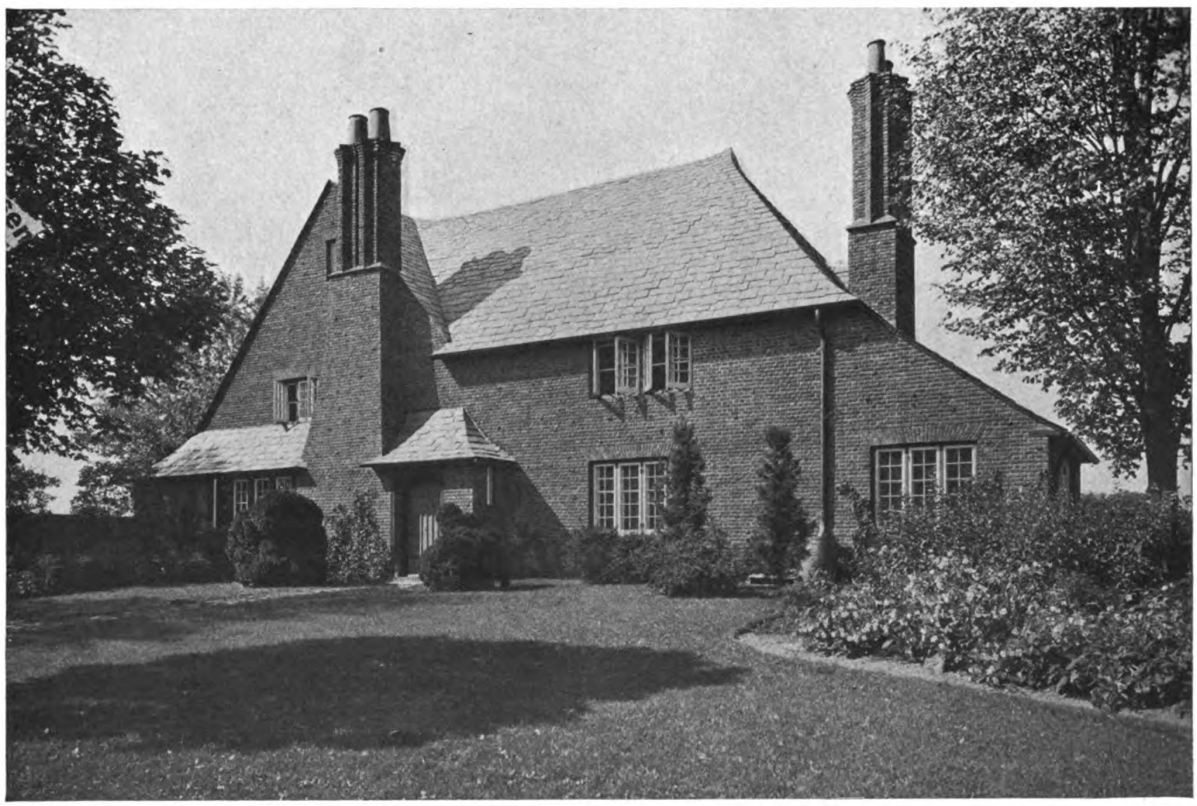
A recent development in roofing materials is seen in the variegated asbestos-composition shingles, which possess an advantage for the small house in that they do not require such heavy roof-framing as tiles or slates. The manufacturers have shown a clear appreciation of the demands of modern design in making these shingles with rough and uneven edges, and in an interestingly varied range of colors.

Floor tiles have been more appreciated and are coming to be used with greater facility and freedom in living rooms and dining rooms — not only the familiar and ever pleasing red quarry tiles, but tiles of more unusual and diverse textures and colors.

It was some time before tiles found other uses than for terraces and sun-parlors, and, after making themselves popular in hallways, were discovered to be a splendid flooring material for the living room and dining room. The color possibilities, the durability and the sanitary advantages of tiles for floors recommend them for increasingly varied uses in domestic architecture.

Above all, tiles make an *interesting* floor, which often combines with the general character of an interior to achieve a thoroughly successful solution of the floor problem.

Decorative tiles, too, have engaged the attention of manufacturers and have added much to the possibilities of design, especially as incidents in brickwork or stucco. The quaint, irregular type of decorative tile with modeled surface has been revived in many forms and in great variety, and if intelligently used as "seasoning" or accent, may achieve thoroughly admirable results.

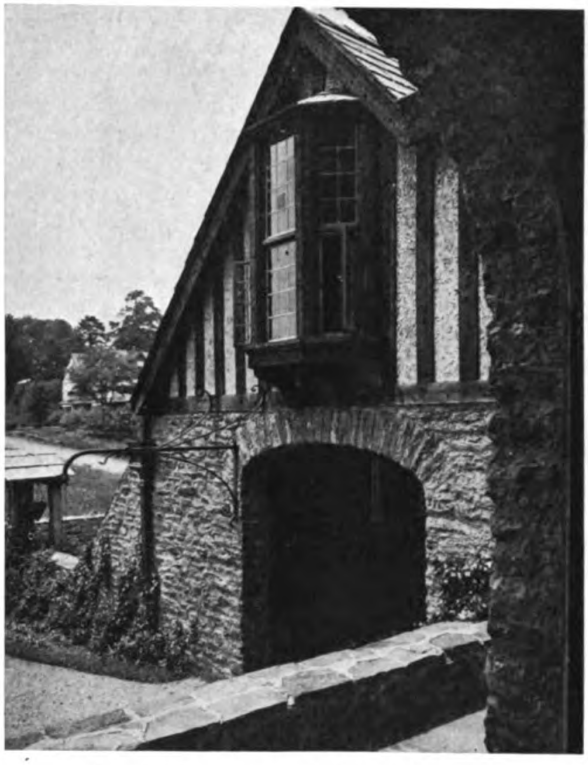


Good texture in slate and brickwork of a cottage
Lewis Colt Albro, Architect

One of the most interesting prominent examples of design in decorative tilework is to be seen in the loggia of the annex of the Pan-American Union Building, Washington, D. C. (Albert Kelsey and Paul P. Crét, Architects), and again in the flooring of the patio of the main building.

In nowise differently from brick or roof-tile, decorative tiles may be made æsthetically valueless by too insistent regularity. If all are geometrically identical, hard and uncompromising in shape, uniform in pattern, color, and texture, no interesting results will reward their use. It was this fault which made the English "Stoke-upon-Trent" tiles so greatly favored in Eastlake's time, the abominably uninteresting and banal thing they were. Pattern, color, texture, shape — all identical. Given one stupid-looking tile, a row of six repeated (often built into wooden houses) was six times as stupid, and the more profusely they were used, the more hopeless the result, the more like a piece of oilcloth.

A manufactured building product which has recently been developed to an interesting extent is the fireproof block, which, if cast and fired with due thought to texture and color, may well come to occupy an important place. Besides its recommendable fireproof qualities, the large size of the units represent an economy of mason labor. From the point of view of design the chief problem of the fireproof block will be found in designing in scale, especially where the small house or cottage is concerned.



Example of texture in wood, stonework, and stucco
Henry Morse, Architect

Interesting variety in textures and colors of stone, brick, and tile
James A. Greene, Architect

Textures in concrete blocks have been so largely confined to the deplorable "rock-face" imitation that it is difficult to see beyond, or to visualize some happier and more æsthetic possibilities, though the field is one in which manufacturers might do well to enlist the cooperation of architects.

Due to restrictions of available labor and materials in England, we read that English architects are conducting extensive experiments in the design and production of concrete units, and similar conditions in this country might awaken our manufacturers to some undreamed of possibilities in the development of concrete building blocks.

The present shortcoming is due largely to a lack of appreciation of the æsthetic and architectural importance of textures, shapes, and colors, and also to adherence to an absolutely inartistic "sameness." If concrete blocks were made in graduated sizes, for "random" courses and in a range of subdued colors, it would be possible to effect many interesting and

Textures of stucco and timber work allowed excellent freedom
Bloodgood Tuttle, Architect

expressive uses. Texture, too, should be developed, and should avoid exaggerated imitation of stone, since the day of architectural imitations has, for the most part, passed.

Stucco, because of its application to large surfaces, comes under considerations which are different from those applying to building materials which are relatively units, and the question of texture is even more important. The diversity given by jointing, as well as by the natural or artificial range of colors in bricks, slates, and the like, are wanting, and the interest may be effected only through the manner in which the stucco is applied, and the skill and ingenuity with which it has been colored.

The task here is squarely up to the architect and the artisan — and it might be said to both that possibilities in both texture and color have been but little developed in this country, although a few excellent examples which have been seen afford ample proof that neither opportunity nor ability is lacking.

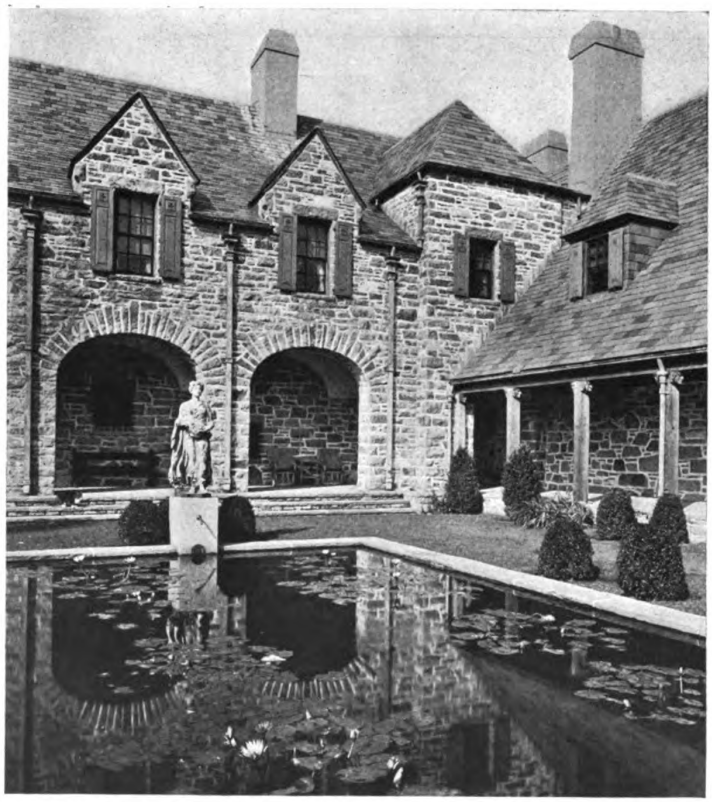
In the use of native stone there is apparent an increasing tendency to make the most of the natural properties of stone as a building material. This has been most noticeable in the vicinity of Philadelphia, where the local " ledge stone " of Chestnut Hill has found a variety of excellently colloquial uses.

These, for the most part, have followed in the footsteps of the early Colonial dwellings of the locality, which held the natural charm inherent where sophistication and sham have not yet crept in.

The early builders employed stone because it was ready to hand, and allowed it to look like stone because they had no conceivable impulse to make it resemble anything else. They were not, in other words, ashamed of the humble, honest material they chose, and this material, as a result, repaid their frank acceptance by imparting to those early buildings a charm and fitness and fundamental architectural merit which forms the most conspicuous factor of success in the modern revivals of the type.

All localities are not so fortunate in the possession of a suitable and practical building stone, and in such cases the use of some other and more locally appropriate and logical material is usually dictated by observation of the oldest existing buildings, erected before the days of rail transportation, where local materials were used of necessity rather than because of any æsthetic theory.

The possibilities of texture in wood are of relatively recent discovery, especially in the matter of



Interesting colors and textures in slate, stonework, and exterior woodwork
Bellows & Aldrich, Architects

exterior woodwork. Natural grains and figures have for some time been given their proper importance in interior trim, where transparent stains have largely superseded obliterating paints, and where the texture of the wood has been dictated, to some extent, the manner in which it is detailed. Texture in exterior woodwork may owe its rediscovery to the numerous recent examples of true half-timber houses which have been built. In the study of ancient half-timber work the architect must have observed that much of the character and virility of the old examples lay in the ruggedness of the timbering. Here was something very different from smoothly milled lumber, and something essential in the obtaining of a complete result which would adequately approximate the model.

The old timbers were roughly hewn, with clearly defined marks of the adze, interesting irregularities, absence of geometrical precision. The wood seemed to be a living material with character and vitality and expression, almost as though still growing, or as though the forms in which it was carpentered were themselves organic things, far removed from the ænemic, lifeless creations of "paper architecture."

Early half-timber work is a relic of the days when men *built* houses of rough and ready materials instead of *drawing* houses and thinking (if at all) in terms of inexpressive materials. This quality in old work was not due to any greater architectural ability, but rather to a lesser architectural ability and less self-consciousness. And with this lesser degree of self-consciousness there was inevitably as a result, a willingness to allow natural textures of building materials to assert themselves.

This, after all, is the essence of the whole matter. Materials must be shaped for practical use, or manufactured; but beyond their shaping or manufacture the most successful and admirable architectural results, where relatively informal projects are concerned, will come from allowing the natural textures and colors of materials to assert themselves frankly and unequivocally, providing interest greater than any labored surface decoration affords.

In the second of these two papers on texture in building materials the writer will present the views and theories of several country-house architects whose work has consistently indicated a practical appreciation of the importance of color and texture.

Excellent texture in roof and wall surfaces in a variety of materials — shingles, stone, stucco, and half-timber work
Albro & Lindeberg, Architects

THE FORUM COLLECTION OF MODERN GOTHIC ARCHITECTURAL DETAILS

PLATE SIX

THIS pulpit shows the customary polygonal plan, but is noticeably different from the orthodox form by the absence of the single supporting stem, thereby giving a greater sense of stability and security than the more common "wineglass" type enjoys. Carrying the polygonal plan to the floor does not effect in any adverse way the delicacy or grace of the design, and in reality the quality of verticality adds greatly to its simple beauty.

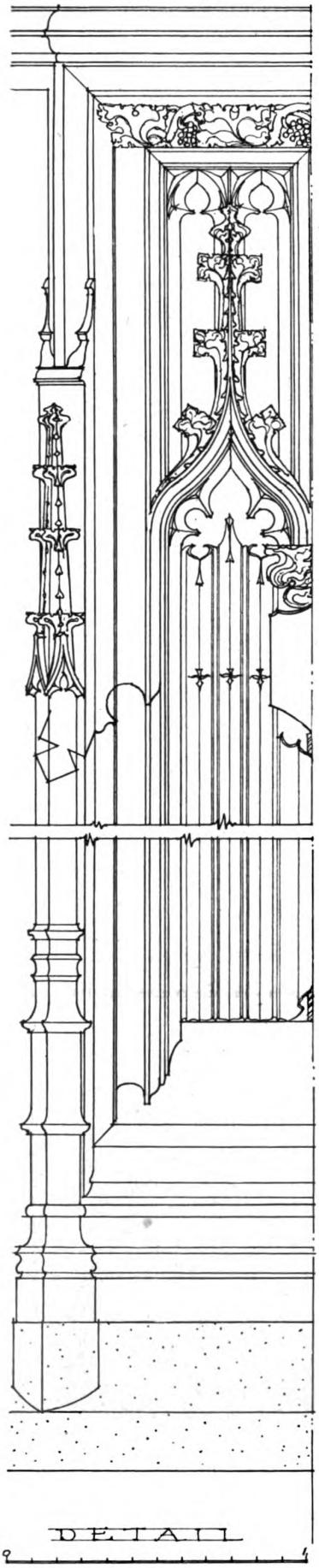
PULPIT IN CHURCH OF THE EPIPHANY, SHERWOOD, WEST PHILADELPHIA, PA.

DAY & KLAUDER AND E. E. HENDRICKSON, ASSOCIATED ARCHITECTS

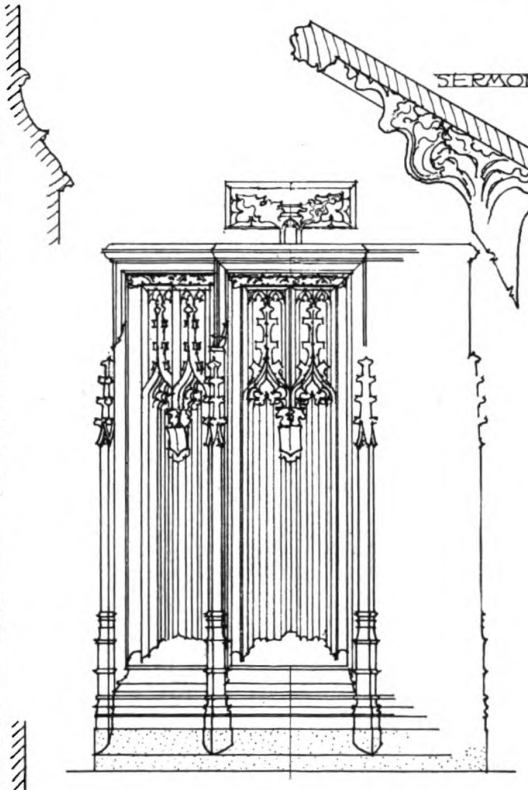
DETAIL DRAWING BY ROBERT A. TAYLOR ON FOLLOWING PAGE

Details of the Pulpit
Church of the Epiphany Sherwood
West Philadelphia Pennsylvania

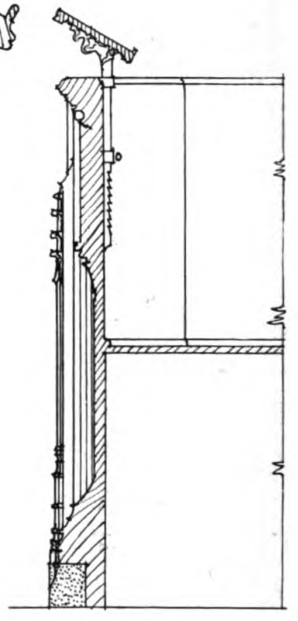
DAY AND KLAUDER E. E. HENDRICKSON
ASSOCIATED ARCHTS PHILADA. PENNA.
DRAWN BY ROBERT A. TAYLOR.



DETAIL



ELEVATION



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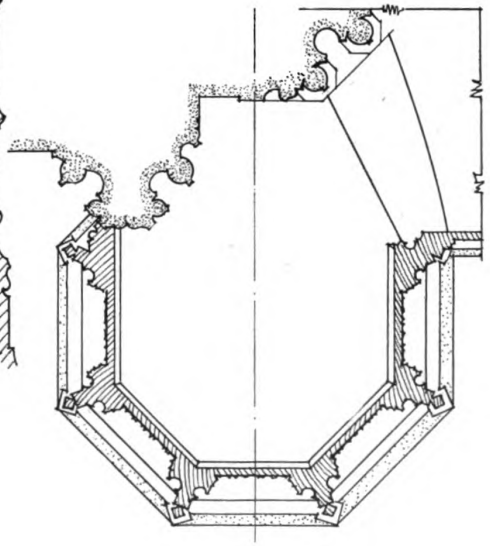
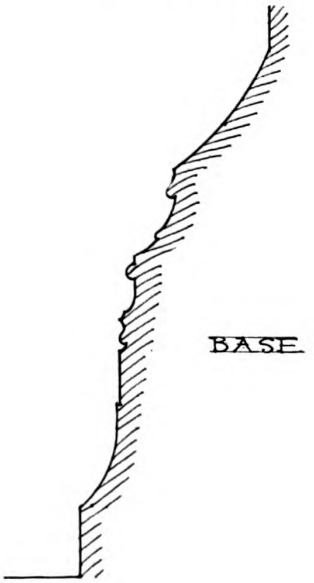


PLAN



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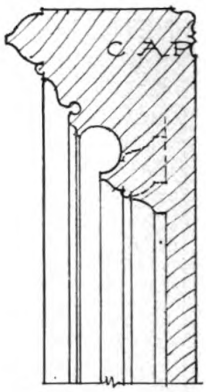
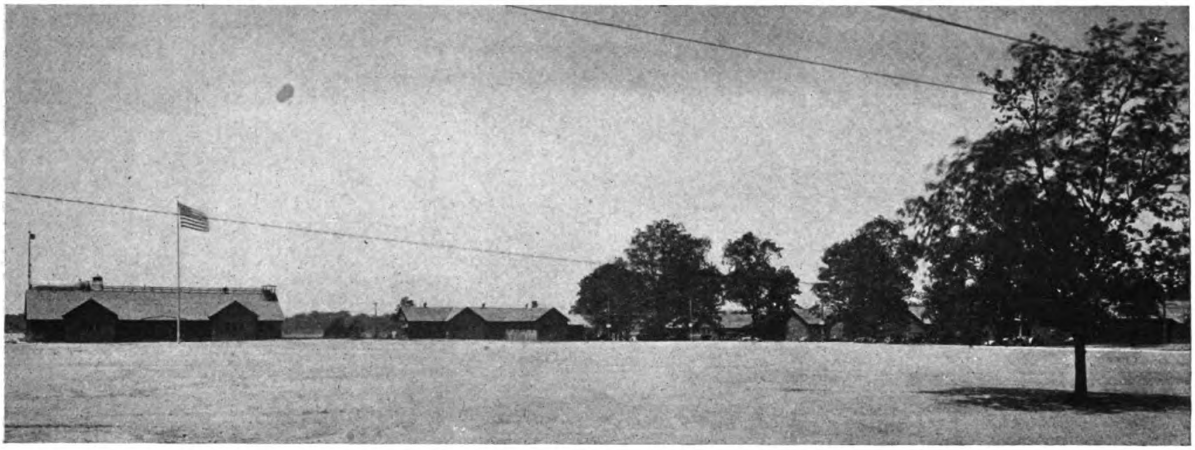




General View Looking Across Parade Ground to Administration Building

The Pelham Bay Naval Reserve Training Station

EWING & ALLEN, ARCHITECTS

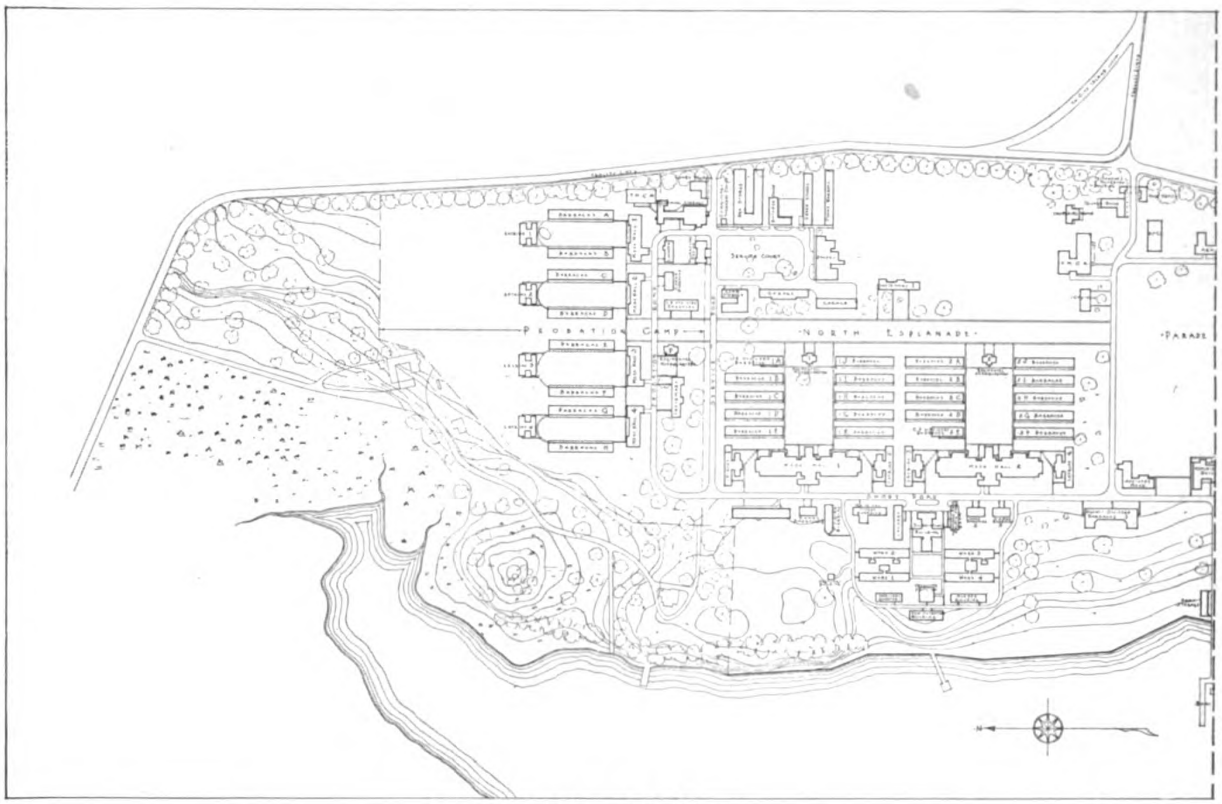
THE Naval Reserve Training Station at Pelham Bay Park, New York, is perhaps one of the most interesting of the many military and naval camps established by our Government in various parts of the country for the training of recruits. It is fortunate in its location, being on a sheltered bay of Long Island Sound, a short distance from New York City. The land which it occupies is a part of the park system of New York and possesses many natural advantages, chief among which are a very fine growth of old trees and a gently rolling topography, affording fine views of water and countryside.

The camp is considered from the viewpoints of operation, administration, and layout to be particularly well fitted to its task, and this is in great measure due to the foresight of the naval authorities in entrusting its design and erection to a firm of architects who were able to effect the layout of the camp in an architectural manner, bringing to the work their accumulated experience in planning, which is so essential to a proper grasp of the fundamental principles underlying any problem, if a successful scheme is to be evolved. The plan of the camp is the work of Messrs. Ewing & Allen of New York, and it is singularly significant in pointing out the value of trained professional advice architects are able to render in problems of this character. To study this camp and see its well coordinated relation of parts, resulting in perfect administration, is to wish that more of our camps were based on equally well thought out schemes. The Army cantonments are, of course, much larger and were required in a shorter space of time than those for the Navy. While it is true architectural advice was sought and utilized in their planning, it was confined chiefly to details of barracks, etc., and the larger problem, — the fitting of the various units to the land, the location of roads, and those other features of fundamental importance were determined by the cantonment division of the military establishment and carried out under the direction of constructing quartermasters at the several locations.

Aside from certain groupings of related parts of the military and naval organizations, which are only a unit of the whole, the planning of a training camp is purely an architectural problem. It calls into play the same principles underlying any plan, whether it be that of a university campus, a hospital, public building, or whatever one calls to mind, in that it is a logical distribution of parts, so corelated and adjusted to one another that circulation among them is easily effected and the whole functions in an orderly manner. This may theoretically be possible in a strictly military layout ; but when this scheme is transferred to actual ground having varied topography, a difficult problem is presented in adapting it to special conditions. The old military way was to reduce everything to a level plane and then locate the needed structures in orderly, straight lines. But how uninspiring and deadly monotonous is such a scheme, to forget for the moment the consideration of expense in carrying it out!

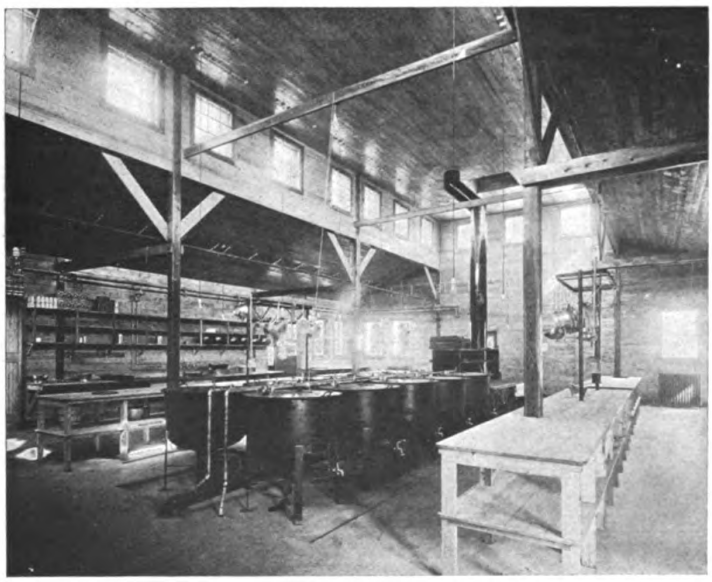
How much better and more satisfactory in every way was the planning of the Pelham Bay Camp executed. Here an attractive piece of countryside was selected, well covered with old trees, which under the terms of acquisition were not to be cut down or destroyed, and the problem of designing a camp to fit the site and accommodate 5,000 men was given the architects for a satisfactory solution.

We see in the plan as developed a well unified scheme of extremely simple parts. It divides logically into three divisions, each of which has a dis-



Plan of North Half of Camp

tinctly separate function and is a self contained unit. At the north end of the plot is the probation camp, in which the new recruits spend the first twenty-one days of their training under observation of the medical staff; the center part of the plot is occupied by the main camp, consisting of two regimental units at either side of the parade ground and administration building; the third group comprises the hospital buildings, located near the shore and away from the centers of activity. The entrance to the camp is from a main highway on the east opposite the administration quarters. This gives immediate access to the large parade ground and permits spectators to observe the drilling without interfering with the routine life of the camp. Leading north and south from the parade ground are broad concrete esplanades to the barracks, affording simple and easy means of quickly assembling the entire camp for drill. At the west end of the parade ground is the administration building, the center of the camp's life.



Interior of Kitchen in Regimental Mess Halls

One outstanding feature of the plan which contributes in the largest measure to the successful operation of the camp is the layout of roadways so that the training of the men is at no time interfered with by the operations of the service department, which it must be realized is a large factor in the maintenance of 5,000 men. This has been effected by the service road, which swings through the entire camp connecting up the vital points, extending from the coal dock at the southeasterly end, past the rear of each of the mess halls, latrines, and the hos-

Plan of South Half of Camp

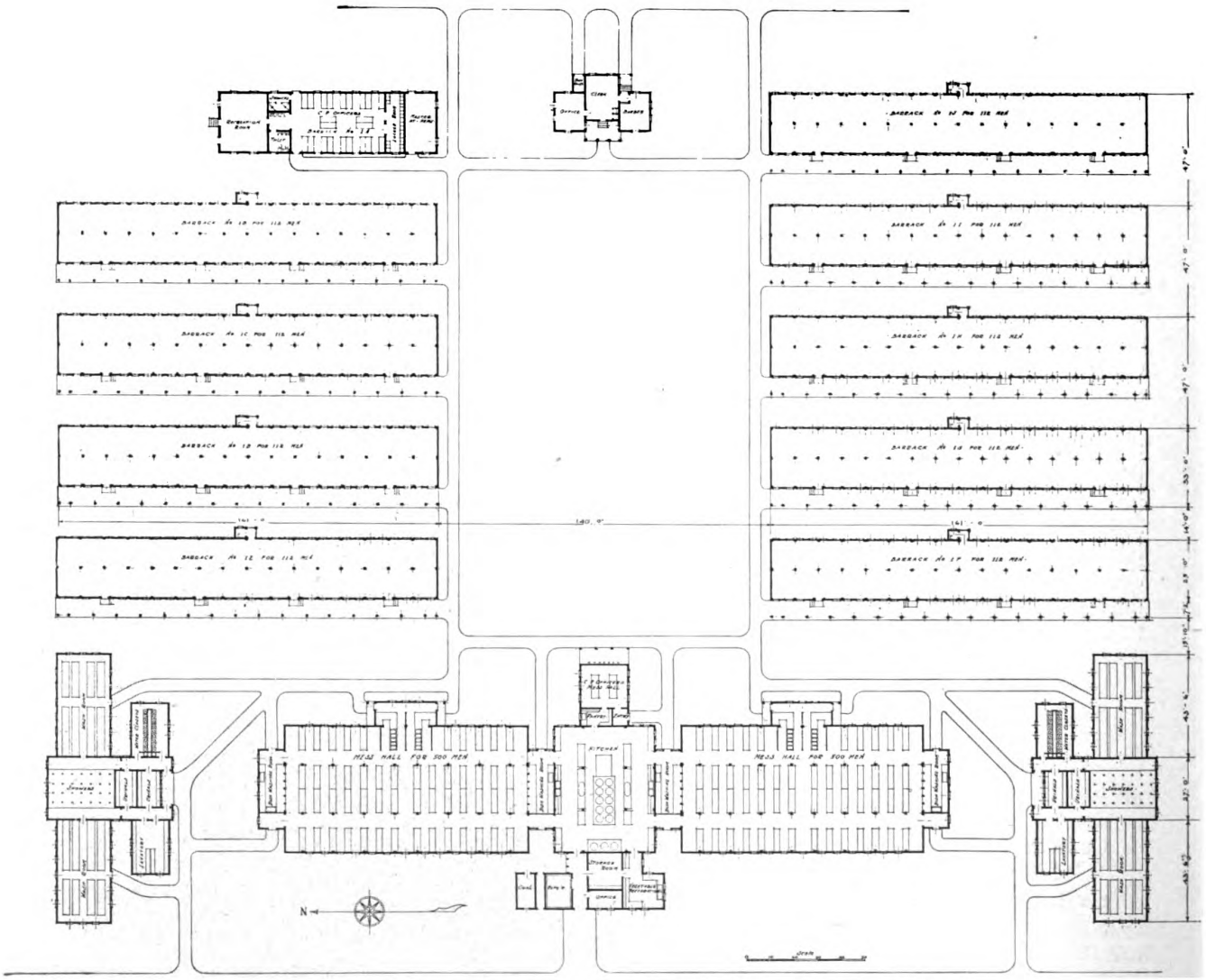
pital group, and emerging on the main highway at the right of the probation camp. All the training activities are disposed to the east of this roadway and between its side arms, so that there is never any crossing of supply wagons or other service traffic over the training field or the main esplanades.

Subsidiary groups are the commissary department and general service court located at the service entrance and serving both probation and main camps; the social activities group, embracing buildings of the Y. M. C. A., the K. of C., and the canteen at the main entrance, and a third group made up of the power house, black gang and detention camp or "brig" at the southern end of the plot.

The same general care for orderly functioning extends to the arrangements of the individual groups and buildings as to the whole scheme. Thus each regiment is housed in a group of buildings, making it at the same time an independent unit as shown in the typical plan reproduced herewith, and an integral part of the larger scheme. Each regiment contains 1,000 men, accommodated in barracks for 112 men each, arranged at opposite sides of an open space 140 feet wide and 210 feet long. At the end of this space, which provides a regimental training field and facing toward the esplanade, is the headquarters building and at the opposite end the mess hall, adjacent to each end of which is a latrine for each row of barracks. The barracks are 161 feet long and 25 feet wide with entrances on the west side, sheltered by an overhang of 7 feet, and are

Interior of Typical Barracks for 112 Men

General View of Typical Regimental Unit Looking Toward Mess Hall



Plan of Typical Regimental Unit, Naval Reserve Training Station, Pelham Bay, N. Y.
Ewing & Allen, Architects

spaced 14 feet from rear wall to line of posts supporting the overhang, which affords space for the assembling of each company preparatory to regimental formation in the larger open space. The chief petty officers are housed in their own barracks in connection with each regiment and are provided with a recreation room and locker space.

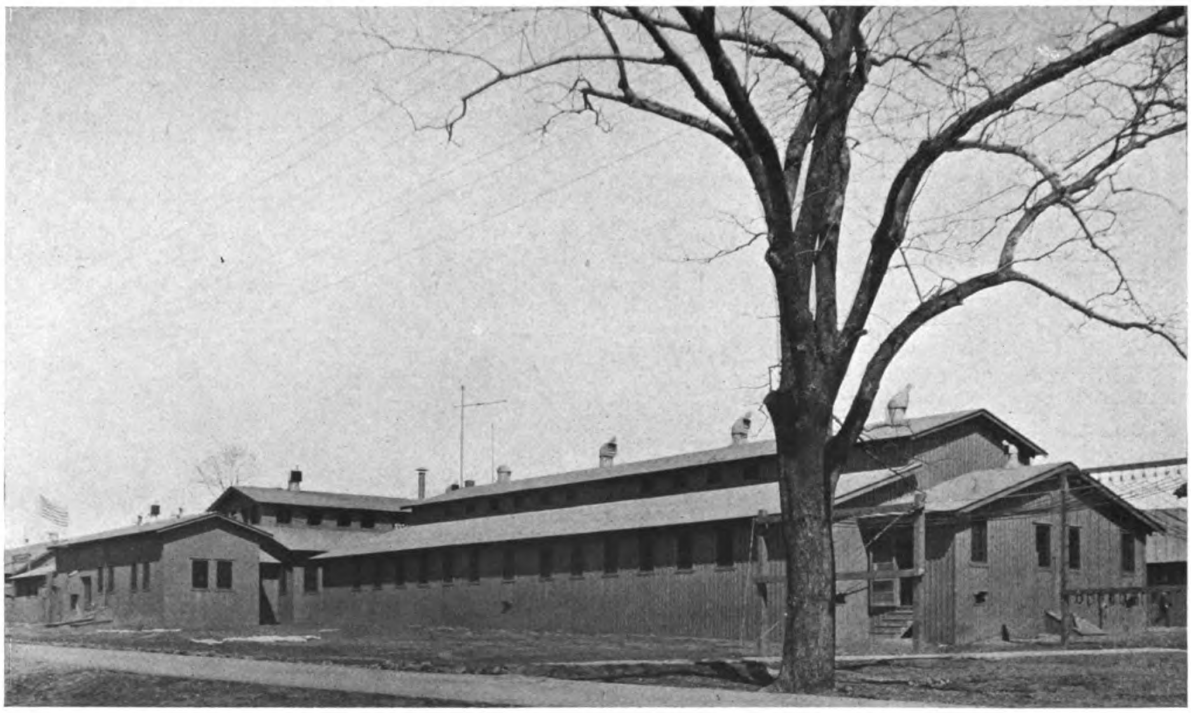
The mess hall is arranged in two sections with the kitchen or "galley," as the Navy terms it, between the wings. The service is conducted on the cafeteria principle, and the building is especially planned for its efficient operation. The men march to meals in company formation and enter in two lines through doors in the center of the east side of the mess. Here they secure bowls and plates from a counter and file past the steam tables from which the food is served to them, and then take their places at tables on which knives, forks, and spoons have previously been placed. The exits are at opposite ends of the hall and in passing out the men deposit their dishes at the counters of the dish-washing rooms located between the exits. With this scheme of operation no confusion exists, and the 500 men which each hall accommodates can be served in a remarkably short space of time.

An interesting side light on the thoroughness of discipline and the virtue of neatness as practised in every quarter of the Navy is seen in the upkeep of these mess halls. After each meal the table tops are scrubbed white, the floor is washed, and all utensils, caldrons, steam tables, etc., are scoured and polished, this work of course being done by enlisted men assigned to that duty.

The kitchen is equipped with the most modern cooking appliances, and has in close proximity separate storage, vegetable preparation, and refrigerator rooms. The menus are prepared for an entire week in advance and show a remarkably wide range of food. On occasions a special meal is required of no mean order or proportions, and though it requires extra effort on the part of the sailor cooks, they are always found equal to the task. The barracks for the cooks are across the service road, separated from those of their regiment, for the cooks' hours of duty vary from the usual naval work making it desirable to house them separately.

The chief petty officers are served at tables in a separate small mess hall near the kitchen and facing the regimental drill ground. The commissioned officers are served in the officers' mess next the administration building, to the other side of which are the officers' sleeping quarters.

There are two latrines for each regiment, each serving one line of barracks. In these buildings, which are also remarkable for their cleanliness and orderly arrangement, each of the various functions are given separate compartments. The men are not permitted to shave or otherwise make their toilets in the barracks, the latrines being designated for this purpose, and accordingly they must be well equipped to meet the needs of a large body of men using them during short periods of time. The showers are in



Exterior of Typical Regimental Mess Hall from Service Road

View Along Probation Road in Probation Camp

the center with clothes washing rooms at either side, and grouped about the entrance are the toilet facilities. The clothes washing rooms exhibit another phase of the sailor's life that is of special interest. Each man is required to wash his own garments and this is done in true naval fashion with cold water, quantities of soap, and a scrubbing brush. Running lengthwise of the room are two gutters in the cement floor and above them, raised about 2 feet, are two lines of pipe with faucets at regular intervals. On either side of these gutters are low, movable platforms made of plank and supported on cleats. The men kneel on the floor, wetting the clothes to be washed under the faucets and then spread them out on the platforms to scrub with brushes and soap, after which they are rinsed, laced to the lines in sailor fashion, and hoisted to dry at the rear of the building.

The probation camp is composed of units similar to the main camp, but of smaller size because of the fewer men to be housed. The barracks are linked up in pairs with a latrine and mess hall at the ends. This section has its own Y. M. C. A. building, canteen, and infirmary, so that it is in every way independent of the larger camp. It is here the enlisted men are received, and the process with which they are inducted into the service indicates the degree of importance that should be attached to the planning of camp buildings. The recruits are received in the building marked "clothing storage" on the plan at the entrance to the probation camp. They successively pass through the barber shop, disrobing room, from which their civilian clothes are packaged to be sent home, the shower room, the medical examiner's quarters, where finger print and other identification marks are recorded, the uniform assignment room and the dental room, after which they are assigned to their barracks. This work is expeditiously carried on in a building especially planned for it.

The hospital group is located on the shore side on land sloping toward the bay, so that it is removed from the activities of the camp, insuring the necessary quietness and isolation. The arrangement of the buildings is shown in the group plan reproduced herewith. They are connected with one another by covered passages arranged in easy slopes to take up the irregularities of the land. The group accommodates approximately 160 patients in open wards and individual rooms. The operating pavilion, at the easterly end, is an exception to the general interior finish in having painted plaster walls for hygienic reasons. A large window sloping in affords ample north light. The ward buildings are 72 feet long and finished inside with wallboard except for the toilet rooms which are sheathed. The floors of the toilet rooms and operating pavilion are of cement and those of the wards, wood. Each ward is provided with a diet kitchen, a room for the preparation of dressings, and a nurses' room. Windows in the hospital group are of the double hung type, except in the laundry,

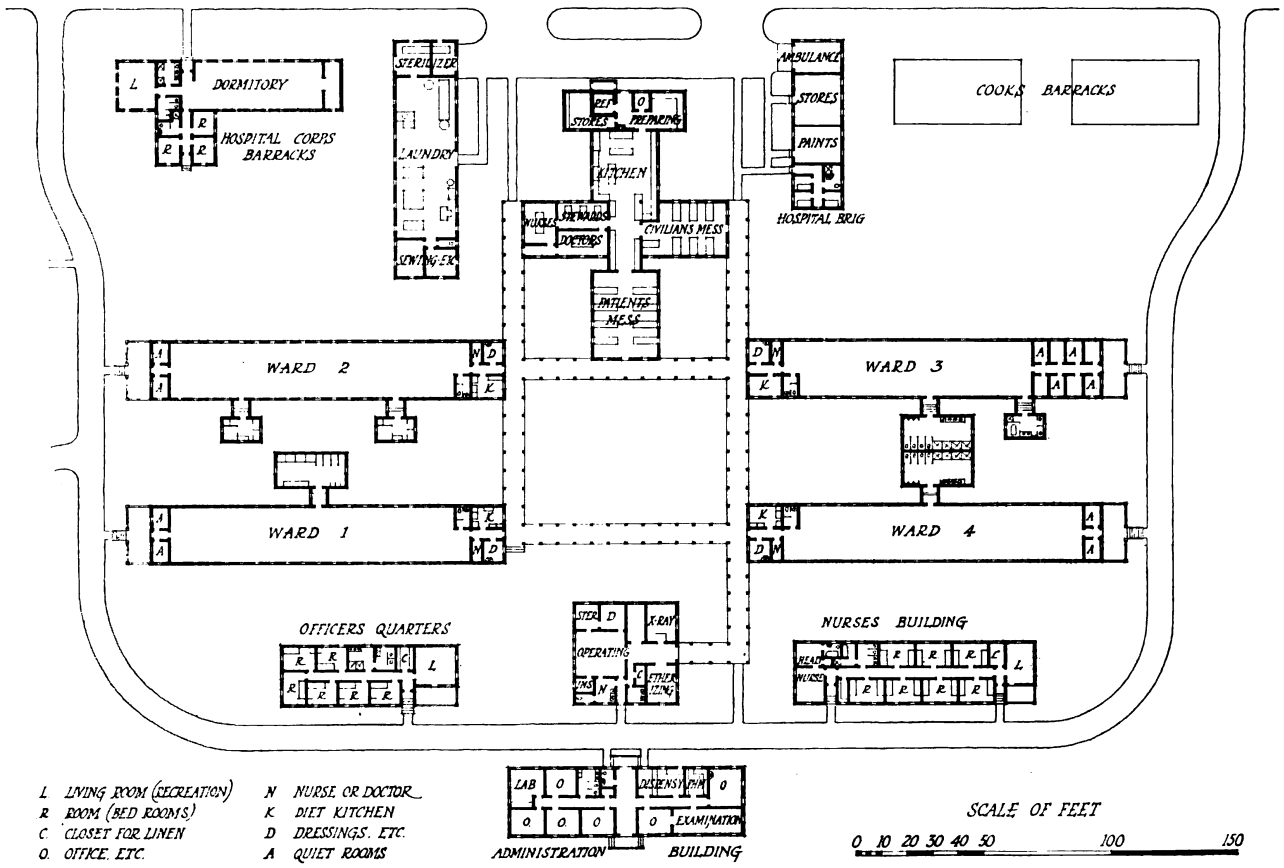
Typical Battalion Unit in Probation Camp

where they are hinged at the bottom to swing in, and interior doors are of a stock, five-panel pattern.

The construction of all the buildings is of good frame type, the walls of 2 by 4 inch studding sheathed inside and out, the outer surface having a layer of building paper covered with vertical siding, the joints being covered with vertical battens. The roofs are pitched with pleasing proportions and covered with a three-ply prepared roofing of a soft gray color. The buildings are supported on 6 by 6 inch posts with the floors raised about 2 feet above grade. Some of the interiors, such as the rooms of the administration building, officers' barracks, nurses' quarters, etc., are finished in wallboard arranged in panels and painted. All the buildings not so treated are carefully sheathed and finished with one coat of varnish. The floors of the mess halls and latrines are cement, and others generally of two thicknesses of wood. The officers' lounge in the administration building is of special attractiveness in a simple decorative scheme of buff and deep blue. The walls and ceiling are of wallboard, paneled and painted buff. Windows are arranged in effective groups, and blue hangings, comfortable furniture, and large, deep buff shades on the suspended lighting fixtures contribute a clublike atmosphere.

A detailed description of the enlisted men's barracks will indicate the method of construction and finish employed generally throughout the buildings. They are framed with center posts 6 by 6 inches, spaced 8 feet on centers. A cross tie of 4 by 6 inches occurs over each post at the level of the wall plate, and 2 by 6 inch struts distribute the roof load to the top of each post. The rafters are 2 by 6 inch timbers, spaced 20 inches on centers with a pitch of 8 in 12. The interior walls are sheathed, and the roof space is similarly ceiled at a point about one-third up the slope. The floor joists are 2 by 8 inches with a span of 12 feet 6 inches and spaced 16 inches on centers, on which is laid a double wooden floor. The floor level is raised 2 feet 10 inches above the grade, and clean-out doors are provided at intervals for access to the space beneath the floor from the outside.

The windows are placed with their heads just under the wall plate and are of a double casement sash type with transom bar between, the upper sash swinging out from the bottom and the lower sash swinging in from the top. All the windows are screened, the screens being placed on the inside of the sash in one



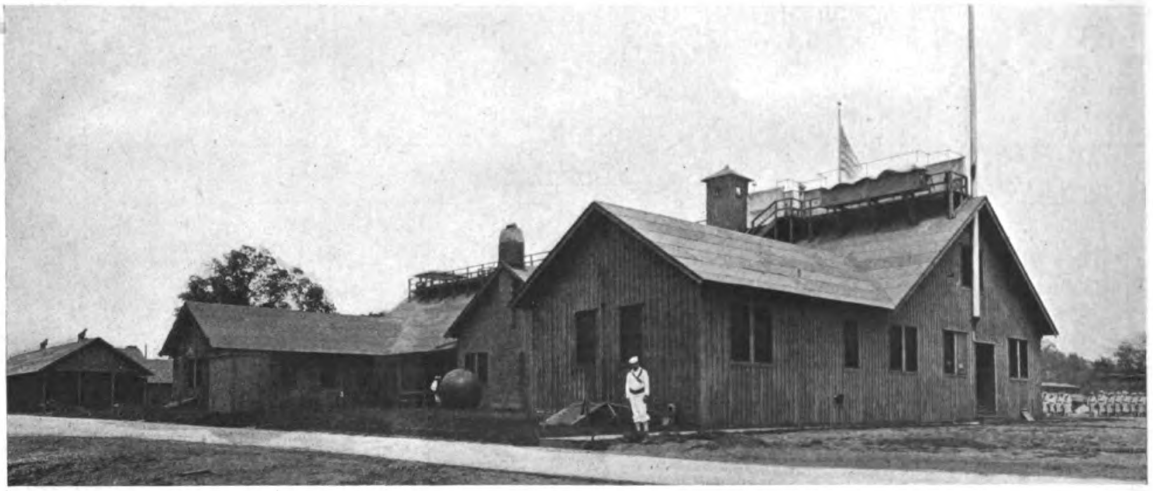
Plan of Hospital Group, Naval Reserve Training Station, Pelham Bay, N. Y.

case and on the outside in the other. This type of window is used in all barracks and is efficient from the standpoint of ventilation, as two currents of air are possible of passing through it in opposite directions at the same time.

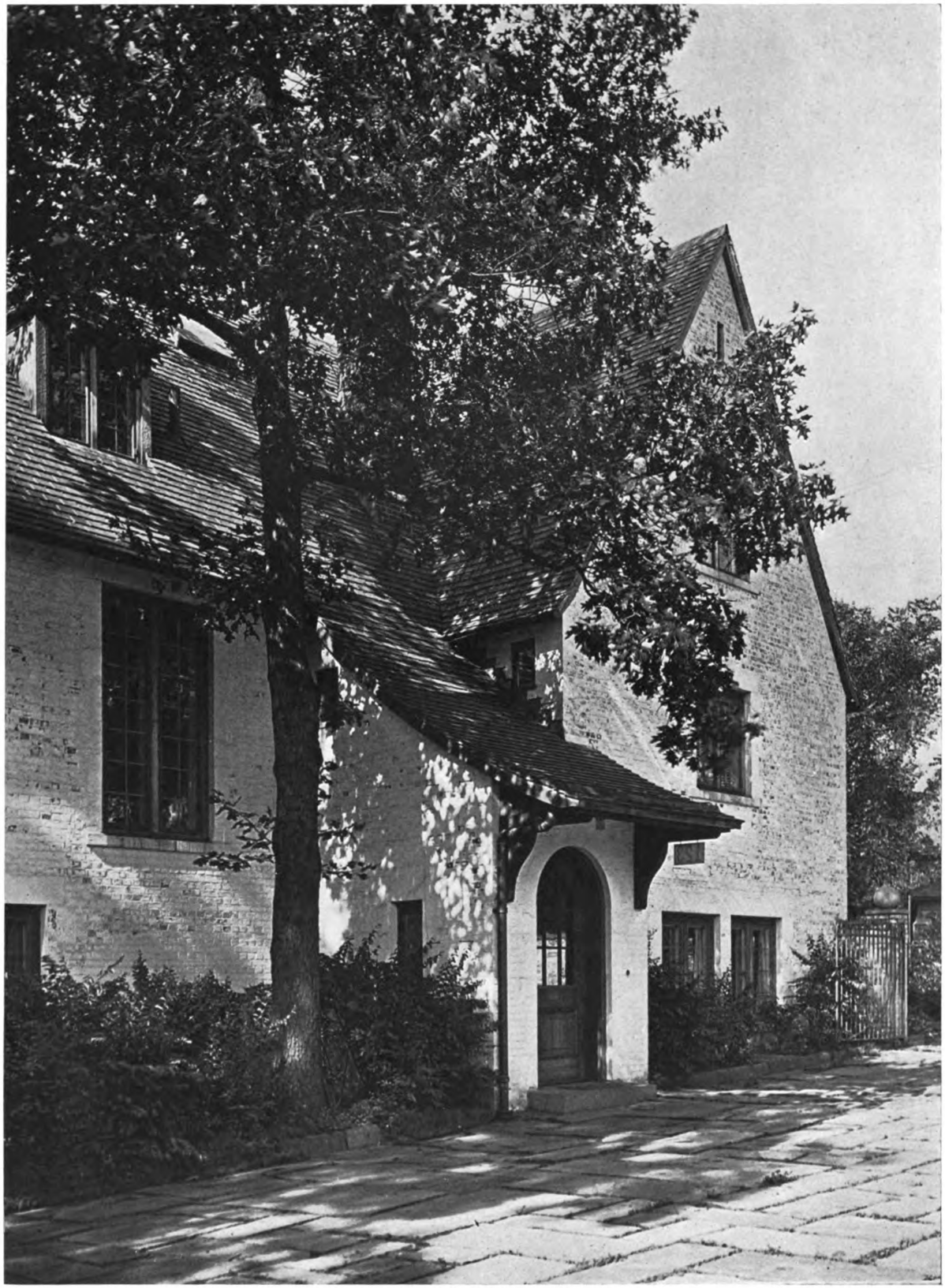
The barracks as well as all other buildings in the camp are heated by steam supplied from the central power plant. The heating is connected up with the ventilating system in a simple manner that has proved most effective. The radiators are raised from the floors and rest on a box about 6 inches high, in the top of which is an opening supplied with fresh air conducted through a duct from the outside wall. In most of the buildings the radiators are placed against the outside walls, so that the connection between the radiator and air supply is most direct. In the barracks, however, to insure even distribution of heat with the minimum of radiating surface, the radiators are placed in the center of the floor space, one to each bay, thereby requiring an air duct for each radiator of half the width of the building. In the ceiling to the right and left of each radiator there are vents opening to the space under the roof through which the exhausted air is drawn out of the building by revolving suction ventilators at the ridge line.

The men sleep in hammocks which in the daytime are folded up and stored in a wooden box provided for each man's outfit and placed against the outside wall at his station. Wrought pipes of 3 inch diameter are placed between the posts at a height of 6 feet, and from them, hammocks are swung at night to similar pipes attached at a corresponding height to each of the opposite walls. This arrangement allows two rows of hammocks running the length of the barracks.

The Pelham Bay Camp has unquestionably proved in its operation the value of its architectural treatment. The benefits are not confined to increased efficiency in operation, but extend as well to the morale of the men in training. There is an undeniable psychological influence in the nicely proportioned, low-lying structures and in the general color scheme of gray green painted walls and soft gray roof surfaces. The view looking across the parade ground to the administration building presents a picture of such inspiration as cannot help arousing the best qualities of the men who witness it every day. The gray green barracks stretching to the right and left, the trees standing out in groups among them, the blue of the sky, the long gray roof lines — all compose a foil of harmonious tones for the central dominating note of color — the national emblem flying from its white staff. Everything is of a positive order, there is no dull monotony to cause depression, and it is no undue exaggeration to attribute as much to this fortunate circumstance as to the rigid sanitary regulations of the Navy, the very small percentage of men confined to "sick bay," there being but 11 out of a total 5,000 men at the time of the writer's visit to the camp in the early part of June.



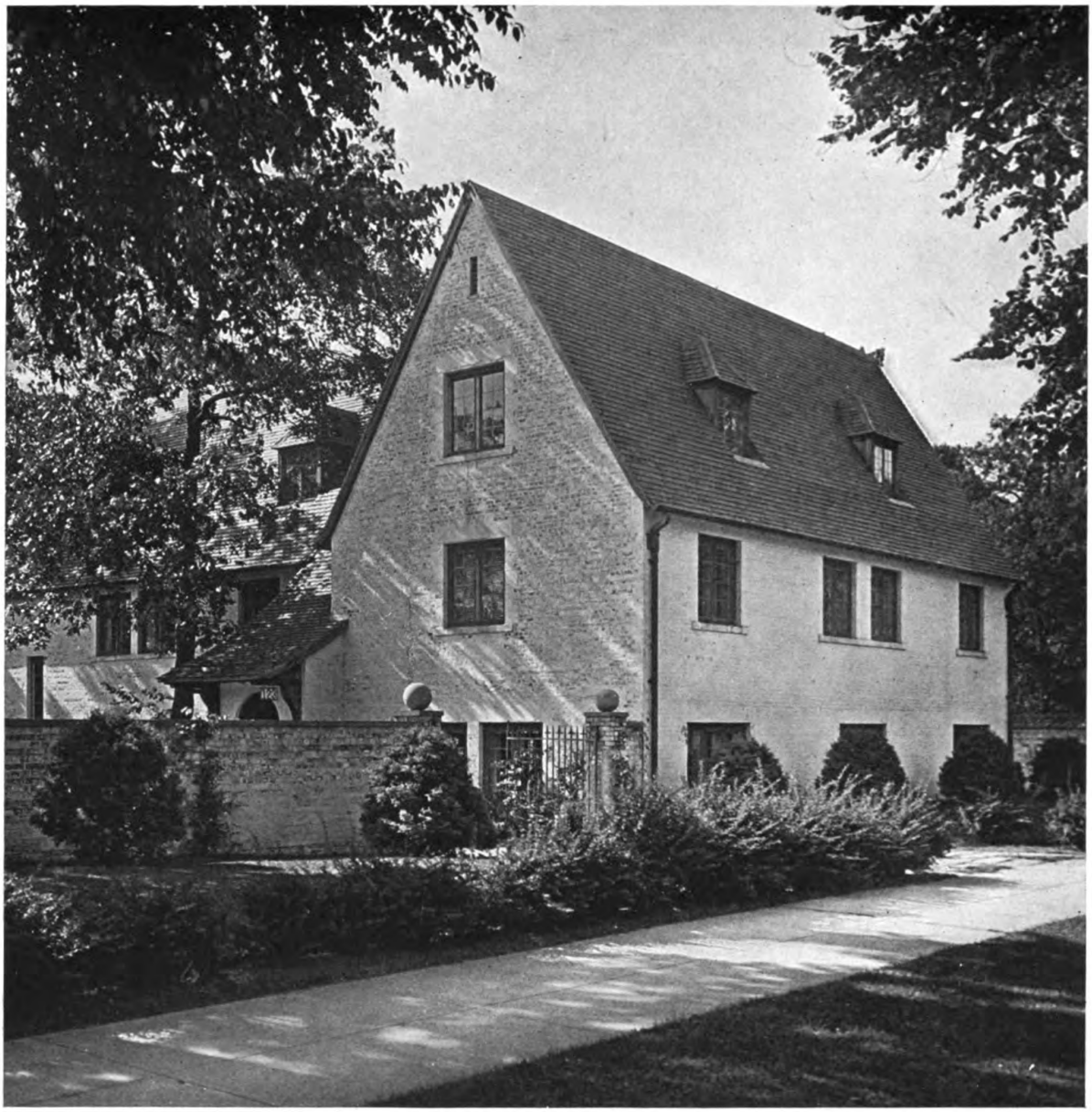
View of Administration Building from Service Road
Ewing & Allen, Architects



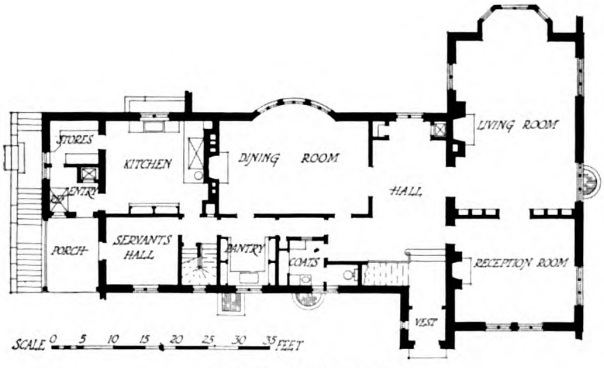
DETAIL FROM ENTRANCE FORECOURT

HOUSE OF MISS E. R. HOOKER, NEW HAVEN, CONN.

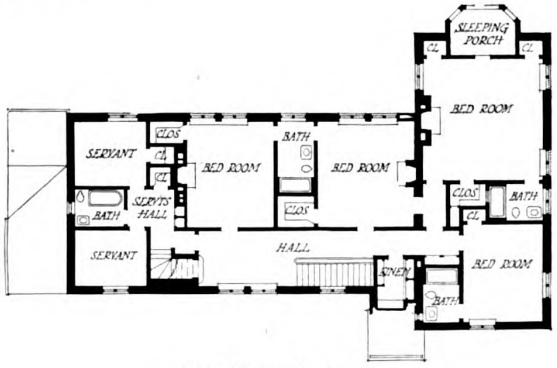
DELANO & ALDRICH, ARCHITECTS



GENERAL VIEW FROM STREET



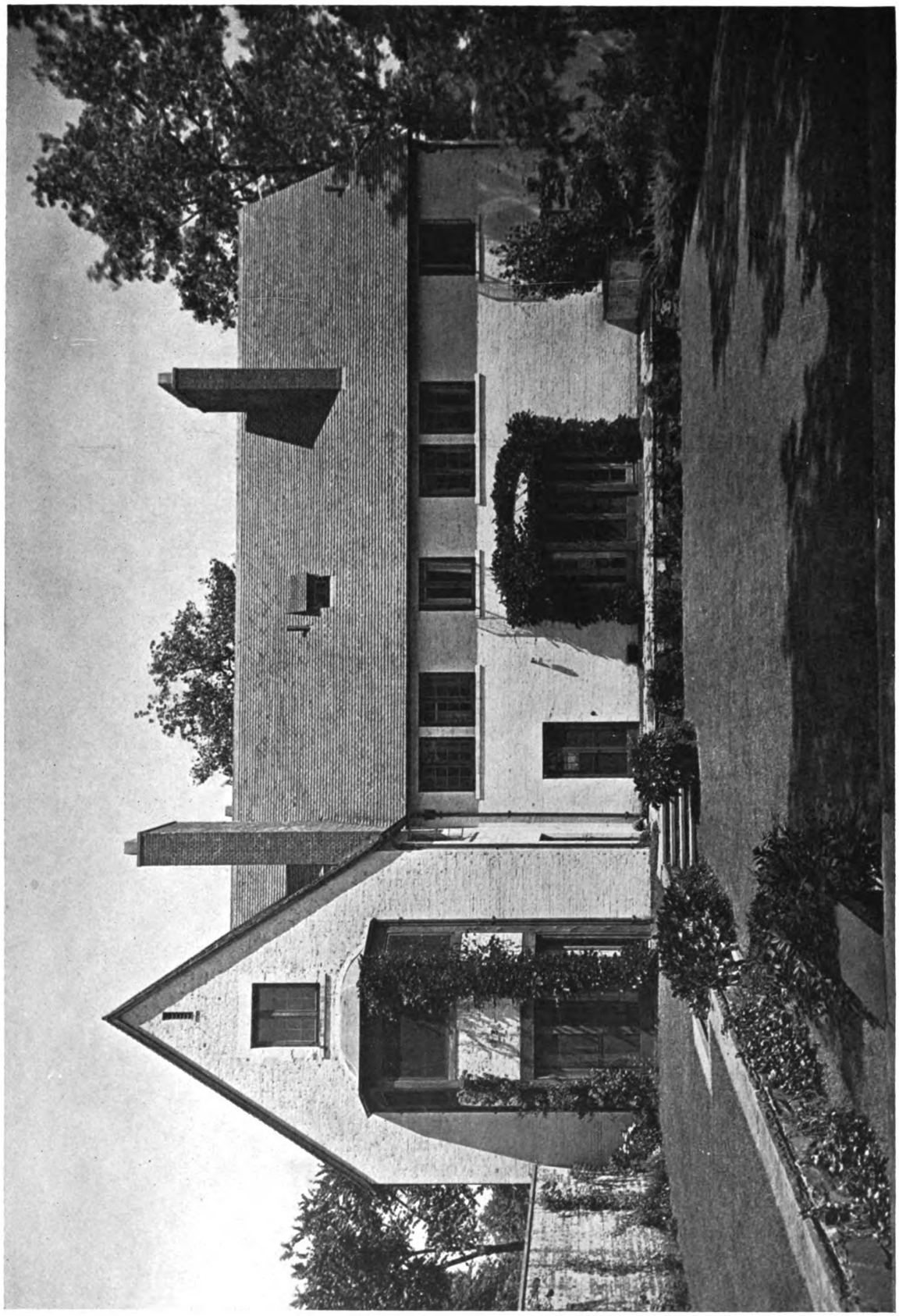
FIRST FLOOR PLAN



SECOND FLOOR PLAN

HOUSE OF MISS E. R. HOOKER, NEW HAVEN, CONN.

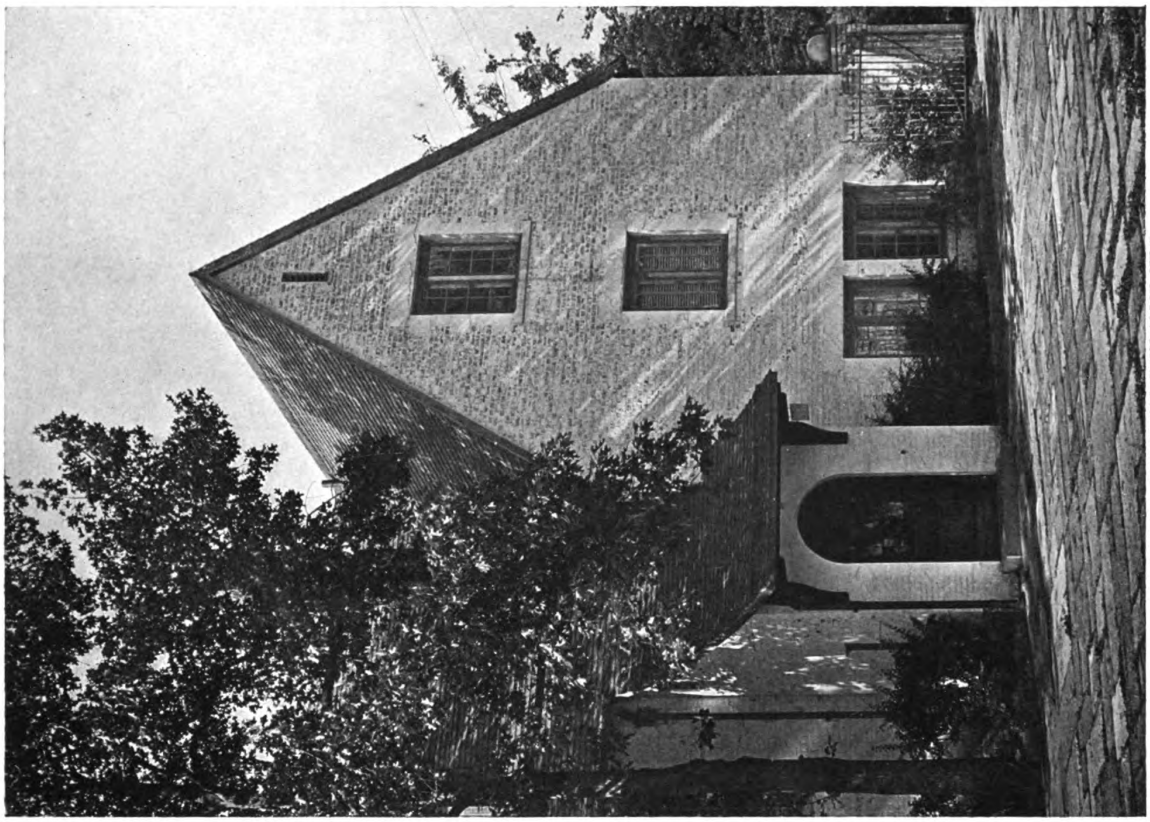
DELANO & ALDRICH, ARCHITECTS



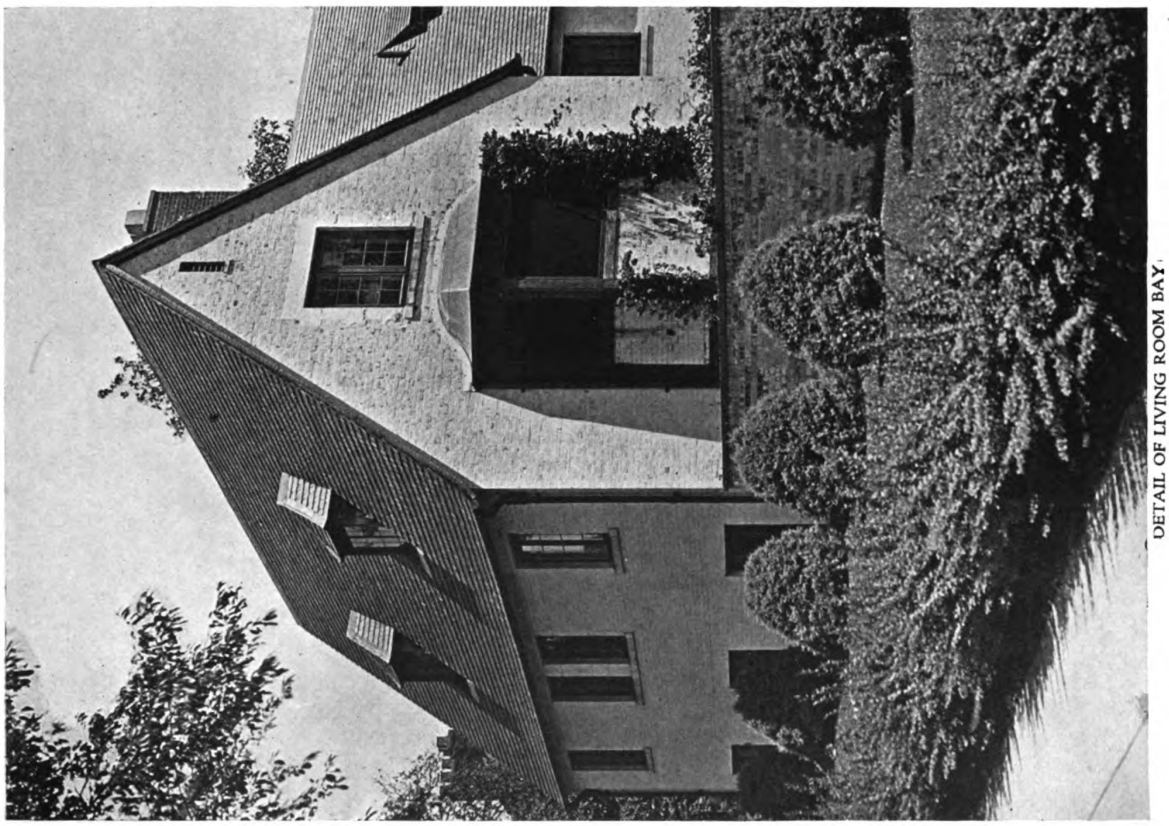
GENERAL VIEW OF GARDEN FRONT

HOUSE OF MISS E. R. HOOKER, NEW HAVEN, CONN.

DELANO & ALDRICH, ARCHITECTS



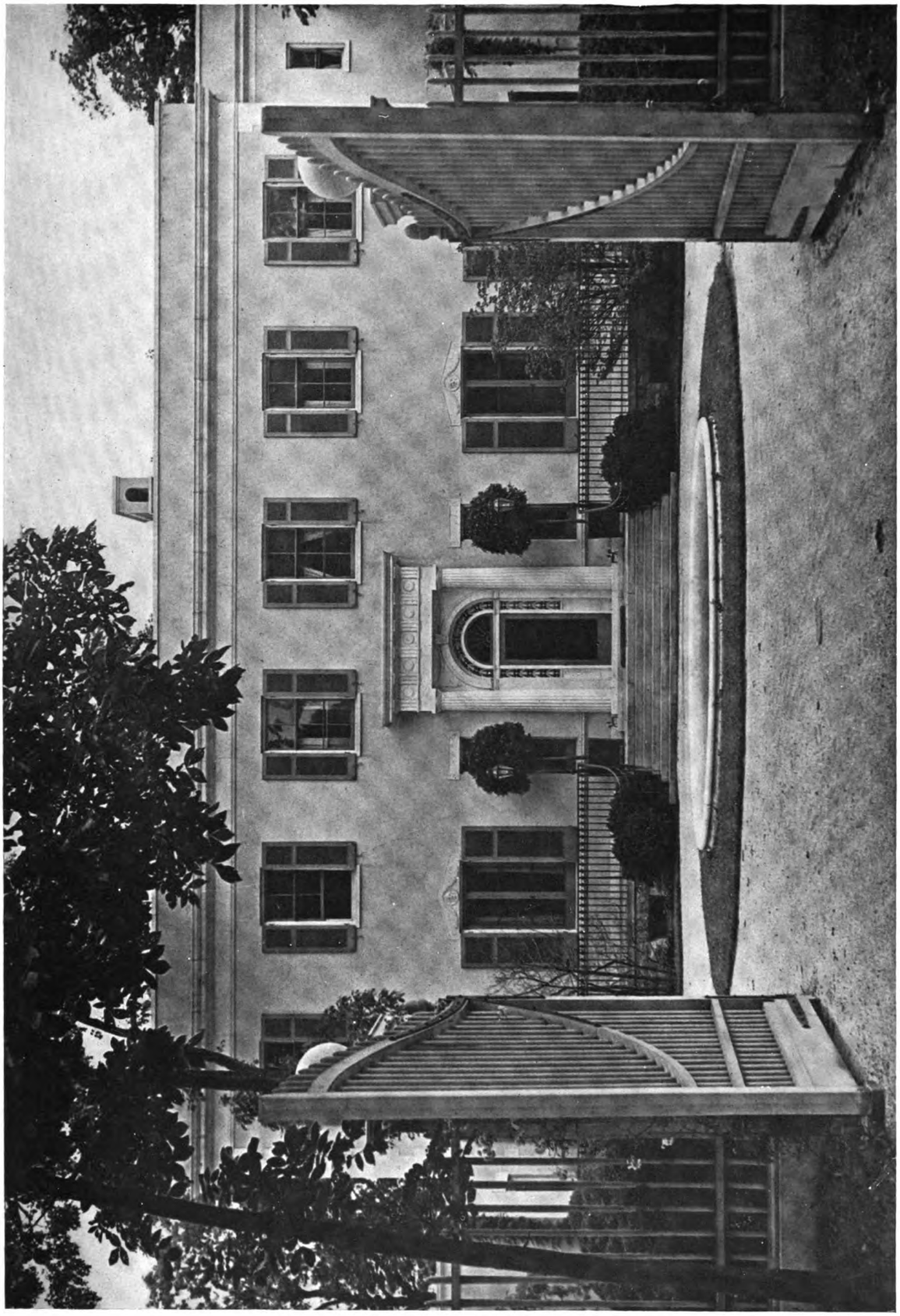
DETAIL OF GABLE ON ENTRANCE SIDE



DETAIL OF LIVING ROOM BAY

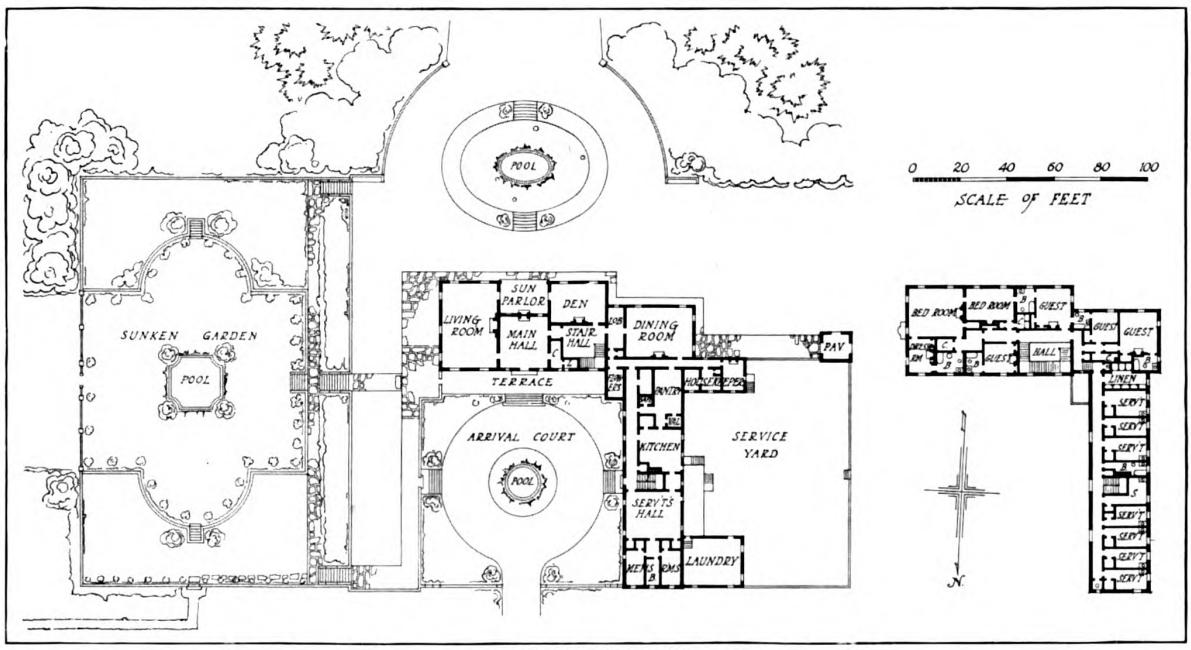
HOUSE OF MISS E. R. HOOKER, NEW HAVEN, CONN.

DELANO & ALDRICH, ARCHITECTS



HOUSE OF VICTOR MORAWETZ, ESQ., WOODBURY, LONG ISLAND, N. Y.
DELANO & ALDRICH, ARCHITECTS

VIEW FROM THE GARDEN



FIRST AND SECOND FLOOR PLANS

HOUSE OF VICTOR MORAWETZ, ESQ., WOODBURY, LONG ISLAND, N. Y.

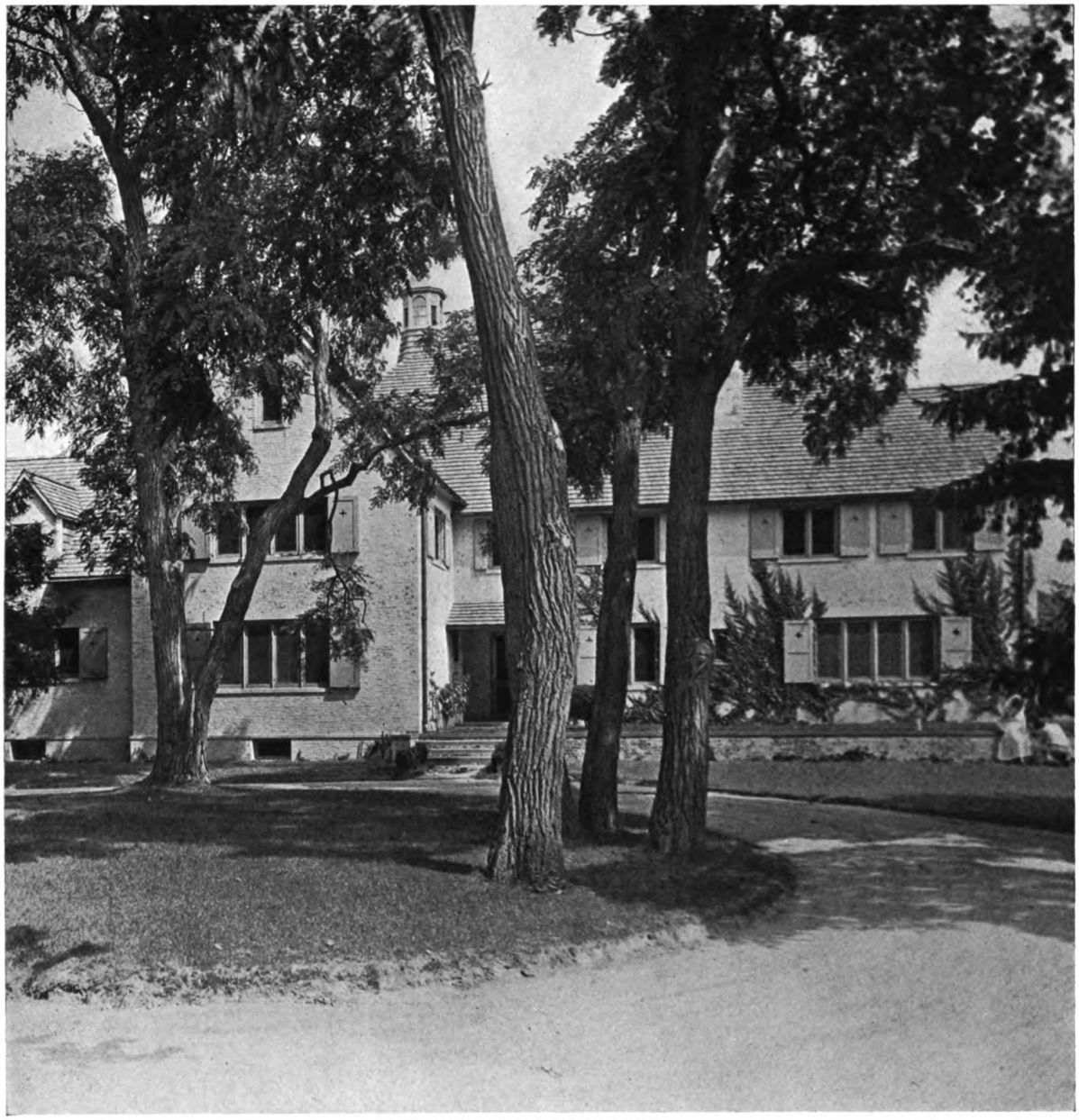
DELANO & ALDRICH, ARCHITECTS

VIEW FROM THE SUNKEN GARDEN

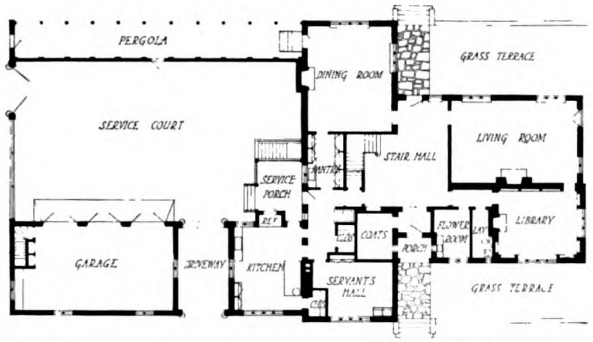
ENTRANCE TO GARDEN FROM ARRIVAL COURT

HOUSE OF VICTOR MORAWETZ, ESQ., WOODBURY, LONG ISLAND, N. Y.

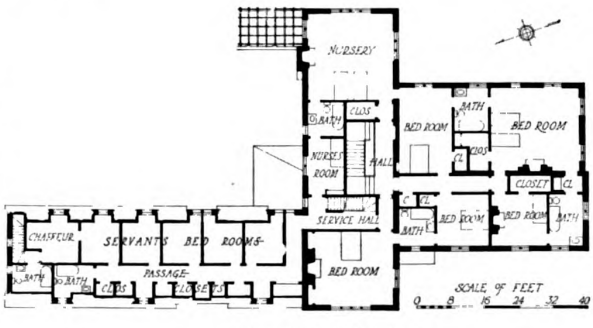
DELANO & ALDRICH, ARCHITECTS



VIEW OF ENTRANCE SIDE



FIRST FLOOR PLAN

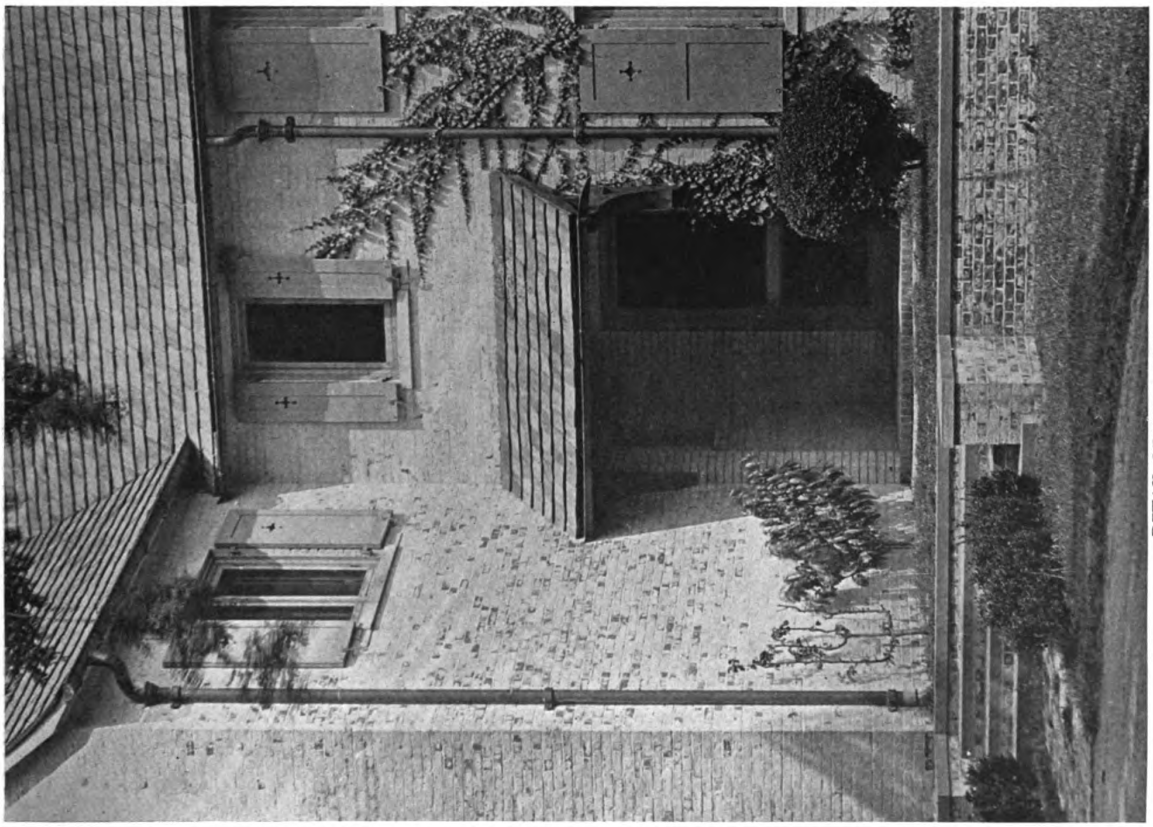


SECOND FLOOR PLAN

HOUSE OF MALCOLM McBURNEY, ESQ., EAST ISLIP, LONG ISLAND, N. Y.

DELANO & ALDRICH, ARCHITECTS

DETAIL OF DINING ROOM GABLE



DETAIL OF ENTRANCE.

HOUSE OF MALCOLM McBURNEY, ESQ., EAST ISLIP, LONG ISLAND, N. Y.

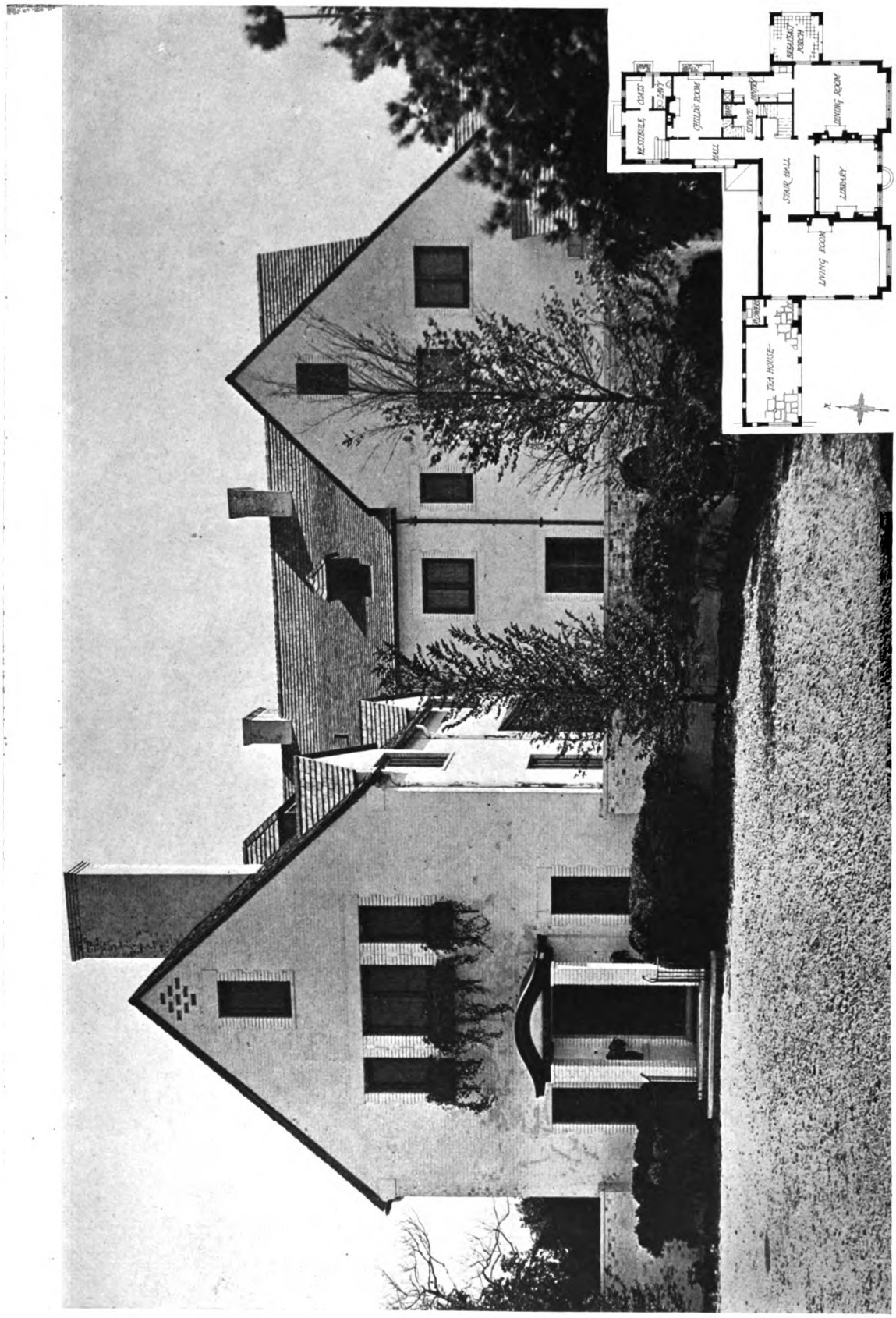
DELANO & ALDRICH, ARCHITECTS

VIEW FROM THE WEST

FIRST FLOOR STAIR HALL

HOUSE OF MALCOLM McBURNEY, ESQ., EAST ISLIP, LONG ISLAND, N. Y.

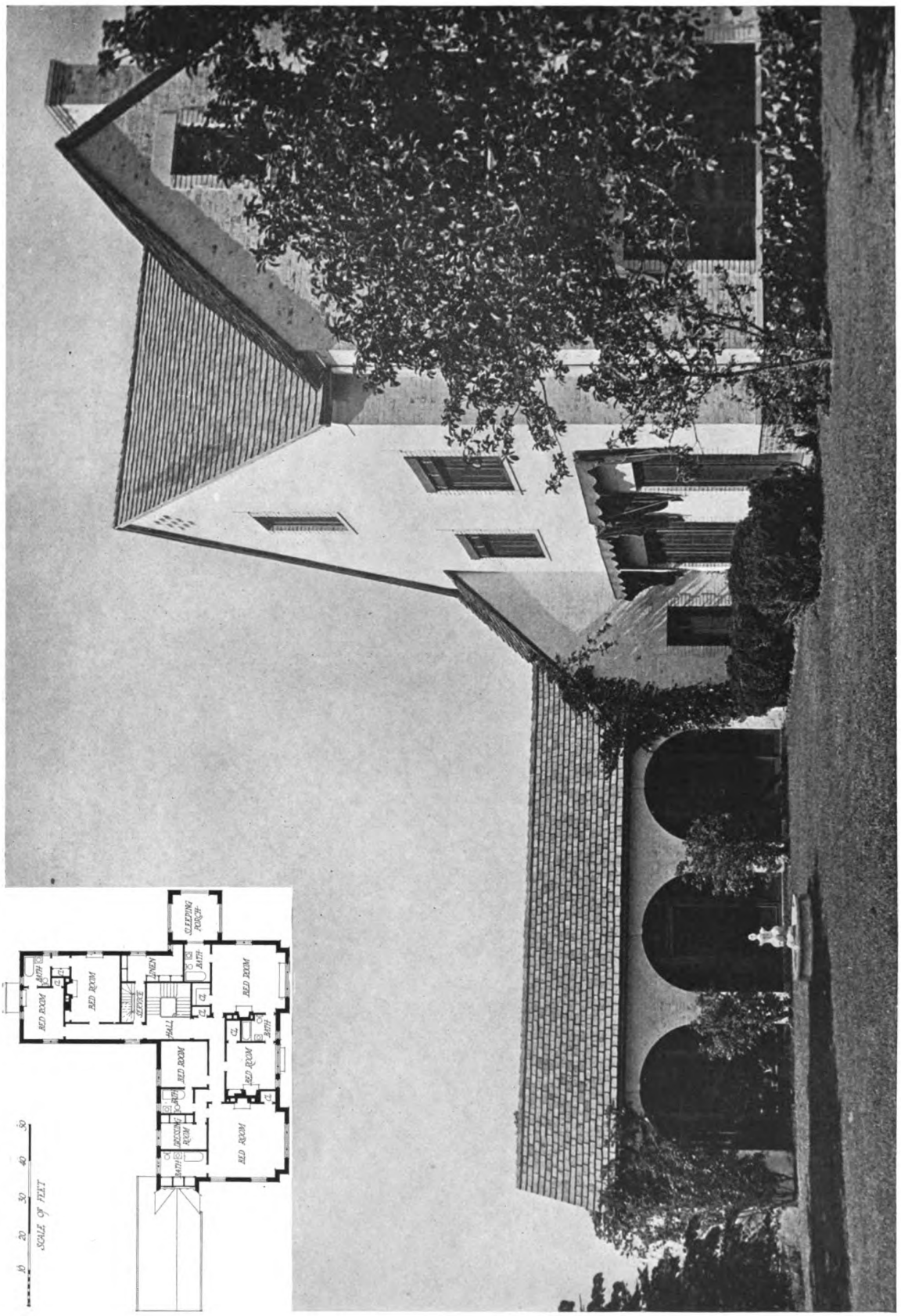
DELANO & ALDRICH, ARCHITECTS



GENERAL VIEW FROM THE FORECOURT

HOUSE OF GEORGE WHITNEY, ESQ., WESTBURY, LONG ISLAND, N. Y.

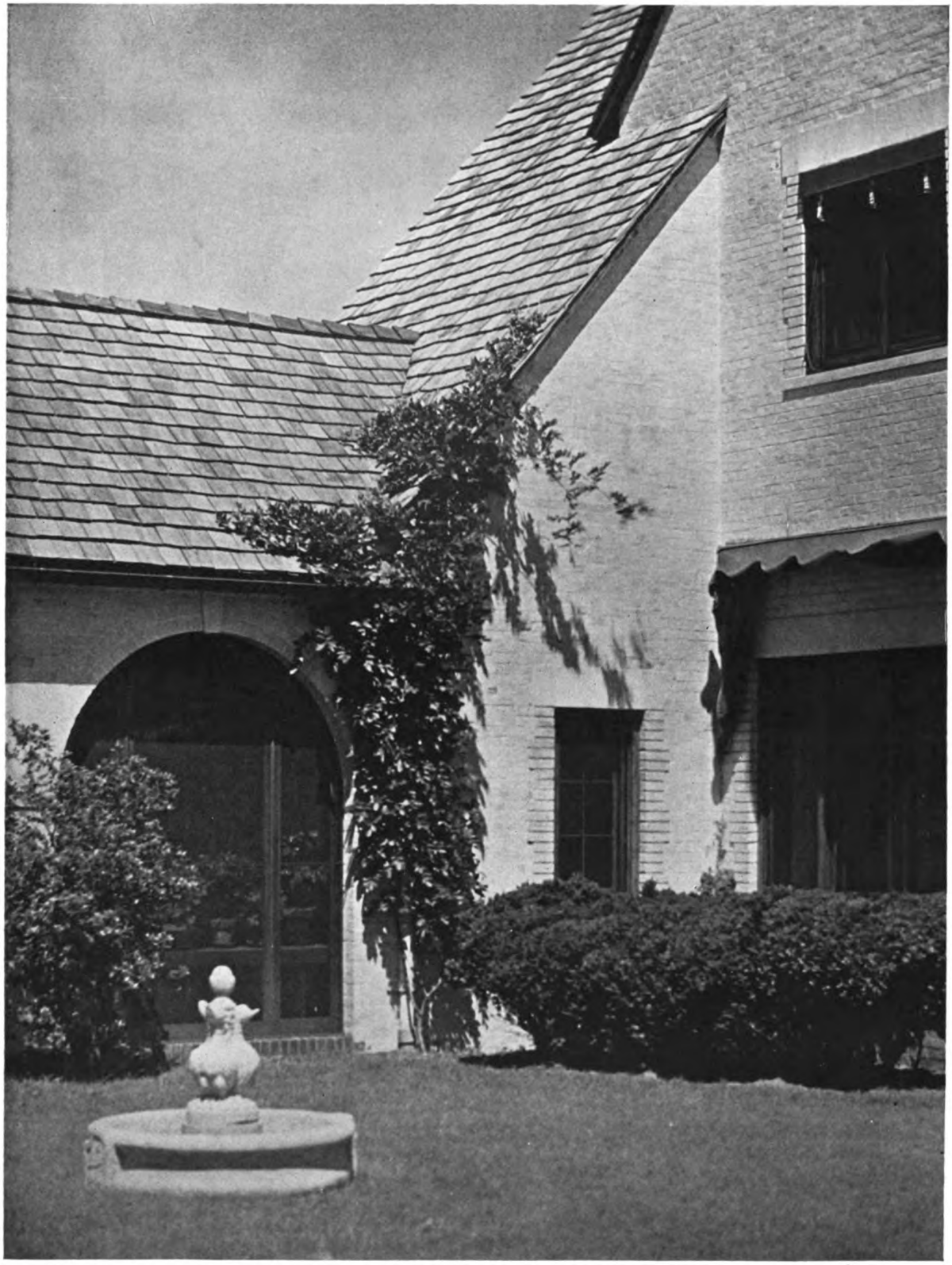
DELANO & ALDRICH, ARCHITECTS



VIEW FROM THE GARDEN

HOUSE OF GEORGE WHITNEY, ESQ., WESTBURY, LONG ISLAND, N. Y.

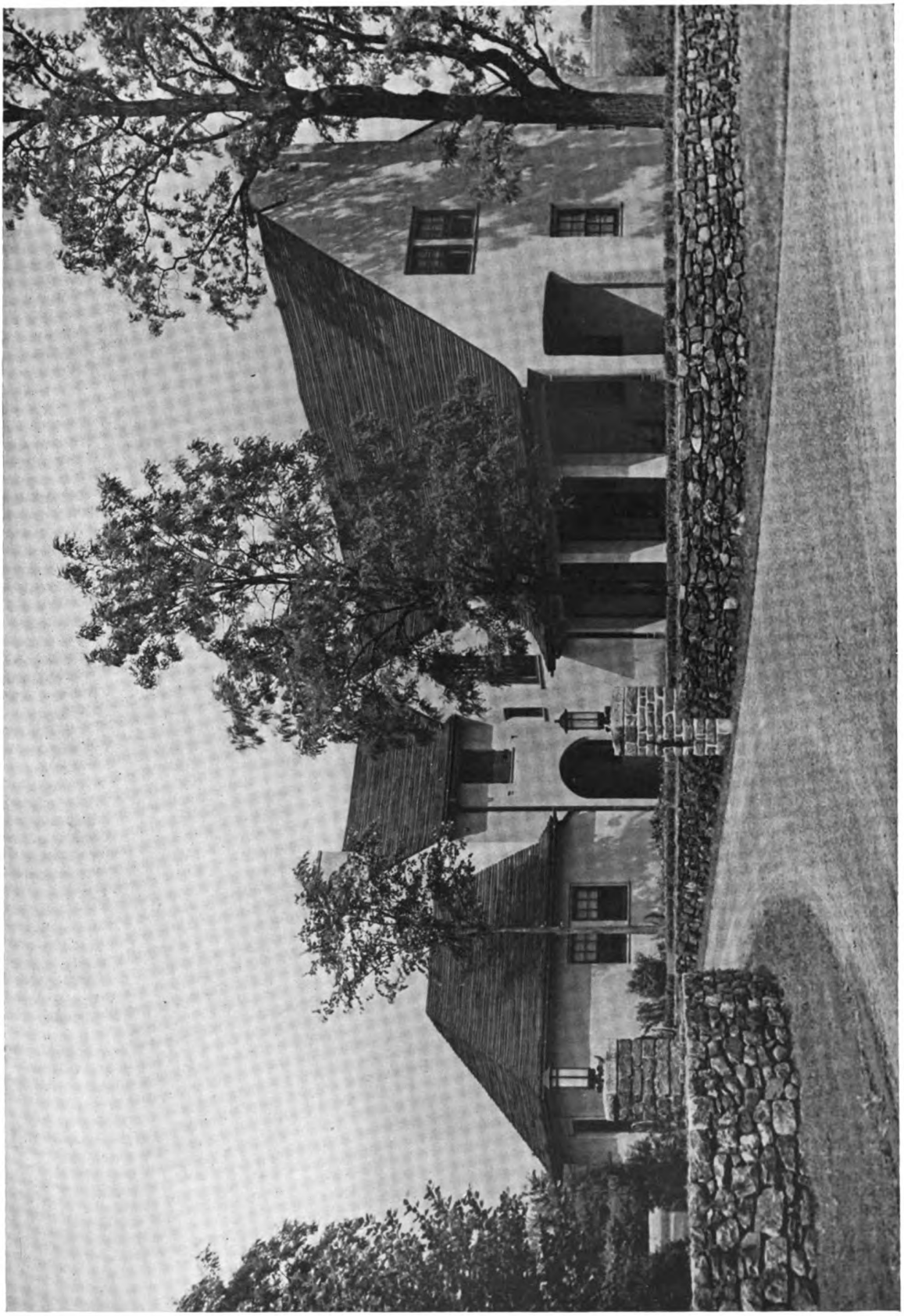
DELANO & ALDRICH, ARCHITECTS



DETAIL OF TEA HOUSE

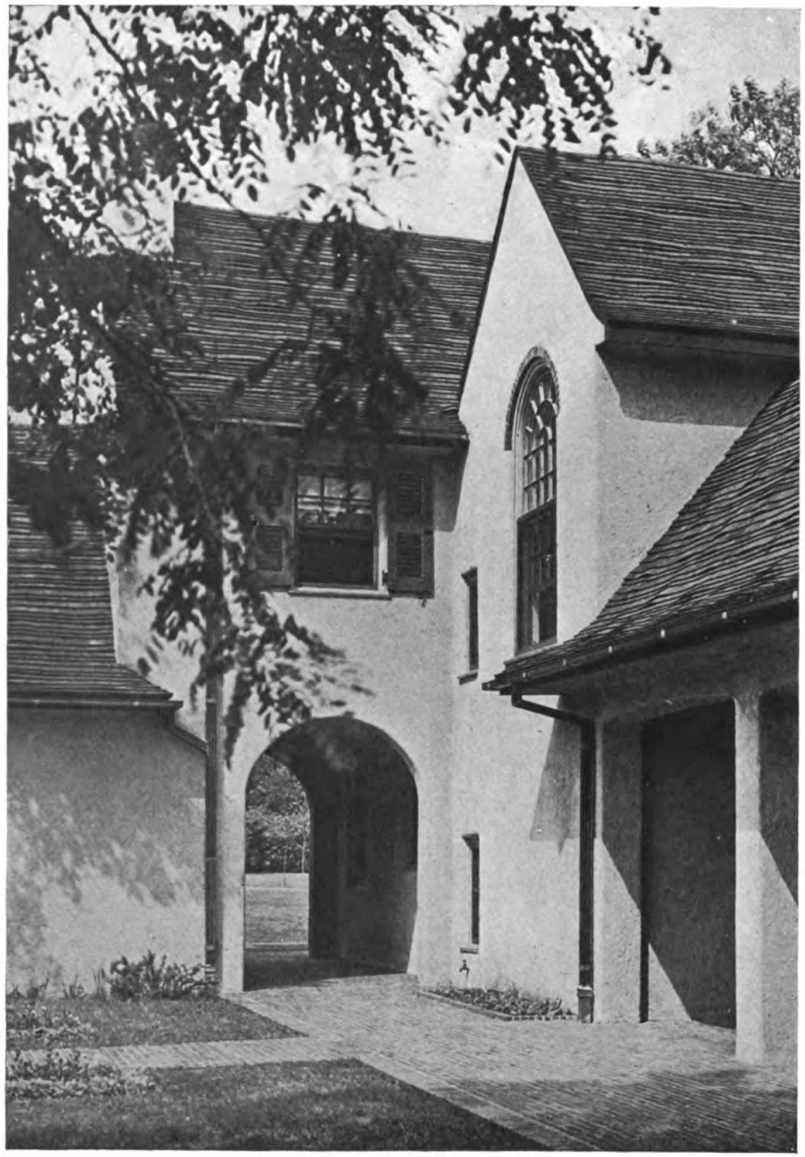
HOUSE OF GEORGE WHITNEY, ESQ., WESTBURY, LONG ISLAND, N. Y.

DELANO & ALDRICH, ARCHITECTS

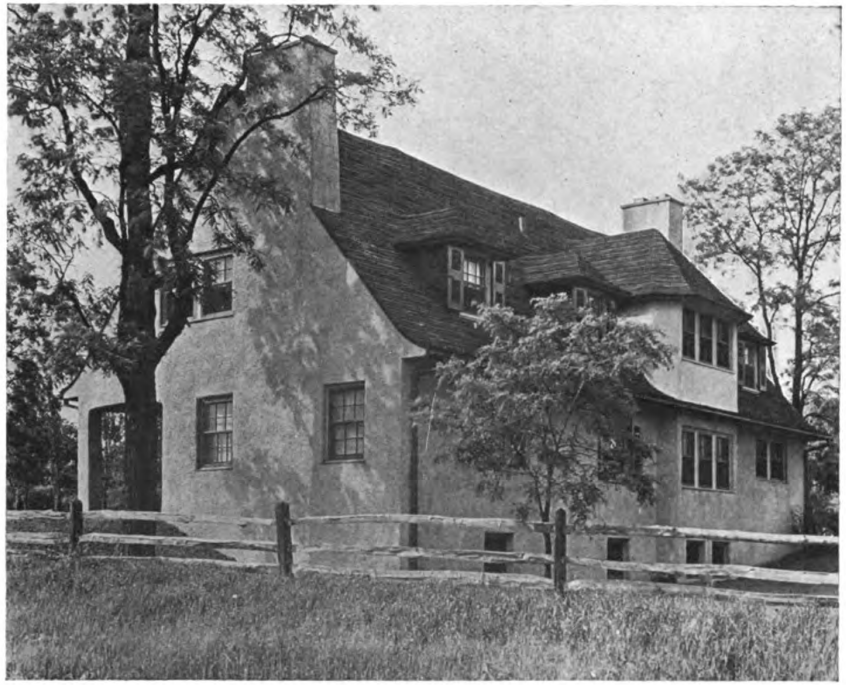


SUPERINTENDENT'S COTTAGE, ESTATE OF FRANKLIN MURPHY, ESQ., MENDHAM, N. J

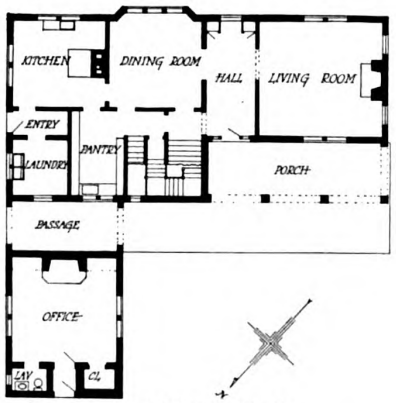
H. VAN BUREN MAGONIGLE, ARCHITECT



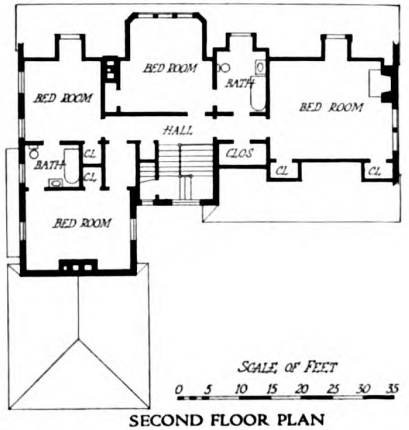
DETAIL OF ENTRANCE COURT



VIEW OF SOUTHEAST SIDE



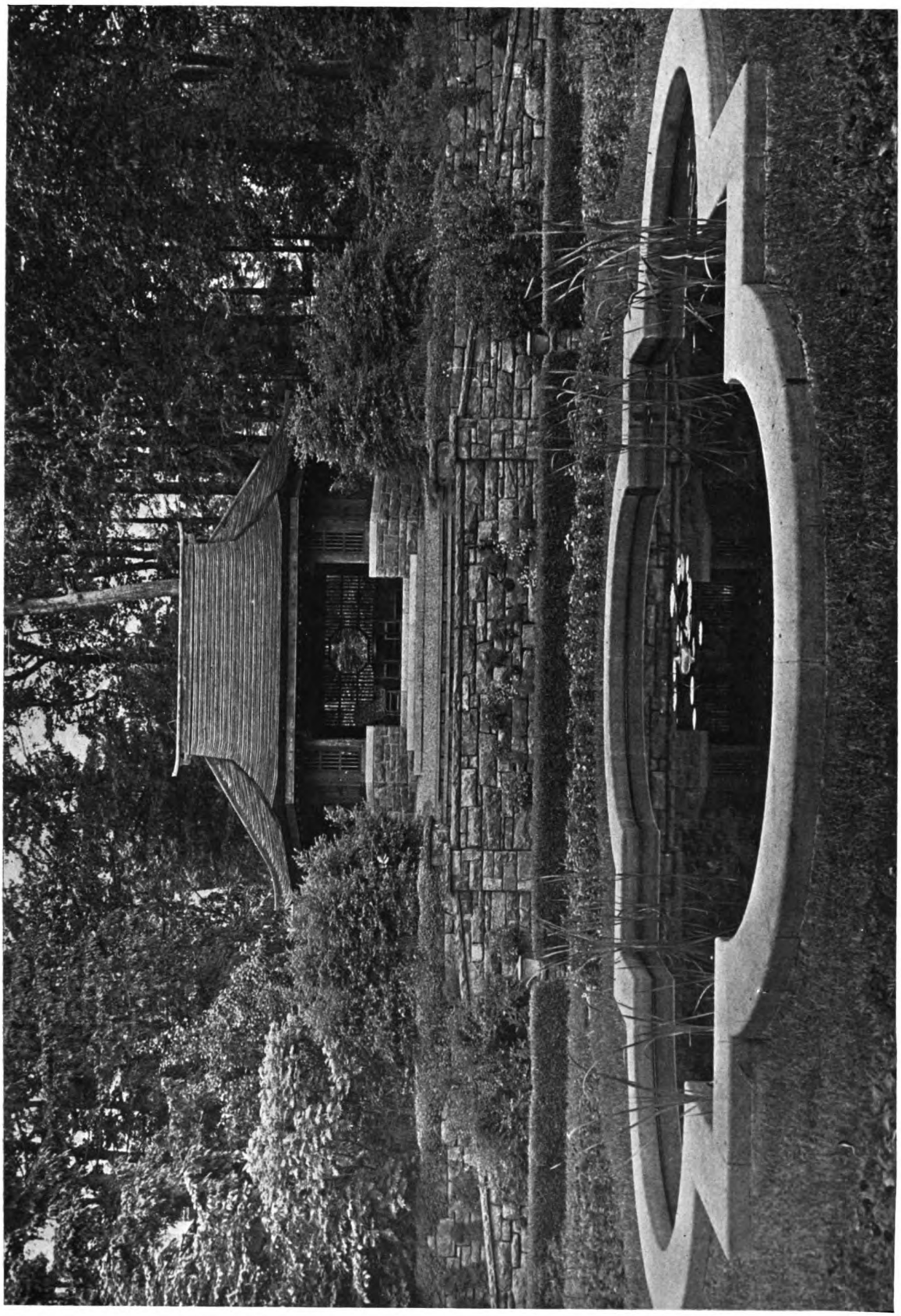
FIRST FLOOR PLAN



SECOND FLOOR PLAN

SUPERINTENDENT'S COTTAGE, ESTATE OF FRANKLIN MURPHY, ESQ., MENDHAM, N. J.

H. VAN BUREN MAGONIGLE, ARCHITECT



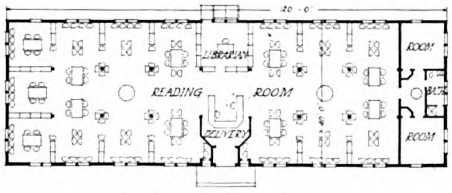
TEA HOUSE, ESTATE OF FRANKLIN MURPHY, ESQ., MENDHAM, N.J.
H. VAN BUREN MAGONIGLE, ARCHITECT

The Army Libraries and Liberty Theaters

By ALFRED MORTON GITHENS

IN the camps and cantonments the War Department confines itself to housing, clothing and feeding the men, and to their military training. For this it constructs quarters and barracks, mess-halls and kitchens, headquarters, quartermaster storehouses, etc. Less elementary needs are met by private donations, and in order to correlate and control such various gifts to the nation, and to advise and aid the several committees in charge of them, the Secretary of War formed a Commission on Training Camp Activities, made up of non-military men, whose duty it is to keep in close touch with the Army and with the thirty-two or more camps and cantonments. The board is composed of nine members, with Mr. Raymond B. Fosdick as chairman. Under its general direction are the military branches of the Y. M. C. A., the Knights of Columbus, the Liberty Theaters, the Camp Libraries, Jewish Welfare Board, and many other sub-organizations, each with its own management, each providing its own funds, and each erecting its own buildings.

Interior of Library at Camp Devens, Mass.



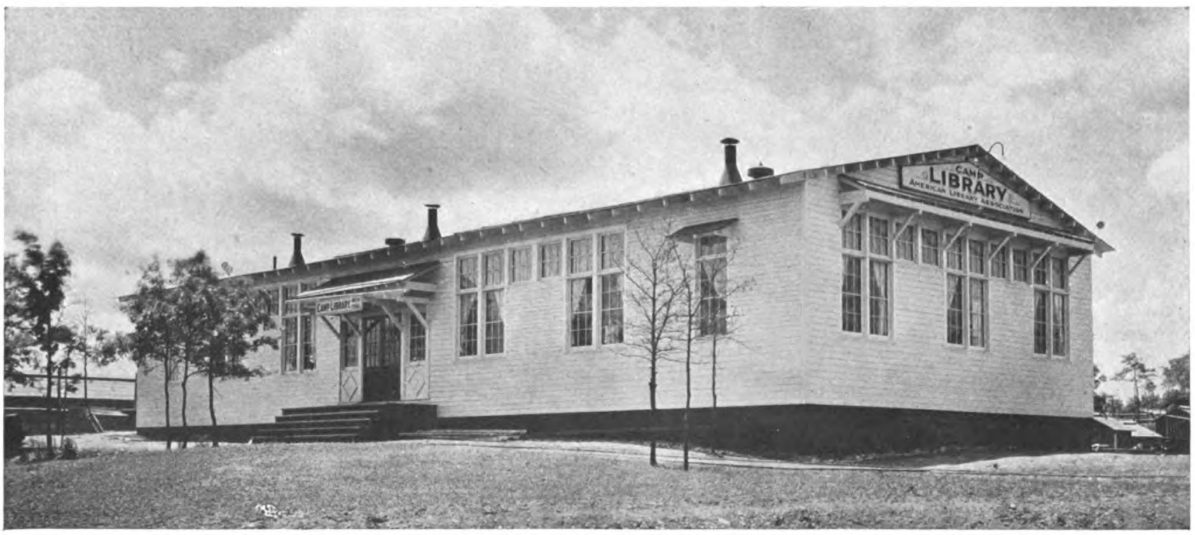
Floor Plan of Typical Library

The Commission requested the American Library Association at its general convention at Louisville, Ky., a year ago, to furnish libraries and books for the soldiers, and the meeting asked Mr. Edward L. Tilton of New York to act as architect for the buildings as his contribution to the war work.

As an architectural problem, there were three requirements :

First. A suitable space was to be enclosed with the least possible expense, and this Mr. Tilton accomplished by following the construction of the other cantonment buildings, making only such modifications as were needed to correct defects.

Second. The building was to conform to the type generally acknowledged as best for the small library



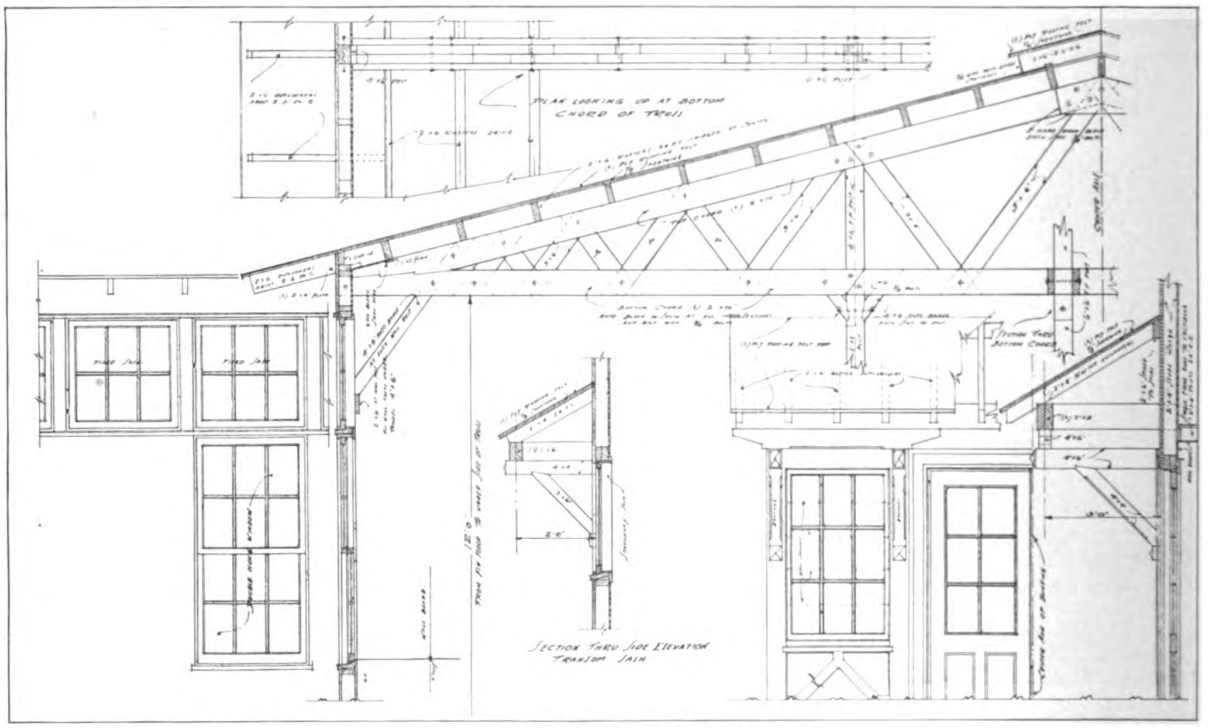
Exterior of Library at Camp Devens, Mass.
Edward L. Tilton, Architect

Interior of Library at Camp Grant, Ill.

which is operated under one general supervision.

Third. Was the self-imposed task of designing a building that would look as well as it was possible to make it without violating the first and second requirements.

The general outline of the structure was fixed and could not be modified, and perhaps the finished building is all the better for it, since it harmonizes with the barracks around it, having the same slope and color of roofs, similar cornice detail and projection, and the same general scale of parts. One thing the architect could do was to group the win-



Details of Library Roof Trusses and Entrance

dows so they composed; another was to elaborate the doorway-shelter, for cost was not quite so restricted as in the War Department's buildings. He was able to paint the libraries outside, — an obvious advantage, — for the siding available was of the common grade of North Carolina pine and turned dirty in weathering, with black smears and streaks. In this again the libraries tone in with the other buildings, as the paint selected was of a pale tan color not altogether different from the better portions of the natural wood. About the doorways and cornices, however, he was free to use vivid colors, and a palette was selected suggestive of the early Greek and other primitive polychrome decoration; first, a darker tan than the walls, or a "stone color," as the material men call it, similar to the light grayish brown called "buff" in the uniforms of George Washington's army; next, pure black; lastly, the strong red iron oxide, called, technically, "Venetian red." The red was used on the window sash, and red or black interspersed at the ends of cornice rafters; the posts, beams, and outlookers at the entrance doors were painted red, buff, and black — a small but vivid mass of strong color, bold and effective.

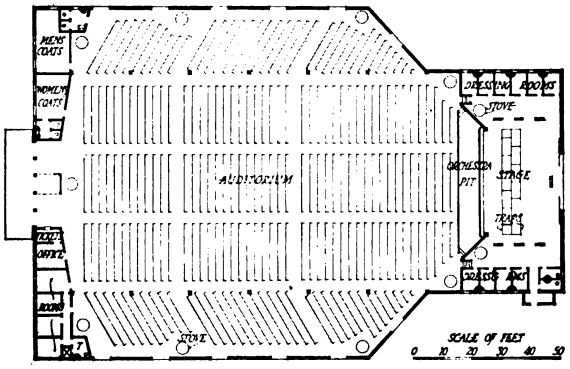
The libraries consist in the main of a single room surrounded by windows, with two rows of square posts the entire length. The delivery desk is in the center and every one must pass close to it, entering by the right and leaving by the left, all under control of a single librarian or his assistant; an office is behind the desk, separated from the readers' space by low bookcases. There are thus two groups of readers, — one to the right and one to the left, with the books on accessible shelving around the walls or in short projecting cases. The disposition of the several classes of books is left to the individual librarians. They, with their assistants, sleep in the buildings; their quarters are at one end.

The type-plan is modified in several cases, depending on climatic conditions, the local cost of construction, or special requirements. At Camp Devens the plan is T-shaped with space for three groups of readers instead of two; at Camp Upton there is an ingle and open fireplace at one end; in several Southwestern camps there are pergolas or covered porches along the front.

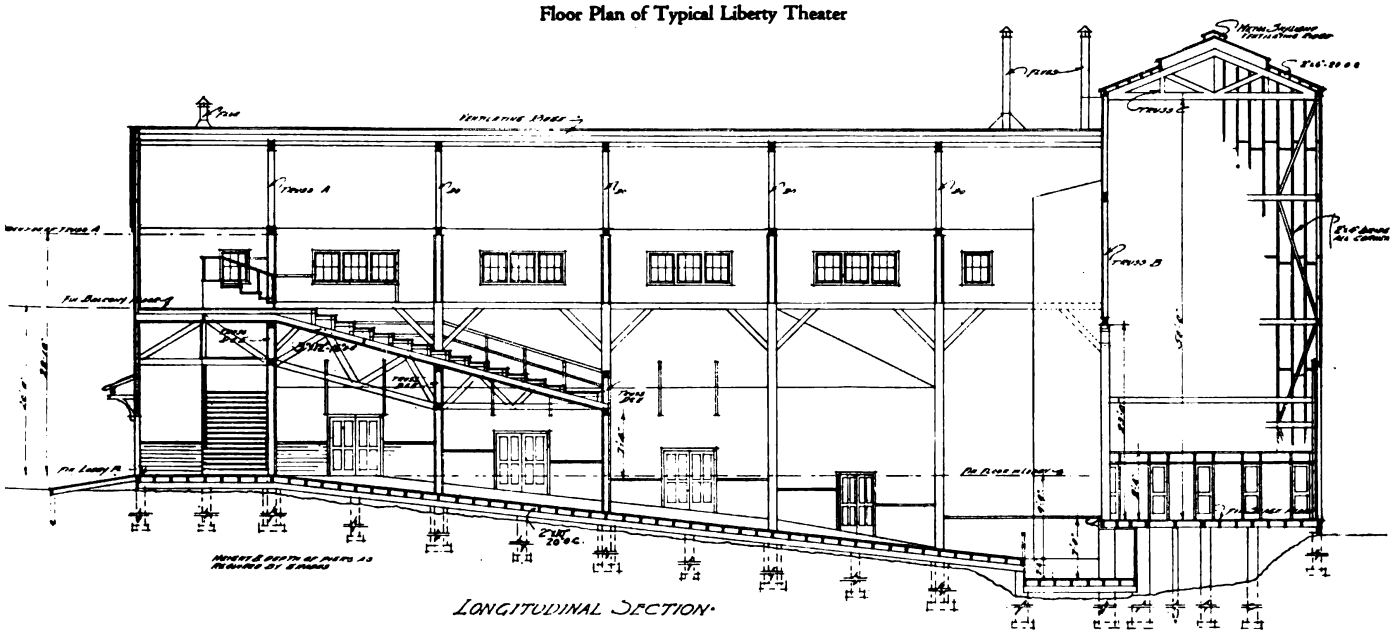
In general, the walls are wainscoted on the inside with smoothed sheathing to window-sill height and pulp board above, which in the Northern buildings continues as a ceiling against the rafters to insulate from the cold. In winter the ridge-ventilators are closed by boards nailed on the outside.

The heating is by large, regulation, upright stoves, except in one or two cases, where steam heat is used, but this is too expensive for general adoption.

THE LIBERTY THEATERS. The libraries had proved so successful that the



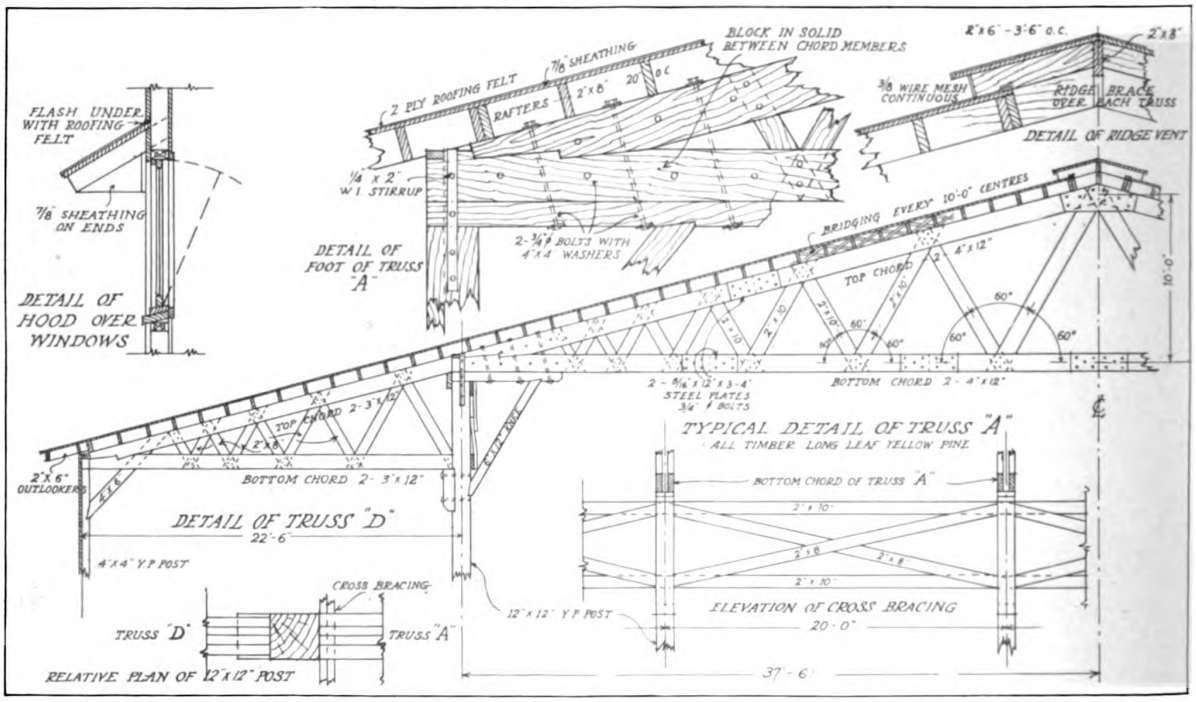
Floor Plan of Typical Liberty Theater



Section through Liberty Theater at Camp Merritt, N. J., Showing Balcony and Fitting of Auditorium Floor to Natural Slope of Site

Exterior of Liberty Theater at Camp Devens, Mass.

Commission on Training Camp Activities asked a further contribution of Mr. Tilton's services. Theaters were to be constructed in all the camps to house the small plays, vaudeville, and concerts, in which many of the best actors and singers were to appear as their contribution to the war work. Again the problem was to enclose the greatest space at the least possible cost, with the least possible obstruction to sight and sound. A rather elaborate though not a large stage was needed, with space for drop-curtains, flys, dressing rooms, and other paraphernalia. Considerable strength was necessary, and this brought out an amusing difference of opinion among the constructing quartermasters and their engineers. Mr. Tilton adopted the unit strengths and live loads allowed by the New York Building Code for his basis of calculation; yet there were several protests from the quartermasters — some that construction was unnecessarily heavy, and others that it was too light. In one morning's mail he received two letters from camps in different parts of the country, the first requesting that the



Typical Details of Roof Trusses in Liberty Theaters
Edward L. Tilton, Architect

main tier of floor beams be made heavier as the floor was unsafe, the other that the same tier in identically the same plan be made lighter as it was wasteful!

With one exception the theaters are without gallery and seat 2,700 persons. They are 170 feet long from entrance doors to drop curtain. Acoustically, they have proved excellent. Echoes are broken by the roof trusses and braces, and the wooden construction assures a resonance that carries the voice clearly to portions most remote.

There is no attempt at decoration, either inside or out. The siding and door-shelters are unpainted. Inside, the posts are smoothed, but braces, roof-construction, and the under side of roof sheathings are left rough. Heating is accomplished by the usual cantonment type of stoves with the long stove pipes left exposed for radiation; in some cases steam plants have been installed. Fresh air enters by the windows, and the exhaust is through sheet-iron ventilators in the roof, — a gravity system entirely. The whole building is a purely utilitarian machine, efficient though hardly beautiful.

Cost of Construction. In this connection it might be interesting to outline briefly the financial relations between the War Department and the builders for all cantonment work. The building enterprise was so vast that lump-sum contracts were impracticable; no builder could tell what he would have to pay for lumber, or when he could get it, the drain on the yards was so great. Without some sort of Government control, wages might rise unreasonably. Estimates would necessarily have been high enough to protect the contractors against unforeseen advances; but if the advances exceeded even such an allowance it would mean failure of the contractor and a consequent expense and delay, or a reletting of the balance of the contract, possibly necessitating the paying for much of the work a second time; but if, on the other hand, the unforeseen advances did not materialize, the profits of the contractors would have been enormous. In other words, it would have been a gamble for the contractors, entailing either liquidation or excessive profits, and the Government would lose either way.

So the work was done on cost plus percentage, with various unit prices and safeguards. The War Department selected the contractors and prepared and furnished the plans.

Material was to be bought in the open market at the lowest prices obtainable, but each bill had to be approved as reasonable by the constructing quartermaster of the camp in question.

The wage-scale for all trades and labor was to correspond to the Union rates prevailing just before the outbreak of the war, with double time paid for Saturday afternoon, Sunday, or overtime work. A week's work, therefore, consisted of 44 hours at full time, with each hour over at double time. Many of the carpenters worked 12 hours a day right through the week, or 84 hours, and their rate (near New York, at least) being about 70 cents per hour, this meant $30.80 for the first 44 hours, and $56.00 for the remainder, amounting to a total of $86.80 for a week's work. According to the rules laid down, it was fairly earned. The tales of the Government being robbed were not justified if the regular Union wage scale be accepted as proper.

There were to be thirty-three libraries. The donor of one desired to remain anonymous, the others were to be built from a gift of $320,000 contributed by the Carnegie Trust Fund. They accordingly averaged $10,000, but that at Camp Gordon in Georgia cost only $5,809, while that at Camp Lee in Virginia cost $9,531; yet they were both of the longer 120-foot type and of exactly the same design. The theaters similarly ranged in cost from $27,000 to $42,000.

Such a variation in price shows the futility of attempting to tell the cost of a building before estimates are received, for here is a variation of over 50 per cent on exactly the same plans and details. The much ridiculed, cubic foot price seems as accurate a forecast as it is worthwhile to make. Computing this and starting from a base 2 feet below the floor levels, the libraries varied from 6¼ cents to 10¼ cents, and the theaters from 5 to 7¼ cents.

Y. M. C. A. Quarters for American Officers in London

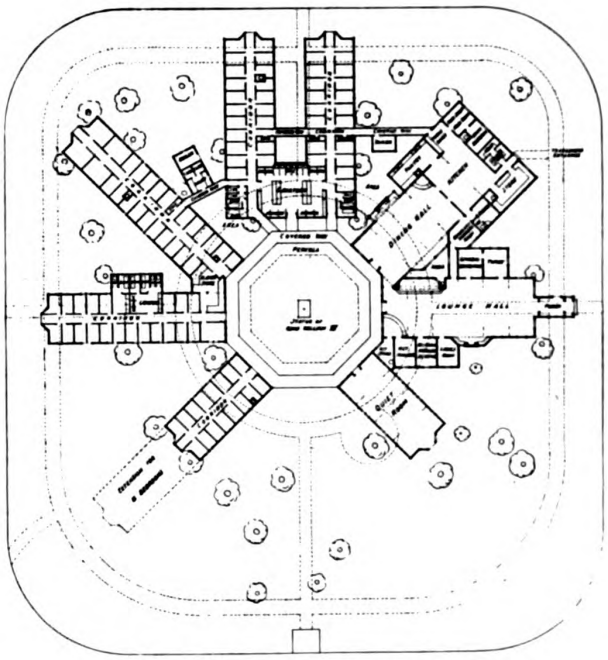
S. PHILLIP DALES, ARCHITECT

AMERICAN officers who arrive in London after a few months will find themselves able to be quartered in the heart of the fashionable club district. The American Y. M. C. A. has in process of erection commodious huts for American officers in St. James' Square. For many years a number of London's most exclusive clubs have been situated in this square, and many of the nobility have for a long time maintained imposing town residences there.

In order to gain permission to have the officers' huts erected there, the American Y. M. C. A. had to comply with certain wishes of the residents of the square. One was that no trees should be cut down or harmed. Another was that no flues be allowed, nor smoke of any kind. Nothing daunted by these stipulations, the committee in charge of the huts said they would comply with these demands and proceeded with the plans.

The architect, S. Phillip Dales, has shown great ingenuity in arranging the huts to avoid the numerous trees. Only in one or two instances did he find it necessary to have a tree project through the building, and even here his plans were arranged so that the tree "grew up" very near to the wall. In such cases an open space has been left about the tree with a cement wall enclosing it. Water pipes have been inserted within this space so that the tree will be well watered and aired at all times.

The huts are arranged in an original manner as shown in the plan, spreading out in eight different wings from a circle, in the center of which is a statue of King William III which was erected in St. James' Square some time ago. The statue will serve as the feature of a central garden which will be planted in the Dutch style.



Floor Plan of American Officers' Club, London, England

The style of architecture is Elizabethan. The architect had two reasons for his choice of style. One was the very practical reason that this type of architecture fitted in best with the available building material at the present time. The walls are brick. The roof is covered with diagonally laid gray asbestos cement tiles. There are many timbered gables in evidence and the chimneys are of the well known diagonal type, giving an essentially striking Old English note. But, besides the practical purpose which the Elizabethan style has served, a nice idea has been carried out in that the sons of the descendants of Old England who find themselves here can feel surrounded by a modern edition of the architecture which was in vogue when their pioneer forefathers went out to colonize America.

The main entrance of the huts opens on to Charles street, which gives quick access to Haymarket. After entering a small hallway, one proceeds to the large lounging hall, 60 by 30 feet in extent. This has been planned primarily for comfort, and there are many cozy corners and ingle nooks about. On either side of this hall are the offices of the hut manager, department secretary, and the retiring room for the lady workers. The reverse end of the lounging hall gives access to a wide, central veranda. On the quietest corner of the square will be a room for reading, writing, and resting.

In another wing is a large dining hall, kitchen, pantry, and so forth. The remaining wings are for sleeping quarters, where 110 men can be accommodated. All the rooms are single and many shower baths have been planned for.

The illustrations at the bottom of the page show the huts of the English officers in Eaton Square, London, which are similar in exterior treatment to the American huts now under construction.

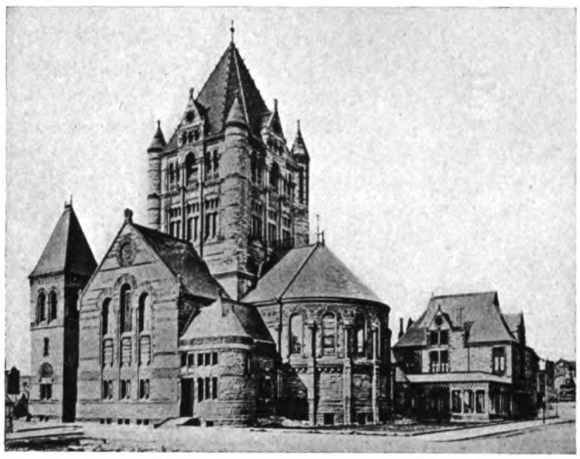
Views of Queen Mary's Club for British Officers, Eaton Square, London. Similar in Design and Arrangement to American Officers' Club in St. James' Square

The Development of American Architecture

III. ECLECTICISM AND FUNCTIONALISM

By FISKE KIMBALL

IN America, where there were so few trained architects or accessible models, the supplanting of traditional knowledge of forms by unrestrained eclecticism had even more disastrous results for the common run of buildings than it had in Europe. The Civil War (1861–65), with the materialism of the resulting era of economic reconstruction, accentuated the difficulty and subjected government architecture to a mechanical system. Nevertheless there was no period of years in which competent and thoughtful men did not seek to uphold the ideals of their art in buildings which worthily represented contemporary movements in Europe. Most notable of this group of men was Richard Morris Hunt (1828–95), the first American to study at the École des Beaux-Arts in Paris, who brought with him to New York in 1855 the rationalistic training of the school and a preference for French Renaissance forms, then dominant under the Second Empire. In the Lenox Library, New York (1870–77), he followed the tendencies of Labrouste; while in the houses for the Vanderbilts in New York and at Biltmore, in the Astor residence, and in "cottages" at Newport he exploited every phase of his favorite style, only adopting a more classical tendency in the last years of his life under the influence of younger men. The older architects of English training, meanwhile, were attempting to establish the supremacy of Victorian Gothic, and in churches, at least, medieval forms were employed as a matter of course.

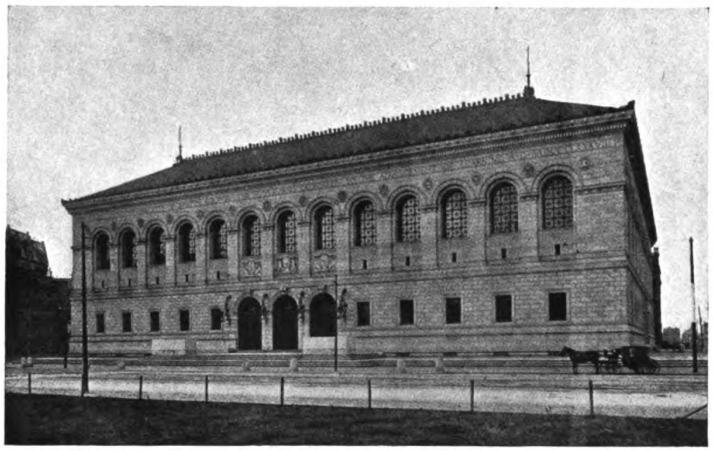


Trinity Church, Boston, 1872–77
H. H. Richardson, Architect

When Henry Hobson Richardson, another American of French academic training, chose the Romanesque style for his accepted project for Trinity Church in Boston (1872), he was influenced primarily by the slight depth of the site, which was unfavorable to a Gothic nave. He clothed the broad cruciform naves and great central tower with a rugged mantle of polychrome sandstone reminiscent of Auvergne and Salamanca. By the time the building was completed in 1877, however, he saw in Romanesque forms a far-reaching adaptability to American needs, which would permit the development of a truly national style. Their simplicity and ruggedness seemed suited alike to materials readily available, to the general limitation of funds, and to the relative lack of skilled carvers. In subsequent buildings, like the Allegheny Court House at Pittsburgh (1884), he expressed freely, with a personal vocabulary of Romanesque elements, the ideal character and practical conditions of a great number of contemporary types, — the town library, the country railroad station, even the vast warehouse. Richardson's mannerisms, however, such as the fondness for towers and for broad, low arches, were more easily acquired by others than his power of picturesque yet logical composition. Thus, after his untimely death in 1886, his style was quickly discredited by imitators, while the abler architects continued their independent development.

Simultaneously with the building of Trinity had come the founding of the Queen Anne movement in England, with its wide program of frankness and colloquialism, and the revelation of foreign arts and crafts to America through the Centennial Exposition in 1876. These inspired many attempts at imitation, and some free and original creations, such as the Casino at Newport, built in 1881 by the firm of McKim, Mead & White. The attention of these men and some others, hitherto attracted by the French Renaissance or the Romanesque, was naturally drawn to the American buildings of the seventeenth and eighteenth centuries, which correspond to the prototypes of the Queen Anne style abroad. Thus began a direct revival of Colonial architecture, in many houses of the eighties, with a richness of delicate detail on the exterior very different, to be sure, from the general simplicity of the old examples.

It was this adaptation of native Renaissance forms which prepared McKim, Mead & White for the adoption of those of the Italian Renaissance. These were employed for the first time by one of their associates, Holden Wells, in the Villard houses in New York (1885), where the arched windows of the Cancelleria furnished the motive. The decisive work,



Boston Public Library, 1888–95
McKim, Mead & White, Architects

however, was the Boston Public Library (1888–95), in which McKim, taking his departure from the Bibliothèque St. Geneviève, gave the scheme the warmer and more robust character of Alberti's San Francesco at Rimini. In the interior each element of the building was sympathetically studied from Italian examples, which showed the structural use of classical elements, and executed with a characteristic treatment of each material and a harmony of decoration hitherto unknown in America. McKim's purism of detail in the library was complemented by the luxurious elaboration of Renaissance ornament by White and Wells in the Century Club and Madison Square Garden in New York (1891). The effect on current practice was electrical. Almost overnight Romanesque and Queen Anne gave way to Renaissance forms, which more nearly approached universal acceptance than those of any style since the Greek revival. There were variants, to be sure, fresh arrivals from the École des Beaux-Arts tended to follow French Renaissance and academic architecture rather than Italian. For domestic houses many preferred more literal imitations of the Georgian buildings of the colonies in the eighteenth century. The Italian tendency received a powerful reinforcement, however, in the work of Charles A. Platt, who introduced the Italian formal garden in America, and has steadily widened the scope of his architectural activity without departing far from his favorite style. It still counts many adherents.

The crucial test between the partisans of a free and modern interpretation of motives chiefly medieval, and the partisans of a strict following of some form of classic architecture, came in the buildings of the Columbian Exposition in Chicago in 1893. The studies of John W. Root, the original consulting architect of the exposition, were of a free, semi-Romanesque character, with some recognition of the steel construction and the temporary nature of the buildings. These conceptions might well have dominated the *ensemble* had not the death of Root on the eve of the undertaking left the group of eastern architects, headed by Hunt, to whom he had confided the buildings of the Court of Honor, free to carry out their own ideas. These were that the mutual dependence of their buildings, and the formal character of the court, demanded a consistent style of generally Roman classical character, with a uniform cornice height, fixed at 60 feet. This did not preclude a treatment of merely academic cast, with details tinged by Italian or Spanish influence, so that within the classical scheme there was a considerable diversity of style. The buildings which attracted the most admiration, however, were those in which the main cornice was reached by a single order of strictly Roman character, namely, the Agricultural Building by McKim, the Fine Arts group and the Colonnade toward the lake, both by Charles B. Atwood. Atwood, in the Fine Arts Building, followed Besnard's project for the *Grand Prix de Rome*, with its central portico with an attic and a saucer dome behind; McKim was also greatly influenced by the same design, although he followed it much less closely. True to the hopes of their designers, the classical buildings produced a cumulative effect of harmony and magnificence which was deeply stamped on the memory of the whole nation.

Although the leading architects of the exposition had hoped to give a striking object-lesson of the value of classical and academic formulæ, they hardly expected the result which ensued. Whereas, earlier, there had been one or two isolated experiments with

Garden of Maxwell Court
Charles A. Platt, Architect

strictly classical forms, such as the Grant Mausoleum in New York (1891), the whole public architecture of the country was turned now into a monumental and classical channel. The firstfruit of the movement was McKim's unified classical design for Columbia University in New York, with its great domed library (1895). A fresh impulse came through the restoration of the University of Virginia by White after the fire of 1901, and the activity of McKim with D. H. Burnham, Olmsted, and St. Gaudens in the commission for the improvement of Washington.

Pennsylvania Station, New York, 1910
McKim, Mead & White, Architects

The classical character of the early buildings of the Republic thus gave a nationalistic sanction to the classical tendency, and the style of new government buildings was henceforth established. Milestones in the progress of the movement were the Knickerbocker (Columbia) Trust Company in New York, with its single rich Corinthian order, including the whole height of the building, and the Pennsylvania Terminal Station, with its long Doric façades and its great hall. From the start the orders used frequently included Greek forms, and these have been copied increasingly. A notable recent instance is the Lincoln Memorial in Washington — a peristylar cella in which the old revivalist enthusiasm for an abstract architectonic ideal has prevailed over any suggestion of individual character. The current tendency to employ Adam or Louis XVI forms in residences and hotels shows the extension of the classical movement to fields where more monumental treatment would be out of place. This second classical revival in America, it must be recognized, has little contemporary parallel abroad except in England, which has itself been influenced in the matter by developments on this side of the ocean. While the rest of the world is seeking, in one way or another, new forms expressive of the novel elements of modern life, this insistence on the traditional authority of the past can be adequately explained only by the unparalleled heritage of classical monuments from the formative period of the nation. Thus the founders of the Republic might seem for the moment to have achieved their aim of establishing classical architecture as a permanent national style.

In spite of the overwhelming victory of classical forms the Gothic tendency has been kept alive, — largely through the enthusiasm and artistry of two men, — Ralph Adams Cram and Bertram Grosvenor Goodhue. Their initial success was the Church of All Saints, Ashmont, Mass. (1892), which embodied the same free tendencies as the designs of Sedding in England. These tendencies, on the whole, have been perpetuated in their later work, such as the chapel and other buildings of the Military Academy at West Point, so picturesque in adaptation to the rugged site. Mr. Cram has tended to follow precedents more strictly than Mr. Goodhue, however, and to range more widely among the medieval styles, as in his "Early English" Calvary Church at Pittsburgh and the late Byzantine Administration Building for the Rice Institute at Houston, Tex. Even in its last strongholds, ecclesiastical and collegiate architecture, the Gothic has had to yield ground, especially to the Colonial revival. Nevertheless, although both the Protestant sects and the Roman Catholic church now prefer the styles unequivocally associated with their own past, the preference of the Anglican episcopate for Gothic forms, and the personal prestige and ability of the Gothic leaders, have still maintained the Gothic tendency.

Columbia University Library, New York, 1895
McKim, Mead & White, Architects

The striving for characteristic expression, which is the principle of functionalism in architecture, appeared subordinately — in America as in Europe — in all the movements of the nineteenth century. Structural purism was a quality of Latrobe's designs, as it also was, more pronouncedly, of those of the Gothicists. The lessons of Ruskin and Viollet-le-Duc were not forgotten in the early years of the Renaissance revival and of neo-classicism, when it was felt that the column must be used only in its original function of an isolated support. Even in the latter years of these movements, when structural purism has yielded to the expression of monumental character, this very character itself is felt to be but one of a number of ideals which govern the different phases of architecture, — civic, religious, and domestic. Moreover, in spite of eclectic inclination — so strong in America, especially in McKim's work — to model the exterior of a building on an individual prototype selected in advance, there has been a steady development of logical planning and expression of plan,

All Saints Church, Ashmont, Mass., 1892
Cram, Wentworth & Goodhue, Architects

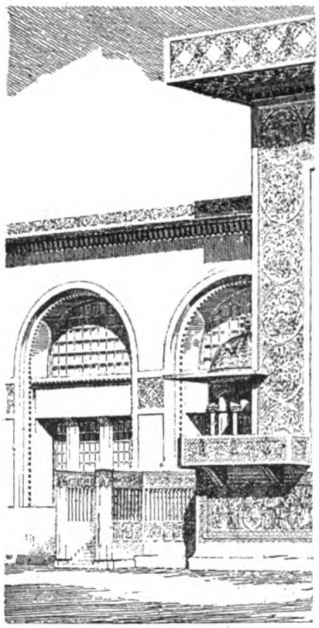
under the leadership of the Beaux-Arts men. McKim, Mead & White themselves, moreover, were the pioneers in a characteristic use of materials which has produced such interesting results as texture, brickwork, the modeled and polychrome terra cotta, and the local, ledge-stone revival of Philadelphia.

In the expression of structure a new problem has been presented by the steel frame building. The absence of legal restriction permitted real estate owners in the crowded districts of New York and Chicago, about 1889, to increase the number of stories in new office buildings by supporting the floors entirely on iron or steel columns, leaving the wall with only its own weight to carry. The development of elevators made the upper stories as desirable as the lower ones, and made possible "skyscrapers," like the World Building in New York, with a height of 375 feet. Here, however, the self-supporting walls reached a thickness of 9 feet at the base and injured the value of the lower stories. It soon occurred to the designers that the wall itself might be supported on the steel frame at intervals and be reduced to a mere veneer, with great resulting economy. Thus buildings of twelve to twenty stories have become commonplace in every considerable city, and such extreme heights as that of the Woolworth Building in New York (779 feet) have been reached. The retention of a shell of masonry, which differentiates these buildings from the steel and glass shop fronts abroad, was originally due to a natural adherence to tradition. It has been perpetuated for a far more vital reason - the extreme necessity of rendering such tall buildings secure against fire, before which exposed steelwork has proved to twist and bend with disastrous results. The only adequate protection has proved to be that furnished by casing all the structural members in masonry, preferably brick or terra cotta, which had already been through fire. Aided by experience in the great conflagrations in Baltimore (1904) and San Francisco

Woolworth Building, New York, 1911–13
Cass Gilbert, Architect
Gothic forms chosen as clothing for vertical supports

(1906), the technique of fireproof construction has developed so that the practical advantages of the system have led to world-wide adoption of many of its features. Its employment in façades, however, involves a new and delicate problem of expression.

A visual indication that the masonry was no longer self-supporting, but depended on the steel frame, was achieved about 1895 by Louis Sullivan, notably in the Wainwright Building in St. Louis and the Guaranty (Prudential) Building in Buffalo. He abandoned a wall surface of ashlar in favor of a simple casing of the members of the frame, with glass filling the whole of the space between. The greater weight carried by the vertical members he recognized by emphasizing the vertical lines. To avoid any structural suggestion in the casing, he used terra cotta having a delicate surface pattern. The principle of his designs has been widely followed by architects of tall buildings, irrespective of the style employed, although few have carried it through with such logical completeness. To Cass Gilbert the emphasis on the vertical lines suggested the employment of Gothic forms, which the éclat of his employment of them in the Woolworth Building has popularized to some extent.

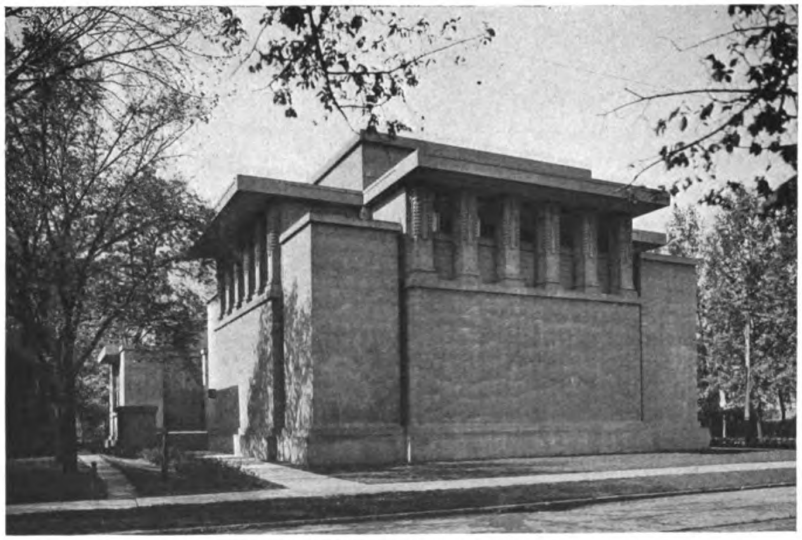


Detail of the Transportation Building, Chicago Exposition, 1893
Louis H. Sullivan, Architect
A pioneer example of functionalist detail in America

America, with its freedom from the restraint of tradition, was also naturally one of the first countries to experiment with novel forms, consciously preferred to those of the past as expressive of modernity. The old desire for an "American style" could not be satisfied merely by the general adoption of any group of historic forms, even if, as in the case of Richardsonian Romanesque, its adoption was purely an American movement. In Richardson's work itself there was, as we have noted, a strong tendency to modification and originality of detail, and this tendency was taken up with special aptitude by Harvey Ellis, Root, and others in the Middle West. The manifesto of a truly independent progressive tendency was the Transportation Building of the Chicago Exposition by Louis Sullivan (1893), contemporary with the earliest similar attempts abroad. In spite of the overpowering influence of the classical *ensemble* of the exposition on America at large, this building made some converts, chiefly in Chicago itself. Through Sullivan's pioneer expression of the veneered steel frame the movement had an influence far beyond its own circle of devotees.

That participation in the movement did not involve mere imitation of its leader was early established by one of Sullivan's pupils, Frank Lloyd Wright. In his designs for residences he has employed broad ramified plans, wide eaves, novel fenestration, and a harmonious use of abstract motives of ornament, which have a suggestion of the Japanese. More ambitious applications of similar forms have not been wanting. In the Midway Gardens in Chicago, Wright has embodied the spirit of gaiety in forms of exuberant yet delicate fantasy. In his Church of the Unity at Oak Park he has evolved a monumental and characteristic house of worship for disciples of modern rationalism. To the present time, however, the movement has received more appreciation abroad than at home.

(The essay of which this is the last instalment has now appeared in book form as the chapter on American Architecture in a new "History of Architecture," by Fiske Kimball and George H. Edgell, just published by Harper and Brothers.)



Unity Church, Oak Park, Ill.
Frank Lloyd Wright, Architect
Modernist forms employed in the solution of a church problem which itself presents many features of modernity

EDITORIAL COMMENT

THE steps toward a national organization to represent the entire building interests of the country which were mentioned in our previous issue as having been taken, were completed at a conference held at Atlantic City on July 15 and 16. This movement, which was started only a few weeks ago, has quickly resolved itself into a well rounded out organization, and if the present efficiency is carried to the consideration of the problems that will confront it, all connected with the building industry may well rejoice in a conviction that everything possible and practicable will be done to remove the doubts which have harassed the industry since our entrance into the war.

The organization will be permanent and known as the National Federation of Building Industries. Its objects are stated in the following declaration which was adopted enthusiastically:

The National Federation of Building Industries, representing an interest second only to agriculture in the numbers who live by it, pledges to those in authority all aid within the power of the industry to accomplish success in the war. We are glad to assume our share of the burdens of the war and cheerfully to sustain, in common with other industries, whatever sacrifices may be essential to its successful prosecution. The Executive Board of the federation shall endeavor to devise means whereby, with the approval of the Government, the resources of the building industry may be best marshaled for direct assistance to the Government in carrying out the war and for the indirect assistance through maintenance of national prosperity and through creation of values upon which the national credit may be enlarged.

This constitutes a platform which acted upon with good judgment will surely work to the great benefit of the country. First, the utmost service to the Government in the present emergency with cheerful sacrifice when necessary; and second, the promotion and maintenance of the industry as an economic factor in the prosperity of the people, are practical and moderate aims.

The building industry has already been of great service to the Government and is capable of still greater effort, for to date only certain units have been utilized; but with the aid of a national organization the resources of all may be coordinated and made available to the Government. Moreover, the decline in private building has been so great that many fields of service thereby released for the disposal of the Government have not been fully utilized and there is, as a consequence, a deficit of earnings which is now adversely affecting many connected with the industry. The figures given by Senator Calder at the Atlantic City conference, which he has also made known at Washington, in an attempt to dissuade the Treasury Department from placing undue difficulties in the way of financing building operations, afford a clear conception of the present condition. He stated that in 1915 the building operations of the country reached the enormous total of $1,800,000,000, and that outside of Government work the extent of this year's building will not reach $300,000,000. This shows a very large decrease in the business of an important industry which cannot be easily passed over as a necessary corollary of war. It is still more disastrous when it is known that city after city is in urgent need of buildings for their growing populations and expanding industries. It is bringing about conditions that cause rentals to be increased beyond the scope of working people — where there are living accommodations to be had at all — and that contributes in large measure to the unsteadiness of labor. The lack of living quarters has become so general that the problem has been taken up by the National Government and $110,000,000 already appropriated for housing to remedy the shortage; but it is even now evident that this sum is much less than will eventually be needed. Although the great part of this work would in any case have been required of the Government, much of the need could nevertheless have been met through private building had there been no discouragement against it, for even during the uncertain conditions of war, capital will generally be found to provide what is in demand.

The large employment of Government money for the erection of dwellings introduces a new element into the development of land, and while it is hoped that some arrangement of the disposal and terms of holding property developed in this way may be devised that will be an improvement over current real estate methods, there is at present no indication of any definite and uniform policy. With no disturbance to the prosecution of the war, and with positive benefit to the Government in its housing problem, the building of houses for working people therefore might well be permitted to continue in the usual manner.

The building industry has to look forward as well to the days of reconstruction that lie ahead. With the coming of peace and the resumption of commercial life with new vigor, demands will be made on the industry that will require its full resources. The achievements of the ante-war days will be surpassed, and to do this the many related arteries of the industry must be maintained and developed. Organization and coordination of effort is the only way in which this can be done, and the new National Federation of Building Industries holds the promise of effecting that desirable end.

THE ARCHITECTURAL FORUM

VOLUME XXIX NUMBER 2

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Published Monthly by
ROGERS AND MANSON COMPANY
85 Water Street, Boston, Mass.
Advertising Department, 42 West 39th Street, New York
Yearly Subscription, payable in advance, U.S.A., Insular Possessions and Cuba $5.00
Canada ..... $5.50 Foreign Countries in the Postal Union 6.00
Single Copies ..... 50 cents All Copies Mailed Flat
Trade Supplied by American News Company and its Branches. Entered as Second Class Matter, March 12, 1892, at the Post Office at Boston, Mass.

VIEW OF HOUSE FROM APPROACH THROUGH THE GARDEN

HOUSE OF FULLER E. CALLAWAY, ESQ., LA GRANGE, GA.

HENTZ, REID & ADLER, ARCHITECTS

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THE ARCHITECTURAL FORUM
FOR QUARTER CENTURY THE BRICKBUILDER

VOLUME XXIX AUGUST 1918 NUMBER 2

Office Administration

A GROUP OF PAPERS BY THE MANAGERS OF FOUR REPRESENTATIVE ARCHITECTS' OFFICES

THE complex duties carried on within an architect's office today require an organization of no mean order; it need not necessarily be large, nor need there be elaborate systems requiring a number of clerks for their operation. There is, however, a demand for a well balanced scheme of administration that will insure to the client, contractor and architect the proper adjustment of their several interests. In the following papers which have been written by men experienced in the organization and administration of important offices handling varied types of work, the leading pitfalls are clearly shown and methods for their avoidance suggested. Some points of office routine are emphasized in each of the papers, but the varied methods of handling them in the respective offices make the matter more clear because of more than a single opinion. The systems described are in operation in offices distinguished for the architectural excellence of their buildings, proving that efficiency in business relations and office detail is not detrimental to creative art.

— *The Editors.*

DEVELOPMENT OF ESPRIT DE CORPS

APPLYING modern business methods to the management of an architect's office is a task requiring infinite patience, tact and diplomacy. The man who effects this combination must have a mind where good sense mixes with good humor, imagination mingles with justice, and a strong sense of the value of the ego permeates the whole.

Brains are the tools we work with and the art of selecting and then directing good gray matter into the channel where it may produce its greatest efficiency is a never ending problem.

Whether to have one man for all jobs or one man for each is largely a question of the man, though in an office doing a large business it nearly always works to the best interest of the office if not to the man himself to definitely apportion one job to one man.

Know your man and then work accordingly is a good rule; but the sense of responsibility and the feeling of elation which comes to a man who knows that he and no other is responsible for the success of an enterprise is a mighty good tonic and the business health of an office will never suffer by a liberal dose of such medicine regularly supplied to as many of its force as it may depend upon.

Behind all work which is so co-ordinated that it is efficiently and economically carried on is a well co-ordinated brain. The business head of a large office must not only have such a brain himself but must have the ability to assist in developing this quality in his assistants and to see that each draftsman does all in his power to develop it not only in himself but in others with whom he works. By all means let a draftsman's work be specialized, but let it be so specialized that an all-round man is developed, and this is not so hard as it sounds. It is not a man's work that develops him but the thought that underlies that work.

It is possible for a draftsman to spend eight hours a day making straight black marks on a sheet of white paper and still develop into an all-round man if he can be made to realize that by so doing he is materially assisting in the success of the work as a whole, but by all means let him have that sense.

The human mind is so constituted that it cannot be limited. It must grow by what it feeds on and if it does not find its food ready made it will search it out, reaching always towards what it can most readily assimilate.

It is most desirable that the draftsman have an acquaintance with the actual work as it is carried on.

Let the work be so arranged that the best in the man is brought out for the best in the work.

The draftsman should be acquainted with the actual work and should be encouraged to use his imagination. An architect's work cannot be systematized like a huge machine shop turning out a hundred or more assembled "flivvers" in one day.

There the dream has been made real by the man at the head and the workman's job is only to perfect the detail. Here the dream is still being dreamed and each man must add his part to make the whole.

Encourage him to form a mental picture of the finished whole, keeping always in mind the responsibility of his share in the success, and let him know as much as possible of the whys and wherefores of the

methods that are being employed to encompass that success and even if sometimes almost military methods must be used to rush through a big enterprise, the draftsman will respond readily if he once understands that the man ahead is acting as a general and not as a slave driver. The human element is, after all, behind all and above all. Self-preservation is nature's first law and best law, and no man can or should be expected to do his best work unless he is doing it for himself, but there are many ways in which he can benefit himself without being selfish.

Get some of the larger meaning of life into your office. Let your man know that he is helping himself every time he helps some one else and that when he is thinking of himself alone, he is defeating his own aims automatically by holding back the good that must come to all if all work together for the best. Thinking is the hardest part in the work and teaching some one else to think is harder than that. In nearly all human beings the emotions are stronger than the reasoning powers; therefore it is natural for us to emote rather than think. It is only when we have learned to translate our emotions into thoughts and our thoughts into actions that we can hope to succeed in any line of endeavor. So simple it is to rely upon our five senses to guide us that most of us only feel our way through life rather than consciously direct it. Because some one else has made a path towards a certain goal we follow along like sheep in this path, jostling one another uncomfortably, trampling upon the weaker ones and being held back ourselves by the stronger; whining all the time at the injustice of it and complaining that life is hard.

It is almost as simple to try another method, but how few of us do it.

Why not stop and say to oneself, " I have a brain as well as five senses; my emotions are stronger than my brain power because I have used them more. I have used them more because they were given to me already developed at my birth and it was necessary for me to develop my brain power myself; but now I know that brain power is the driving force of the world; and that my emotions are only tools given me to use in developing myself. I am the master, not they, and if I would take my place in the world and forge forward to the ultimate good I must use my conscious thought; and my conscious thought tells me that I can never rest secure on the height while there are those below me who envy and hate me because I have trampled them in the mire to attain the heights myself. At any time they may free themselves and scrambling up beside me may kick me down, therefore that I may be secure I must carve a new path and a broader path crowding none, and helping all that I may, so that when I reach my goal others may rejoice to see me there and feel not hatred of me, nor envy of my success, but only kindness and a new impetus to succeed for themselves." With this thought as a foundation the structure of success is well begun. The man who has attained the point where he can think this thought out for himself, not merely repeat it parrot-wise, nor quote it as his own because he had read it, but think it because he has developed his brain cells to the point where the thought comes of itself, can succeed in anything he undertakes. In other words, this thought is the basic material of success. It is as solid a substance as stone and as free. Let a man once learn how to use it, and he may choose his own tools to fashion any structure that he will. Just as a mason uses stone and brick and mortar to build a thousand buildings all somewhat different, but all composed of the same material, so must the successful builder use this thought. Therefore, to get back to office management, if the man at the head of the office knows how to use this thought himself, and he must to some degree or he would not be the office head, then it is his task to impart this thought to those with whom he works, and the degree of skill with which he is able to impart it marks for them both their degrees of success.

DETAILS OF DRAFTING SUPERVISION

It is a usual custom to charge the time of draftsmen against the work upon which they are engaged. This is effected by a monthly card which is delivered to the draftsmen the first of the month, on which they are required to keep an account of actual time spent upon the different operations. This is done with the idea of systematizing the cost of the buildings, of course, but it should not be dwelt upon so rigidly as to restrict or stifle original thought upon the part of the draftsman. The underlying idea being that while it is well, and perhaps essential, to direct the creative force into a systematically thought out course of action to produce the desired result with the least amount of friction and waste, it is even more desirable to allow the brain of the worker that elasticity and sense of freedom which will permit and encourage the worker to produce the best work of which he is capable.

Rightly used these time cards will serve as a spur rather than a check upon a draftsman's work.

In distributing drafting-room supplies the same general idea may be used. The draftsman is given to understand that while the value of the supplies is justly estimated, and a certain amount of control is used in their distribution, still the main idea is that the work must be of the best quality and that as the draftsman is working with and not merely for his general he himself must be accountable for their use in the proper way, just as he is for the best use of his time.

It should never be the purpose of an office to curtail the number of necessary working drawings; though their overelaboration must be distinctly discouraged.

Time spent in elaborating details of ornamenta-

tion is time misused, and the draftsman should be urged from the very first to consider the workableness of the drawing rather than its presentation. An endeavor should also be made to utilize the special knowledge of the different artisans, such as modelers, carvers, mill men, etc., in a practical way to develop a better understanding as to the actual requirements in the making of drawings and details. The modeling and carving of stone, marble and granite work can safely be assigned to a single concern and full size details of ornament made only in an indicative way, the model being developed in the actual clay under the constant direction of the office, but the artisan encouraged to use his imagination in producing the final result.

In a well organized office the working hours per day of the draftsman are limited to the usual eight hours with the idea of allowing the whole machinery of the office to run with as little friction as possible. Overtime work is discouraged and resorted to only in extreme cases.

The usual working hours are adhered to as strictly as possible not alone because of the value of time but because of the knowledge of the psychological value of habit upon the working brain. The draftsman is reminded, if he seems in danger of forming slovenly habits of unpunctuality or listlessness, that he is cheating not his employer alone but himself in allowing his brain to fall below the high standard of which it is capable.

Full allowance is made for the fact that in overtime work the draftsman is forcing himself to greater effort and this is paid for in proportion, and the fact that the draftsman is benefiting himself by developing a larger capability to meet emergencies is also recognized and noted.

By keeping in mind the law of compensation and by impressing upon the mind of his workers that a man always receives just as much as he gives, no more and no less, a great many problems may be solved by the business head with less worry and waste of effort than is usually given to them.

For this reason it should be a strict policy in an office that all employees should show due consideration at all times to contractors and subcontractors and their representatives. This creates an *esprit de corps* which is very evident in the final results and it is only by such an attitude that the best work of the contractors can be obtained. This attitude should be more generally adopted for that reason.

The relation between the specification writer and draftsmen employed upon working drawings is very intimate, the generally accepted idea being that the working drawings should indicate only such information as cannot be expressed in the specifications, therefore, the specification writer must continually be in touch with the development of the drawings.

The proper and equitable adjustment of the value of changes made during the construction of the building is a complex proposition. The adoption of unit prices fixing the cost of items added or omitted is not a practical solution of the problem. This matter will hardly be solved by any definite rule except when any contract is backed by the good faith of the contractorial parties and also when the system of competitive bidding will have been placed on a better and more economical basis.

RELATIONS WITH CLIENTS

Clients and all others who have to do with building projects will have confidence in the practice of architecture only when the architect himself demands confidence and is able to inspire it. Only by keeping himself up to his best at all times and by giving his best to his clients can the architect inspire that confidence in himself which will be reflected upon those with whom he is associated, and made permanent in them when it is justified. The tendency on the part of many to doubt the architect may be traced to the time when he was classified definitely with the artist as a member of the higher arts and as something apart from the material builder. It is the common tendency to fear that of which we are ignorant and to disparage that which we fear. Superior knowledge must always stand the test of criticism and censure until it justifies itself by producing superior results. It may be that this general attitude of mind has reflected itself upon the architect, and that he himself has unconsciously fostered it by believing that he is something apart and more important than the usual run of men, instead of accepting his art as an art in which he has somewhat perfected himself by training, and in which he is no arbiter but only the instrument through which beauty and utility may be united and given to the world of men in terms which men may understand.

The architect can do much for art by careful self-analysis and by freeing himself of any false idea of superiority, just as he can do much for his art by making his buildings more simple and understandable and more beautiful because of their utility than because of confusing ornamentation and pretensions.

It is only the strong man who can successfully co-operate, only the one with the mind so trained that he can keep it on the important issue, and away from the personal viewpoint; too often what begins as a co-operation between two men degenerates into a battle of wits to see which can win his point most craftily. When a man is struggling to gain something for himself he is automatically strangling his ability to produce. It is only when he forgets himself and what he hopes to gain that he can create the worth-while thing, which is the only thing that will benefit him in the end.

Yet in co-operating with specialists who are employed on a given piece of work it is well to remem-

ber that co-operation means dealing on the 50-50 basis, that you are both taking as well as giving. When a man allows himself to give more than he receives he is robbing the other person just as much as if he were stealing from him, only in a more subtle and dangerous way. He is taking away the man's confidence and belief in himself and making a weakling of him. When he allows the other man to give him more than his share he is robbing himself of that sense of responsibility which a man must have to keep his interest in his work up to the point that produces the maximum result as the architect proves himself better able to handle the project.

Education of both the architect and the public is the only solution of this problem, and as we all know that the printed word is one of the greatest aids in education when properly used, it is the duty of the understanding architect to assist in spreading his knowledge by contributing whenever possible to some good magazine and to suggest to the layman that he might gain a fairer insight into such problems by reading the articles contributed, just as the architect himself is gaining a better insight by trying to contribute them.

The notion which some laymen have that architects are lacking in a large measure the ability to handle properly big building projects has as its foundation a hazy ignorance of what the architect's real work consists. To most men of this type the word architect merely means one who spends his time drinking in inspiration from the beauty of the clouds and then making a pretty picture in white lines upon a scrap of blue paper which is given to the builder with instructions " to follow that out."

There is another class of men who knowing something more of the architect's real work cannot quite rid themselves of the idea that the surface beauty of the building means more to the architect than its utility, that he is always more or less inclined to sacrifice real worth for the sake of making the building correspond more nearly to the palace of his fancy. They cannot quite comprehend the fact that the man who is possessed of enough imagination to visualize a beautiful building may also have developed the practical working side of his brain far enough to be able to attend to the carrying out of his project in a satisfactory manner when dealing with brick and stone and mortar. He lays too much stress upon the artistic side of the architect's works, and mentally dubs him " an impractical artist fellow who deals in dreams."

If the modern successful architect could only take the doubting business man into his office and working side by side with him make him understand just how little of the architect's work is really done when his plans are finished and accepted, this prejudice would quickly disappear, to be followed by a real understanding and respect for his profession.

But, knowing that this attitude is in a large measure due to misunderstanding, the architect should not allow himself to become arrogant or cynical but should simply accept the fact that his work is in a large measure educational and that he must demonstrate by results rather than by arguments which will fail to convince unless they have a solid substance of success to uphold them. Prejudices die out as civilization advances, the world is growing upwards as well as outwards. Architectural atrocities that were accepted in America a few years ago would not be permitted today because both the public and the architect have become better educated and more accustomed to seeing and striving for the best.

In the same way the notion that the architect cannot handle a big business project will disappear.

NEED FOR ORGANIZATION

The sermon preached so far clearly illustrates that the architect who undertakes full responsibility for the results, or claims it, does not utilize the best resources available in his office. His work and the results of his imagination would all the more redound to the service of the profession if he co-ordinated the work of his draftsmen, engineers and others, whose work is necessary in all building operations, thereby building up an organization that becomes more capable and efficient as its duties increase.

It is stated that a bank is about the best conducted of all business institutions. It cannot be too strongly emphasized that the business of an architect's office cannot be any too well organized to produce not only the best artistic results but also practical results in the proper and businesslike conduct of the construction of an operation. It is necessary, therefore, to place all business transactions with the contractor, owner and all the different elements that enter into the construction of a building, on a thorough and businesslike basis. To do this requires an infinite amount of thought and the subject itself would produce an interesting field for discussion. These business methods should be applied to produce a record that will as far as possible determine the actual cost to the architect for the production of all drawings, specifications and supervision in every operation.

A record should be kept of the time spent by the draftsmen, by the simple method of monthly cards issued to each upon which he is required to keep the actual time spent upon the different operations. This record is condensed monthly and carried on to the conclusion of the operation. An effective system should also be developed for recording the cost of drafting-room supplies required from month to month. This, however, is from careful observation a difficult problem, especially to distribute properly and keep an accurate record of the proportional cost to the different operations. Even a bank itself with

its so-called ideal business system would find it difficult to devise an adequate method to apportion cost to the different operations. Perhaps the best method of handling cost of supplies would be to establish, as has been done in some of the best business offices, from year to year a percentage overhead charge which varies depending upon the magnitude of the work, the celerity with which it is done, etc.

The largest item of expense in an architect's office is occasioned by the number of drawings required and their elaboration. Where twenty-five or thirty years ago the number of drawings required for the construction of a building was at the minimum, perhaps because the draftsmen of that day had more practical experience and because the builders were men who applied their energies to the actual operation, it is now found that, primarily due to the fact that the function of the architect has widened, considerable detail work has resulted therefrom requiring many completely detailed drawings. The development of schools of technical education, the consequent establishment of a higher plane of draftsmen's skill, the competitive system of awarding contracts, etc., are other changes which are constantly increasing this burden and it must be the aim of the business manager to watch closely this fertile field for the consumption of profits.— *R. J.*

THREE SYSTEMS OF DRAFTING-ROOM SUPERVISION

ON the wall of our drafting-room there is posted an article entitled, " The Secret of Success," by John Drier. The entire article has been a source of inspiration, and two paragraphs are so pertinent to this present writing that they are quoted.

" 'The secret of success ' is not a secret, nor is it something new. Nor is it something hard to secure. To become more successful, become more efficient. Do the little things better. Regard yourself as a maker and seller of service, and ever bend your thought and your energies toward the improvement of your products."

It will be generally conceded that the time has passed when the successful architect was he who painted or sketched pretty drawings, affected eccentricities of dress or manner, and whose knowledge of such mundane things as concrete construction, steel framing, heating calculations, and a dozen other like matters was of the vaguest.

In these days the profession of architecture should, in my judgment, mean the science of building, and I may justly say, and without apology, a business.

The architect of today must not only know something of design, but he must also have some knowledge of the technical points of every trade entering into the construction of the building, and as he deals with labor and the production of labor or manufactured articles, in just so far is he preëminently a business man.

Therefore I would make this paper a plea for better business methods, efficiency if you prefer, in the practice of architecture.

As a producing business, the cost of production is the first thing to be considered, and to this net, or factory cost, must be added the overhead.

It is in the drafting-room, in the long run, that money is made or lost. To put that department on a proper basis, some form of time card is essential. There are a number of such forms available, but after a trial of several, a form to cover six days and a separate series of cards for each job seems to me the best.

The total number of hours spent on any building can be computed by any one in a few moments. Even aside from the opportunity given by this system of checking the relative value of two or more men, some such system is essential when the architect's services are furnished on a cost and honorarium basis.

In our office the time-card system applies not only to the draftsman, but also to the work of specification writing, and has fully proven its value. It does not appear practicable to carry it any further into routine office work.

To the net drafting cost must be added the overhead charge: rent, telephone service, salaries of executives, stenographers, office boys, and postage and supplies. The total of these items will remain fairly constant, the minimum amount being fixed by the size of the organization. A six months' period should determine the ratio between the office overhead and the drafting cost. The advantage of determining this percentage will be seen later.

The method of production has a large bearing on the matter of profit or loss.

When an architectural practice grows to the point where the principal himself cannot personally oversee all the details in the drafting-room, the question of chief or Head Draftsman *vs.* Squad System or even individual control arises.

The writer favors the former only to the point where the one man is able to handle the work involved in checking and approving drawings, laying out or assigning work to the junior draftsmen, and interviewing both client and contractor. By no means should he be supposed to do any continuous drafting.

With the Squad System, a group of junior draftsmen in charge of a foreman, it is possible and probable that the latter will be able to supervise as above outlined as many as six different operations at the same time, and the architect himself be called upon to pass only upon details of design.

The third system of individual control or a man in charge of each job would tend to build up an expensive organization and lead to much confusion of authority.

To sum up: The system of a single head draftsman in a large office has the advantage of: (a) concentrating in one person all matters of design; (b) presumably all interviews with clients; (c) full and complete control of all junior draftsmen.

Likewise the disadvantages of: (a) a constant state of being pressed for time in designing; (b) a very probable state of dissatisfaction on the part of clients who may call when the head draftsman is out; (c) confusion or delay in the drafting-room when the head draftsman is absent for any length of time.

The Squad System in comparison provides, and I assume, a reasonable proficiency in design on the part of the leader: (a) more rapid execution of drawings, there being less for one man to design; (b) fewer clients to interview, therefore more personal attention to the needs of each; (c) better attention to the work of individual draftsmen.

What are its disadvantages? A diversity in design or even a falling off from a certain standard of excellence. The diversity should be considered an actual gain and the principal could himself by his criticism maintain the standard.

On the principle that efficiency in any business consists in turning out the greatest amount of finished product at the least expenditure of effort necessary, it stands to reason that to make any unnecessary drawings or to put on any drawing more work than needed, is a waste of time. Let the drawing tell what you want to say, and no more.

The estimating drawings should be studied in detail at scale, and when once approved by the owner should not be changed by the architect to introduce some " improvement " usually at an extra cost. The time to settle the design is when making the scale drawings; the details whether to scale or full size become then properly enlarged drawings and not something different, raising questions for argument.

If the office system includes elaborate specification writing, keep the working drawings free from notes as to materials, etc.; if the specifications are usually in skeleton form, give the information on the plans.

There should be the closest kind of co-operation between the specification department and the drafting room, to produce in tangible form the wishes of the client. Here is where misunderstandings often arise. To avoid this condition as much as possible, our office has adopted written conferences with the client.

Four typewritten copies should be made: one copy to be sent the client for comment if any, one to the drafting-room, a third to the specification writer, and the fourth to the business office for record.

I advocate having both the draftsman in charge of the work and the specification writer present at all conferences with the client until the documents are ready for final bids.

After the letting of the contract the specification writer may not be needed except occasionally, but the draftsman should be present at all subsequent conferences. Reducing all conferences to writing in as brief form as possible is very desirable. The draftsman present has to make notes in any event, and if the rule is followed of sending a copy of the notes taken to the client for comment, much trouble may be avoided.

FINANCIAL MATTERS

The subject of financial matters of the contract opens up for discussion a wide field, which can be only briefly touched on. Of first importance is that of extra orders.

Extra Work. Are there any other two words covering more annoyance to the architect in his professional practice? Surely here, in the financial field if nowhere else, " eternal vigilance is the price of liberty " — from remorse.

As a first preventive, the suggestion is made to include in every contract, when drawn, clauses covering the following conditions: (a) that no claim from the contractor for extra work will be recognized by the architect unless authorized by him in writing before the execution of such work; (b) that under no circumstances is the superintendent permitted to make any changes in the plans or specifications involving additional expense, and requiring the contractor to promptly notify the architect if he considers any such instructions as going beyond the contract; (c) that the contractor shall notify the architect in writing within a given period of time if any detail drawing issued exceeds the contract terms as he understands them.

For convenience it is desirable to have a printed form for use in ordering extra work, same to be issued in duplicate to owner and contractor. If this rule of written orders is rigidly followed, it is the experience of the writer that both owner and contractor appreciate the system, and it has been mentioned favorably on more than one occasion.

Often cases arise where the owner wishes to make a change involving additional expense, but is averse to spending the money. If a contingent fund has been provided, the architect can then draw against it. If the purposes of this contingent fund have been explained to the owner before signing the contract, and if on completion of the work the architect is able to show the owner a refund or credit of the unexpended balance, the average owner is very well pleased.

It is largely a matter of psychology. In a total contract price of, say $50,000, it is far better to have included, say, $1000 for a contingent fund, and on completion of the work to credit the owner with $250, than to have gone to him at intervals for an extra for each of the items totaling the $750 spent.

The subject of accounting systems has already been touched upon in the matter of draftsman's time. A ledger account will be kept with each client. This

can, of course, be made to show the drafting cost at the end of each month. The relation between the total cost of draftsman's service and the total costs of overheads, represented by rent, stenographer, business manager's salary, bookkeeper, supplies, etc., can only be determined by monthly statements, but it will usually hold closely to a certain ratio. To be accurate in this matter, it seems essential for the practitioner to allow himself a minimum drawing account, and then the net profits, if any, will be net and not something else. This percentage, added to the drafting cost, should show very closely the actual cost at any time of any operation, and the relation of such cost to the proportion of fee due and payable.

The care of office supplies often has a direct effect on the subject of profits. For distribution of drafting-room supplies I advocate having all materials kept in one room, preferably with the general plan files and under the care of a competent person — not a boy, but a young man. I have heard of at least one office where the system was elaborated to include a daily distribution of all supplies to the drafting tables, but it would seem that this would tend to a waste of material. I believe it to be more efficient to depend on direct request from the draftsman.

FILING OF DRAWINGS

This brings up the question of plan room files. More time is spent in looking for lost drawings than any one other thing. The most efficient scheme that I have knowledge of is to keep all plans under the general charge of a person old enough to have a sense of responsibility and, possibly, by some fortunate chance, a good memory. In this scheme all drawings would be divided into three general classes, according to the state of the work on which they apply.

First, active: drawings of buildings in actual course of erection. These might well be kept in drawers in the drafting-room under the immediate charge of the man who is responsible for the particular building, if floor space does not permit them in the general plan room. Second: drawings of buildings which are practically finished, requiring mostly superintendence and checking of accounts with but occasional reference to drawings. Third: drawings of buildings which are entirely finished and the accounts closed.

Full size or large scale details are best preserved when folded to a uniform size and kept in a series of compartments where easily available. After comparing in actual practice the habit of rolling and storing away in tubes working drawings falling into the third class above mentioned with filing them flat, I strongly advocate the latter method. Manufacturers of metal files have produced a vertical filing case which is ideal for the purpose.

CREATING THE SPIRIT OF CO-OPERATION

An *esprit de corps* is certainly a most necessary adjunct to any architect's office — almost indispensable if the margin of profit, always small, is not to be swallowed up in waste. Two quotations occur to mind and, to the writer, have many times been a source of inspiration: "Blessed is the man who has found his work," and, "Get your happiness out of your work, or you will never know what real happiness is."

So highly is this spirit of co-operation valued that in a certain office, I am told, a new addition to the office staff is requested to sign a card that he or she will work in harmony with the others. This seems to be carrying the matter to the extreme. If the newcomer cannot fit into the vacancy successfully, the best thing is to resign gracefully.

How can the proper spirit of co-operation be made to grow, to achieve for the office an enlarged practice and increased profits and also ratio of profits?

First, by each employee being impressed at an early stage of his career, and by a member of the firm if necessary, with the idea that he is a necessary wheel in the machinery, and that if he cannot fit himself into his allotted place, another will be found who can.

Second, by the senior employees convincing the juniors through example that business, during business hours, is more important than anything else. By that is not meant that an employee is only a machine, but that he or she should understand the real reason for one's presence is to turn out the work, or "get it done." When an individual can be thoroughly imbued with these ideas, then he or she will understand the truth of the sayings of Elbert Hubbard already quoted.

Third, by a general understanding among all concerned that the work of one department is equally as important as that of any other department.

Fourth, by avoiding changes. Nothing will so quickly take the "life" out of a draftsman as the necessity of remaking a drawing, because the superior has had a new thought about it. The time to do the criticizing is when the drawing is being developed. In the business office the acme of discouragement is reached when a line of work has been laid out and started only to be held up by a lack of decisions. In the opinion of the writer concentration is the one thing most necessary to a successful handling of a job so that the client may be pleased.

The architect's best advertisement is a pleased client. The average layman does not go into the refinement of detail. He looks to the architect for that, but he does want the building completed, and from his point of view it is a poor excuse to explain away a delay by saying, for example, "The detail drawing was delayed because the model had to be studied," or, "We will have to decide that color

when the building is finished." More money is wasted by delayed decisions or unessential changes in the architects' office than in any other way.

Co-operation with the contractor and his subs, first, last, and all the time, is an absolute essential to rapid progress. The average contractor is pretty decent and it should be assumed, until proven to the contrary, that he intends to fulfil his contract.

For the protection of the client, the letter and the spirit of the contract must be observed. With a view to avoiding misunderstandings, it is advisable to give all orders to the general contractor in writing. That is a rule generally followed in our office, even to the confirming of instructions given by the superintendent at the building. That need not prevent writing direct to a subcontractor, providing a copy is sent the principal.

The draftsman in charge of the work should always be the one, if possible, to have the interview with the contractor or subcontractor, the business manager being called in only if the questions involve matters of contract interpretation or finance; and notes should be taken of the conference for confirmation in writing. I have yet to hear of a case where the contractor did not prefer these arrangements to indefinite discussion with individual draftsmen.

RELATIONS WITH CONSULTANTS

The relations between an architect and his consultants are many and various. When consulting engineers are called in, it should be at an early stage, soon after the preliminary sketches are approved. Usually a brief description of the problem would enable a heating engineer, a sanitary engineer, or any other expert to outline most of the " snags " to be looked out for and to make suitable arrangements to take care of the installation of his work.

Clients should be made to see the advantage of employing experts in those lines which are usually recognized as purely technical. When it can be arranged, the compensation, adjusted on a percentage basis with the approval of the owner, should be paid by the architect and refunded to him under the heading of office expenses.

When the quarter-scale drawings are well blocked out, let the engineers have prints from which to make their own drawings. This will usually prevent interference of structural members with parts of the mechanical equipment without radical changes in the finished drawings of one or the other. When a heating, electrical, or sanitary engineer is employed, the architect should show on his plans only the location of radiators, lights, and plumbing fixtures, for example, requiring his consultant to furnish complete drawings and specifications. It should also be understood that the architect's superintendence will be confined to seeing that the installation does not interfere with constructional or finish work.

If the consultant is permitted to furnish full services instead of partial in his particular line, his interest in the work will be increased and then the reputation of both consultant and architect will be enhanced; there will be less likelihood of friction, and with a client who is pleased at the completion of the contract the architect will get the credit.

ARCHITECTS' FEES

In the matter of compensation the architectural profession is poorly paid; that is, in comparison with the amount of services rendered.

Take, for example, a country residence to cost, when completed, **$15,000**, exclusive of landscape work.

At 10 per cent the architect's fee is.....		$1,500.00
The actual cost to the architect will not be far from the following:		
(a) Preliminary studies and time in consultation with client.....	$100.00	
(b) Finishing the studies and preparing preliminary specifications.....	50.00	
(c) Making working drawings and complete specifications.....	200.00	350.00
Leaving an estimated balance of.....		$1,150.00

This must cover all detailing, superintending, and all overheads and profits. When it is realized that it takes from eight to ten months to complete the building, and that the cost of detailing alone is a large item, it will be seen that the margin of profit is small.

Recently a new system of charges has been evolved. Under this the client pays the net drafting cost, plus the overhead charges, and in addition an honorarium fee equal to an agreed percentage of the cost of the work as billed by the contractor. This obviously is an advantageous system for the architect, in that the honorarium represents clear profit for his professional services. On the other hand, the client by leaving matters of design in the hands of the architect can keep the drafting cost down to the minimum.

If the average draftsman could realize the proportion of expense eaten up in making drawings, there would be less talk of overtime work. It is the general custom, at least in New York City, to pay draftsmen on a weekly salary basis, for a stated number of hours per week. For the sake of the greatest efficiency and co-operation, the system of holding all members of an office force to regular hours appears better than simply requiring the total minimum hours per week from the individual. If, however, a man cannot be trusted to put in the full allowance of time without a time-clock system, his place is in a factory and not an office.

As to the question of overtime work, a fair proposition seems to be: when the condition of the work warrants it, a draftsman may at his own volition work an excess number of hours and be paid therefor at his regular hourly rate. When the overtime work is performed at request of the employer, the rate of time and a half should be sufficient compensation.

THE CLIENT

It has been an unfortunate fact that many laymen believe it is inherently impossible for an architect to handle successfully large building projects. I believe, however, that state of mind is already changing and we of the profession should do our best to bring about a complete change. A considerable start has already been made in the town planning field, where not only the large corporation but even the maligned real estate operator is being won over. The following facts are being established when this class of work is placed in the hands of a competent architect:

(a) The proper sequence of work from start to finish can be better systematized.

(b) Individual buildings can be designed to produce a pleasing variation in detail and color scheme at no great increase in initial cost, and such houses will rent more readily and at higher rates than if all are absolutely uniform.

(c) The laying out of a piece of property by a specialist will save in the cost of roads, sewers, planting, and other parts of the work more than the expert's fee.

(d) The finished product of the combined efforts of the architect and his associated consultants will constitute a greater asset to the community than a similar number of buildings erected subject to no general restrictions other than those imposed by the local building ordinances.

In the field of private house building for the individual, and particularly for personal occupancy, there really should not be two sides to the question.

I have spoken of the architect making up his mind. An equally important function is to see that the client makes up his mind, and it might as well be done early as late. Recently I was informed of a case in point. The contract for a large country house was awarded and before the first tier beams were set the architect's office in conference with the contractor and the owner had settled on everything covered in the contract, even to the lighting fixtures and the refrigerators. More than that, the contractor was enabled to place his subcontracts early and so far as humanly possible avoid delays. When you have done that you have gone a long way toward a successful ending.

In the field of designing large commercial structures lies the greatest opportunity to reverse this popular misconception of the architect's relation to his client. These propositions must be approached from the financial side.

What is the maximum sum to be invested, and what is the minimum of rentals that must be obtained to net a reasonable return on the investment? What system is to be followed in the care of the building? What are the best types of mechanical equipment to install and the best varieties of interior finish to employ to reduce the cost of maintenance to a minimum without cheapening the appearance of the building and reducing it in class, so far as probable tenants are concerned?

The answers to these questions will determine:

First, the approximate size of the building.

Second, the installation of an independent power, light, and heat plant or the use of services of public utilities corporations.

Third, the principle to be followed in the detailed development of drawings and specifications.

Can the architect convince his possible client as to his ability to handle the detailed questions arising out of these general propositions? I believe he can if he is familiar with values and has a knowledge of unit prices and if he can keep from considering details of design at the preliminary conferences.

A FEW "DON'TS"

If awarded a commission for an office building, by all means get the consulting engineers busy just as soon as the plans have been generally approved. Let them be the ones to interview the ubiquitous salesman who wants to have "something new" incorporated in the plans. You rely on them to have their part of the work complete, keep them responsible, check over their specifications and plans with them before your own get beyond the first stages, and avoid duplications or "holes."

In your own plans and specifications avoid using anything which has not been tried out satisfactorily under similar conditions. An architect makes a big mistake in picking out a large realty corporation as "the dog" on which to try experiments. To cite two instances: in an office building a certain sample of stained oak was selected as the color for trim and woodwork, but when varnished the color changed, therefore it was decided to omit the varnish in actual execution. In private house work this might have been all right. In an office building with floors mopped up in a careless manner and windows left open in all kinds of weather, the obvious soon happened. The trim looked dirty and the veneer on the large flush panel doors began to warp. Finally the interior woodwork had to be varnished. Then the janitor's staff knew how to care for it and the superintendent could, if necessary, touch it up. Another instance occurred in a new unit of a group of hospital buildings. The interior plaster was painted in a variety of shades, very effective as a color scheme, but most impracticable from the maintenance viewpoint, because some of the colors did not wear well and were difficult to match in repair work, requiring a much greater variety of painter's supplies to be kept on hand than that particular institution had been accustomed to carrying.

It may be said those criticisms were trivial, but in the eyes of the clients and their representatives they were quite important, and certainly the cause of criticism could have been avoided. It is unfortunately

true that many people feel that an architect is, by the very nature of his profession, unable to look at things in a large, broad-minded way; that he is wrapped up in petty details, and that he is exceedingly well paid for his services.

In this article I have endeavored to show that this viewpoint is incorrect. The very nature of the profession itself calling upon its devotee for the best that he can produce in design; for an intimate knowledge of technical matters relating to building construction; for an understanding of property valuation, and finally for enough knowledge of law to protect his client's interests in the preparation of contracts, must broaden the mind of any man striving for success in this line.

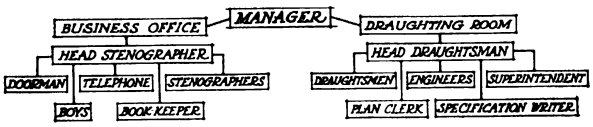
As a concluding argument for all engaged in the architectural profession, these words by John Drier should be a stimulus:

"The world is hungry for quality service. It wants to pay for it. It is paying for all it can get. The market is not crowded. There is a chance for you right now. There is a chance for you right where you are. The time to start is now. Your reward will take care of itself."—*A. F. W.*

OFFICE ORGANIZATION AND DELEGATION OF RESPONSIBILITY

THE model architect's office should be run on the open door policy. The time when a client was received in a closed lobby and had to make his wants known to the office boy, or through a grated window, is past. The entrance should be accessible, attractive and in charge of one who will courteously treat every one from a client down to a peddler.

The organization of the office naturally falls into two departments — the business office and the drafting-room. The manager should be in touch with both, and their relation to him is shown in the following diagram:



The manager should have charge of the mail, the signing of all letters, interviewing of those who call on business, be in touch with the business office and the drafting-room and, in fact, be the man who in general knows everything and can answer every question, or at least see that the question is properly answered. "Attention of Mr. A." upon a letter addressed to the firm should be resented by the manager of a well-organized office, for it presupposes he is unfamiliar with his work and needs help from the writer. The efficient manager knows instantly to whom letters should be referred.

The business office should be under the direction of the head stenographer or bookkeeper, who should give the necessary instructions to the door man, boys, telephone operator, bookkeeper and stenographers.

The drafting-room should be in the direct control of a head draftsman, or junior member of the firm. He directs all draftsmen, superintendents, engineers, specification writer and plan clerk.

Each man in the drafting-room should give account on proper cards of the time spent upon each job, or upon the general office work. These cards enable the bookkeeper to charge the cost of each job properly in the ledger, adding the correct amount of overhead expense, including rent, insurance and cost of supplies. The plan clerk has charge of the drafting-room supplies, which are kept under lock. These should be given out freely to the draftsmen as they may need them, upon application to the plan clerk.

There is a distinct gain by the standardization of drawings. Architects would do well to fix upon a standard size for details and for large scale drawings. This, naturally, would be of double elephant size, or such as will go without folding in the chest of drawers available. One-quarter inch scale drawings vary in size, but should always be made, if possible, to go in the drawer without folding.

The specification writer should be familiar with the drawings as they are being made, giving such suggestions as his experience leads him to make. After the rough copy has been made the draftsman responsible for the job should have the privilege of reading, checking and making suggestions.

It seems to the writer that the best result is obtained by having a capable man run each job, with assistance according to the magnitude of the work. This man should be allowed either to superintend the work or make frequent visits to it. A general superintendent with many jobs has never proved a success unless the volume of work is large and his sphere is limited to structural details only.

The relation between the men in the drafting-room and builders should be one of co-operation. The skilful builder is always able from his experience to render great assistance to the draftsmen in methods of construction and selection of materials. Imperative orders should rarely be given, but a free discussion permitted in order to obtain the best result. Some clients expect their architect and many architects endeavor to dictate to the builder how to run his business. It has always seemed to the writer a mistake to do more than act in an advisory capacity, provided, of course, the builder is a capable one. The building should be constructed in conformity to the drawings and specifications and in such a way as to carry out the intent of the architect. The builder should be given free rein as to how to accomplish this result and not be needlessly irritated by the dictation of the architect.

In architecture as in other professions there is a

tendency to specialize; it is found that one man is particularly familiar with hospital work, another with the problems of banking, another with private house work and others with details, figuring, checking drawings, etc. The highest efficiency is obtained when men do the work for which they are specially fitted.

In New York it is the usual practice to require of draftsmen forty hours per week; that is a seven-hour day for five days and five hours on Saturday. A few offices, however, divide up the time in such a way that in certain summer months the full time is put in during five days, and Saturday observed as a holiday. This has proven satisfactory to clients and is pleasing to the office force.

The complications of modern work are such that the architect is often compelled to call in experts, particularly in engineering, heating and lighting. There is always more or less friction between the architect's draftsmen and those of the expert. The many consultations must of necessity take place in the drafting-room, and long discussions waste a great deal of time. As far as possible information obtained from the expert should be placed upon the architect's working drawings and only such details as would needlessly confuse them left for the expert's own drawings.

The best work from an architectural standpoint cannot be turned out of an office in which there is the highest efficiency based on the factory system. It is often necessary in the interests of improvement to throw away drawings upon which weeks and months of time and labor have been expended. This is wasteful, but can never be avoided where work of the highest class is expected. The atmosphere of the drawing-room should be not one of push, but one where time is taken to work out problems, to discuss properly, change and modify as much as necessary to gain the best result.—*B. S. F.*

A UNIQUE METHOD OF RECORDING DRAFTSMEN'S TIME

THE business success of any office, its ability to do good work economically, must depend in large measure on the spirit of the staff. The atmosphere most helpful is that of a business family where each member shares the duties and benefits in due proportion — without the not unfamiliar family nagging. Perhaps the most frequent occasion for misunderstanding and consequent ill-feeling lies in the questions of " time " and " salaries." A number of bunkers present themselves.

" Keeping time " in any way is sometimes questioned — a few spoonfuls of temperament seem an unavoidable component for a thoroughgoing " architect " in the draftsman stage, but time clocks or records are particularly frowned upon as introducing an evident sign of supervision and restraint, even in a measure a suggestion of suspicion as contrasted with the very much desired honor system. And since much trouble lies in an administration either too strict or too lax it is important in this matter of time to keep the record in a simple manner, simple at least so far as the staff is concerned, without making it a part of a system of policing.

The first essential is the establishment of regular office hours, avoiding the troubles incident to the men's coming and going at hours of their own choosing. Nine to five or five-fifteen, with lunch hour from one to two, is a good schedule for five days of the week, with Saturdays from nine to one — the whole adjusted to give a forty-hour weekly program, a fair period for work and a time total conveniently dealt with on the salary account.

This time schedule need not be inflexible. Leeway may be given as necessity demands, even as convenience may require, so long as the transaction of business is not unreasonably interfered with. A few minutes of grace where a prompt arrival is difficult may be essential to good spirit — the chance to be at work a bit early or late may gain contentment where the strict rule would lose it. Time lost may be made up by agreement and in the same way time may be gained; that is, stored up, by a few minutes' work before or after regular hours, and all if it will serve to make the world turn more smoothly.

The adjustment of the salary account to the time account may be easily made. The total of time within regular office hours is entered on the time account as " time earned "; additional time, that is, time at work outside regular hours, is noted as " time made up " when it pays a debt due the office, and as " time made up in advance " when the time is earned in anticipation of future use.

In the same way note is made of time lost through absence by choice, by illness, or by other causes. Then when the total time lost through one or more weeks amounts to, say, ten per cent of the week, that is, four hours, the wage equivalent of this lost time may be deducted from the salary. When the total time for the week exceeds forty hours, the excess may be credited as " time made up in advance " which may later be drawn upon for an extension of the regular vacation period or an extra holiday or may be counted to make up for time taken out or lost for any other reason. The time record thus becomes a bank account from which time may be taken or in which it may be deposited for later use; in this way with some offices vacations are often taken piecemeal, a day each week, or otherwise at the convenience of the office, thus interfering but little, if at all, with the conduct of the business.

" Short time " or excused absences may be made up outside of office hours only when so arranged, and the pernicious custom of " overtime " may very often, in fact, almost altogether be avoided by employing

on emergency work those who owe time to the office or who desire to accumulate it for future use. This arrangement has the double advantage of being more agreeable to the staff and less expensive to the office.

SUMMER TIME SCHEDULE

During the summer months, in offices which close for Saturday afternoon, Saturday morning is usually a period of low efficiency; the client probably spends his week-end away from town, the builder often has but half a day at his office or paying off at the job; labor, too, takes a half-holiday, and the architect's staff comes to the office, not actually in bathing suits, but mentally, at least, set for the week-end's pleasure jaunt. Late arrivals explain that errands have to be done, tickets bought or bags packed; early departures catch special trains, and the brief intervening hours are crowded with the little nothings that filter out the production bugs so that the threads of the drafting-room or of the correspondence are but loosely held if picked up at all, and the architect either follows the custom of the Romans or if he must come around spends his day in a futile effort to speed up a lagging output. Or — and this is the solution of this problem — he schedules an extension to the working time of each of the five full working days preceding, making it possible for the staff to complete the full week between Monday morning and Friday night. Those who wish to work through the extra period make their full time, others work only for the usual hours and are paid for a short week or make a full week by calling Saturday morning a part of their vacations. The " bank account " time system absorbs all the vagaries of such a schedule and the output for the " effective time " is improved.

TIME RECORD

In order that these notes may not leave the impression that the time record is a complex affair it may be well to record its real simplicity. The hours of work and the job worked on by each member of the staff are noted daily and later assembled on the payroll sheet once a week. This sheet has in its first column the names of the staff, next the " total hours earned," then columns for the time charged to vacation, to illness, to excused time (that is, time to be made up in the future), to advance time (which is time " in the bank," previously earned, to be drawn on or added to) and, alas, a column for time deducted or docked. It can readily be seen that the total of these columns — extended to a final column at the right — shows time to be paid for, however distributed. This total should always make just the full week of, say, forty hours, except (1) when there is time deducted, in which case the total is less than the full week's time, or (2) when time is " put in the bank," for advance time earned is credited as such, but not included in the total nor paid in the weekly salary.

Making the total come to the full week's time is easily managed by taking advantage of the vacation column, the excused time or the advanced time, and is worth while, as stated at the outset, for the better feeling which it produces. Any office which has not tried this system will find it to repay largely in the spirit which is brought out. It is not a " cure-all," but the desired personal interest and " get together " are largely promoted by the mutual consideration which is induced by this method.

THE PAY-ROLL

With a time schedule definitely established and time totals periodically computed, the next step — and this is one of the most important sedatives, is to make payment at an agreed time for the full regular salary amount and not more or less except when otherwise agreed upon.

" Docking " should be resorted to only for reasons pointed out and clearly understood. Extra time should be paid for as an " extra " only when so requested or agreed. The payment of the full regular wage neither increased nor diminished is the best policy. It goes far, on the one hand, to insure satisfaction, leaving less likelihood of complaint on other scores, and on the other it acts to curb the easily aroused appetite for overtime.

This plan has been described as applied to the weekly payment of salaries, but there is nothing to prevent its adaptation to a system of payments on any other short-time basis. And such frequent payments do not occasion very considerable work if payments are by check instead of by cash. This method obviates the need of making up exact amounts in coin and the trouble incident to pay envelopes and the taking of receipts, while at the same time the salary record is complete on the check stubs.

So much for the exchange of service for funds — the cash drawer and the time sheet. With the approach of the period of open windows and the first signs of building weather there will come discussion of vacations, often a source of misunderstanding.

VACATIONS

In one office there was the usual arrangement permitting two weeks of vacation with salary each year, or a shorter time if the period of employment was less than a year. Each year and each individual brought recurrent problems and finally, to avoid complications because of uncertainty as to when vacations were due or how much vacation with pay would be allowed, and in order generally to systematize a confused situation, the office in question adopted the simple provision that no vacation would be allowed until after six months' connection with the office and also established a limiting date (as at the termination of the fiscal year), up to which vacations earned were calculated. The " vacations

earned " account is now written up for all the staff as of this fixed date, say, May 30; if less than a week's vacation has accrued, that is, if the employment has been for less than six months, the vacation may not be taken during that season except by special arrangement, but the time due is credited and later added to that earned in the following twelve months so that at the end of that period a vacation is allowed for the total time, that is, two weeks plus the time credited on the account the year before. Should the employee leave without having taken the full vacation earned, the amount of salary proportionate to the balance of earned vacation is paid.

The question of how to deal with absences due to illness is naturally a part of this discussion and presents itself in many forms. Some uniform rule is necessary to avoid some degree of complaint and a feeling that all are not treated alike. In some offices in case of illness time out amounting to two weeks is allowed without loss of salary; beyond that, circumstances govern, each case being taken up on its merits. In other offices the entire time lost is paid for. The matter is entirely one for the personal decision of the employer.

PAYING THE PIPER

The time and manner of submitting commission bills to the client has puzzled many a novice. It is well to establish a routine in this and so avoid any occasion for special explanation. A first payment may usually be asked for when the contract drawings and specifications are complete, and if after that the diffident architect allows a matter-of-fact financial statement to accompany each notice to the owner of a payment to be made to the contractor he will automatically reach the end of his billings as the work is completed and the final contract payments made.

And with some such regularity of income established it is the more easy to take care of the inevitable items of expense. Some of the usual charges, such as the telephone, are not subject to discount or economies possible through favorable purchasing. But where the plan is feasible it is well to adopt some businesslike system, as, for instance, to purchase supplies at a price made on the use of a given quantity in a given time, deliveries to be made when ordered and payments at stipulated dates. In some offices it has been found worth while to set a date of payment, say, the fifteenth of the month, for all bills received by a fixed day, such as the fifth. This operates to simplify the situation for both parties and to assure favorable prices through regular payments.

FINANCIAL PERSPECTIVE

This plan of disbursements at fixed dates has another value in that it gives a better basis for easily making the distribution and comparison of office costs — for there should be a cost record. This need not be refined to the uttermost detail; in fact, one very extensive, and somewhat expensive, experiment in this field, proved that analysis in extreme detail was not alone unprofitable, but did not show a result differing in any large measure from that obtained by consideration only of the more important and significant items. Direct charges can be made of much of the cost — the salaries of draftsmen and superintendents can be apportioned according to the disposition of their time; the cost of telegrams, express charges and messenger service when not collected as disbursements can be definitely placed as cost items; supplies are sometimes of such a nature as to permit their identification as evident parts of a job's cost and the writing of the specifications is easily assessed on the work to which it belongs.

The total of direct charges of this character having been determined for each commission during a given time, the overhead charges, rent, general salaries, miscellaneous supplies and other costs for the same period can be totalled and pro rated among the jobs in hand, and each job's cost is thus identified.

Once determined on a monthly (or some other) basis, this cost is to be compared with other figures which should be more comforting. First, the anticipated total commissions or income to the architect is set down, then the amount of that income so far received, and in the third column the cost of the jobs to date. Such a tabulation may be most valuable. It suggests inquiry into the occasion for one job proving profitable, while another eats more than its share, it prompts the speeding up of collections so that each piece of work on a paying basis may be made to carry itself, it may give occasion for a comfortable relaxation with the knowledge that the funds yet to come are well in excess of demands, or be not less helpful in pointing out that the treasury needs help.

Such a record may be developed much beyond this merely basic outline and may be supplemented by many others but they must not be cumbersome or difficult of upkeep. For instance, an interesting sidelight may be found in the comparison from time to time of the figures obtained by compiling the total salaries of the staff and the total hours paid for, both during a given period, and dividing the time total into the salaries' total. The result gives an index figure in the form of " the rate per man per hour " and a little study of the situation with comparison of successive rates may show the staff top-heavy, with a number of higher-paid members, or weakened by the introduction of too many juniors. Such figures are not conclusive but should be considered merely symptomatic.

Professional work on a business basis is not only possible, but a necessity. Systematic team work, fair play and regular attention go far toward assuring success in spite of the attributes of genius which the architectural guild endures or affects.— *S. H. R.*

Notes on the Government's Industrial Housing Program

THE activities of the Government in the housing field are rapidly expanding. The original bill of Congress appropriating $60,000,000 for the Bureau of Industrial Housing and Transportation was no sooner signed by the President than it was perceived by those in touch with the situation that it failed to provide sufficient means for meeting the full demand of laborers' housing. The Bureau recently asked Congress for an additional $100,000,000 but the appropriation committee of the House has provided for only $50,000,000 in its urgent deficiency bill, while the estimated cost of the housing developments already agreed upon as necessary, total $189,295,000 — far in excess of the available funds. The demands for housing are already so great that the Bureau will soon be compelled to approach Congress again for an additional appropriation. The developments upon which actual work has been started represent the expenditure of about $50,000,000 and the passing of further appropriations will be necessary before the others can be started.

As an aid in facilitating the work of the Government in housing, the United States Housing Corporation has been formed, which will take over in large part the functions previously carried on by the Bureau of Industrial Housing and Transportation. The charter was taken out under the laws of the State of New York and the articles of incorporation provide for the issuance of one thousand shares of stock without par value. The executive officers of the corporation are: Otto M. Eidlitz, president; Joseph D. Leland, vice-president; George C. Box, treasurer; and Burt L. Fenner, secretary. The directors in addition to the men named are: Albert B. Kerr, John W. Alvord, and William E. Shannon. The stock is held on behalf of the Government by the Secretary of Labor, with the exception of one share each held by Mr. Eidlitz and Mr. Box.

Another change in procedure dictated by the experience of the last few months relates to the financial policy of the Government. One of the conditions formerly attendant on a community's housing shortage being relieved, was that funds equaling twenty per cent of the cost of the development should be supplied by local interests. This was in most cases supplied by the industries that the houses were to benefit, but it called forth a protest from organized labor because of the reluctance of workmen to live in houses owned by their employers. To avoid this complication and also delays in construction, the Bureau now proposes that the Government shall own entirely the dwellings it erects, renting them for the period of the war, and leaving their final disposition till after the war.

The plans for the housing of clerical workers in Washington are moving on apace. Sites have been selected at Union Station Plaza and on one of the Government owned squares between 14th and 15th Streets, south of Pennsylvania Avenue for the erection of dormitories for men and women clerks. They will be constructed of terra cotta blocks with stucco coating similar to the big war offices recently erected on the Mall. While they will be temporary, every means for comfortable living will be provided. In plan they will take the form of several wings, according to the site, each wing to provide for 150 individual rooms supplied with running water. In each group a central dining and recreation hall will be erected. Before December 10,000 additional clerks are expected in Washington. The present dormitory plans will accommodate between 5000 and 6000 and it is hoped that the room registry will be able to find quarters for the remainder.

HOUSING APPOINTMENTS

Since the publication in our previous issue of the list of Government housing developments under way, the following projects have been assigned:

Portsmouth, N. H., Allen & Collens, Boston, architects.

Newport, R. I., Clarke & Howe, Providence, architects; A. A. Shurtleff, Boston, town planner.

Staten Island, N. Y., Delano & Aldrich, New York, architects.

Bethlehem, Pa., (clubhouse) A. W. Leh, South Bethlehem, architect.

Watervliet, N. Y., A. P. Lee, Troy, architect.

Hammond, Ind., J. C. Llewellyn, Chicago, architect.

New Castle, Del., Charles C. May, New York, architect; George F. Pentecost, New York, town planner.

Waterbury, Conn., Murphy & Dana, New York, architects; F. M. Hinchman, New York, town planner.

Elizabeth, N. J., Charles W. Oakley, Elizabeth, architect.

Washington D. C., Navy Yard, Ray & Waggaman, Washington, architects.

Lowell, Mass., James H. Ritchie, Boston, architect.

Lowell, Mass., Henry L. Rourke, Lowell, architect.

Aberdeen, Md., Sill, Buckler & Fenhagen, Baltimore, architects; Stephen Child, Washington, town planner.

New Brunswick, N. J., Trowbridge & Livingstone, New York, architects.

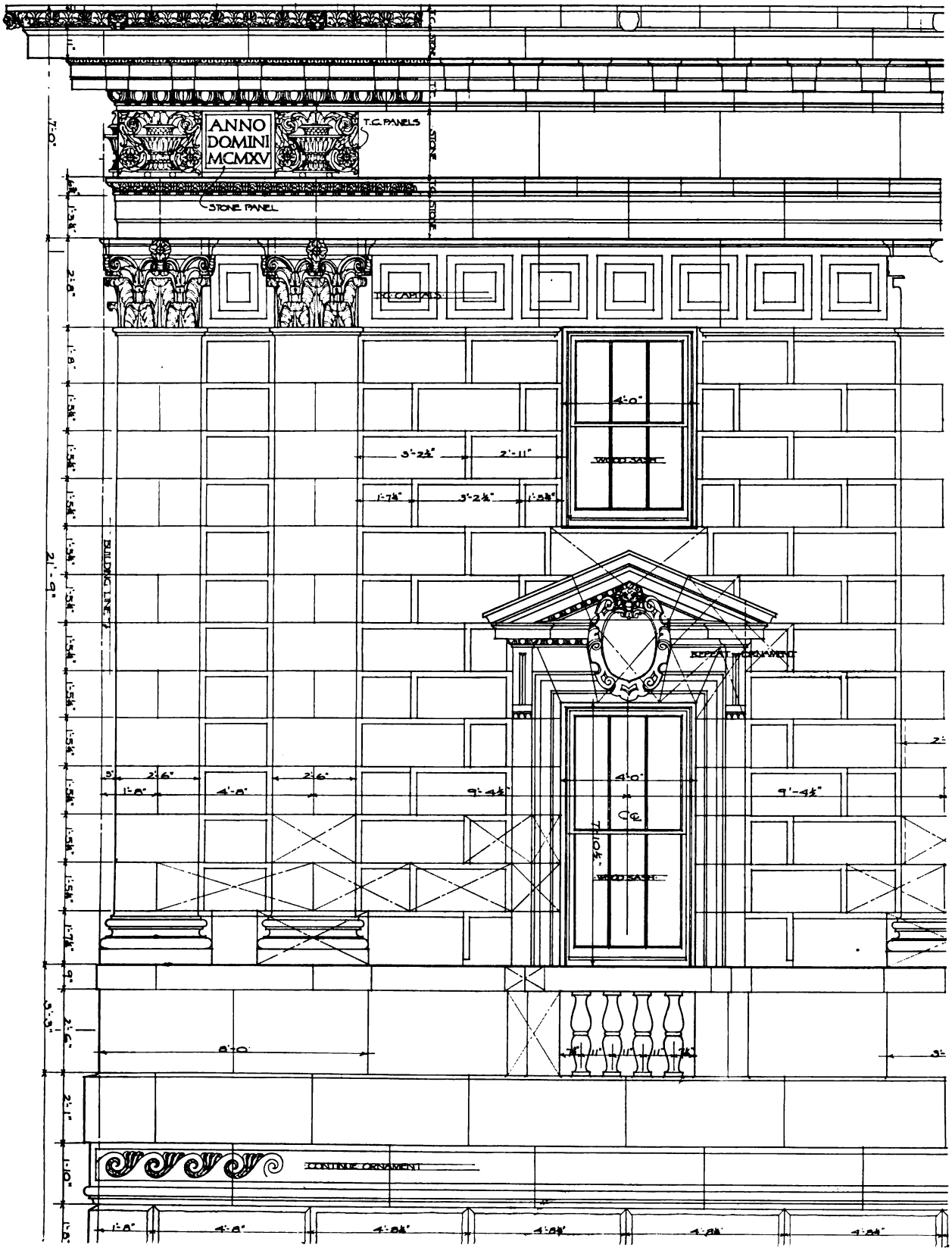
Sheffield, Tuscombia and Florence, Ala., Warren & Knight, Birmingham, architects.

Sharon and Butler, Pa., and Niles and Warren, Ohio, George H. Schwann, Pittsburgh, architect.

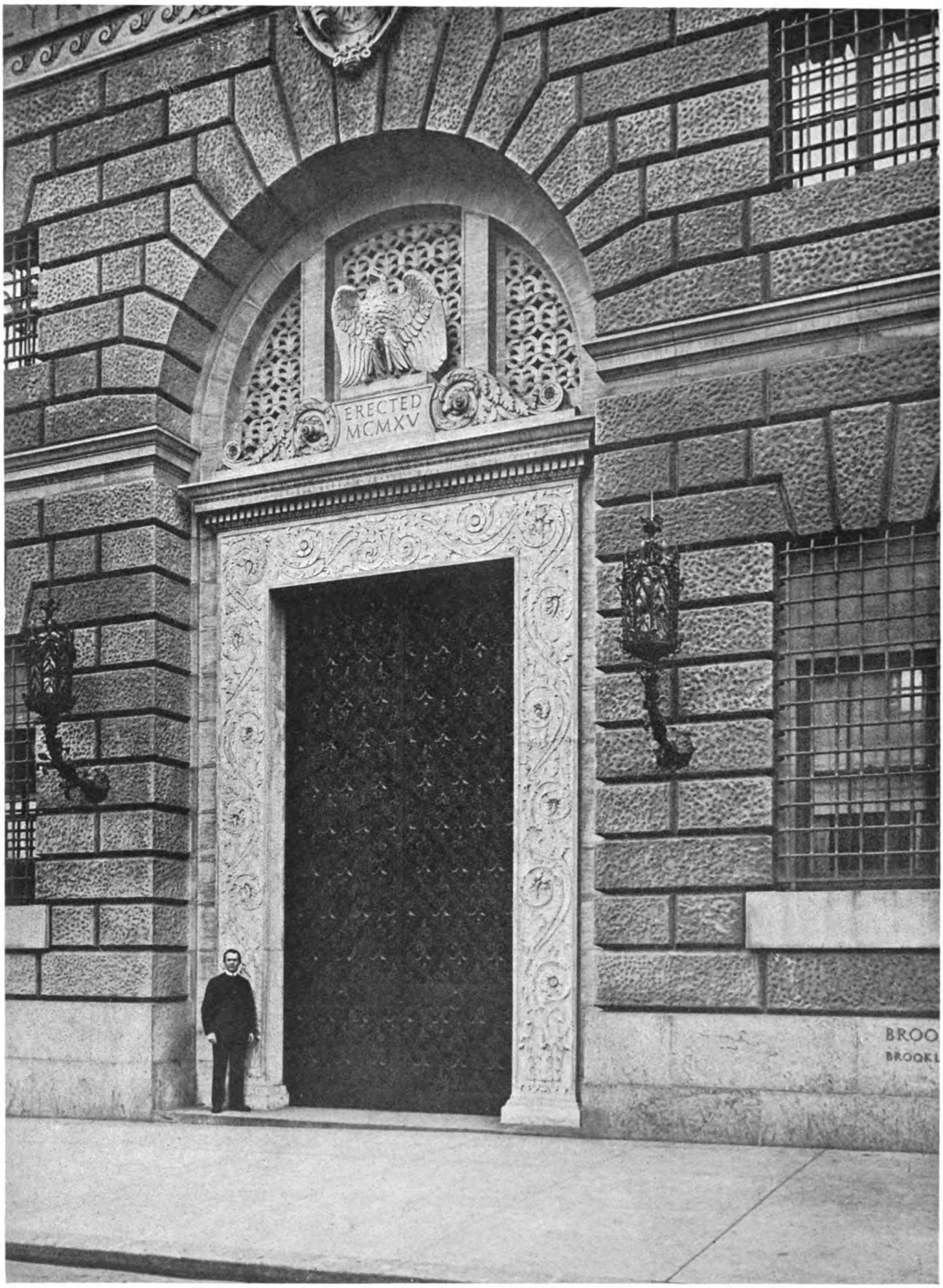
MONTAGUE STREET FACADE

BROOKLYN TRUST COMPANY BUILDING, BROOKLYN, N. Y.

YORK & SAWYER, ARCHITECTS



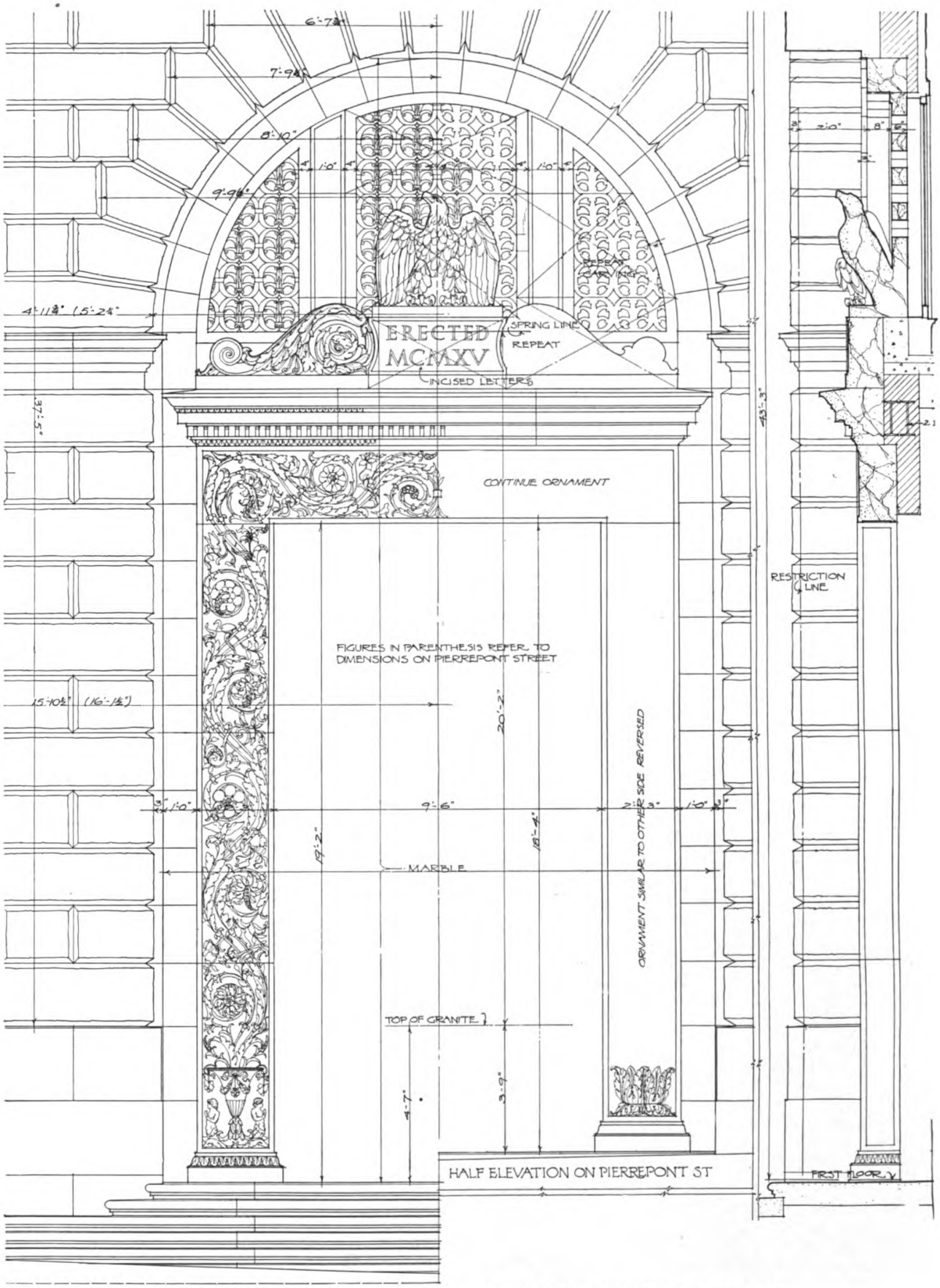
DETAIL OF UPPER STORIES OF CLINTON STREET FACADE
BROOKLYN TRUST COMPANY BUILDING, BROOKLYN, N. Y.
YORK & SAWYER, ARCHITECTS



DETAIL OF PIERREPONT STREET ENTRANCE

BROOKLYN TRUST COMPANY BUILDING, BROOKLYN, N. Y.

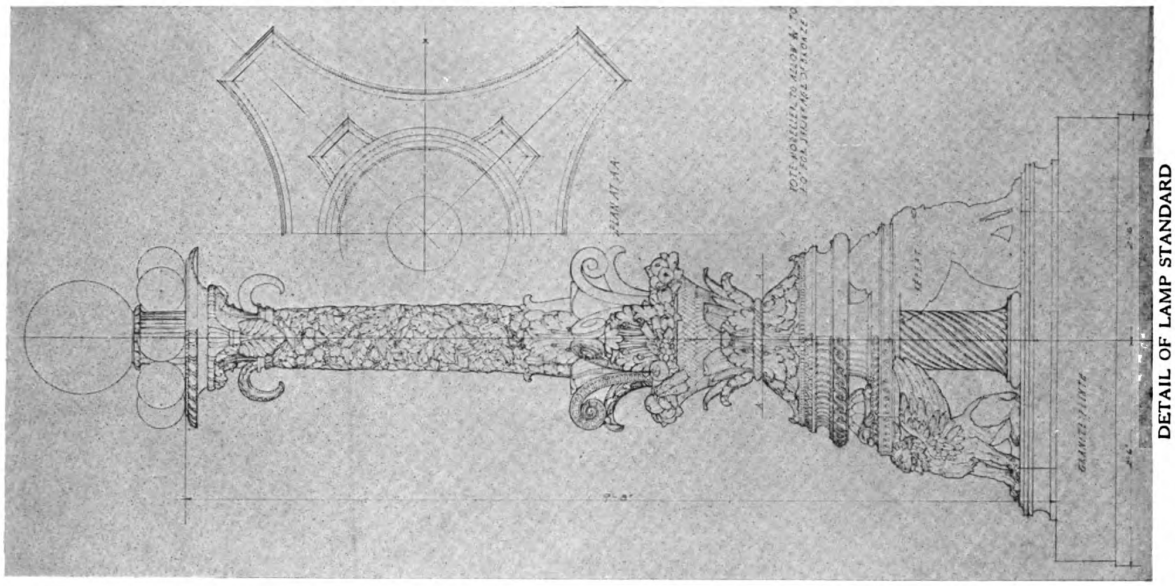
YORK & SAWYER, ARCHITECTS



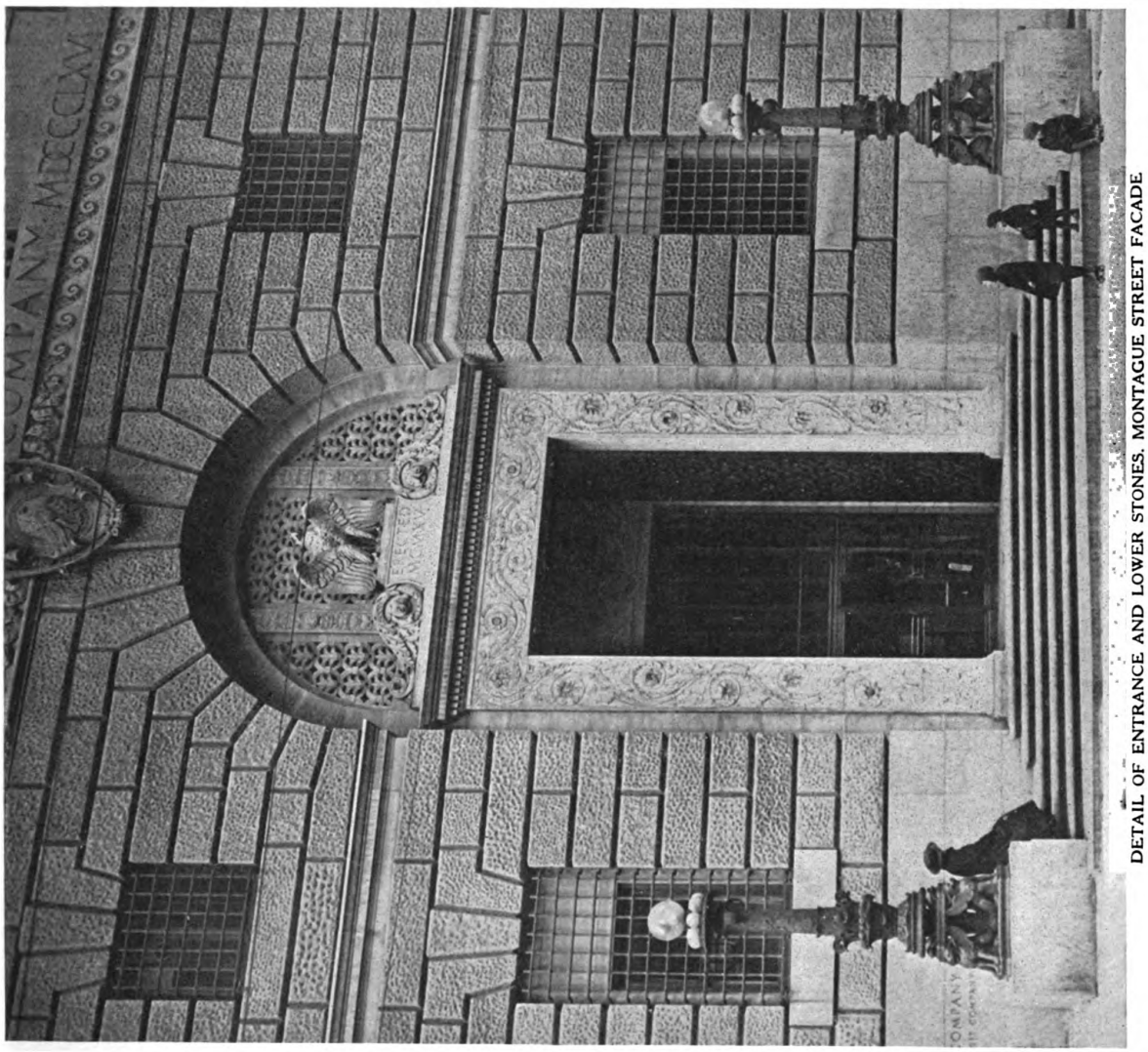
DETAIL OF ENTRANCE DOORWAYS ON PIERREPONT AND MONTAGUE STREETS

BROOKLYN TRUST COMPANY BUILDING, BROOKLYN, N. Y.

YORK & SAWYER, ARCHITECTS



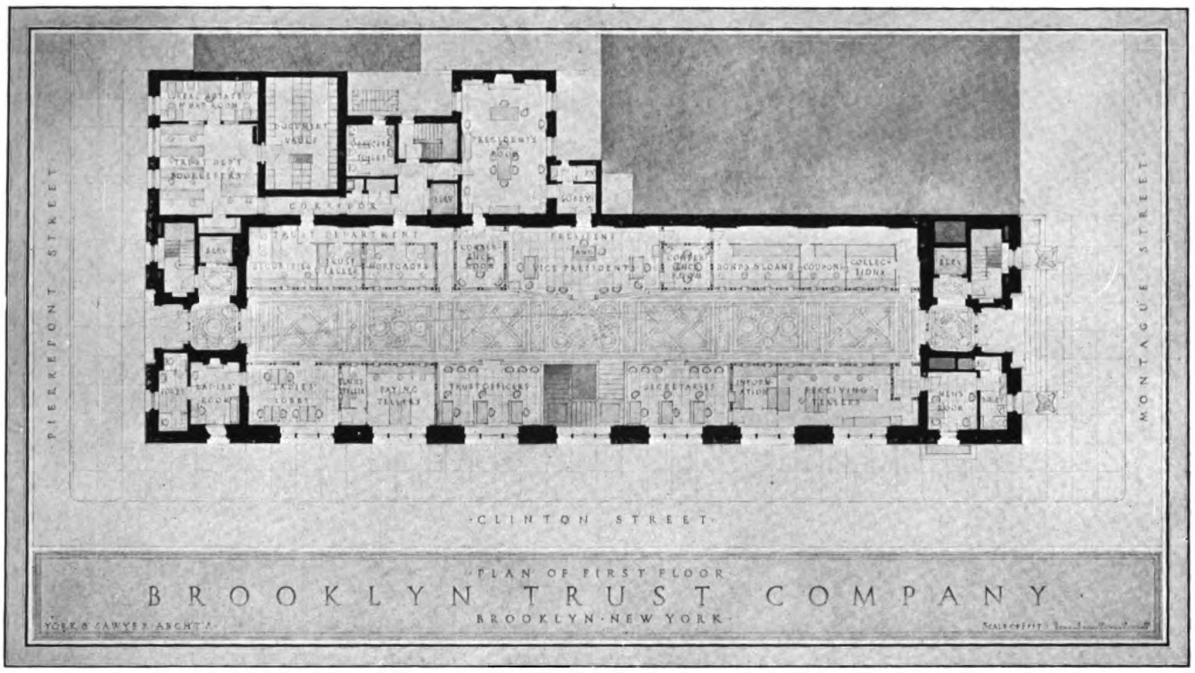
DETAIL OF LAMP STANDARD



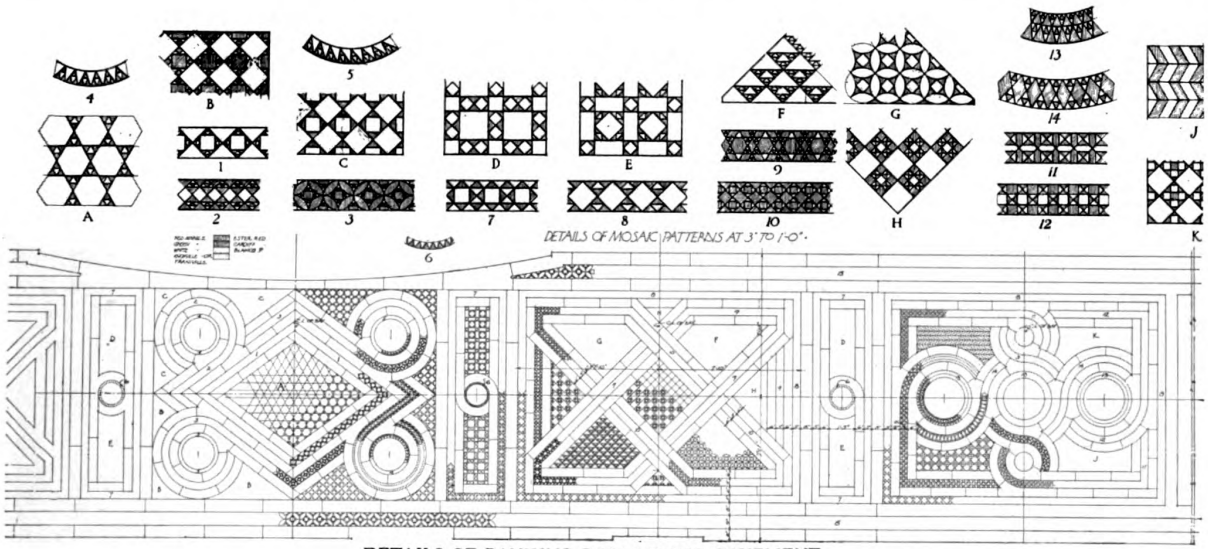
DETAIL OF ENTRANCE AND LOWER STONES, MONTAGUE STREET FACADE

BROOKLYN TRUST COMPANY BUILDING, BROOKLYN, N. Y.

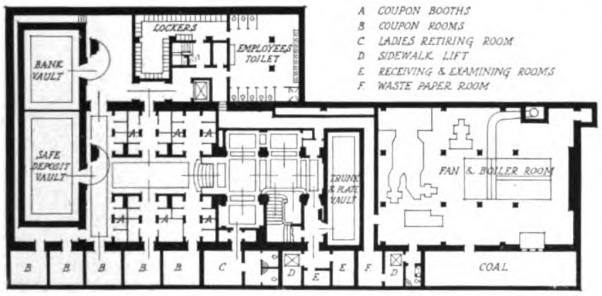
YORK & SAWYER, ARCHITECTS



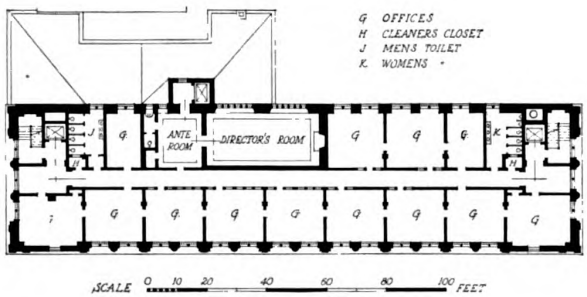
FIRST FLOOR PLAN



DETAILS OF BANKING ROOM FLOOR PAVEMENT



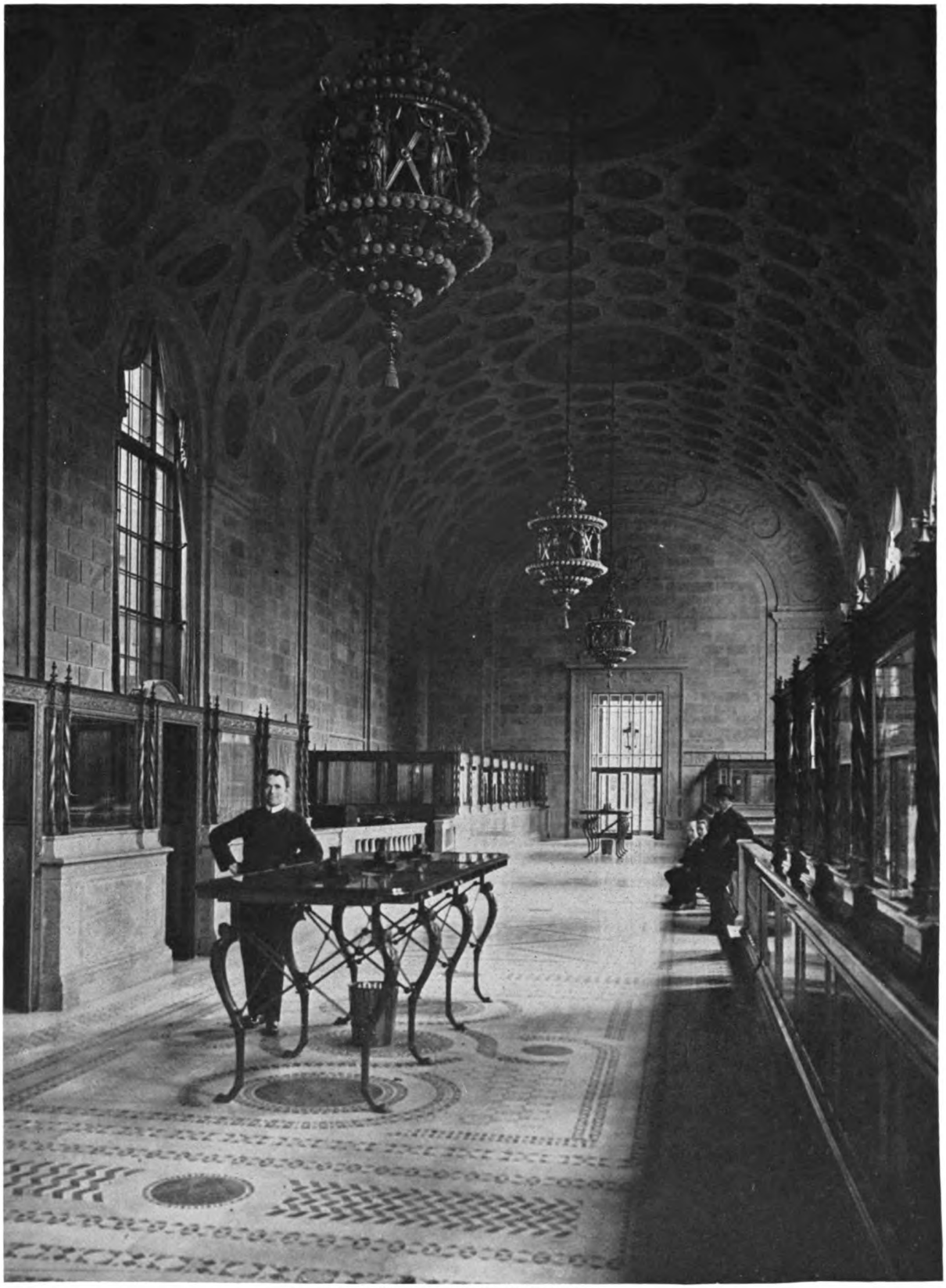
BASEMENT FLOOR PLAN



TYPICAL OFFICE FLOOR PLAN

BROOKLYN TRUST COMPANY BUILDING, BROOKLYN, N. Y.

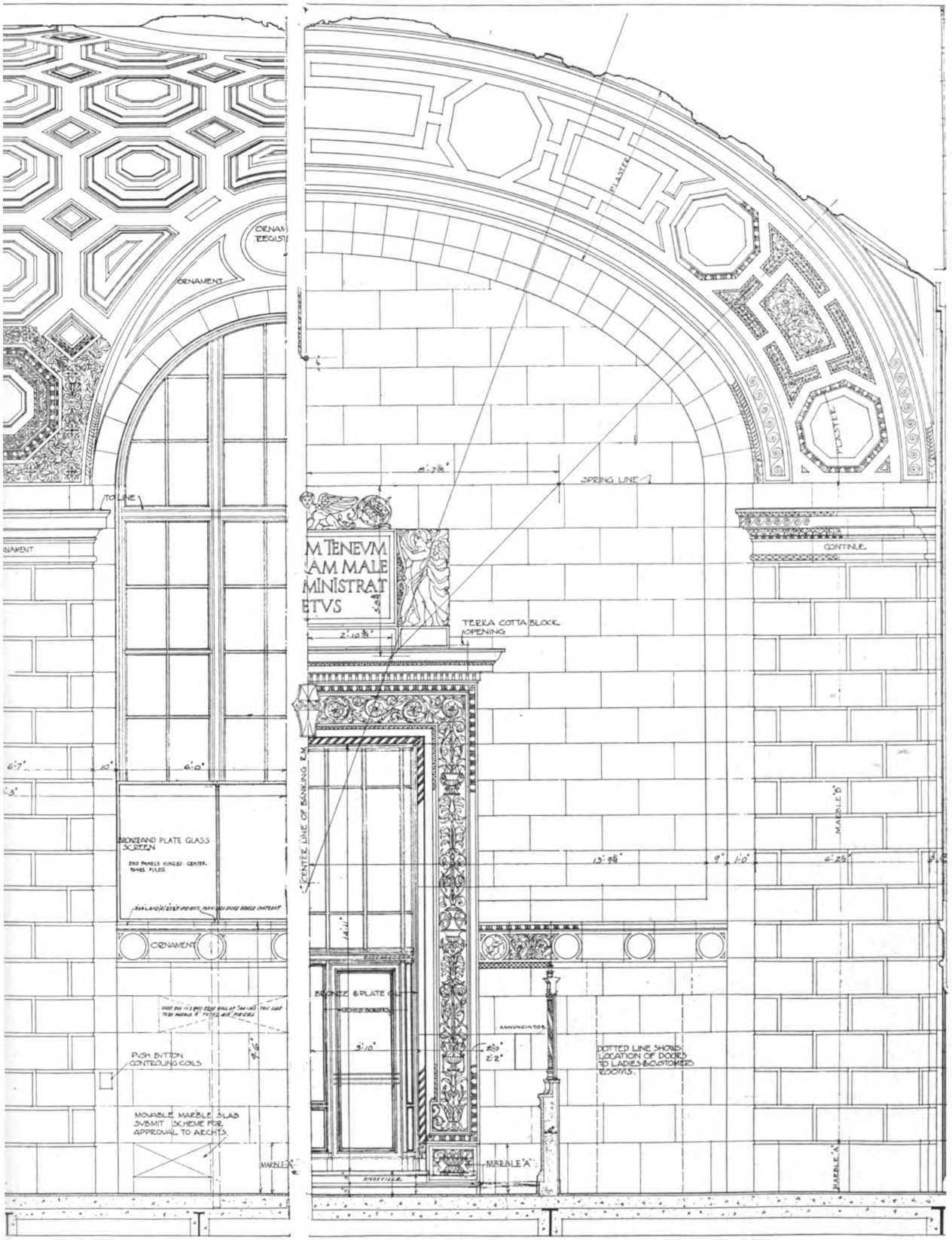
YORK & SAWYER, ARCHITECTS



INTERIOR OF BANKING ROOM

BROOKLYN TRUST COMPANY BUILDING, BROOKLYN, N. Y.

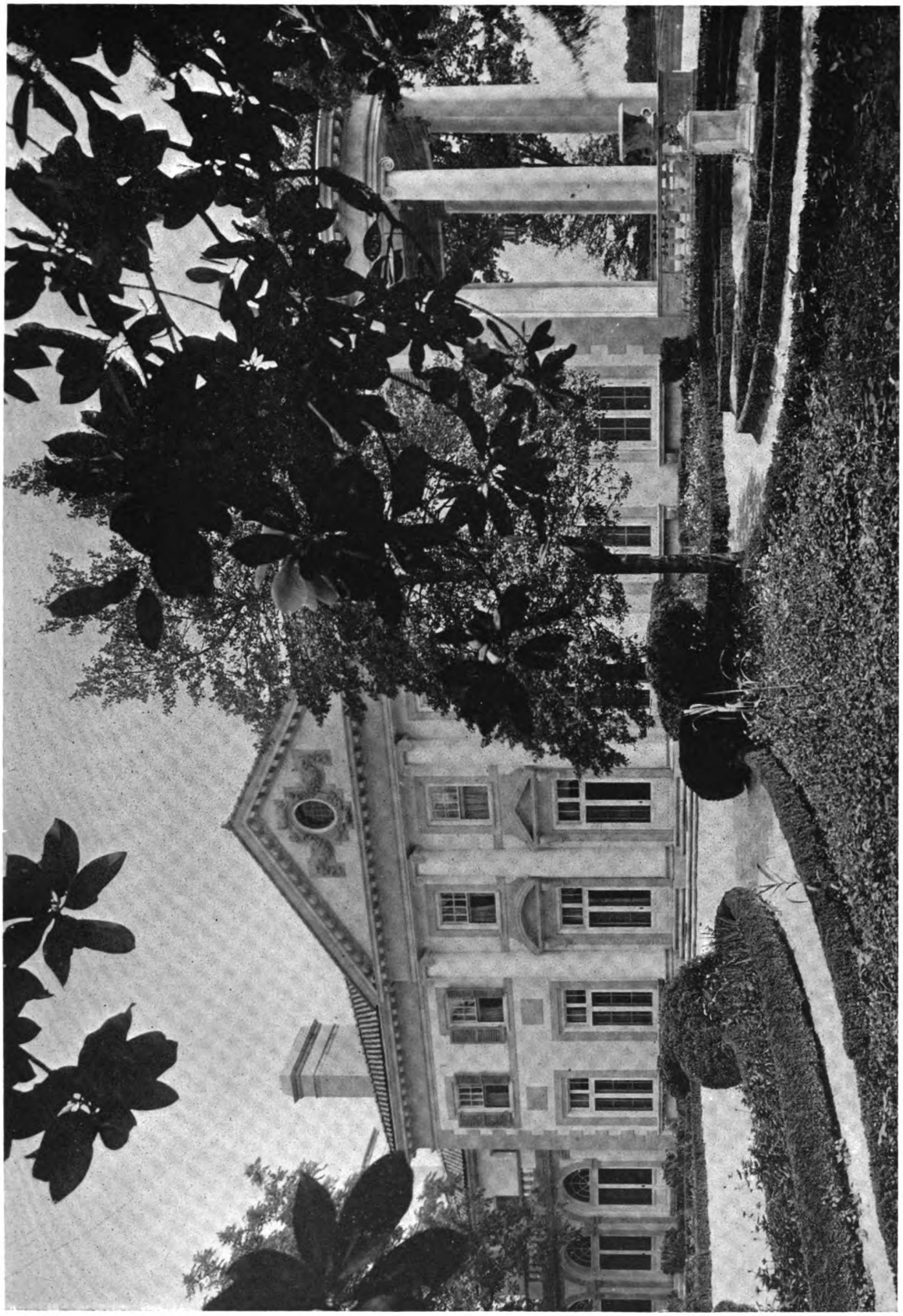
YORK & SAWYER, ARCHITECTS



DETAILS OF SIDE AND END ELEVATIONS OF BANKING ROOM

BROOKLYN TRUST COMPANY BUILDING, BROOKLYN, N. Y.

YORK & SAWYER, ARCHITECTS



HOUSE OF FULLER E. CALLAWAY, ESQ., LA GRANGE, GA.
HENTZ, REID & ADLER, ARCHITECTS

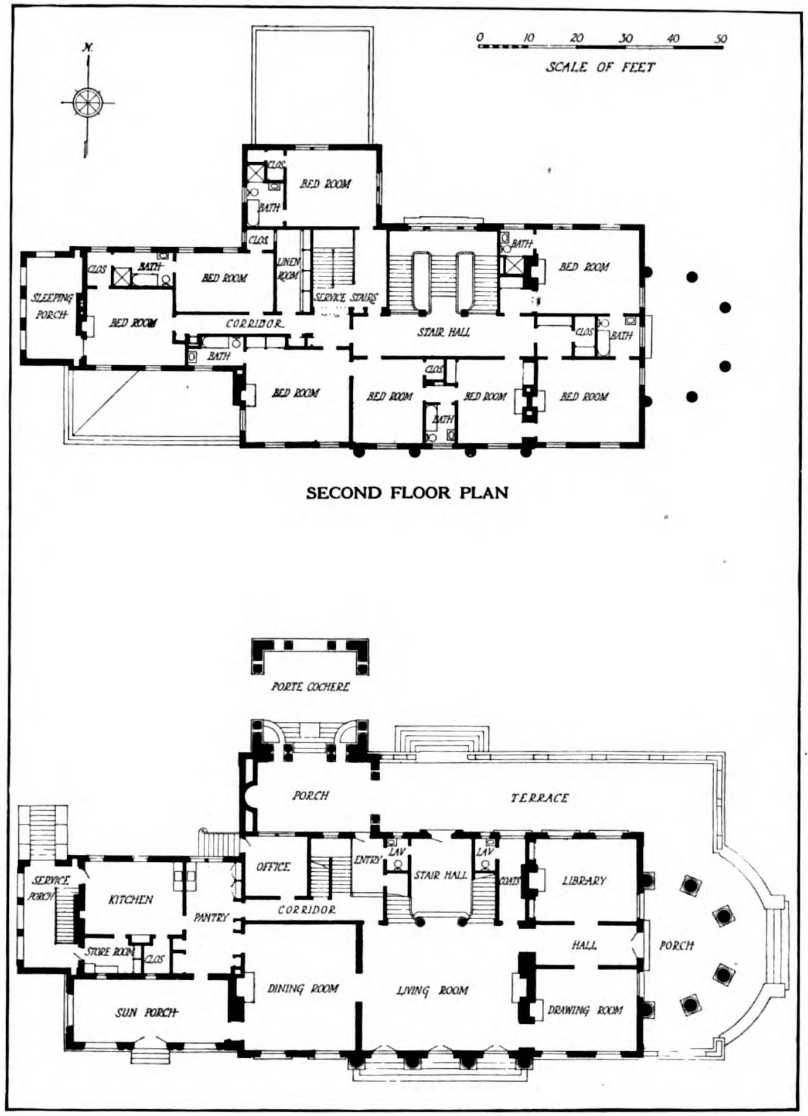
STAIR HALL ENTRANCE

VIEW ALONG TERRACE

HOUSE OF FULLER E. CALLAWAY, ESQ., LA GRANGE, GA.

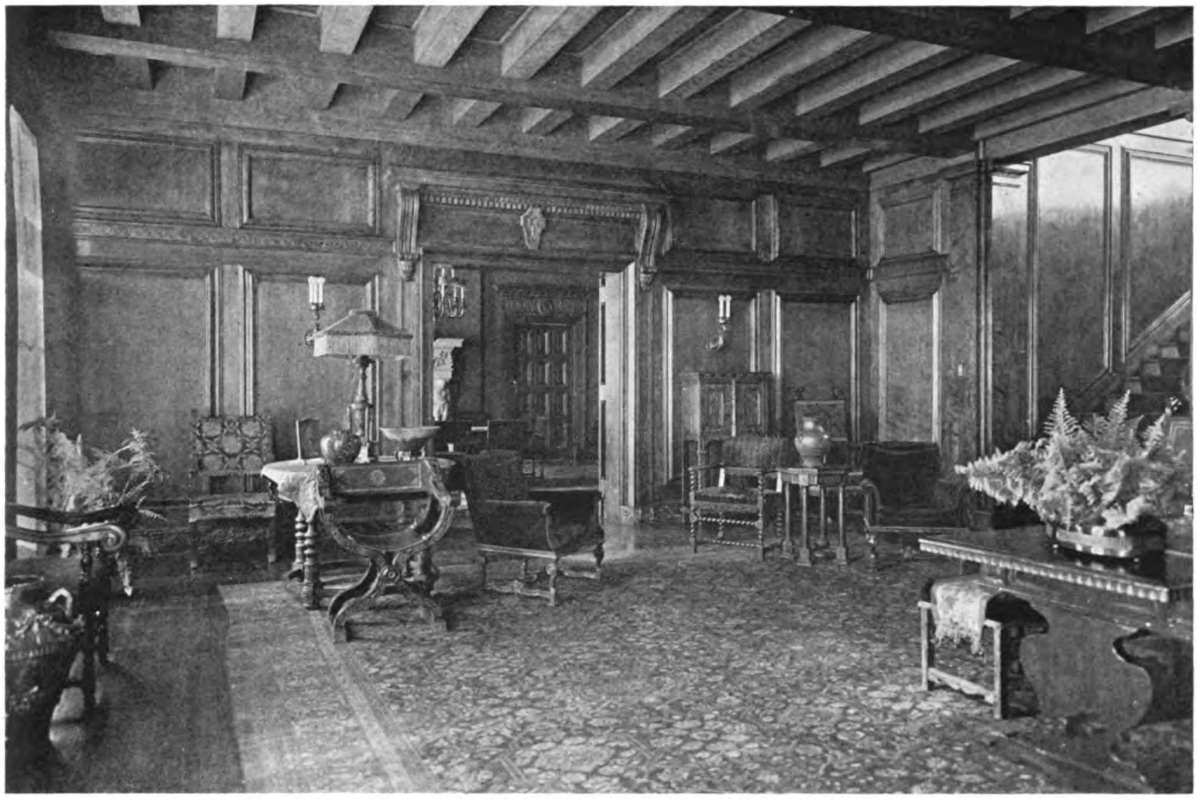
HENTZ, REID & ADLER, ARCHITECTS

DETAIL OF DRAWING ROOM



HOUSE OF FULLER E. CALLAWAY, ESQ., LA GRANGE, GA.

HENTZ, REID & ADLER, ARCHITECTS

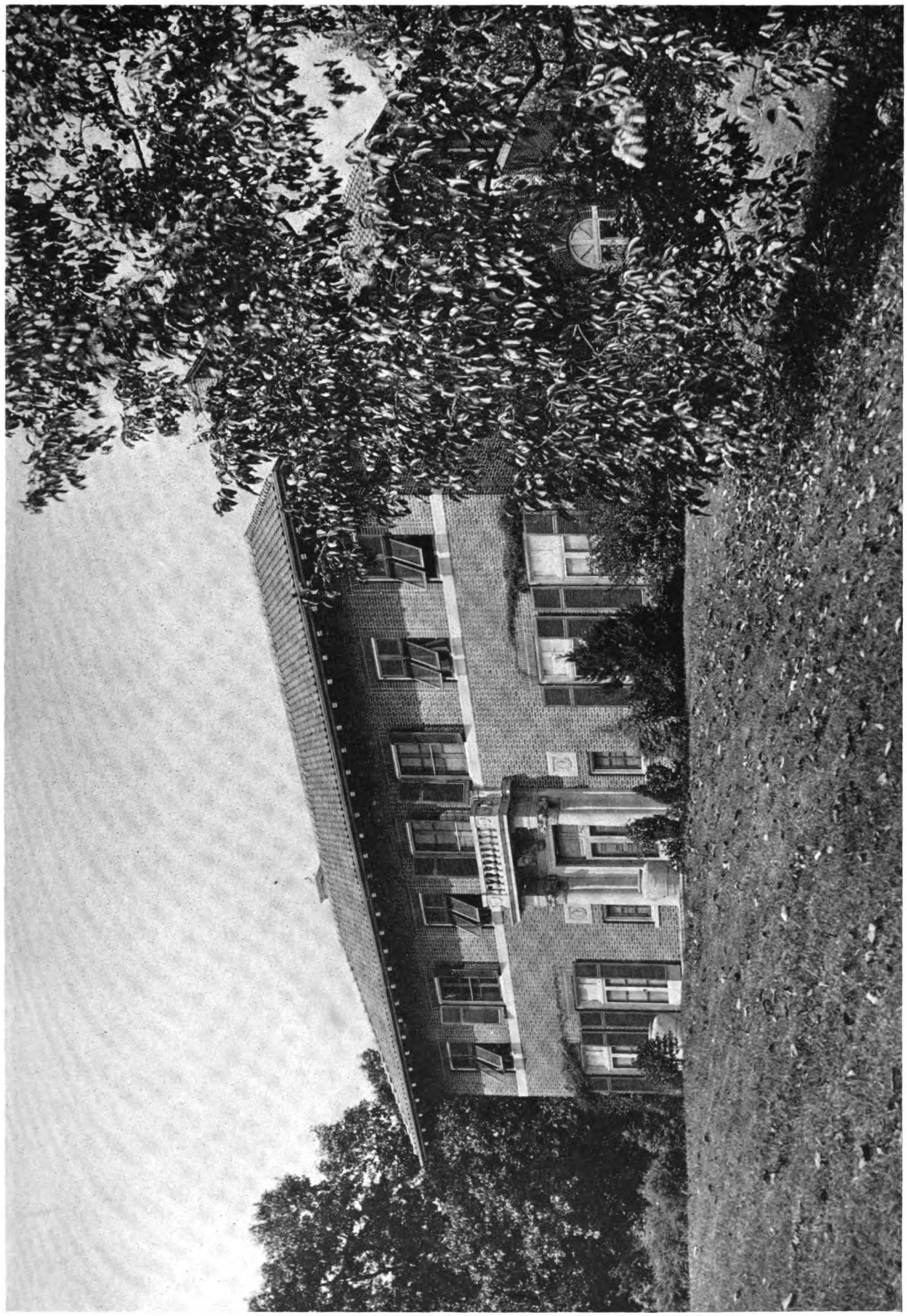


VIEW OF LIVING ROOM

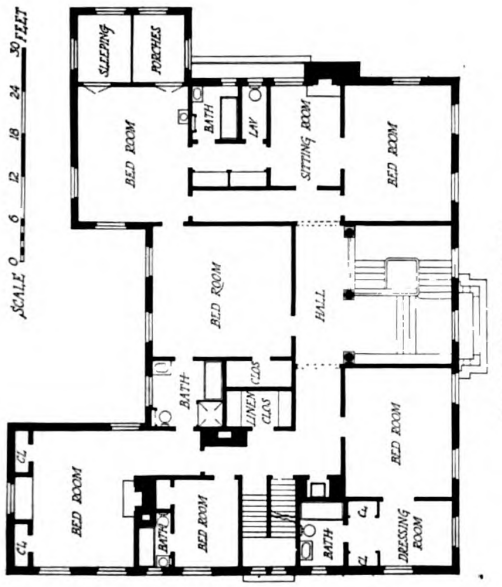
VIEW OF DINING ROOM

HOUSE OF FULLER E. CALLAWAY, ESQ., LA GRANGE, GA.

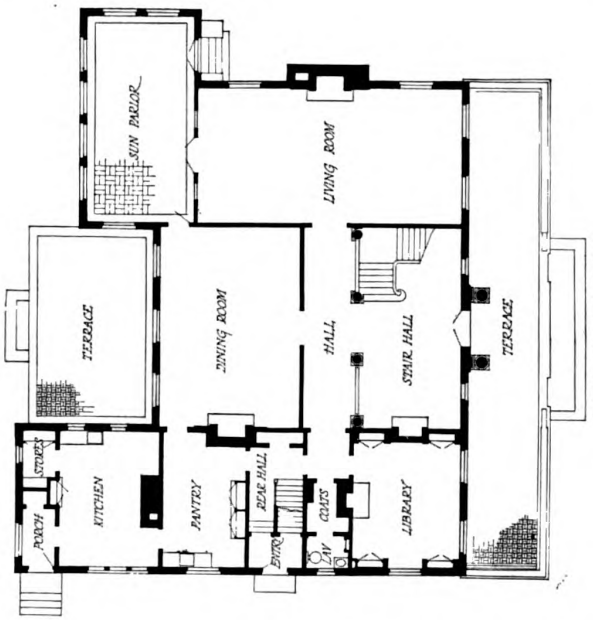
HENTZ, REID & ADLER, ARCHITECTS



HOUSE OF BENJAMIN Z. PHILLIPS, ESQ., ATLANTA, GA.
HENTZ, REID & ADLER, ARCHITECTS



SECOND FLOOR PLAN

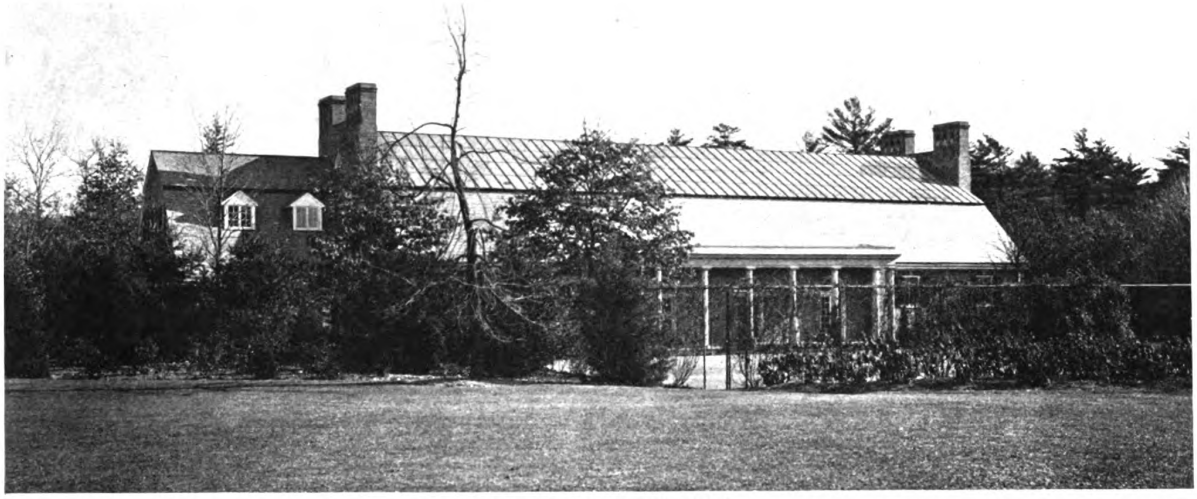


FIRST FLOOR PLAN

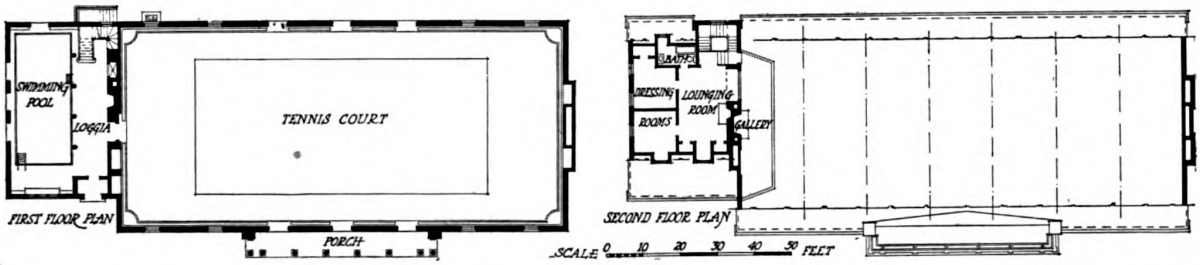
DETAIL OF ENTRANCE DOORWAY

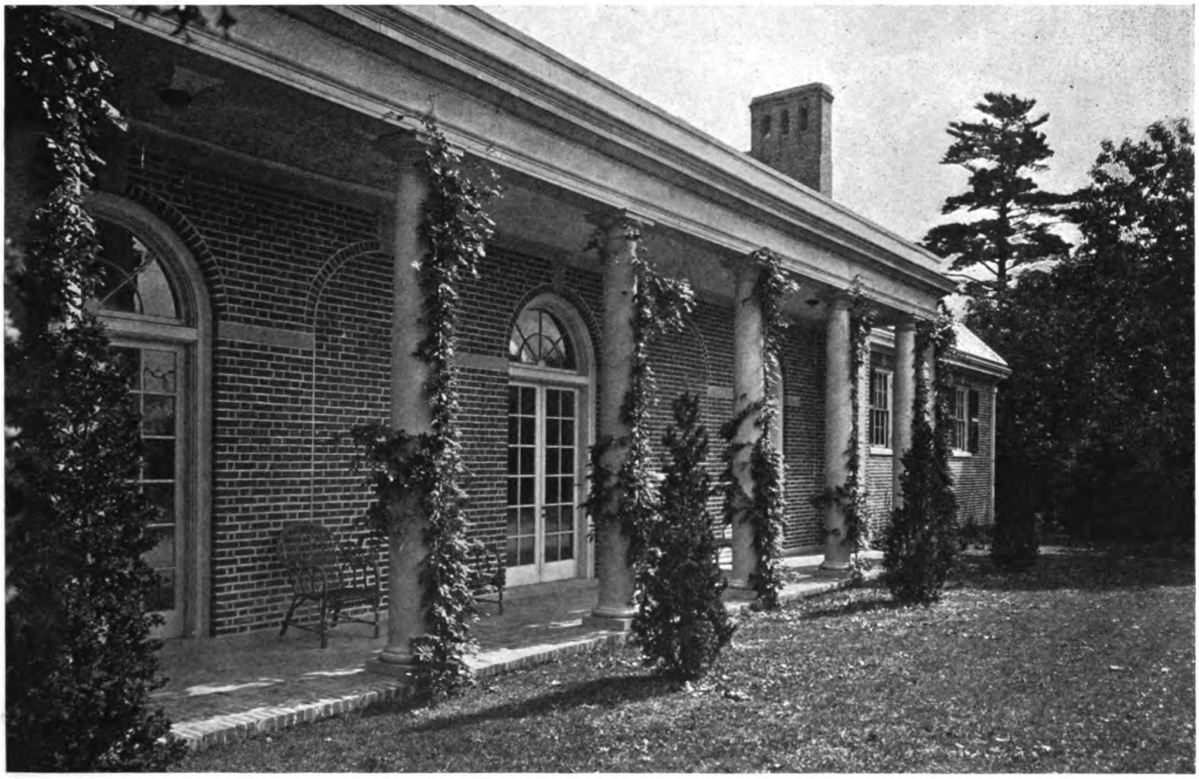
HOUSE OF BENJAMIN Z. PHILLIPS, ESQ., ATLANTA, GA.

HENTZ, REID & ADLER, ARCHITECTS



GENERAL VIEW OF EXTERIOR

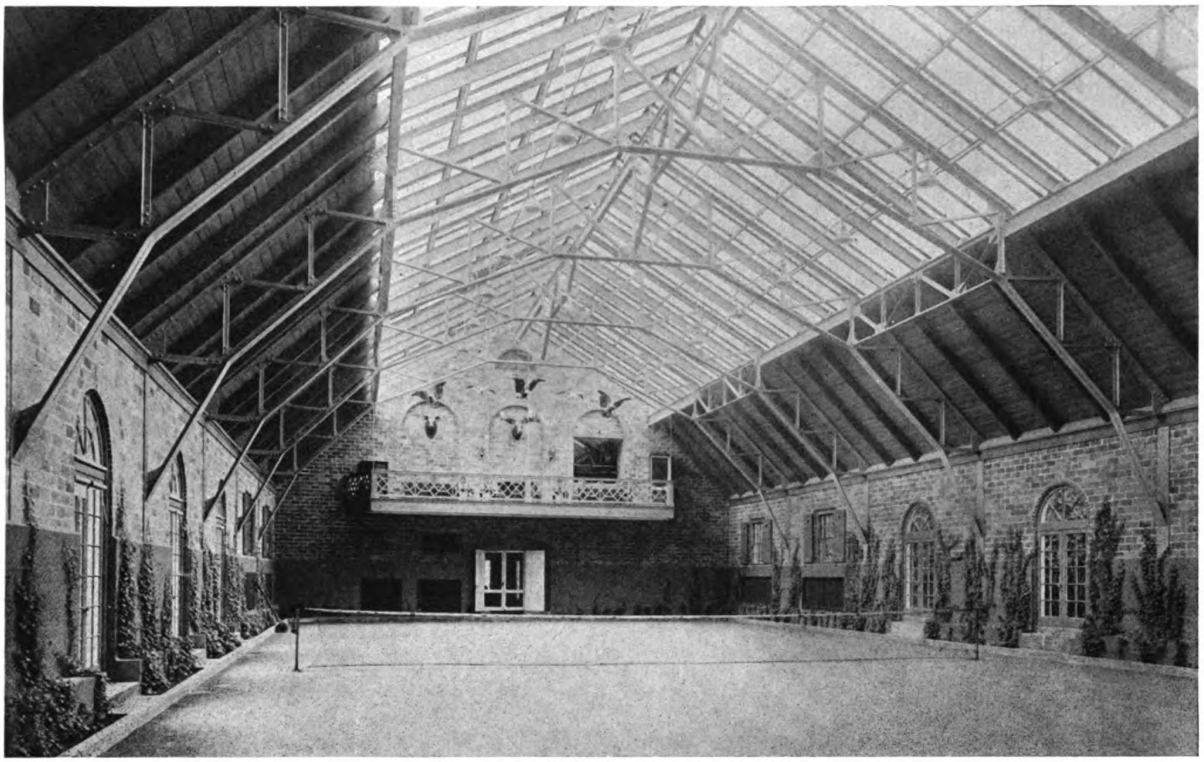




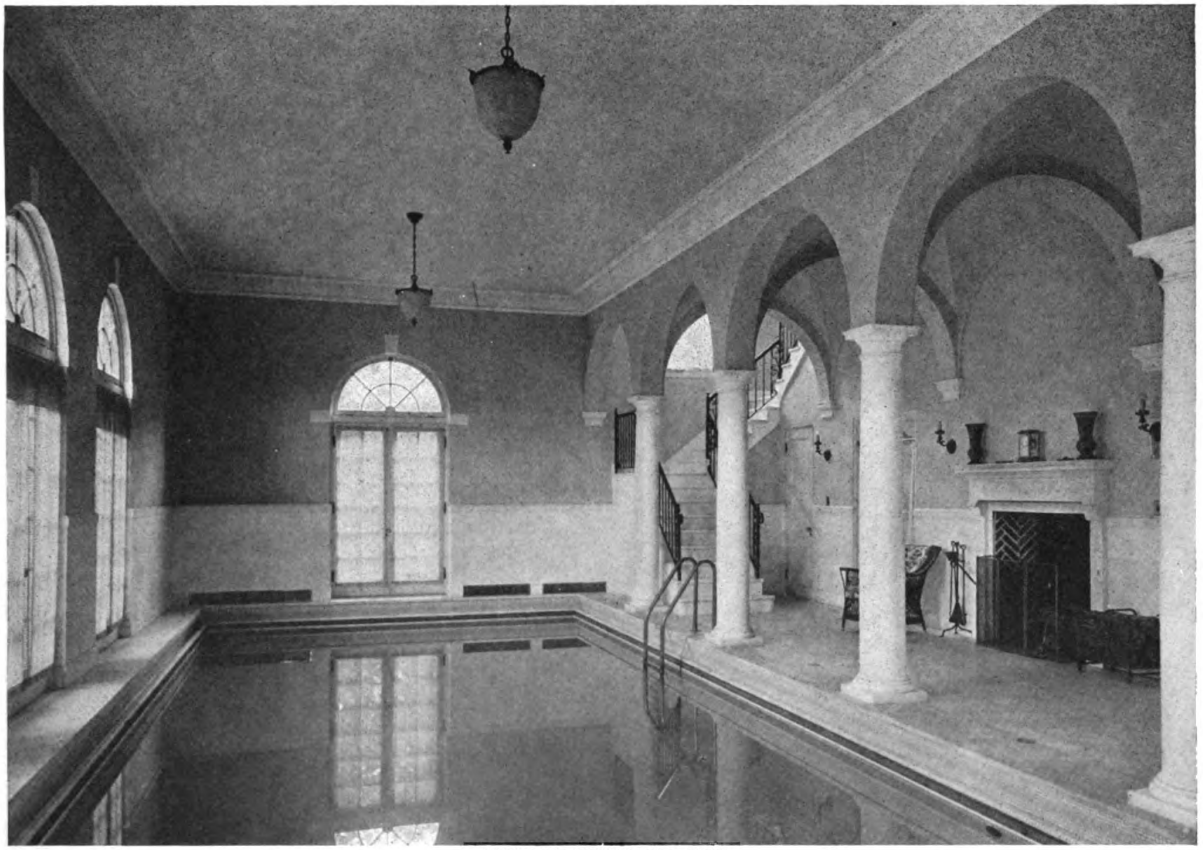
DETAIL OF PORCH

TENNIS COURT BUILDING OF F. L. AMES, ESQ., NORTH EASTON, MASS.

CHARLES M. BAKER & STANLEY B. PARKER, ARCHITECTS



VIEW OF TENNIS COURT ENCLOSURE



VIEW OF SWIMMING POOL

TENNIS COURT BUILDING OF F. L. AMES, ESQ., NORTH EASTON, MASS.

CHARLES M. BAKER & STANLEY B. PARKER, ARCHITECTS

Recreation Buildings for Officers and Men at the National Army Cantonments

THE training of our military forces for service overseas illustrates many principles differing from custom in previous wars and shows the addition of features providing for comfort and recreation that were unknown in military camps of earlier days. The training of a civilian army is a huge undertaking when the men engaged exceed the million mark and the matter of keeping them contented and wholesomely occupied during leisure hours is quite as important a problem as teaching them the science of war. Previous to our entrance into the European War we had been afforded in our policing of the Mexican border an opportunity of seeing the effect of military life on men when no provisions for recreation were made. The results were not such as would produce the most efficient fighting force. The dreary stretches of brown sand scattered with adobe huts were in themselves most depressing; add to that the absence of all recreation centers save a few dirty Mexican saloons and it is not remarkable that the men soon became listless and uninterested.

The value of this experience was not lost, however, and the conditions of our great training camps today present a striking contrast to those on the Mexican border. At the beginning of the war a Commission on Training Camp Activities was appointed by the President with Raymond B. Fosdick at its head. Through this centralized bureau a great many different organizations are working in harmonious relations for the benefit of the men in the army and navy.

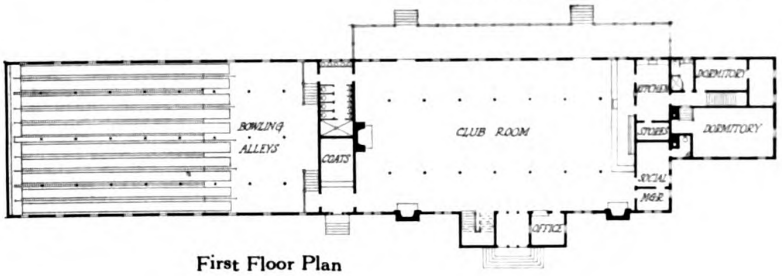
The first organization to lend its effort to the work and which contributes service of the widest scope was the Y. M. C. A. Before the first of the draft army entered the cantonments the Y. M. C. A. had erected tents and was prepared to welcome the new men to camp and help them adjust themselves to their new environments. Very soon after, their buildings were erected and the service extended so that buildings are now provided in the larger camps at distances not greater than a mile apart. These are known as " Y " huts and are of two general types, one, the " E " type, having a large room used as an auditorium and a wing for an assembly room and canteen; the other, the " F " type, having only the large single room. Up to May first of this year 503 of these huts had been constructed in the various army and navy camps in this country at a total cost of $3,231,071 and buildings authorized but not yet constructed comprise 69 at an estimated cost of $304,664.

In the larger cantonments there are, in addition to the huts, buildings for the administration headquarters and a large central auditorium seating approximately 2800 men. This provides space for theatrical performances, lectures and other entertainments and on Sundays for large religious gatherings. The central area is free from supporting posts and is large

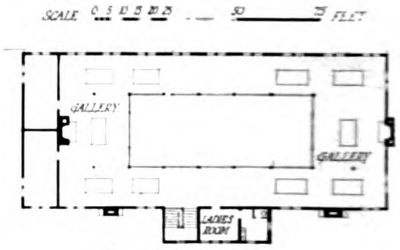
Entrance Front, Enlisted Men's Club, Camp Devens, Mass.
Parker, Thomas & Rice, Architects

enough to accommodate two basketball courts. All the buildings are of wooden construction similar to the army barracks but with an outer covering of siding and a row of dormer windows on both sides of the pitched roof which act as a clerestory in flooding the interior with daylight. The buildings have become standardized, and the plans, adopted after much study and experience, reproduced herewith show how well fitted they are to their purposes. The heating is effected by large stoves set on concrete foundations. The work of designing and constructing the buildings is carried on by the Construction Division of the Y.M.C.A. with which a number of architects have become affiliated. The management of the huts is under trained workers who have their sleeping quarters at one end. Each of the buildings has small private rooms for class work and ample facilities for writing letters, reading, etc. The service supplied by the Y.M.C.A. is fourfold and of such widely varying character as to meet the desires of every man in camp.

Interior of Enlisted Men's Club



First Floor Plan



Second Floor Plan

View of Robbins Pond Front
Enlisted Men's Club, Camp Devens, Mass.
Parker, Thomas & Rice, Architects

Interior of Red Cross Recreation House

It provides educational work through French, English and other classes, social work by means of free motion picture shows and other entertainments, recreation by means of games carried on within the huts and athletic instruction in the auditorium.

One of the early features of the camps was provided by the Y. W. C. A. for the accommodation of women guests. These buildings are known as Hostess Houses and provide a much appreciated service. There is one in each camp located at an accessible spot near the entrance, furnishing a convenient meeting place for soldiers and their visiting friends. They are of a standard type with an H-shaped plan designed by F. B. & A. Ware, architects, and constructed in a substantial manner of wood framing with brown-stained shingle exterior walls and prepared roofing. A feature of the interior is the large central chimney of field stone or brick with two fireplaces, one on the lounging-room side and the other on the dining-room side. Glazed sun porches that extend across two sides of the exterior afford space for large or small gatherings. The houses are further equipped with rest rooms for visiting women, a children's room, a check room, and on the second floor, in addition to quarters for the hostess and her staff, rooms for women guests who wish to remain overnight at the camp. The meals are served on the cafeteria principle and the system of passing up one side of a rail and down the other past the counter where the food is distributed enables large numbers of people to be served quickly and without any confusion.

Another organization which is furnishing distinctly valuable service in a separate field from that of the Y. M. C. A., K. of C. and Jewish Welfare Board, whose main activities are confined to recreation within the camps, is the War Camp Community Service. The work of this body is concerned with the recreation of the soldier and sailor outside of camp in the neighboring cities in which they may spend their time of furlough. It is quite as important, if not more so, that provisions for recreation and safeguarding morals should be available in the cities as in the camps, and the early realization of this by a group of interested people was instrumental in the founding of the W. C. C. S. Under the direction of this body community entertaining is conducted, soldiers' clubs and hotels where sleeping accommodations may be had at moderate cost, and recreation and opportunity for reading and writing at no charge, are operated in the cities near the camps. Bureaus of information are also conducted which direct the men in service to proper amusement places, points of historical and literary

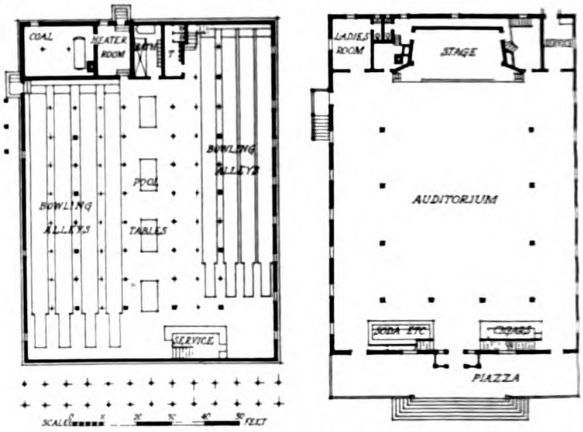
Red Cross Recreation House, Base Hospital, Camp Devens, Mass.
Marshall & Fox, Architects

Y. M. C. A. Hut for the Navy, Philadelphia, Pa.

interest, and living accommodations for themselves and members of their families. This work has been carried on through voluntary contributions made in the last year totaling $4,000,000.

Two of the clubhouses erected and maintained by the W. C. C. S. are illustrated herewith. One is located on West Street, in the town of Ayer, Mass., near which Camp Devens is situated. The other, called the Enlisted Men's Club, is on Robbins Pond in the precincts of Camp Devens. This is an exception to the rule that the W. C. C. S. activities are carried on without the borders of the camps and was occasioned through the fact that after construction, the area of the camp was extended and the site of the club brought under control of the Government. An interesting example of the thoroughness with which the Government enforces its regulations for sanitary arrangements in its camp buildings is shown by this coincidence. Some of the details of equipment did not meet Government specifications and the changes in the building that were required in the matter of toilet accommodations and kitchen facilities, such as the covering of table tops with zinc, etc., required the expenditure of $12,000. This building was designed by Parker, Thomas & Rice, architects, who contributed their services to the work above the actual cost of preparing plans.

It has a pleasing location on the shores of a small pond and has the character of a country club in its plan and exterior appearance. The exterior is of white painted siding, its architectural effect being gained by the grouping of windows and long, gently sloping roof surmounted by a colonial cupola. The interior is finished in wall board with an open timbered roof over the central part that comprises the lounging space. A wide



Basement and First Floor Plans of Soldiers' Club

W. C. C. S. Soldiers' Club, West Street, Ayer, Mass.
Loring & Leland, Architects

balcony supported by posts extends around all sides of this room and provides space for billiard tables. Opening from the balcony and over the main entrance is a ladies' retiring room. The woodwork of the interior is left in the natural state. The kitchen and facilities for cafeteria service are in one wing and the toilets and bowling alleys in the other. Three fireplaces of interesting brick design and bookcases along the walls form a focal interest at one end of the main room. The building cost about $40,000. It is devoted exclusively to the service of privates, officers not being privileged to make use of it. It is operated by a committee of non-commissioned officers selected from the men in camp and is self-supporting. The monthly income from the cafeteria and recreation facilities is approximately $10,000. Should any profits exist they are utilized in the enlargement of the club and extension of its service.

Y. M. C. A. Auditorium, Camp Devens, Mass.

The club in the town of Ayer is operated on a similar basis and is similar in its appointments to the Enlisted Men's Club. The building was designed by Loring & Leland, architects, and cost about $50,000. The building is provided with a stage at one end of the main room so that entertainments may be given. There is no cafeteria service conducted, but light refreshments may be had at a soda-water counter. The basement is given over to bowling alleys.

The recreation of the convalescents in the base hospitals presents still another problem and this is met by the Red Cross. In connection with each of the base hospitals there are being erected large recreation houses provided with ample facilities for soldiers recovering from illness or wounds. The one illustrated herewith is at Camp Devens and is of an individual type differing from that which has now been adopted as standard. These buildings are characterized by ample porch space and well-lighted interiors. The porches are connected with the covered passages between the ward buildings so that convalescents may pass from their wards to the building with convenience at all times. The interior is chiefly occupied by one large hall resembling in its form the nave and aisles of a church. At the south side, lighted by a long group of windows is a raised platform serving as a stage and in the daytime a sun room. The clerestory walls above the covered verandas admit great quantities of daylight.

The interior treatment of the hall in the Camp Devens building is most effective and obtained with the simplest means. The roof is of open timbers

Y. W. C. A. Hostess House, Camp Devens, Mass.
F. B. & A. Ware, Architects

GENERAL VIEW OF EXTERIOR

LOUNGING ROOM

OFFICERS' CLUB, CAMP UPTON, LONG ISLAND, N. Y.

Officers' Hostess House, Camp Upton, Long Island, N. Y.

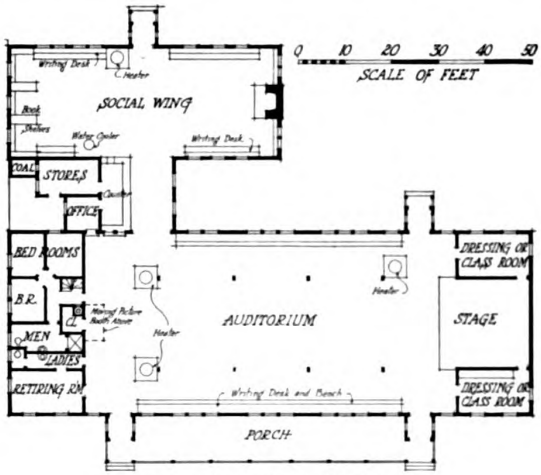
with trusses and supporting posts of rough lumber stained a deep brown. The walls are sheathed to a height of six feet with siding similarly stained, and above it they are covered with cream-colored wall board separated with brown panel strips. The flags of the Allies attached to the posts, the red curtains at the proscenium opening, and bright chintz window hangings contribute an agreeable atmosphere of color. This building as well as the standard type which has a cross-shaped plan, but otherwise quite similar, was designed by Marshall & Fox, architects, and erected by the Red Cross Bureau of Construction, of which Mr. Charles E. Fox of that firm is Associate Director. Over fifty-five recreation buildings of this character have been built by the Red Cross in connection with the hospitals in this country.

From the foregoing the number of the agencies at work for the benefit of the men in the army and navy and the great service they are rendering may be appreciated. In providing these many sources of recreation for the men, provisions for the officers have not been overlooked. In every camp in the country attractive places for relaxation and recreation are in use by the officers, that have been provided through their own initiative or through private groups of people interested in their welfare. In some camps the officers have taken over one of the barracks, where by remodeling and the addition of interior conven-

Interior of Officers' Hostess House, Camp Upton

Interior of Officers' Club, Camp Upton

iences and attractive furnishings they have established clubs. In other camps, as at Camp Upton, a special building has been erected. The one at Upton is particularly interesting in showing what attractive results may be had by good architectural treatment of the simplest type of inexpensive wooden construction. The white painted, clapboarded exterior with inviting porches presents a spot of relief in the great sea of unpainted barracks and military structures that can only fully be appreciated by the men living there. The interiors show open timbered ceilings formed by the floor construction, and walls of wide battened boards, stained in soft colors. Large stone fireplaces and comfortable furniture add the touch of comfort and refinement that is needed in the hours of relaxation from military duty.



Floor Plan of the Typical Y. M. C. A. Cantonment Hut, Type "E"

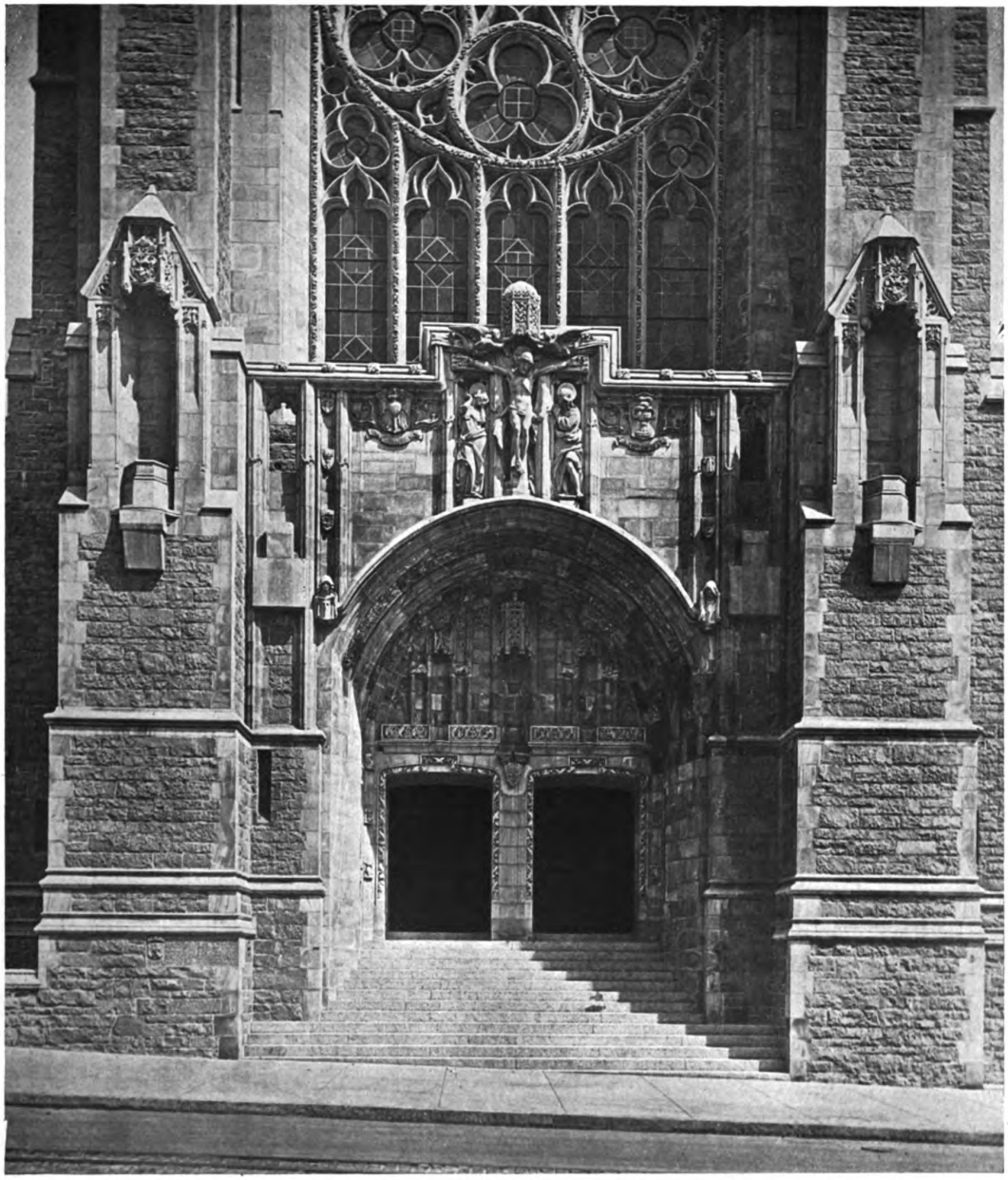
The benefit to the morale of the men through the contact with such elements that preserve the associations of civil life has been proved without question and in this work architects have played a large part. Many have freely given of their best effort to the designing of these buildings with no financial compensation. In doing so they have contributed a valuable service which, consciously or unconsciously, is felt by the thousands of men training in the camps, to the great benefit of their mental and physical stamina. Appreciation of simple art and ingenuity of design have enabled these architects to model out of inexpensive and homely materials restful centers of recreation. The welcome with which their efforts are received and the satisfying manner in which they fulfil a great need prove once again how fundamentally important is the art of architecture in our daily life and how necessary its expression to civilized and educated people.

The work of the war relief organizations is not confined to this country alone; it precedes our men to Europe and there under more trying circumstances the same cheerful spirit of helpfulness is dispensed, not always in equally well appointed buildings, as the fighting front is approached, but in Paris, London, Manchester and other cities of our Allies well equipped clubs for Americans are now in operation.

Y. M. C. A. Eagle Hut, Bryant Park, New York City
This is similar to the Typical "F" Hut of the Cantonments

THE FORUM COLLECTION OF MODERN GOTHIC ARCHITECTURAL DETAILS

PLATE SEVEN



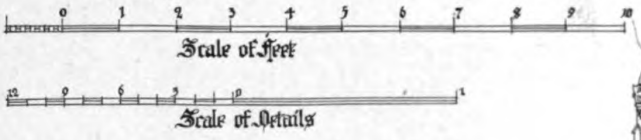
AN excellent example of the Gothic style handled in a broad manner on a church façade of large scale. The delicacy of the pierced carving is well related to the mass by the strong mouldings which define the ornamented areas. The interdependence of sculpture and architecture has been consistently recognized. The models are the work of Lee Lawrie.

DETAIL OF DOORWAY, CHURCH OF ST. VINCENT FERRER, NEW YORK

BERTRAM GROSVENOR GOODHUE, ARCHITECT

DETAIL DRAWING BY J. P. WILSON AND E. T. JAGO ON FOLLOWING PAGE

Church of St Vincent Ferrer:
Lexington Avenue: New York:
Detail of Arch of Main Doorway.
Bertram Grosvenor Goodhue, Archt.



Sculptor: Lee O. Lawrie.

Brick Used as a Means of Interior Decoration

THE CITY HOUSE OF EDWARD H. NOYES, ESQ., BOSTON, MASS.

H. B. RUSSELL, ARCHITECT

FOR a number of years past there has been a growing appreciation among architects of the inherent beauty possessed by many building materials of the most common origin. With the greater attention that is now given to proportion, texture of wall surfaces, color harmony, and the lesser dependence upon applied decoration for architectural conceptions, the selection of constructive materials, with reference to their physical appearance has become a matter of prime importance in the execution of architectural design.

Brick has probably to a greater extent than any other material been used in work where particular emphasis has been placed upon the color and texture of wall surfaces. The use of this material has generally been confined to exterior walls with the exception of some instances of its use in cafés, and sun rooms of residences. It is therefore a distinctly novel means of interior decoration to employ common brick for the walls of the principal rooms of a private residence. The illustrations shown herewith convey an impression of comfortable living quarters of strong architectural character, the predominating note of which is their brick walls! At first thought, such a method of treatment suggests cold, uncouth and barren rooms in which there could be no interest, yet the exact opposite is the case. The rooms pictured present a warmth of tone and interest to the eye that would be difficult to duplicate in another material, particularly so as the effect is due to the texture and color of the walls alone, for aside from the furnishings and the simplest architectural features such as mantels, there are no other means of decoration employed.

The fact that the house is the result of an alteration to an old building was the means of suggesting this experiment which has culminated so successfully. The building is located in a part of Boston which has been reclaimed in recent years from a period of neglect into which it had fallen, and now exhibits a gradually attained architectural character equal to that of the days in which it formerly enjoyed its great popularity as a residential section. Many of the buildings in the locality date back a hundred years and more and nearly all are of brick, having the characteristic marks of craftsmanship that were so universal among our early building materials. The side walls of the house are the original party walls of the older building; their warmth and color, little irregularities of coursing and interesting texture suggested their being retained without any external finish, and duplicating them as far as possible in the new construction that was necessary. This has been admirably carried out and the resulting work is of exceptional charm, something the camera, unfortunately, is not able to portray fully because of its inability to reproduce color tones, and as it is the color of the walls that is the outstanding feature of these rooms, it must be left to the reader's imagination, aided by the illustrations which indicate the conditions of light and the general physical aspect, to form his own mental picture.

Detail at Front of Living Hall

Much of the effectiveness of the house is derived from its lighting, which may be explained by a brief description of the plan. The building is located within a block, the front wall on the street line, the principal rooms occupying the whole frontage and extending three deep on each of the two floors. On the first floor at the front is the large living hall, which also serves as the entrance, in the center of the house is the court and to the rear, opening from a little lobby, are the kitchen and service facilities together with accommodations for a manservant. The central space, suggestive of those smaller courts to be found in Italy, forms the center around

VIEW OF LIVING HALL

DETAIL OF LIVING HALL

HOUSE OF EDWARD H. NOYES, ESQ., BOSTON, MASS.

H. B. RUSSELL, ARCHITECT

VIEW OF INTERIOR COURT

HOUSE OF EDWARD H. NOYES, ESQ., BOSTON, MASS.

H. B. RUSSELL, ARCHITECT

which the other quarters of the house are grouped. It extends to the roof and is lighted from the sky, the sunlight from the large glass ceiling being filtered through cream-colored cloth, affording a wealth of mellow light that permeates the whole house. The side of the court opening to the living hall is formed of glazed doors which may be thrown open making practically the entire first floor one large apartment for entertainment or other purposes. Access to the second floor is by an open staircase of masonry construction on one side of the court and on the opposite side at the second floor level is an open gallery leading to the bedrooms at the rear of the house. The portion of the court above the glazed doors is open to the music room at the front of the second floor and divided with old Italian columns resting on a parapet. From whatever room one may look into the court, a charming picture is presented, and the effect at night, due to electric bulbs placed about the skylight and above the cloth screen, is equally engaging as that in sunlight.

As stated before, the distinguishing feature of the house is the warm tone of the brick walls. It approaches a soft rose color and was obtained by the simple process of sand blasting the old brick. This exposed a clean surface and removed sufficient of the mortar in the joints to set off the individual bricks as units, thereby casting small shadows that contribute a richly textured surface. The floors of the first story are likewise of common brick, laid in basket pattern with the flat side exposed. This is the surface which in manufacturing is not moulded smoothly and the consequent irregularities of firing make a floor of interesting character. The side of the court seen from the living hall, and the stairway, are coated with stucco of a grayish pink color to afford variety, but no strong contrast is apparent for the stucco repeats the lightest tones of the brick. The doorway and arched opening above are carried out in a smoothly surfaced cement with only enough reveal to enable them to stand out from the rougher surfaces of the stucco wall. A graceful treatment in the nature of an architrave is formed about the opening over the doorway by the simple modeling of two concentric surfaces of slight reveal in a pleasing outline. The architectural qualities of the court are enhanced through the use of growing vines and plants placed at advantageous points.

The music room also has walls of brick and is, like the court, lighted from a central ceiling light screened by cream-colored cloth, in addition to two windows reaching to the floor and leading to small exterior iron balconies. The floor of this room is of wide oak boards, and the ceiling, as are the others throughout the house, of rough gray plaster. This room is admirably furnished with old Italian furniture having damask upholsteries of a light dull-green color. The walls are hung with paintings and the background afforded by the rose-colored brick walls presents a surprisingly harmonious foil for their proper setting. The chimney-pieces in both this room and the living hall below are of new construction but of an old brick which after much searching was found in a house of the same period that was being demolished. The slight traces of mortar which were allowed to remain on the old bricks give a sufficiently lighter tone to place the needed emphasis on the chimney pieces, insuring their being the centers of interest in their respective rooms.

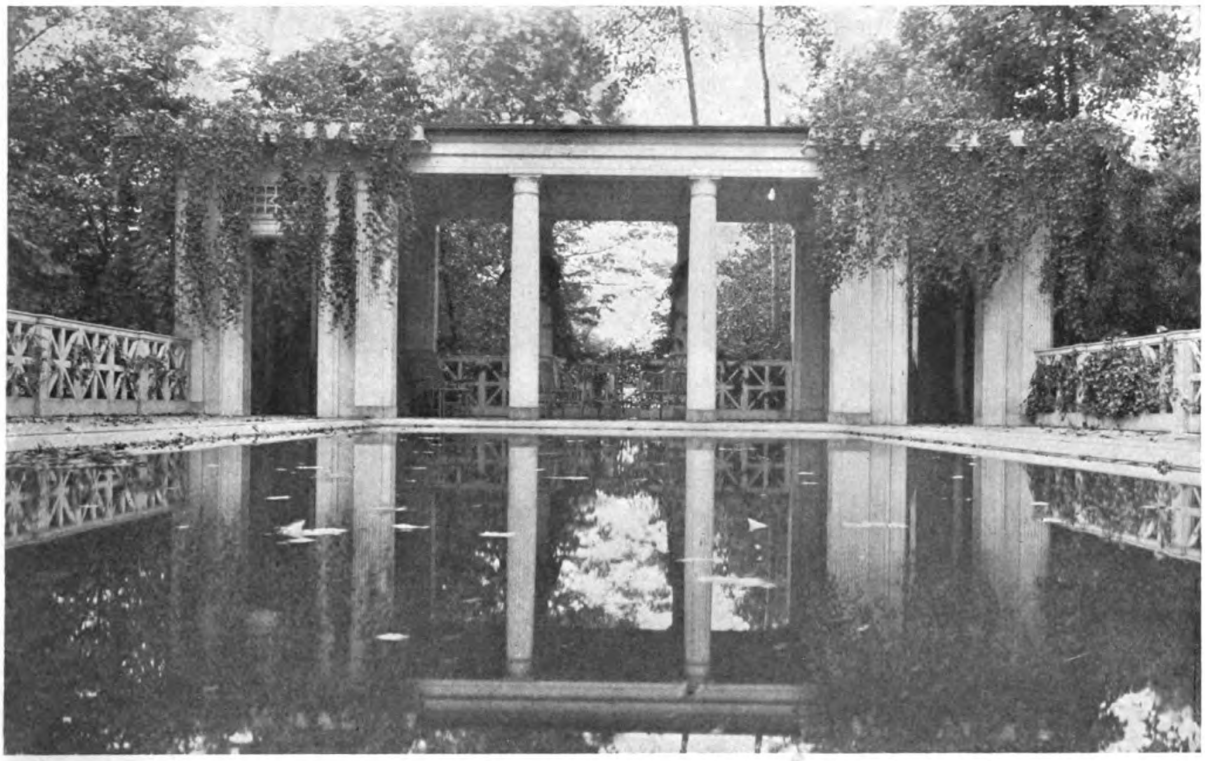
The physical appearance of these rooms is decidedly attractive but the interest they arouse is not because they exhibit an unusual means of decoration. Their source of attraction is the soft, restful texture and color of the walls.

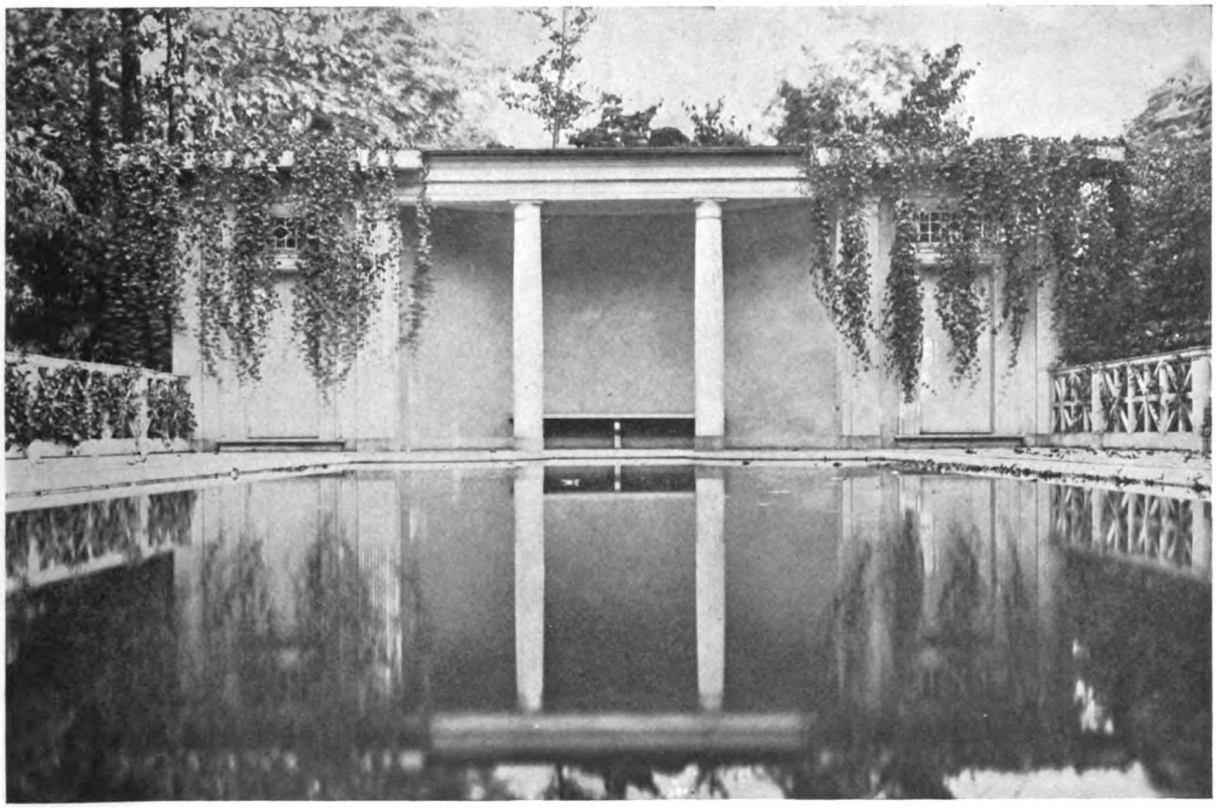
Detail of Mantel in Music Room

Swimming Pool and Bathhouse at Manhasset, Long Island

ESTATE OF RALPH PULITZER, ESQ.

CHARLES A. PLATT, ARCHITECT





EDITORIAL COMMENT AND BOOK NOTES

IN spite of the great losses and suffering occasioned by the war, the struggle is not without its compensations. The losses already experienced in life and material things are overwhelmingly large and there is no one but believes other losses must be sustained before final victory is wrested from the foe. There is, nevertheless, something gained — a compensation that can only be fully appreciated in the years that lie ahead. To any one reflecting upon the present developments there is a great measure of satisfaction in the good that is emanating from the very sacrifice itself; the mingling of the varied nationalities that comprise the battle lines of the Allies is welding into one ideal the thoughts on liberty and freedom for individual development that are the commonly possessed principles of the decent-minded and clean-thinking peoples of the earth. The allied nations are given an opportunity of seeing each other at close range, and, united as they are in a common purpose, they are enabled to appreciate their fundamental likenesses, and to understand and properly value those slight differences of nationality and custom which formerly were considered so vital.

With over a million American men in France and over one hundred thousand others studying French in the cantonments of this country under the direction of the Y. M. C. A., there is sure to be an interest in France and its people awakened that will far surpass the immediate need for war purposes. The presence of Americans in France is enabling many of our fellow citizens to perceive the orderly development of French life and the underlying artistic heritage of the French people. The soldiers' lot is cast in the very French towns and cities that are filled to overflowing with examples of the artistic life of the people, and the great pain with which they view their priceless marks of civilization being destroyed by the ravaging Huns is a daily sight of our fighting men. Can this fail to impress them with the love for beauty which is so characteristic of the French?

Similarly in the visits to the cities they must be cognizant of the orderly discipline of the architectural development of the street façades. The grandeur of the boulevards and the great open squares of Paris as well as the presence of art museums and municipal theatres in every provincial city must awaken in them an appreciation of civic beauty that will have an important bearing on the future development of American cities when these men have returned to take up their normal civilian activities. The educational influence afforded by the presence of our men in France is of great importance. It will be an influence that will tend to a greater appreciation of architecture and art in our own country and will be one of the greatest benefits we shall derive from the war.

PRACTICAL STRUCTURAL DESIGN. By Ernest McCullough, C. E. 303 pp. 6 x 9 in. Illus. New York: U. P. C. Book Company, Inc. Price $2.50. There are many draftsmen who are handicapped in their efforts to succeed by a woeful lack of the principles of structural design. Much of this may be attributed to wrong methods of education in that more attention in the schools is given to the mere technique of drafting and less to actual construction — the end to which drafting only serves a means. To this class of student this book is particularly directed and the author, through a wide experience in practical work as well as teaching, brings to his task special qualifications for a successful treatment of an intricate subject. The foundation for the study of structures is laid in the opening chapters on external and internal forces followed by concise and detailed explanations, accompanied by numerous diagrams, of problems in the design of beams, girders, joints and connections, in preparation for the important chapters on graphic statics and columns and structures.

A HISTORY OF ARCHITECTURE. By Fiske Kimball and S. H. Edgell. 8vo. 603 pp. Illus. New York: Harper and Brothers. Price $3.50 net. The authors of this book, assistant professor of architecture at University of Michigan and assistant professor of fine arts at Harvard University, respectively, have prepared a volume on architectural history of an exceedingly readable quality and yet not devoid of the analytical study of the development of style based on the latest results of archæological research necessary to hold the attention of those readers trained in architecture. The book contains over 300 illustrations and the closing chapters on modern and American architecture are so interestingly written that they might have been extended in scope with additional benefit to the work.

OVER THE DRAWING BOARD. A Draftsman's Handbook. By Ben J. Lubschez, F. A. I. A. 131 pp. 7½ x 5 in. Illus. Washington: The Journal of the A. I. A. Price $2.00. The tricks and short cuts in architectural drafting that are acquired through years of experience and acquaintance with different offices form the interesting material of this book. The data have been compiled with the intention of being helpful to the younger men as well as the more advanced student and while many of the suggestions may be known to the informed reader, the detail with which the author has discussed his subject is one of the book's strong virtues, for it is a frequent failing of authors of technical subjects to assume their readers possessed of a greater familiarity with fundamentals than the fact of the matter would warrant.

THE ARCHITECTURAL FORUM

VOLUME XXIX NUMBER 3

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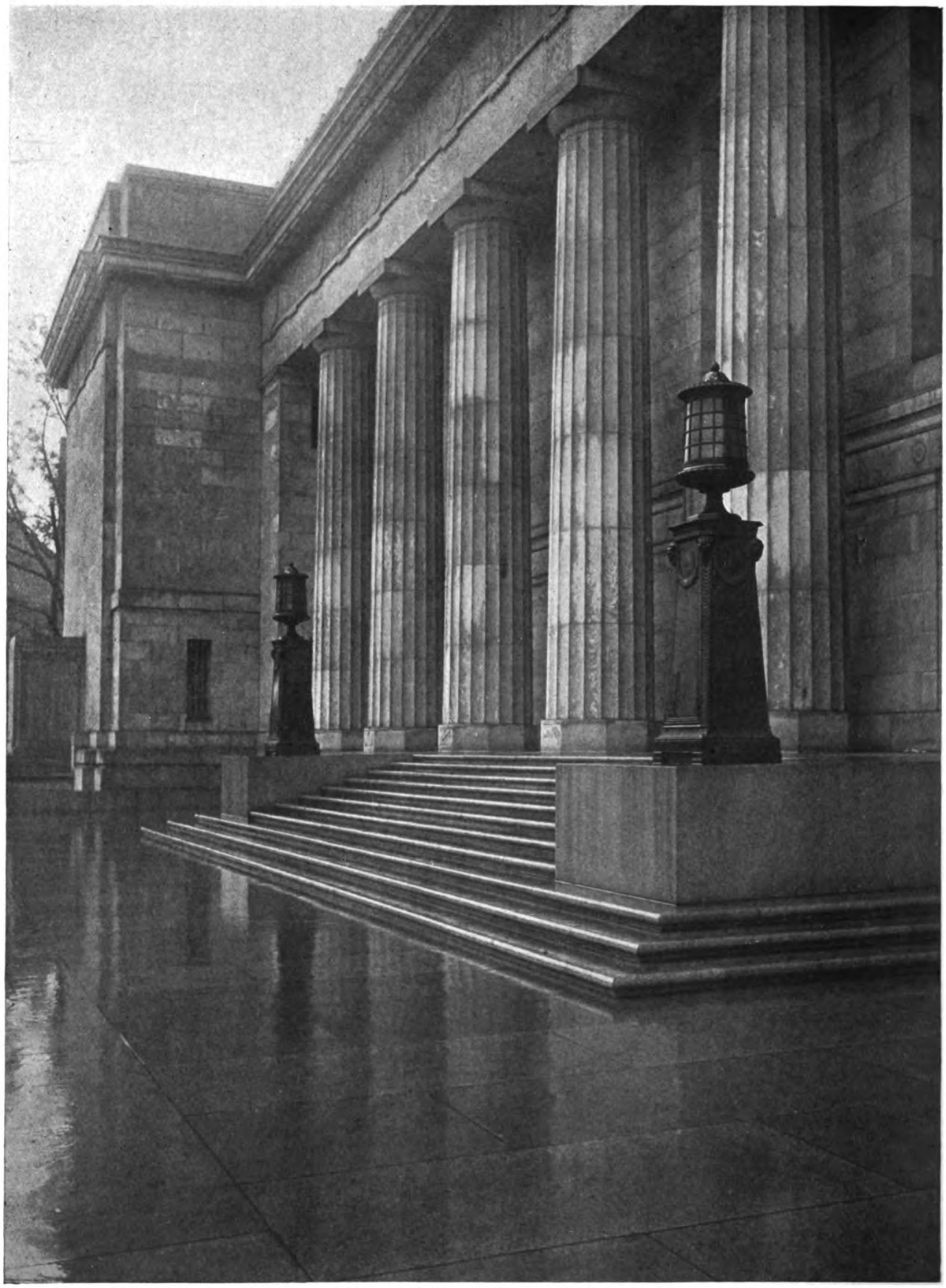
LETTERPRESS

Published Monthly by
ROGERS AND MANSON COMPANY
85 Water Street, Boston, Mass.
Advertising Department, 42 West 39th Street, New York

Yearly Subscription, payable in advance, U.S.A., Insular Possessions and Cuba $5.00
Canada ..... $5.50 Foreign Countries in the Postal Union 6.00
Single Copies ..... 50 cents All Copies Mailed Flat

Trade Supplied by American News Company and its Branches. Entered as Second Class Matter, March 12, 1892, at the Post Office at Boston, Mass.



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THE ARCHITECTURAL FORUM
FOR QUARTER CENTURY THE BRICKBUILDER

VOLUME XXIX SEPTEMBER 1918 NUMBER 3

Architects' Fees and Contracts

By ALEXANDER B. TROWBRIDGE

THE average young graduate of an architectural school on the threshold of a professional career little realizes the nature of the calling he has selected. In his academic work he has designed lofty cathedrals, stately capitols, dignified libraries, chaste museums. He thinks he knows a thing or two about planning, and in the back of his head he has stowed away a little special information on snappy indication or skilful rendering in color. To be sure, he has had little or nothing to do with the *business* of architecture. That can wait. He may have some hazy notion that he'll let George (his future partner) do it. His idea of the practice of architecture is to make knowing plans, scholarly façades and clever sections. He would like to demonstrate that the spirit of Michaelangelo is not dead. He forgets that Michael was not only endowed with genius, but was, as well, free of the handicapping conditions which surround the practice of modern architecture. Michael was not called upon to produce separate plans for heating and ventilation, or plumbing layouts or wiring plans and schedules. Our fledgling architect only dimly senses the tremendous change which has taken place since the days of Saint Peter's and is unfortunately not able to grasp this change in its entirety until he has been for several years in close touch with actual practice. If he happens to be by nature one of the so-called "artistic" lads, the kind who forgets the lunch hour when he is in the midst of a water-color rendering, but becomes hungry as soon as he begins to add a column of figures, it is more than likely that business matters either interest him not at all or else bore him intensely. He resents the intrusion of business methods in his office and feels that such things are incompatible with the production of works of art. His first rude awakening comes when he finds that careless wording of specifications has placed him in a dilemma between owner and contractor. He is called upon to interpret his own badly expressed phrases and knows that his decision will result in the alienation of one or the other of these two men. His next awakening is occasioned by a disputed bill for professional services, when he finds he has no documents of any kind to which he may refer in support of his claim for remuneration. It takes many an architect a long time to wake up to the necessity for having things in "black and white." The more artistic one is by nature, the less does one like to talk about business matters, — that is, about remuneration. Many a man is his own worst enemy in this connection. He knows instinctively that the only sensible thing to do is to talk over architect's charges at a very early period of the operation and yet he postpones this important matter from day to day and from week to week for no very good reason and usually because of a constitutional dislike to go into these details. As a matter of fact, there is nothing more essential to the successful practice of architecture than to have the whole question of architect's services cleared up and made perfectly satisfactory to owner and architect before much of the work has been accomplished. The writer has met one architect of prominence who has asserted that in his practice covering a period of fifteen or twenty years he has never had a contract with a client. This seems like an exception to prove a rule. At any rate, it is either an acknowledgment on the part of the architect that he does not care for business methods or it presupposes a remarkable condition of affairs existing between himself and his clients. The average architect knows that it is well to have a clear, written understanding with clients, simply for the purpose of avoiding misunderstandings when the day of settlement arrives.

The question naturally arises as to when is the best time for an architect to broach the subject of fee. If the client does not bring the matter up at the first interview and if the architect believes that the matter of fee may, in the mind of the client, be an important consideration, it is well to make it the subject of correspondence shortly after the first conference. If the client requests sketches and is not certain as to whether or not he will proceed with the work, it becomes still more important that the architect should safeguard the expense to which he is to be put in producing sketches the value of which may not be readily determined by any one of the usual percentage methods of charging. Whether the question of fee is discussed at the first conference or in correspondence shortly following, it has been proved again and again that it is unwise to leave this question open, to be taken up after the work is well under way. Many a layman has paid six per cent for architects' services

in connection with commercial architecture and is not aware that most of the members of the profession ask an increased price for residential work. Unless this is explained in the beginning, it is quite likely to lead to trouble later on.

This paper is primarily for the discussion of contracts, but it appears evident that such discussion cannot be carried on intelligently unless the whole matter of professional charges is discussed at the same time. We will, therefore, take up, first, the customary method of basing the architect's fee upon the final cost of the work.

What is called the ordinary " percentage method of charging " is in use all over the United States and will undoubtedly continue to be in use for some time to come. There is a growing belief, however, that it has so many faults that it will in time be superseded by some more reasonable and logical mode of procedure. It is illogical because the architect in his capacity of professional adviser spends a great deal of time and thought in reducing costs, finding simpler means of accomplishing results and in paring down contractors' charges; and in so doing he reduces his fee. The greater the skill in accomplishing such results the smaller the pay! It is fortunate that architects as a class are too broadminded and conscientious to take such a narrow view of the fee question, but this does not alter the fact that the percentage system is fundamentally unsound. Furthermore, the percentage system makes a manufacturer out of the architect. He charges a percentage on all work passing through his office and at the end of the year finds that he has made more or less profit out of the business according to the amount of money handled and his skill in keeping down office (manufacturing) costs. Another objection to the ordinary percentage method is the opportunity it gives to the architect who is not conscientious to run up the cost in order to benefit by it. This is so obvious as to need very little comment. Undoubtedly there have been instances when men have been too much interested in the percentage fee and have forgotten the fact that the architectural profession is one founded upon a high sense of propriety and that any undue thought given to a fee is inharmonious with the assumption of a professional attitude toward a problem. The ordinary percentage method is complicated. It involves the need of considering, when the contract is written, what items shall be listed with the building contract and what shall be considered as furnishings. It may be that an architect will receive the ordinary percentage fee for his plans, specifications, details and supervision, and a separate flat fee for directing the furnishings. In such an event it would be very helpful to have in the contract a paragraph explaining what articles should be classed under the head of building. The absence of such a clause leaves an opening for a dispute.

Another method of charging which is sometimes successful, and is certainly more satisfactory to the architect, is to charge the client a sum equal to three or four times the cost of drafting. The words " three or four " are used because it has been found that three times the cost of drafting is satisfactory remuneration when an architect is assisting a client to develop a project which may or may not be carried to completion. Three times the drafting probably would not give adequate profits if it were applied to a problem involving a large number of scale and detail drawings with specifications, full-size details, and supervision. The advantage in this method of charging is that the owner may study the problem with the architect, requiring as many drawings and as many separate schemes as he may wish to order without at any time feeling that he is imposing upon the architect's time. The disadvantage lies in the danger of permitting the work to cost more to the client than it would cost under some other form of contract. This can happen even in careful offices if the supervision of the drafting is not undertaken by some one who appreciates this danger. Many a graduate of a school of architecture has been brought up in an atmosphere which plainly teaches that you cannot put too much study on a problem. This we know to be rubbish, yet that is the point of view of many academically trained practitioners. A scheme can be ruined by overattention just as a painting can have all its spontaneous character squeezed out of it by a fussy attention to unimportant details. To make this method of charging satisfactory to both parties it must be demonstrated that in the long run it is not a scheme to increase the architect's income. A client who decides promptly and does not want a large number of studies will save money by this method.

A third method of charging which has some advantages is where the client stipulates that the cost shall not exceed a certain specified sum, and that the architect shall do his work for a percentage of the proposed cost with an understanding that his fee shall remain fixed and that the cost may fluctuate for a certain distance either under or over this fixed fee. Let us suppose that an owner informs an architect that his approximate cost is $40,000 and that he is willing to pay his architect a fee of $4000 for his services, such a fee to remain stationary even if the final cost exceeds the proposed cost. Now it is obvious that this plan must be safeguarded, since so many owners change their minds regarding the requirements of their problems and eventually build much larger houses than they expect to build in the beginning. It would be only proper to agree with the owner that the fee of $4000 would remain fixed just so long as the final cost remained inside of, say, a 25 per cent increase, but that the fee would become $5000 if the final cost were to lie between $50,000 and $60,000 and $6000 if the cost were between $60,000 and $70,000, and so on. Such an agreement ought also to stipulate that the

original fee of $4000 would remain fixed if the owner should require changes in his plans for the purpose of reducing the cost of the house. As previously argued, an architect should not be penalized for doing whatever is desired by the owner to cut down costs.

A compromise method which is somewhat like the processes previously described is where the architect receives a fixed fee for his personal services which in most instances would be a salary, and to this fixed fee would be added all the costs of the operation including overhead charges, drafting, blue prints, expert engineer's services, etc. The advantage in this system is that the owner may wish to order a good deal more drafting than he would ordinarily be entitled to. His relation to the work is exactly as though he engaged the drafting force for his own benefit. The time the architect or the firm of architects devotes to the problem is paid for separately. The manner of deciding what this fee shall be is, of course, a difficult one in almost all operations. The owner may propose to build a $50,000 house and the original fee for the personal services of the architect may have a certain proportionate relation to $50,000, which would be perfectly satisfactory if the owner did not change his mind with regard to the size of his operation. In a very large number of cases, however, the final result is much larger than the original scheme contemplated. Given, however, that a salary may be agreed upon which would be considered fair remuneration for the active interest of the architect or the firm of architects during the entire period of work, from the commencement of sketches to the issuance of the final certificate to the building contractor, this method is the best which has so far been devised. In return for the " can't lose " feature the architect could do his work for a moderate professional fee provided he could get all of his clients to adopt this plan. This process is open to the same objection as that which was pointed out in plan No. 2, *i.e.*, much depends upon the business methods in the architect's office. The owner would be foolish to enter into this kind of an agreement with an architect if he had the slightest reason to doubt his integrity or his business sense. The great advantage of this plan is that the architect is not affected financially by anything he may draw or specify. He can discuss with candor and perfect impartiality the various articles and materials which are to go into his client's building and the client may never have even the opportunity of harboring unkind thoughts about the architect's interest in the final cost. Under the prevailing percentage system an architect who specifies an American marble of moderate price has his fee increased if the owner writes to him that he is not satisfied with the marble specified and would prefer an imported material. The architect writes to the contractor, receives an estimate for the extra cost, secures the owner's O. K., and orders the work. The matter is all handled through a stenographer and the increased percentage thereby earned (?) is all out of proportion to the labor furnished by the architect's office. It is customary to say among architects that such increases are usually balanced by decreases in other directions and that such special instances do not alter the fact that by and large the 6 per cent and the 10 per cent fees are more than earned. We can agree to this while strenuously insisting that the percentage method is illogical, absurd and not as truly professional in character as some process whereby the architect does not either gain or lose as a result of his recommendations.

These are the four best-known methods of charging and they all require different detailed paragraphs in connection with contracts. The basic requirements, however, of a contract enter into all.

Every contract requires three elementary things: First should be clearly stated the names and addresses of the parties to the contract. This is for the purpose of complete identification. Second, the services or obligations which each party agrees to render or assume. Third, the amount of money which is to exchange hands in consideration of these services or obligations. It should be stated clearly which of the two parties is to pay the sum to the other; in other words, the phraseology of the contract should be simple, clear and entirely without ambiguity. Because of the existence of State laws relating to contracts and court decisions which are virtually laws, since they so often serve as a basis for new decisions, any important contract should be supervised by an experienced lawyer. In choosing legal assistance it is well to avoid the lawyer whose mind is largely technical. A man who has a sense of humor and a human interest in questions is of much more value in a matter of this kind than the lawyer of the ultra-legal type who frequently loses sight of the clear intent of the agreement and centers his attention upon the professional correctness of his phraseology.

In addition to the three elementary features which are above cited there are many details of a secondary nature which should be considered, and, if included, should also be so clearly written as to be intelligible to and easily interpreted by any one.

The following brief list contains most of the problems which ought to be considered and settled between owner and architect in a contract:

1. It is well to have the document state clearly what items are to be considered a part of the architectural work for which the architect's fee is to be paid and what shall be considered furnishings and decorations. A similar distinction should be made between architecture and landscape architecture. Many architects are taking over both the furnishings and landscape work, but regardless of whether or not they are assuming these additional responsibilities it is always a help to have such questions considered

and settled in the contract. The need of this is especially clear in cases where a decorator and a landscape architect are employed. When an architect takes on all three functions he may find it possible to determine a flat fee covering all the work contemplated. But suppose he is first engaged to do the architectural work on a percentage basis and later arranges to do the furnishing and the landscape work for a flat fee! It is easy to see the opening for misunderstandings which might appear in such an event. In the writer's office it has been customary for years to consider that the lighting fixtures are a part of a house or building and are to be included in calculating the total cost. In some offices they are listed under the head of furnishings. Other offices cover the question by a ruling to the effect that everything which is fixed in place, *i.e.*, not portable, shall be listed in the final cost of the house. This is fairly satisfactory but is not holeproof. Carpets are a part of furnishings, yet are frequently fastened in place. A refrigerator may be of the portable type but a waste pipe is provided and frequently an outside icing door, so usually refrigerators go with the house. So it is with the range, the garbage burners, the vacuum cleaner and many semi-fixed or semi-portable articles.

2. When the system of architect's charges was established, years ago, almost all operations were carried out under one general contract. In modern times many operations have been carried out either without any general contractor or with one who controlled the larger part of the work, such as masonry, carpenter work and plastering, leaving to the architect the handling of such contracts as heating, plumbing, electric wiring, special interior finish, decorative painting, etc. This change in method has increased the architect's responsibilities and decreased the owner's costs. It is not at all uncommon to do away entirely with a general contractor and handle all contracts through the architect's office, thus saving for the owner the profits which the general contractor would otherwise make on all sub-contracts. The architect not only has increased responsibilities, but increased expense in overhead costs, and should have an increased fee. Now it frequently happens that the method of building is not decided until the working plans are made. Suppose, for example, that the contract between owner and architect contains no reference to this modern way of building and the owner should instruct the architect to let separate contracts, one including masonry, carpentry and plastering, and a number of others to cover all the remaining trades required to complete the job. The owner may believe he has a perfect right to build with or without a general contractor, without taking into consideration the effect his decision may have on the architect. Is it not desirable, therefore, that the agreement between owner and architect should contain one of the two following plans? Let the owner agree to pay an increased or additional fee in case he wishes to partially or wholly do away with a general contractor. Or let the fee remain unchanged but require that the owner shall pay the salary of a superintendent who shall virtually assume the functions of general contractor, such superintendent to be engaged by the architect, and to remain continuously on the job. The second of these arrangements is the preferable one because it is always difficult to determine how much of an increase in fee is fair and proper to ask, whereas the second method is fairly specific. That portion of the fee which usually covers superintendence becomes the reimbursement to the architect for additional responsibility, additional overhead costs and for personal inspections.

3. Another change which modern conditions have brought about is that involving the use of an expert engineer to be consulted in connection with the mechanical plant of a building. Twenty-five or thirty years ago our buildings were heated by plants which were so simple in character as to require no expert engineer. It was usually customary to call upon the heating contractor to provide a heating system which would be adequate to the situation. Now with our complicated methods of thermostatic control, indirect heat, vapor systems, etc., the matter has gone far beyond the capacity of the average architect's office and it is almost universally customary to provide separate heating plans and frequently separate plumbing plans in connection with any building which requires a modern mechanical plant. Here again the architect's fee has not been increased along with the establishment of this more complicated system of mechanical installation. Many architects have succeeded in getting their clients to pay the entire cost of the fee of the consulting engineer. Some offices have persuaded their clients to pay half of this fee. Still other offices have found their clients unwilling even to share it, thereby producing a hardship in the architect's affairs which makes it very difficult for him to supply the kind of service which he knows should be given to his client. The architect should talk this over with his client, explaining the advantages to be derived in both heating results and in close competitive bidding by having a separate set of heating plans and specifications prepared by an engineer specialist whose life work consists in planning such installations. The most conscientious of architects are not overfond of playing a losing game and when the client refuses to assume a part of this fee the plants are often installed from plans made by heating contractors. Such plans are doubtless excellent, but it is difficult to carry out good competitive bidding under these circumstances and the services of an unbiased expert are not available for inspection. When an owner pays the whole of the engineer's fee and wants the best that can be found, he has done all humanly possible to secure good service.

4. The question of traveling expenses should always be covered. The reason for the insertion of this subject is that the scope of the architect's field of service has grown to such an extent that in the case of a very large number of practitioners they are not confined to their own home locality. They expect, without analyzing the point, to give the same kind of service to all clients. If, therefore, they were obliged to pay traveling expenses in connection with jobs at a distance and were spared this expense in connection with jobs at home it is evident that out-of-town jobs would be considered less profitable than home jobs and the architects would have to have two separate scales of charges. It would be difficult to determine how much larger the fee should be to distant owners and the custom, therefore, of charging traveling expenses is the logical and natural solution of the question. If an architect were obliged to pay his traveling expenses out of his commission he would be forced to make careful calculations as to how many trips he could afford to make for the purpose of inspection. It is decidedly to the interest of the client to remove that element of calculation from the architect's mind and in return to see that he visits the work often.

5. A very important item has to do with the payments to the architect. Such a clause should consider in detail what proportion of the total fee should be paid in case the work is abandoned at any one of several points during the progress of the work. For example, a definite understanding should be reached covering preparation of preliminary sketches. A separate additional fee should be agreed upon which would cover working drawings and specifications carried far enough to receive definite, *bona fide* estimates. A further clause should cover the total cost of all architectural services excluding supervision. Architects used to charge one-half of the fee for sketches, working plans, scale details and specifications, *i.e.*, for all work required to complete the plans which are to be sent out to bidders. The balance was collected in monthly installments in proportion to the sums issued to the builder. As the custom grew to develop very complete sets of plans including many detail drawings and even a few full-size details in order to secure for the client close and accurate bidding, it was found that half the full fee was not adequate. Also it was clear that the assumption that only half the fee was earned when working plans were finished was illogical, as it appeared to base the fee upon the amount of work done, leaving no valuation to be applied to plan and design *per se*. Accordingly it was agreed that at least three-fifths of the full fee should be charged for all work up to and inclusive of working plans and specifications.

6. Another item of greater or less importance, according to circumstances, has to do with the number of changes which a client will sometimes require before drawings are estimated. In fact, some clients require a good many changes to be made after a contract has been let and work has commenced. If it should happen that such changes increase the cost of a structure and the architect is reimbursed by a sum which is a percentage of the total cost, it is possible that the remuneration would be sufficient to cover the cost of drafting in making the changes. This, however, is only a supposition and does not necessarily work out in a majority of cases. One perfectly valid method of ruling on this point may be illustrated as follows: If plans are approved and completed and then, either before or after bids have been received, the owner calls for changes which affect the final cost of the structure one way or the other, the architect may charge three-fifths of his full fee, using the bids or an approximated estimate for determining what this three-fifths will amount to. He then charges twice the cost of drafting for the changes required by the owner and the balance of his fee shall be two-fifths of a full fee, based upon the actual (not the approximate) cost. Thus he is paid for his original plans, is paid for the labor of making revised plans and finally receives a commission on the actual cost, which reimburses him for his full-size details and for his supervision. This would be an equitable arrangement no matter whether the changes decreased or increased the size of the building.

7. The question of supervision is always one of tremendous importance. Under the customary interpretation of the ordinary percentage fee, architects' supervision does not consist in daily visits to the work but only of periodical visits which may occur once or twice a week and such visits are for the purpose of giving a general inspection of the quality of work being done and to assist the builder in interpreting the plans and details. It has been the writer's experience, as it has been that of many others, that wherever it is possible to secure the co-operation of the client in the matter of providing continuous supervision, better work will result. Accordingly, for some time the writer's firm has had in operation the plan of engaging a competent superintendent who is continuously occupied with the problem and whose salary is shared equally with the owner. Such an arrangement is usually very much liked by the clients as it provides a kind of service not usually called for in agreements with architects, and the total cost to the client is not a big item. It is evident that if the architect is working on a percentage basis he would have to do a little preliminary figuring on each problem if his average job were in the moderately large class, before proposing this plan to an owner. His share of the superintendent's salary might eat up most of the percentage (3 per cent) which he considers is earned by the superintendence. For example, if the superintendent receives $50 per week, the architect will pay out $1300 in one year, which is

3 per cent of $43,333. He could not afford to engage a man at that salary and he could not well afford to try this plan with houses of this type. If a $50,000 house could be built inside of a year he could count upon 3 per cent, or $1500, to apply to supervision and by engaging a $40 man he would expend in all $1040 and have left $460 as fee to reimburse him for his own time in visiting the work. (It must be remembered that this plan should not relieve the architect from the obligation to visit the job periodically.) It is up to each individual architect to decide whether he can afford to do a $50,000 residence for 7 per cent plus $460, for that is what it amounts to. All this accentuates the value of the flat fee plus cost method. One is not obliged to calculate closely as to whether he can afford to do what he believes ought to be done. Under the flat fee system an owner can pay for as much or as little superintending as he may wish to have done.

8. In the case of an owner who prefers to do his own superintending and wishes only plans, specifications and details from his architect but at the same time expects that every once in a while he will request the architect to visit the work for general inspection, it is well to include a fee per day, plus traveling expenses, for such special trips. In the practice of well-known architects such fees vary all the way from $40 to $100 per day, counting the time while traveling as well as the time spent on the work. In this case the commission is calculated to cover everything except supervision and in the large majority of offices such a fee amounts to seven-tenths of the full fee.

The above discussion of details of an architect's contract is more closely related to the "ordinary percentage system" than to any other method of charging. If one is to adopt the fixed fee plus cost method there is not much to suggest in addition to the foregoing. The fee or salary may be paid monthly during a period of two or three years, depending upon the wishes of the owner, as to speed. If he wishes to turn out plans in four months and complete his building in ten additional months he can do so with certain classes of commercial structures. The salary would thus be paid monthly, approximating the amount, until twelve months had been consumed, the payment of the balance to be made during the remaining months. If an owner wishes to spend from six to eight months on sketches and plans (the writer's firm once worked for two years on the plans for a residence) and to devote about eighteen months to construction (this is not too much for a high-class residence) the salary would extend over a period of at least two years. In such cases the fee could be paid quarterly. The expense account would better be charged by the month unless it should happen that it was not burdensome for the architect to render that statement quarterly with his bill for salary.

In considering a contract for this form of charging it must be remembered that no matter how unusual your arrangement may be, it ought to contain the three principal points which were recommended at the beginning of the discussion of contracts, *viz.*: the names and addresses of the parties to the contract, the services or obligations to be rendered or assumed by the parties, and the "consideration" or amount of money to be paid by the owner to the architect "in consideration of services rendered."

Any other paragraphs or clauses which are required to elucidate the subject or to explain in detail what is inferred in a general clause need be no more than good, clear English which does not need an interpreter. When in doubt let several persons — men and women — in the office criticize it. If still in doubt, and especially if the case is important, consult a lawyer and select the common-sense type.

The foregoing is an attempt to lay before the profession, and particularly the younger members, all of the details which ought to be considered in an important contract. It must be admitted, however, that the psychological effect of a brief agreement containing only a promise on the one hand to perform the customary services required of an architect, and the agreement on the other hand to pay a certain sum in return for such services, is important. Some people would be bored by a long agreement and would be more inclined to question certain well-established customs of charging if they were elaborately inserted in a contract than if the architect merely rendered his bill with the comment that these charges were customary. The architect must rely upon his best judgment in determining what kind of a contract would be most likely to produce satisfactory results.

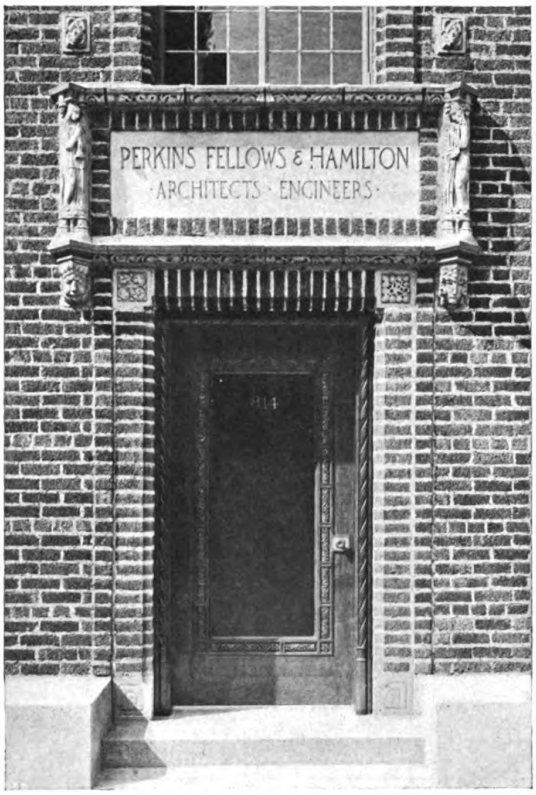
The American Institute of Architects has issued a "standard form of agreement between owner and architect" which is useful, for it contains in the beginning the three primary requisites previously mentioned, and an annex of thirteen articles which have evidently been written or at least supervised by a lawyer. These thirteen articles are all a part of the agreement and include practically everything recommended in this paper and a few other matters in addition. Here one may find paragraphs on the following subjects: The Owner's Decisions; Preliminary Estimates; Definition of the Cost of the Work; Ownership of Documents; Successors and Assignment; Arbitration. Any one interested in making a thorough analysis of the subject should obtain a copy of this standard agreement and a copy of the Institute's schedule of charges. Fortified by these documents and the informal discussion of the whole subject herein submitted, one ought to be in a position to decide what form of contract one could best use in one's practice.

The Office of Perkins, Fellows & Hamilton, Architects Tower Court, Chicago, Ill.

By ADDISON MINOT

THE planning and furnishing of an architect's office proves to be, in nearly all cases, a problem of devising the best utilization of a rented floor space in a public office building, with all important conditions of size, shape, structural supports, natural lighting, etc., predetermined.

The architect who is confronted with this difficult and important problem has therefore found it necessary to limit his desire for an inviting and convenient professional home by confining his requirements to a space, always too small, and frequently ill adapted to his purpose, which he can afford to rent, and of which his occupation is more or less temporary.



Detail of Entrance

There have been a few examples of offices of prominent architects arranged in public office buildings, which have been wholly designed by themselves, and in some cases owned or partially owned by them. In these instances some of the usual limiting conditions imposed upon the architect as a tenant have had the benefit of his forethought in the design of the structure itself.

Some interesting examples exist of architects' offices in individual buildings originally built for other purposes, and cleverly adapted for their own use. Many pleasing results have undoubtedly been obtained in some of the architects' offices in public office buildings, as described in Mr. D. Everett Waid's admirable articles published in *The Brickbuilder*, but it is doubtful if any of them are such as their proprietors would have created if they were without the narrowly prescribed limitations which are always present under such conditions.

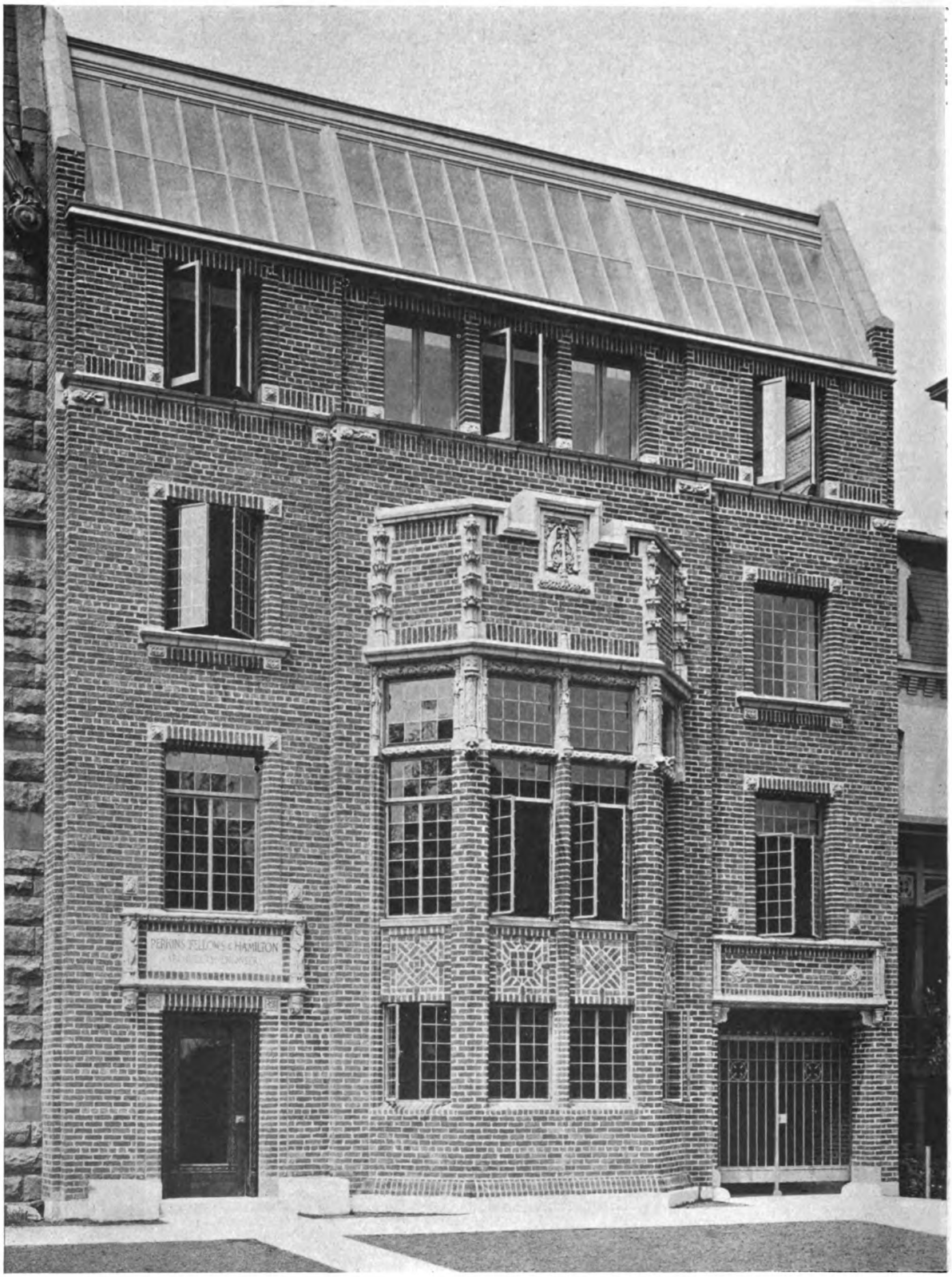
Of unusual interest, therefore, is the new office building of Messrs. Perkins, Fellows & Hamilton, architects, at 814 Tower Court, Chicago, which was designed and is owned and occupied by them exclusively. It is situated on the west side of the square, which is the northern terminal of the great Boulevard Link now about to be constructed, and which will connect Michigan avenue with the Lake Shore Drive at the intersection of Chicago avenue, which at present may be said to be the dividing line between the north business district and the exclusive residence district of the Lake Shore Drive.

A careful study of the "Chicago Plan" presented several years ago, and especially the proposed North Michigan avenue improvement (which has until recently been in process of litigation) convinced the members of this firm that such improvement would result in the early development of a new and highly desirable business district on the north side of the river, and that if a proper site could be procured before the cost became prohibitive, it would be a fine opportunity to leave the rented quarters in the Loop district and build a small building of character and prominence for their own use. That their wisdom and foresight were well rewarded is evident in the ideal location and surroundings of the spot which they chose.

The building is a substantial fireproof structure designed in a free adaptation of the French Gothic style. The exterior is of rough-faced brick of red and brown shades, with heavy, white mortar joints, and trimmings of terra cotta of a warm gray color, and most interesting in detail.

The members of the firm may drive their cars through the passage under the building to their own garage adjoining a rear courtyard — a luxury which is most appreciated by men who have their offices in the heart of a great city where such conveniences are not readily found.

Upon entering the building through a Tavernelle marble vestibule into the hall, which is of marble and terrazzo of similar shade, a well-lighted and inviting contractors' room is seen behind the counter at the



GENERAL VIEW OF TOWER COURT FACADE
OFFICE BUILDING OF PERKINS, FELLOWS & HAMILTON, ARCHITECTS

right. Here is transacted all of the usual routine business between the office and contractors and trade representatives in relation to work being figured. The general superintendent has his desk here, and the telephone switchboard with twelve stations is at the counter. A file of copies of all the drawings and specifications for work under construction and work being figured is kept in this room. A very complete system of records of all transactions is maintained, the principal forms for which are reproduced on the following pages, where each is given a letter to correspond with the reference to it in the text. Card records of the issue of all drawings and specifications given out are kept in the contractors' room, using card forms E and F, each of a distinctive color. Proposals are made out on form A. An index of contractors' applications, using card form N, and of manufacturers' applications, made out on a form similar to it but not reproduced, is also kept here, as is a card list of applications for employment on form J.

Inquiries concerning interpretations of drawings and specifications of work being figured are made in writing on form M, and answered in writing to all of the prospective bidders concerned.

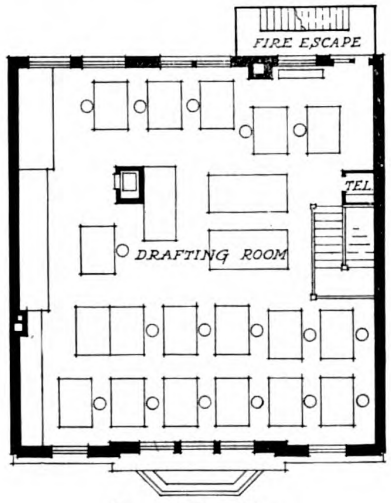
A dumb-waiter at the rear of the hall connects this department with the drafting-room and other portions of the building for the handling of drawings and specifications and other packages.

A visitor who wishes to interview a member of the firm ascends a terrazzo marble stairway to the waiting room at the head of the stairs, which opens invitingly onto a terrace overlooking the courtyard, and is separated from the public office by a marble counter.

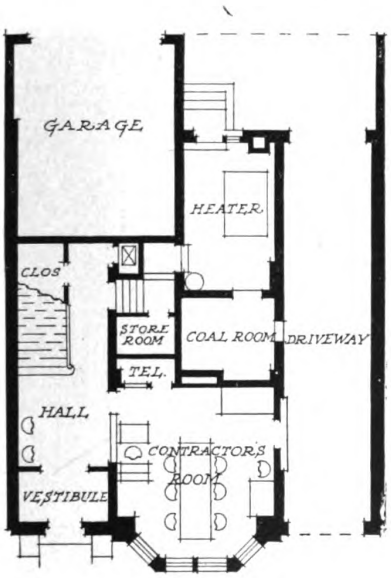
The general correspondence and bookkeeping is conducted in the public office; contractors' applications for payment (forms B and C) and certificates and change orders (forms D and L) are also issued here, the office copies being on cards and kept in filing cases. Superintendent's reports on card form P are filed in this room, as are time cost records (form G), expense records (form I), and approved sample records (form K). From this office access may be had to a large reception room and to the private offices of the members of the firm.

The reception room is a spacious and imposing place, extending through both the first and mezzanine floors, and affording a beautiful view of Lake Shore Drive through the high Gothic bay window. The room is finished with walls paneled in light fumed quarter-sawed oak, a deep vaulted ceiling of buff plaster, and a floor of cork tile. A fireplace, burning wood is at one side of the room, and contains a very interesting panel in Gothic detail.

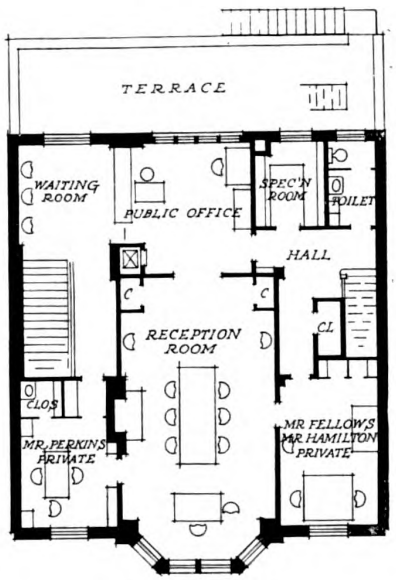
Concealed darkening and stereopticon screens may be pulled down over the bay window for use on occasions when the firm's work is to be illustrated by lantern slides. The private offices of the members of the firm are designed in harmony with the reception



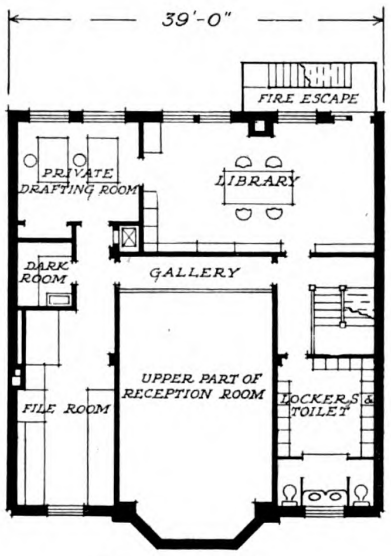
Second Floor Plan



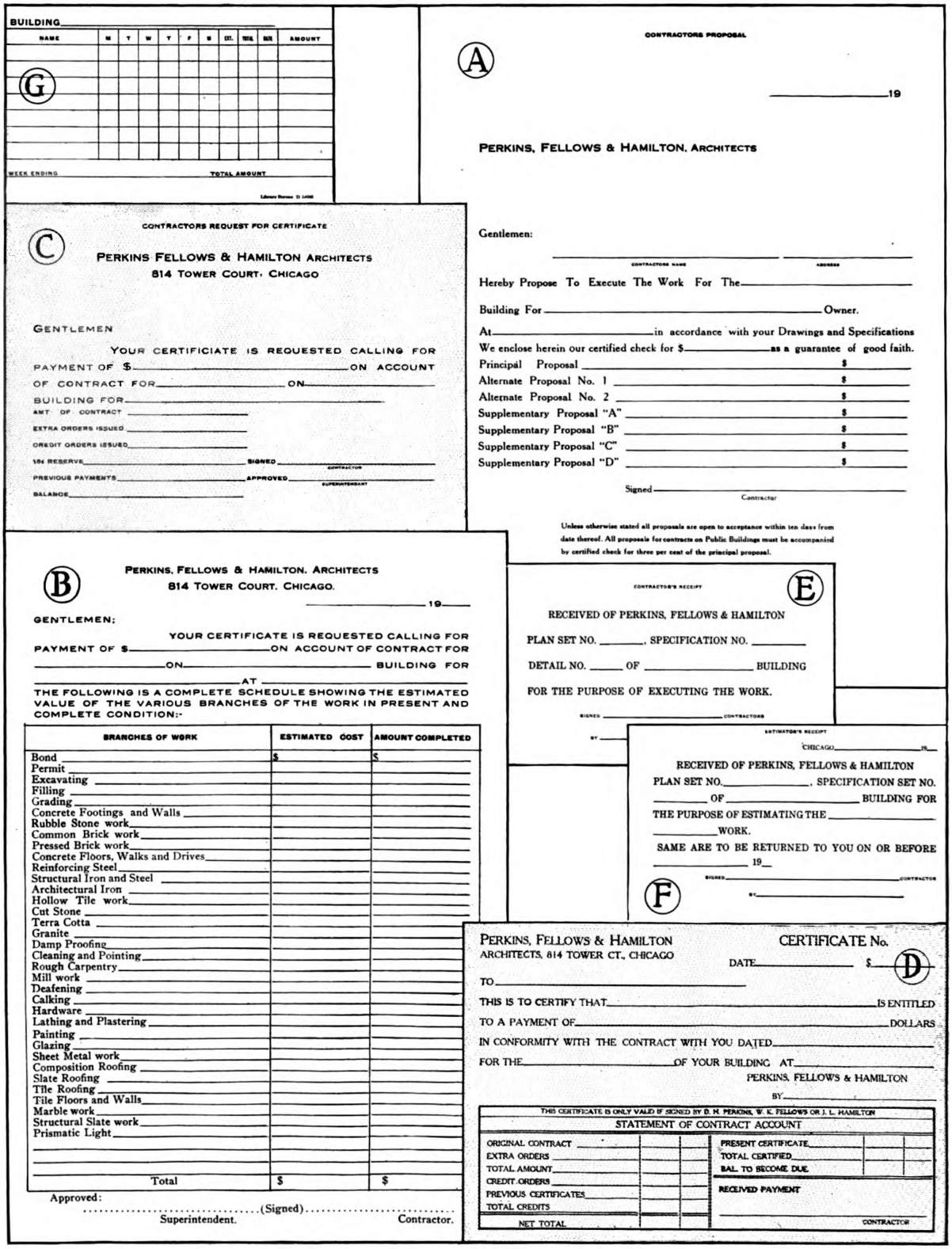
Ground Floor Plan



First Floor Plan



Mezzanine Floor Plan



BUILDING _____

NAME	M	T	W	T	F	S	SU.	THE.	HR.	AMOUNT

G

WEEK ENDING _____ TOTAL AMOUNT _____

Library Bureau D 14060

CONTRACTORS PROPOSAL

A

_____ 19

PERKINS, FELLOWS & HAMILTON, ARCHITECTS

Gentlemen:

_____ (CONTRACTORS NAME) _____ (ADDRESS)

Hereby Propose To Execute The Work For The _____

Building For _____ Owner.

At _____ in accordance with your Drawings and Specifications

We enclose herein our certified check for $_____ as a guarantee of good faith.

Principal Proposal	$
Alternate Proposal No. 1	$
Alternate Proposal No. 2	$
Supplementary Proposal "A"	$
Supplementary Proposal "B"	$
Supplementary Proposal "C"	$
Supplementary Proposal "D"	$

Signed _____ Contractor

Unless otherwise stated all proposals are open to acceptance within ten days from date thereof. All proposals for contracts on Public Buildings must be accompanied by certified check for three per cent of the principal proposal.

CONTRACTORS REQUEST FOR CERTIFICATE

C

PERKINS FELLOWS & HAMILTON ARCHITECTS
814 TOWER COURT, CHICAGO

GENTLEMEN

YOUR CERTIFICIATE IS REQUESTED CALLING FOR PAYMENT OF $_____ ON ACCOUNT OF CONTRACT FOR _____ ON _____

BUILDING FOR _____

AMT. OF CONTRACT _____

EXTRA ORDERS ISSUED _____

CREDIT ORDERS ISSUED _____

15% RESERVE _____ SIGNED _____ (CONTRACTOR)

PREVIOUS PAYMENTS _____ APPROVED _____ (SUPERINTENDENT)

BALANCE _____

B

PERKINS, FELLOWS & HAMILTON, ARCHITECTS
814 TOWER COURT, CHICAGO.

_____ 19____

GENTLEMEN:

YOUR CERTIFICATE IS REQUESTED CALLING FOR PAYMENT OF $_____ ON ACCOUNT OF CONTRACT FOR _____ ON _____ BUILDING FOR _____ AT _____

THE FOLLOWING IS A COMPLETE SCHEDULE SHOWING THE ESTIMATED VALUE OF THE VARIOUS BRANCHES OF THE WORK IN PRESENT AND COMPLETE CONDITION:-

BRANCHES OF WORK	ESTIMATED COST	AMOUNT COMPLETED
Bond	$	$
Permit		
Excavating		
Filling		
Grading		
Concrete Footings and Walls		
Rubble Stone work		
Common Brick work		
Pressed Brick work		
Concrete Floors, Walks and Drives		
Reinforcing Steel		
Structural Iron and Steel		
Architectural Iron		
Hollow Tile work		
Cut Stone		
Terra Cotta		
Granite		
Damp Proofing		
Cleaning and Pointing		
Rough Carpentry		
Mill work		
Deafening		
Calking		
Hardware		
Lathing and Plastering		
Painting		
Glazing		
Sheet Metal work		
Composition Roofing		
Slate Roofing		
Tile Roofing		
Tile Floors and Walls		
Marble work		
Structural Slate work		
Prismatic Light		
Total	$	$

Approved:
.....(Signed).....
Superintendent. Contractor.

CONTRACTOR'S RECEIPT

E

RECEIVED OF PERKINS, FELLOWS & HAMILTON

PLAN SET NO. _____, SPECIFICATION NO. _____

DETAIL NO. _____ OF _____ BUILDING

FOR THE PURPOSE OF EXECUTING THE WORK.

SIGNED _____ CONTRACTORS

BY _____

ESTIMATOR'S RECEIPT

CHICAGO _____ 19__

RECEIVED OF PERKINS, FELLOWS & HAMILTON

PLAN SET NO. _____, SPECIFICATION SET NO. _____ OF _____ BUILDING FOR THE PURPOSE OF ESTIMATING THE _____ WORK.

SAME ARE TO BE RETURNED TO YOU ON OR BEFORE _____ 19__

F

SIGNED _____ CONTRACTOR

BY _____

PERKINS, FELLOWS & HAMILTON
ARCHITECTS, 814 TOWER CT., CHICAGO

CERTIFICATE No.

DATE _____ $_____

D

TO _____

THIS IS TO CERTIFY THAT _____ IS ENTITLED TO A PAYMENT OF _____ DOLLARS IN CONFORMITY WITH THE CONTRACT WITH YOU DATED _____ FOR THE _____ OF YOUR BUILDING AT _____

PERKINS, FELLOWS & HAMILTON

BY _____

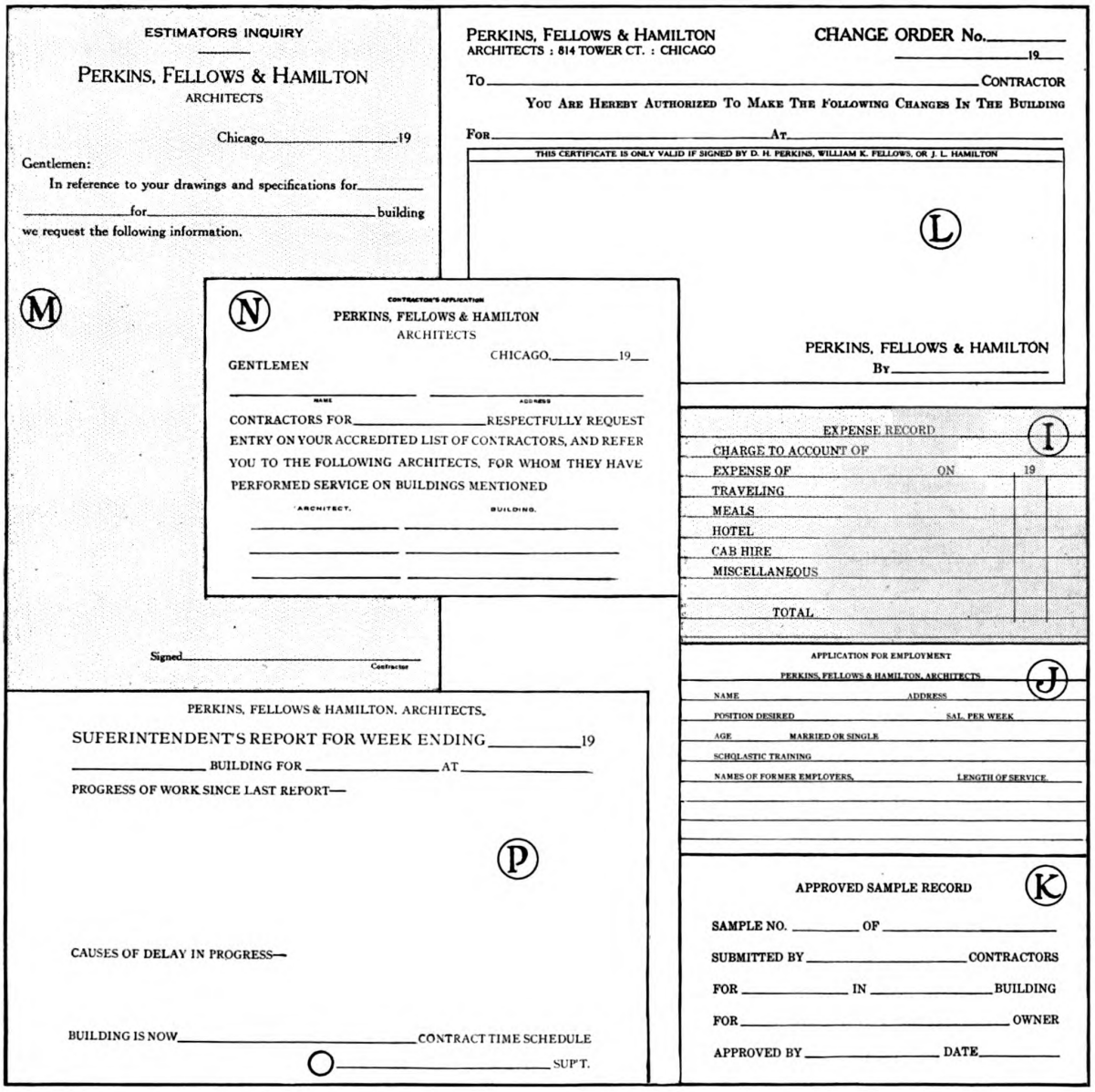
THIS CERTIFICATE IS ONLY VALID IF SIGNED BY D. H. PERKINS, W. K. FELLOWS OR J. L. HAMILTON

STATEMENT OF CONTRACT ACCOUNT

ORIGINAL CONTRACT		PRESENT CERTIFICATE	
EXTRA ORDERS		TOTAL CERTIFIED	
TOTAL AMOUNT		BAL. TO BECOME DUE	
CREDIT ORDERS		RECEIVED PAYMENT	
PREVIOUS CERTIFICATES			
TOTAL CREDITS			
NET TOTAL		CONTRACTOR	

A. Contractors' Proposal
B. Contractors' Payment Application
C. Request for Certificate
D. Architects' Certificate
E. Contractors' Receipt
F. Estimators' Receipt
G. Draftsman's Time Card

REPRODUCTIONS OF FORMS IN USE IN THE OFFICE OF PERKINS, FELLOWS & HAMILTON



ESTIMATORS INQUIRY

PERKINS, FELLOWS & HAMILTON
ARCHITECTS

Chicago_____19

Gentlemen:

In reference to your drawings and specifications for_____

_____for_____building

we request the following information.

Signed_____
Contractor

(M)

(N)

CONTRACTOR'S APPLICATION

PERKINS, FELLOWS & HAMILTON
ARCHITECTS

CHICAGO,_____19__

GENTLEMEN

_____ _____
NAME ADDRESS

CONTRACTORS FOR_____RESPECTFULLY REQUEST ENTRY ON YOUR ACCREDITED LIST OF CONTRACTORS, AND REFER YOU TO THE FOLLOWING ARCHITECTS, FOR WHOM THEY HAVE PERFORMED SERVICE ON BUILDINGS MENTIONED

ARCHITECT. BUILDING.

_____ _____
_____ _____
_____ _____

PERKINS, FELLOWS & HAMILTON. ARCHITECTS.

SUFERINTENDENT'S REPORT FOR WEEK ENDING_____19

_____ BUILDING FOR _____ AT _____

PROGRESS OF WORK SINCE LAST REPORT—

(P)

CAUSES OF DELAY IN PROGRESS—

BUILDING IS NOW_____CONTRACT TIME SCHEDULE

_____SUP'T.

PERKINS, FELLOWS & HAMILTON
ARCHITECTS : 814 TOWER CT. : CHICAGO

CHANGE ORDER No._____
_____19__

To_____CONTRACTOR

YOU ARE HEREBY AUTHORIZED TO MAKE THE FOLLOWING CHANGES IN THE BUILDING

FOR_____AT_____

THIS CERTIFICATE IS ONLY VALID IF SIGNED BY D. H. PERKINS, WILLIAM K. FELLOWS, OR J. L. HAMILTON

(L)

PERKINS, FELLOWS & HAMILTON
By_____

EXPENSE RECORD (I)

CHARGE TO ACCOUNT OF

EXPENSE OF ON 19

TRAVELING		
MEALS		
HOTEL		
CAB HIRE		
MISCELLANEOUS		
TOTAL		

APPLICATION FOR EMPLOYMENT (J)

PERKINS, FELLOWS & HAMILTON, ARCHITECTS

NAME ADDRESS

POSITION DESIRED SAL. PER WEEK

AGE MARRIED OR SINGLE

SCHOLASTIC TRAINING

NAMES OF FORMER EMPLOYERS. LENGTH OF SERVICE.

APPROVED SAMPLE RECORD (K)

SAMPLE NO. _____ OF _____

SUBMITTED BY _____CONTRACTORS

FOR _____ IN _____BUILDING

FOR _____OWNER

APPROVED BY _____ DATE_____

I. Expense Record
J. Application for Emp!oyment
K. Approved Sample Record
L. Change Order
M. Estimators' Inquiry Blank
N. Contractors' Application
P. Superintendent's Report

Reproductions of forms in use in the office of Perkins, Fellows & Hamilton

room. The effect is one of quiet good taste, and a well-considered business establishment. The studio effect was carefully avoided.

Adjoining the service hall on the first floor is a small room especially designed and equipped for specification work, in which are kept all catalogue files, original specification files, and approved samples. A small toilet room is also provided on this floor.

It is intended that no necessity should arise for a client to go above the first floor level under the ordinary course of business bringing him to the office.

Upon the mezzanine floor is a large and spacious library, with a private drafting-room adjoining for design work of a confidential nature. The library is a well lighted room used for no other purpose, and its use is therefore never interfered with.

An inviting locker and toilet room for employees, with a steel locker for each, is also found on this floor, as is also the general file room. A small room is also provided which is intended for use as a dark room or a kitchenette on occasions when it is desired to serve luncheon in the building.

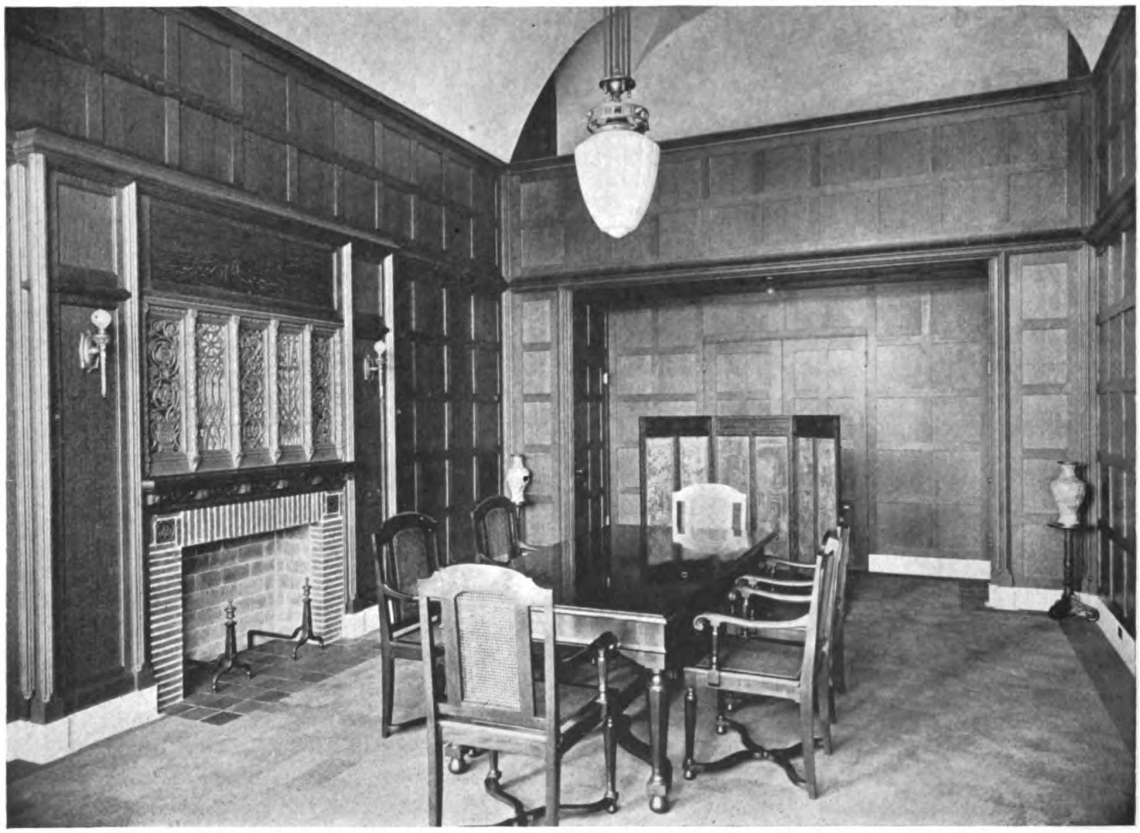
On the top floor is the main drafting-room, a large

Drafting Room

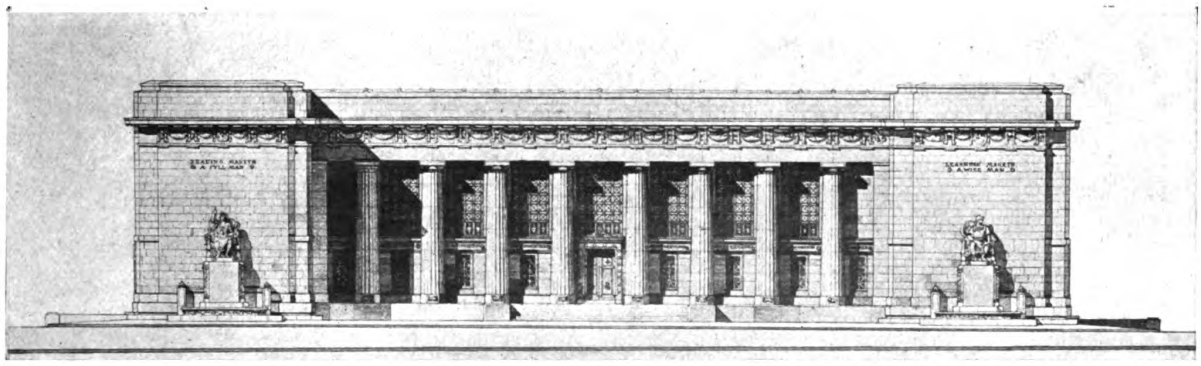
Library

room 38 by 42 feet in size, without columns, and beautifully lighted from the east and west. The room is of unusual height, furnished in the simple fashion of a clean, airy workshop. Its east windows command a wide sweep over the Lake Shore Drive and the square in front, and the large sloping expanse of translucent glass above them throws a softly diffused light far into the room.

The impression which is made on the visitor by an inspection of this unusual office is that here is an ideal solution of an important problem, and one which well expresses the combined art and scientific business of a modern architect's office, thoroughly organized and established on a basis of permanence and stability, and affording a valuable and dignified publicity which could be obtained in no other way.



Reception Room
Office of Perkins, Fellows & Hamilton, Architects



Rendered Elevation from Competition Drawings Showing Intended Sculptural Groups

The Indianapolis Public Library

By RALPH ADAMS CRAM

A LITTLE while ago, I had occasion to write in appreciation of the very wonderful work of Messrs. Day and Klauder at Princeton, which so fittingly crowned the life of Frank Miles Day; a life that, to the great loss of the profession of architecture, came to an end shortly after the completion of this memorial.

These Princeton dining-halls mark an extraordinarily high level in the restoration of English mediæval architecture as a living style. Let me now, in a measure, restore the balance by writing in equal appreciation of a building which is for classical architecture what the Princeton buildings are for Gothic. I refer to the Indianapolis Library by Mr. Cret, Mr. Zantzinger, Mr. Borie and Mr. Medary.

I came upon this building almost by accident last winter and the first glance was sufficient to indicate that here was a work of purity and distinction, well outside the limits of contemporary experience. If the quality of distinction is, as I have sometimes described it, "the doing of the unexpected pleasantly," then this is a work of superior distinction. Nothing is exactly what the academically trained classicist would expect, and yet every detail, every element, gives the keenest pleasure. It is Greek Doric, and yet there is nothing of cold archæology or mechanical reproduction. It almost seems as though the architects thought themselves into the Hellenic spirit and then expressed themselves frankly and simply, without stopping to think whether what they did had sufficient precedent on the Acropolis, at Pæstum or at Girgenti. The whole thing is not only Greek in form but penetratingly Greek in spirit. Yet it is a thoroughly modern building, with a highly articulated plan and, as I am told by those in authority, perfectly adapted to its function.

To me the most notable qualities in the exterior are scale and surface. It is not a large building, yet the scale is so delicately preserved that one does not think of dimensions. As for the surface, that is to say, the horizontal and vertical projections, the placing and relief of the ornament, I cannot recall any building in modern times that is more notable in its subtlety and its distinction. The polygonal bases of the great columns of the porticoes, and the frieze with its sensitive modelling and strikingly decorative forms, are certainly masterpieces of the most finely felt art. There is, perhaps, no greater test of good architecture than the manner in which ornament is placed. In the Indianapolis Library the placing of ornament is as judiciously and sensitively determined as anything I know in architecture. The detail itself, *i.e.*, the design of the ornaments, the profiles of mouldings, the composition of the sculptures and bas-reliefs, the design of the grills, the muntins of the windows, even the hardware itself, are considered with a fine scrupulosity that is as grateful as it is startling and unusual.

The interior is in every respect up to the level of the exterior. The conception of the central hall is striking and unique. Here we have a lofty interior, rectilinear, simple to a degree, with a sort of gallery surrounding it at a low level, separated from the room itself by rectilinear openings.

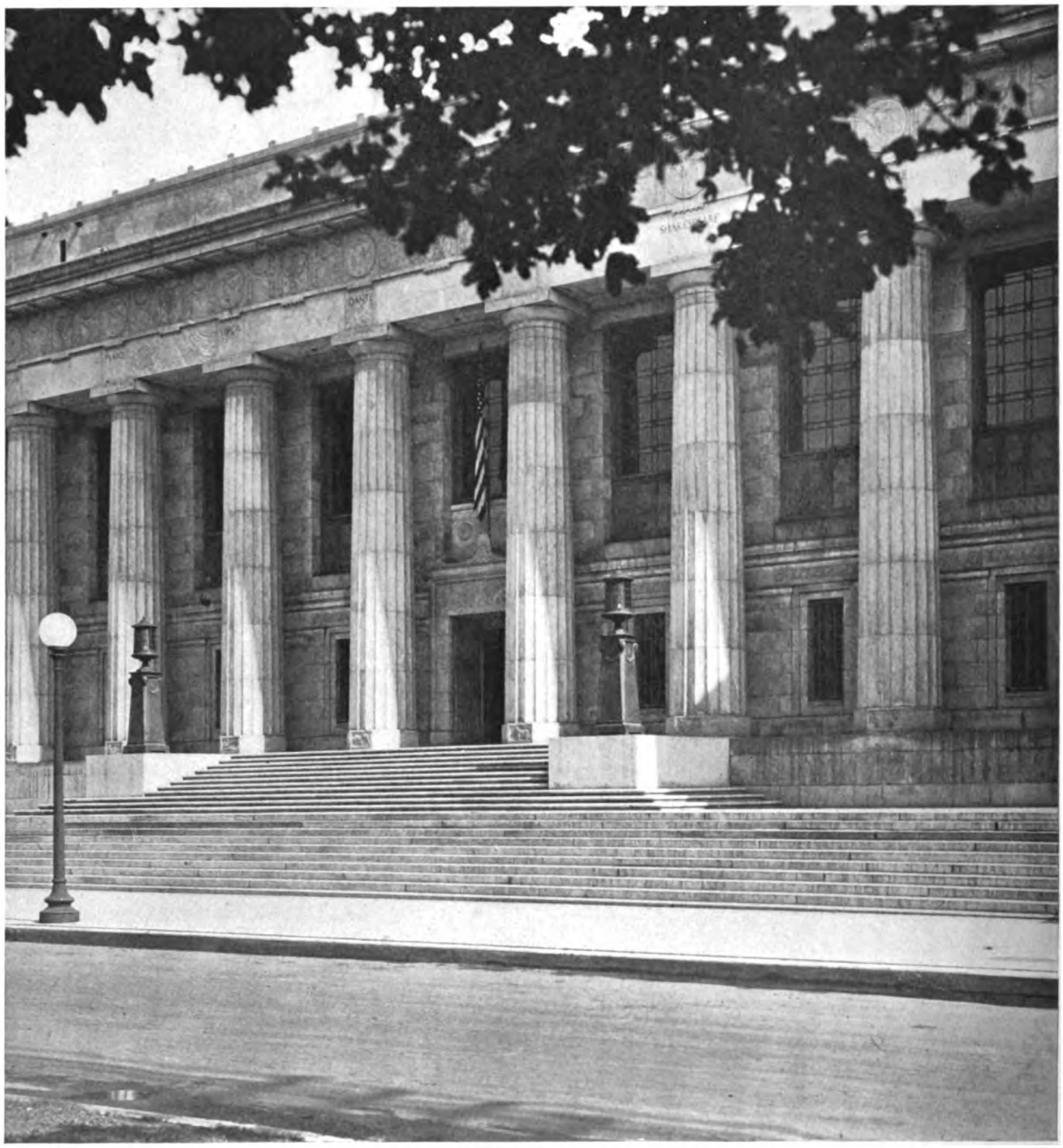
The elements are of the simplest. Nothing is overdone or wasted, and the enormous success of the result follows from proportions that are fine and sensitive to the point of perfection, and from the altogether extraordinary surfacing of the walls. Here, as outside, the decorative elements are cameo-like in their refinement, impeccable in scale, and placed with a judiciousness that excites unbounded admiration.

In point of color this interior is more than up to its standard of form and surface and line. The ceiling of the great hall is an altogether astonishing piece of decoration, with a subtlety of line, a serenity of spacing, and a purity of color that are rather staggering to those who have been brought up on the ordinary

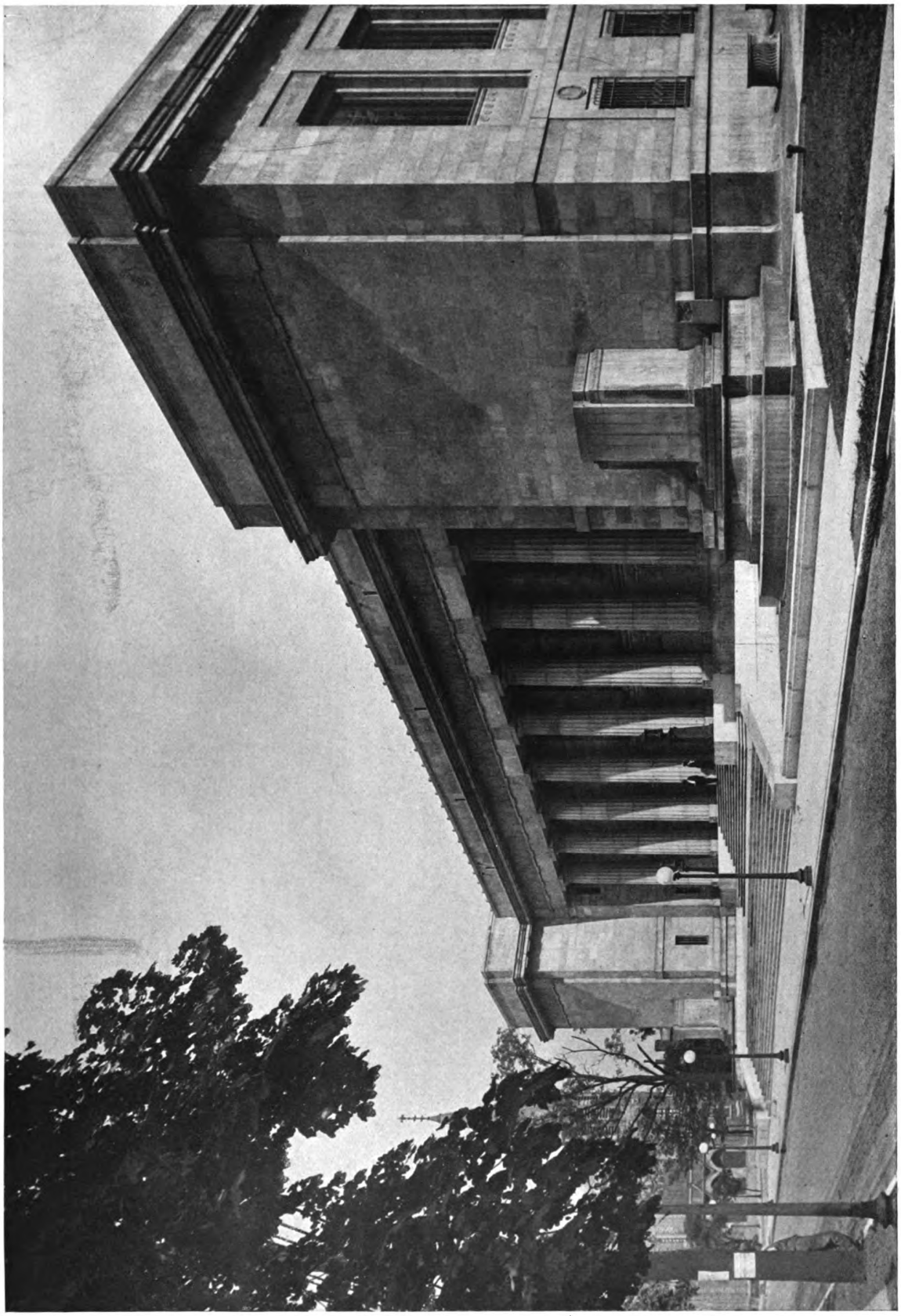
sort of thing that is generally served up as " color decoration." The same clarity and distinction of color run through all the other important rooms, where the only criticism one can offer is that the chairs and tables verge so dangerously on the edge of " office furniture " that they go far toward destroying the harmony of the architectural composition. Rooms such as these demand furniture of a fineness of form such as that of the French Empire.

Altogether I cannot help feeling that this Indianapolis Library is one of the most distinctive and admirable contributions to architecture that have been made in America. It is in itself a manifestation of the fundamental difference between the qualitative scale and the quantitative. Here, everything has been tested by quality, whereas only too often, in our architecture as in our civilization, quantity is all that counts.

If classical architecture could be handled as the architects have handled this building, the Gothicists (such as myself) would find the ground cut out from under their feet. It is mechanistic, quantitative, or vulgarian classic we object to; not classic as it has been handled here.

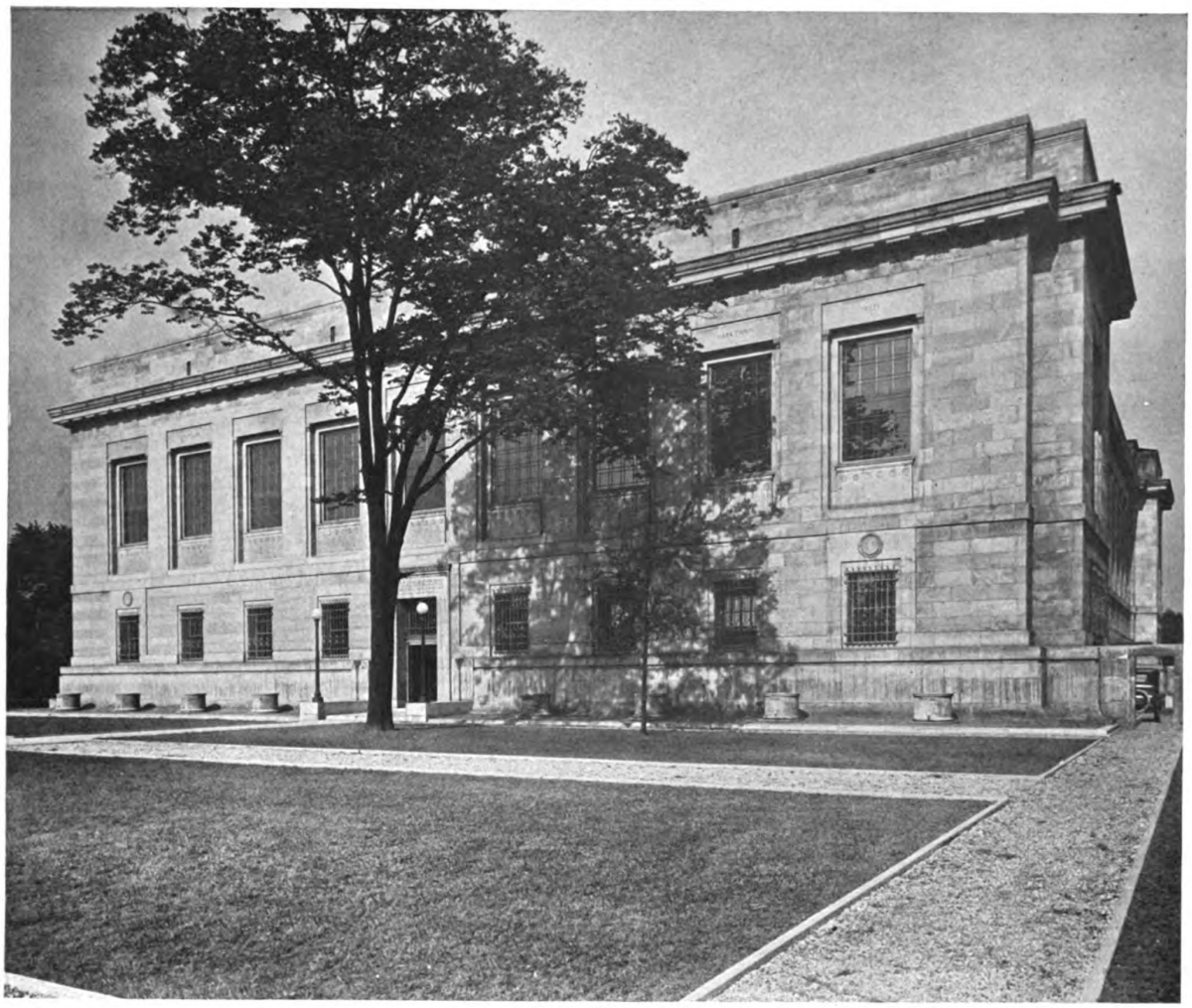


Detail of Main Facade, Indianapolis Public Library Building
Paul P. Cret and Zantzinger, Borie & Medary, Associate Architects

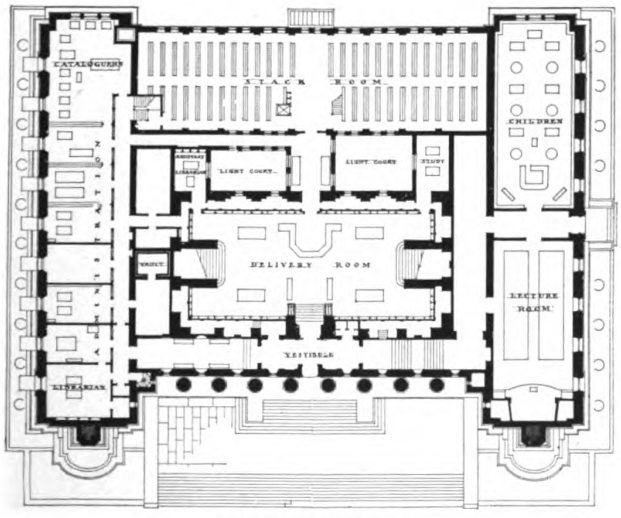


PUBLIC LIBRARY BUILDING, INDIANAPOLIS, INDIANA

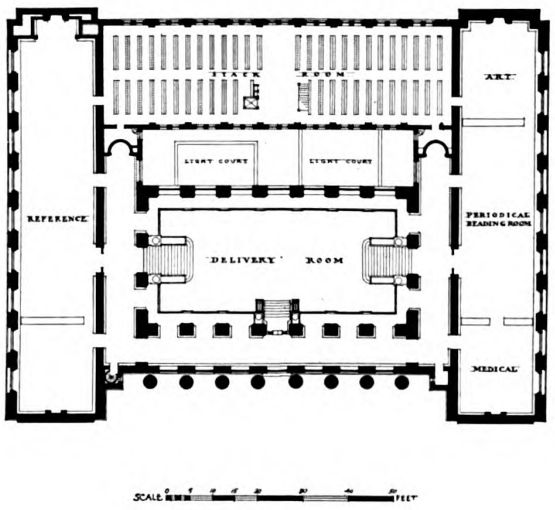
PAUL P. CRET AND ZANTZINGER, BORIE & MEDARY, ASSOCIATE ARCHITECTS



VIEW OF SIDE ELEVATION



FIRST FLOOR PLAN



SECOND FLOOR PLAN

PUBLIC LIBRARY BUILDING, INDIANAPOLIS, INDIANA

PAUL P. CRET AND ZANTZINGER, BORIE & MEDARY, ASSOCIATE ARCHITECTS

DETAIL OF SIDE ENTRANCE

DETAIL OF MAIN ENTRANCE

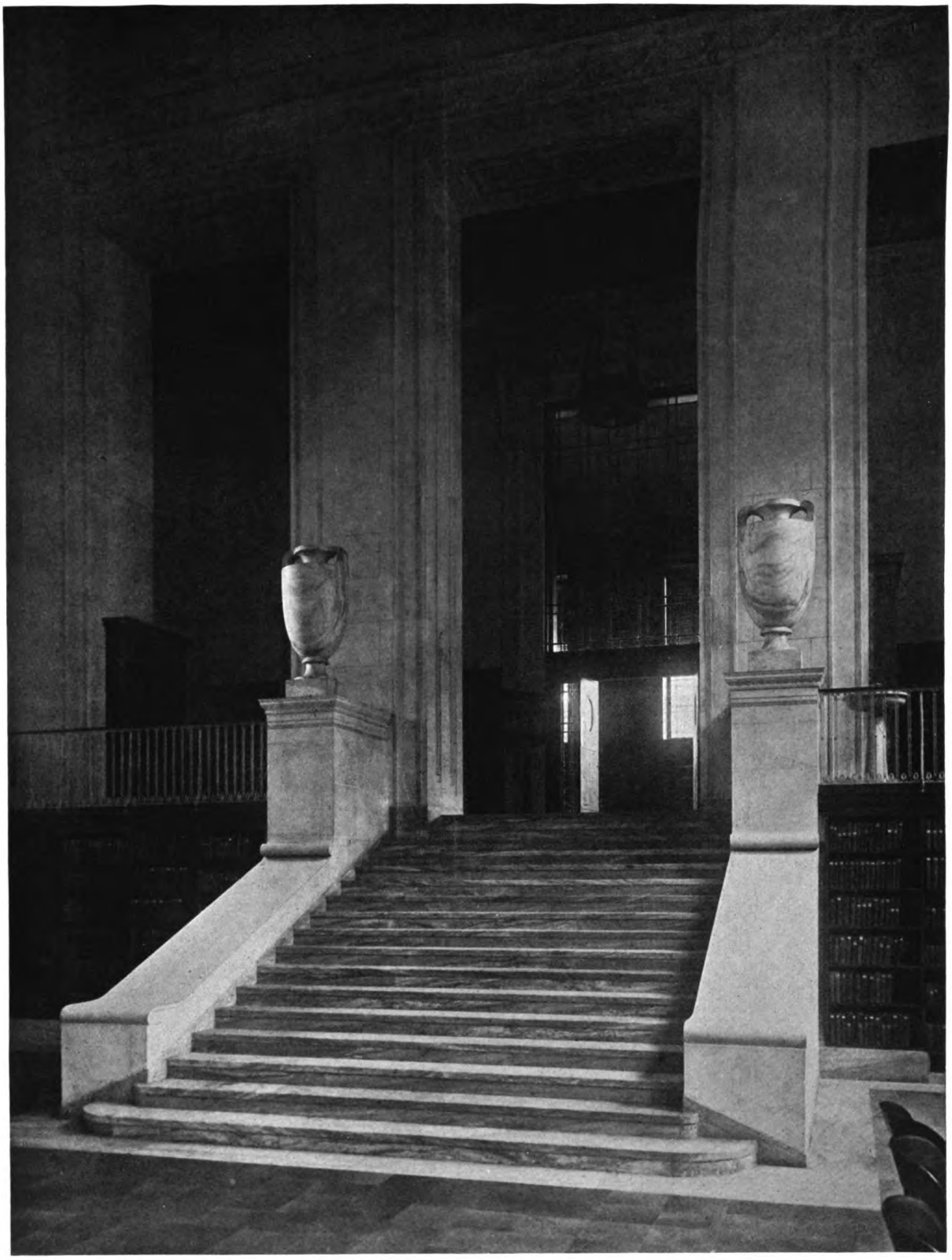
PUBLIC LIBRARY BUILDING, INDIANAPOLIS, INDIANA

PAUL P. CRET AND ZANTZINGER, BORIE & MEDARY, ASSOCIATE ARCHITECTS

GENERAL VIEW OF DELIVERY ROOM

PUBLIC LIBRARY BUILDING, INDIANAPOLIS, INDIANA

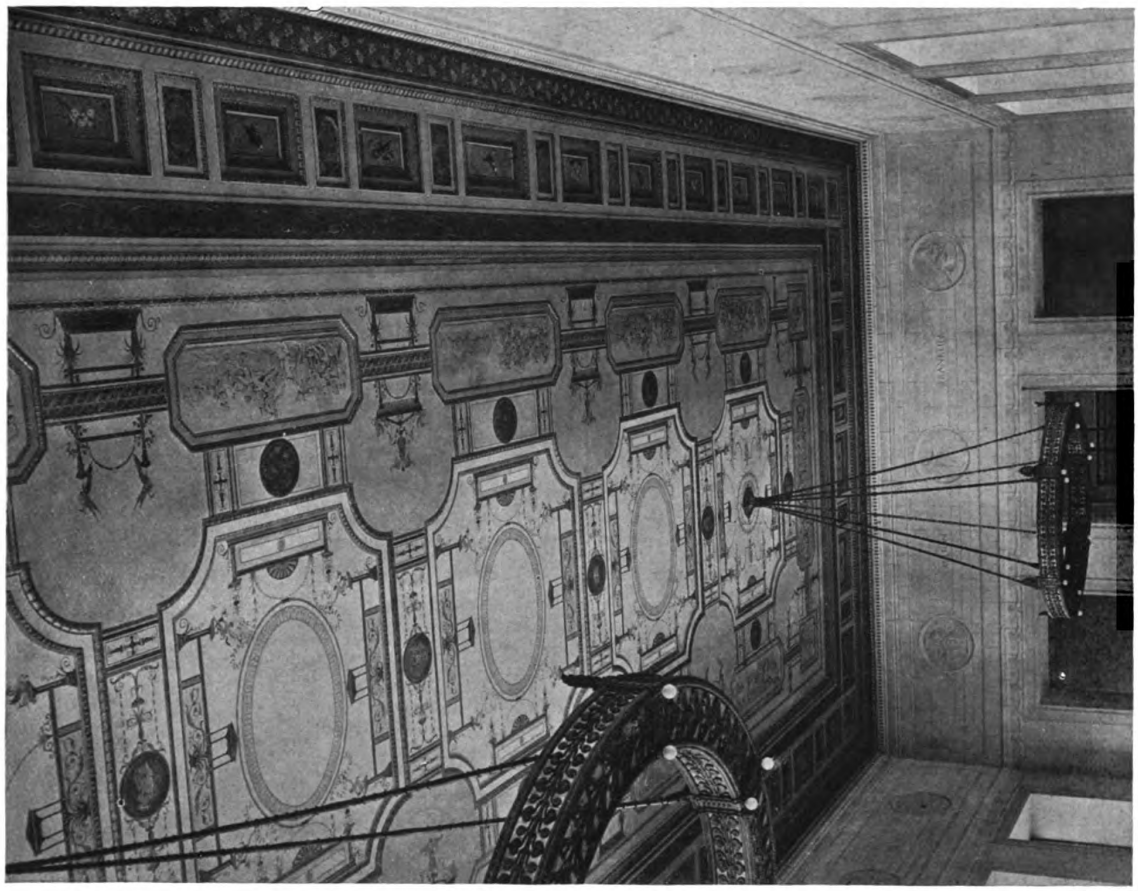
PAUL P. CRET AND ZANTZINGER, BORIE & MEDARY, ASSOCIATE ARCHITECTS



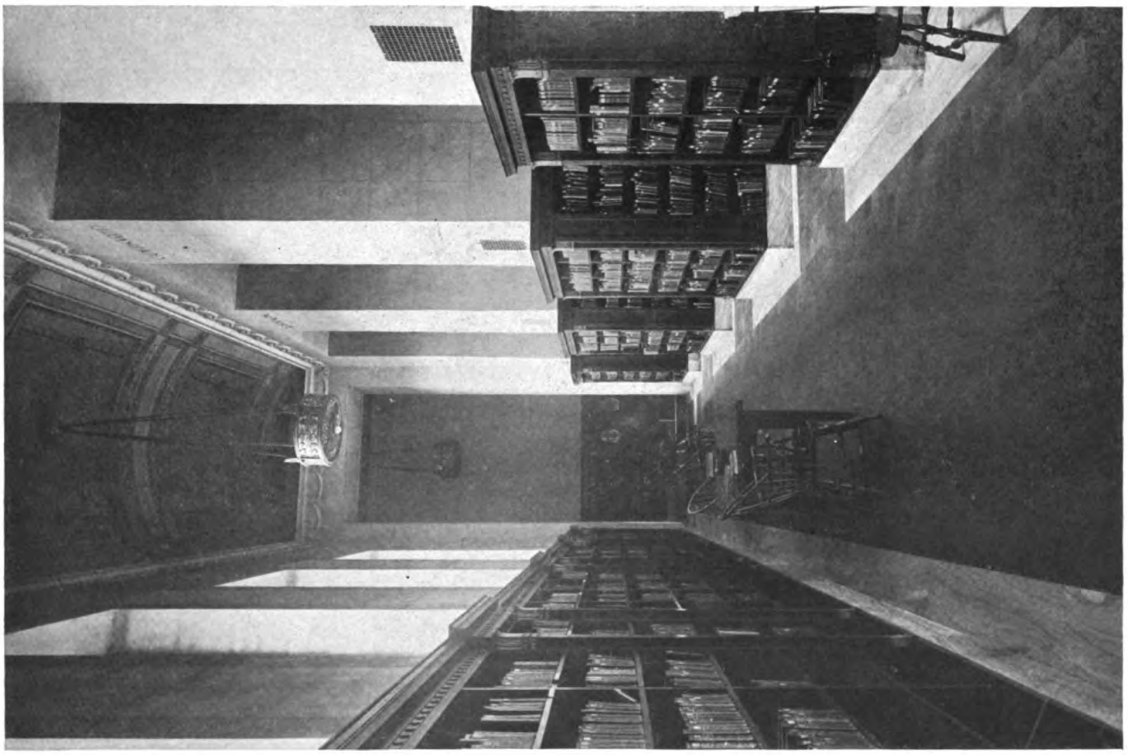
DETAIL OF STEPS LEADING FROM DELIVERY ROOM TO CORRIDOR

PUBLIC LIBRARY BUILDING, INDIANAPOLIS, INDIANA

PAUL P. CRET AND ZANTZINGER, BORIE & MEDARY, ASSOCIATE ARCHITECTS



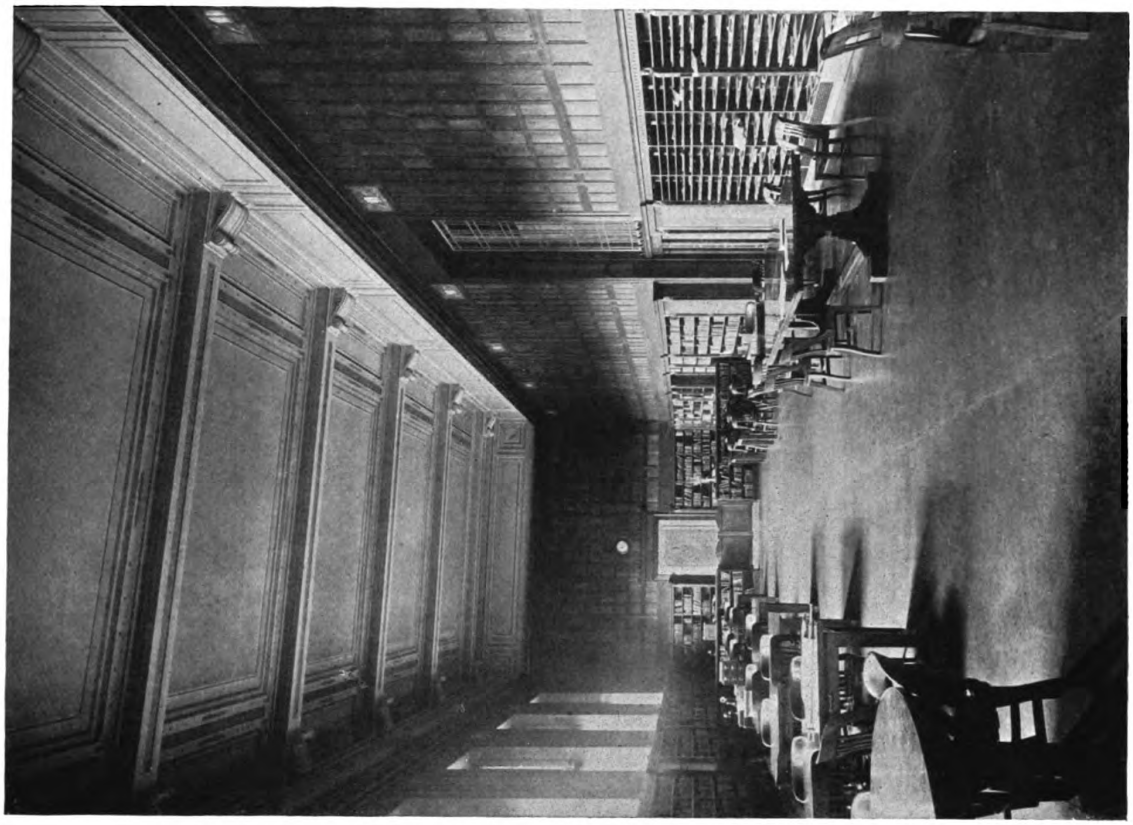
DETAIL OF DELIVERY ROOM CEILING



GALLERY AROUND DELIVERY ROOM

PUBLIC LIBRARY BUILDING, INDIANAPOLIS, INDIANA

PAUL P. CRET AND ZANTZINGER, BORIE & MEDARY, ASSOCIATE ARCHITECTS

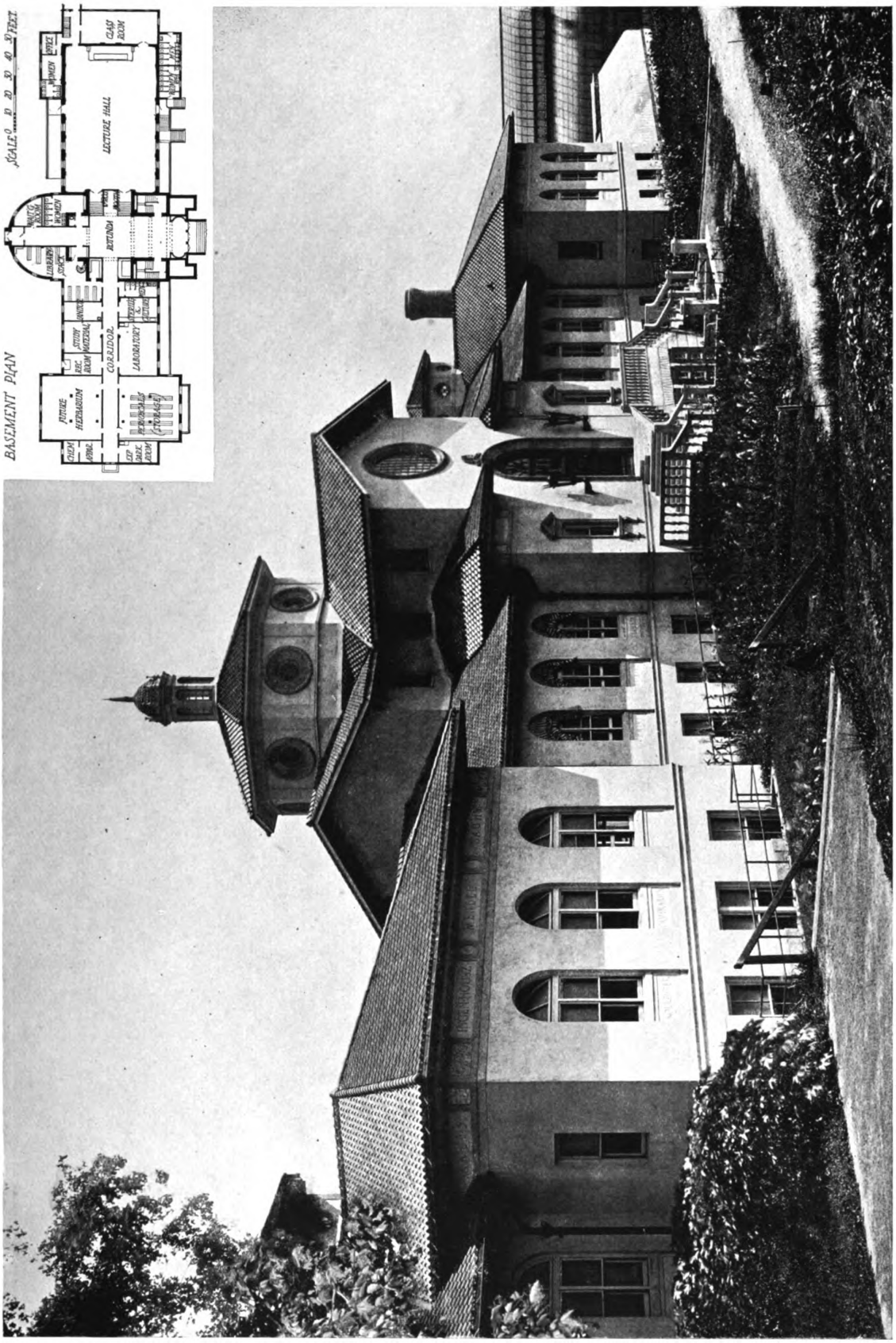


PERIODICAL ROOM

REFERENCE ROOM

PUBLIC LIBRARY BUILDING, INDIANAPOLIS, INDIANA

PAUL P. CRET AND ZANTZINGER, BORIE & MEDARY, ASSOCIATE ARCHITECTS



GENERAL VIEW OF EXTERIOR

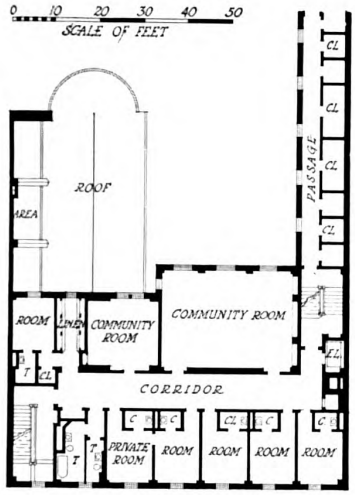
LABORATORY BUILDING, BROOKLYN BOTANIC GARDEN, BROOKLYN, N. Y.

McKIM, MEAD & WHITE, ARCHITECTS

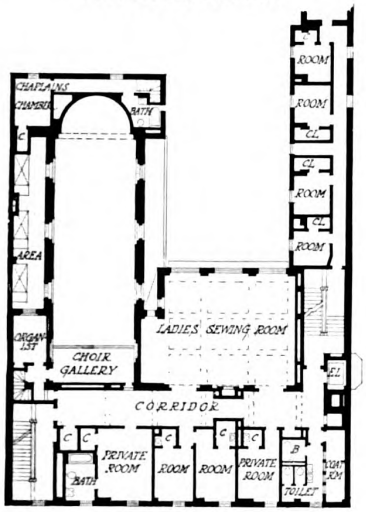
DETAIL OF MAIN ENTRANCE

LABORATORY BUILDING, BROOKLYN BOTANIC GARDEN, BROOKLYN, N. Y.

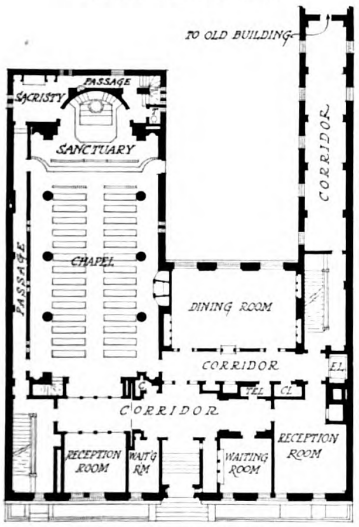
McKIM, MEAD & WHITE, ARCHITECTS



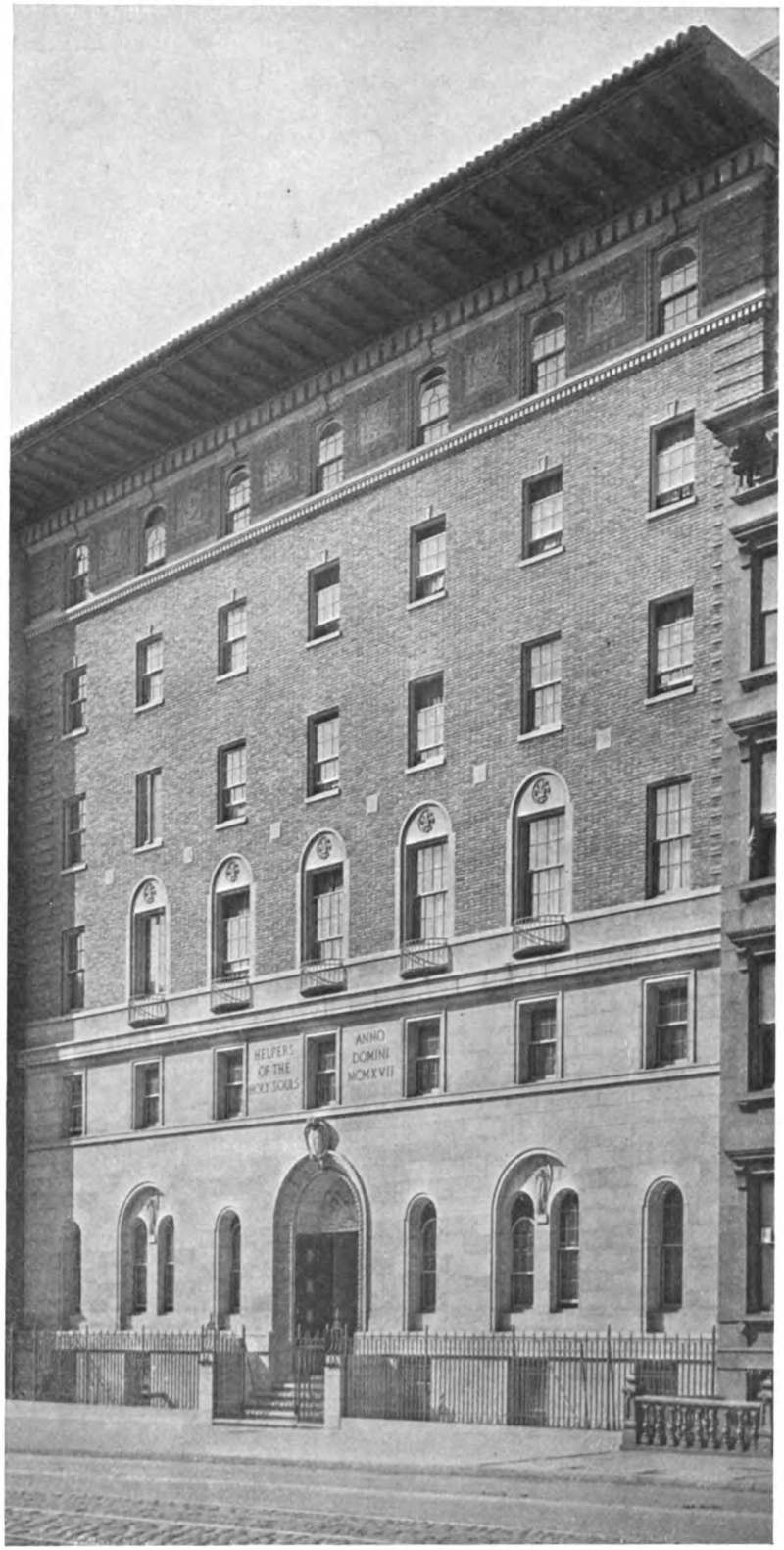
FOURTH FLOOR PLAN



SECOND FLOOR PLAN



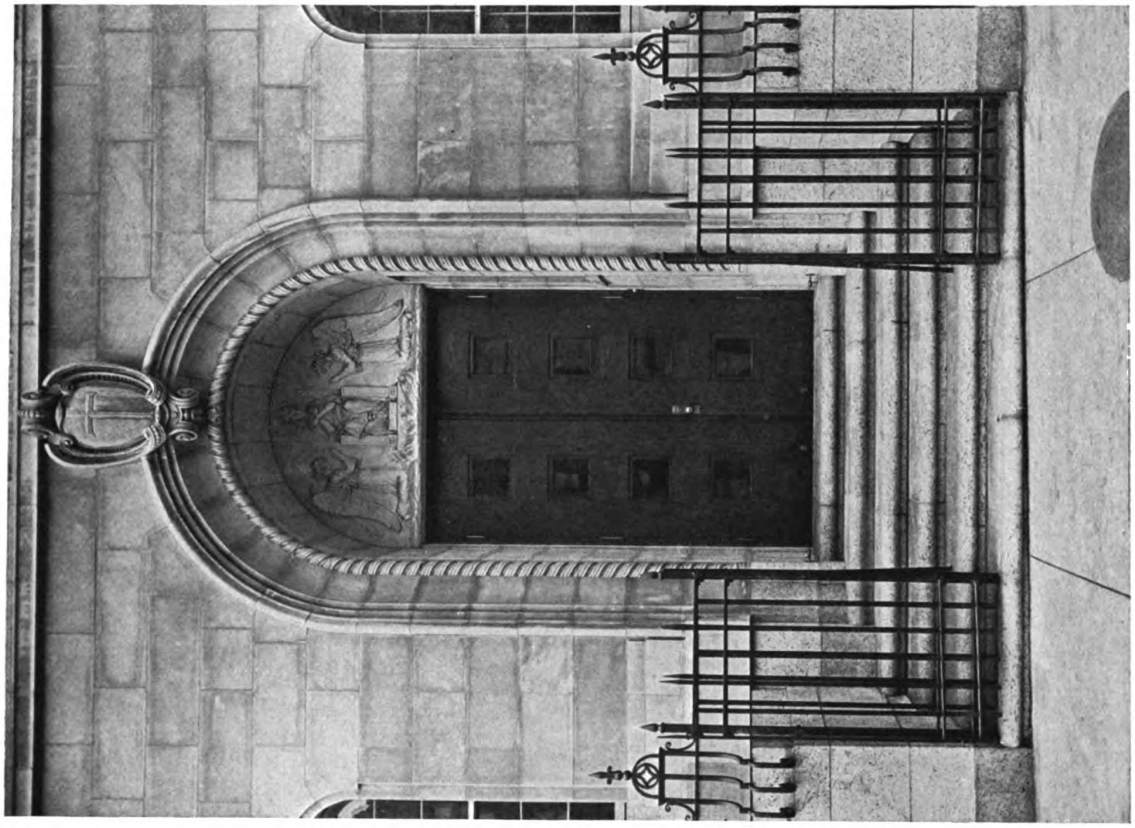
FIRST FLOOR PLAN



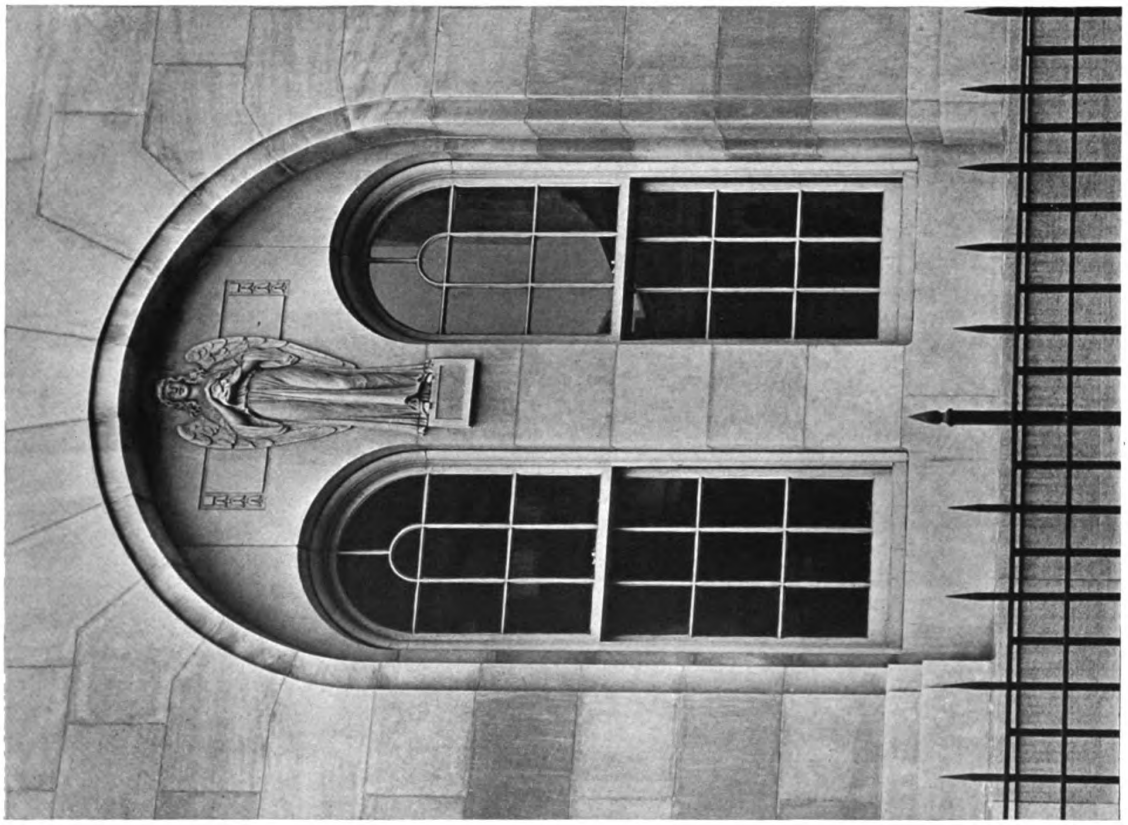
GENERAL VIEW OF FACADE

HELPERS OF THE HOLY SOULS BUILDING, NEW YORK, N. Y.

MAGINNIS & WALSH, ARCHITECTS



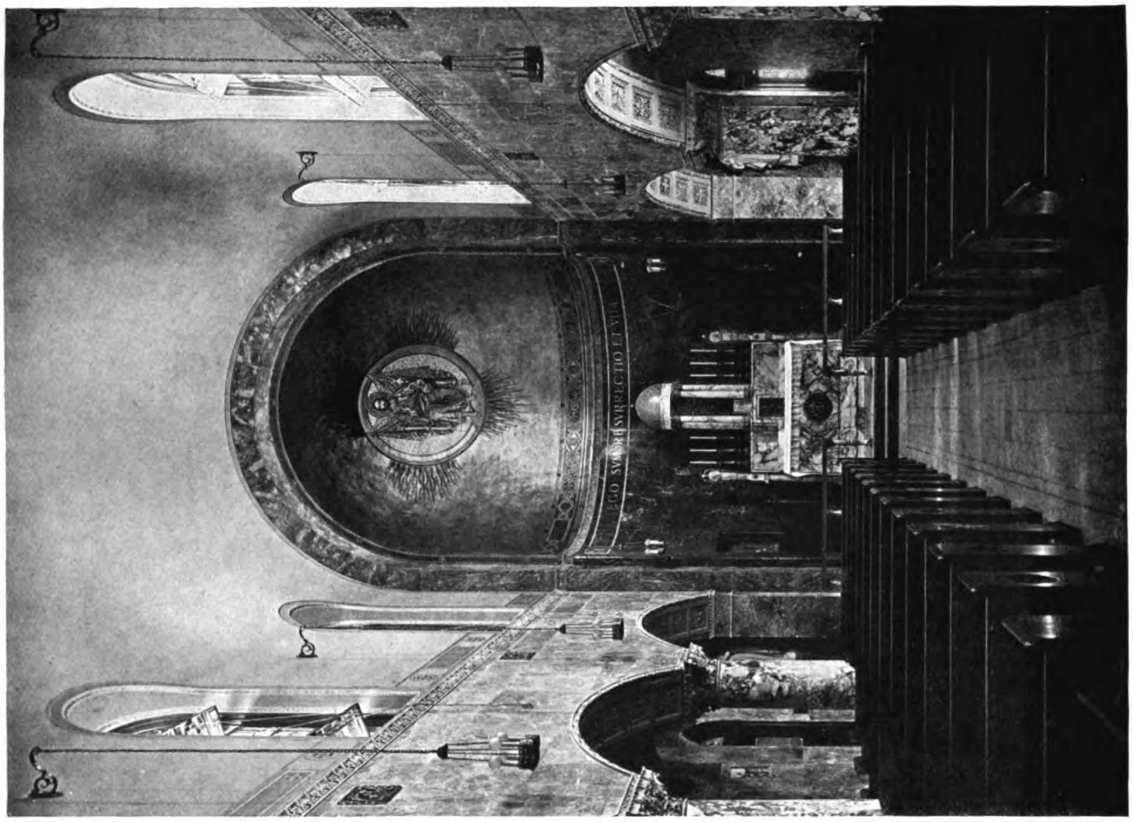
DETAIL OF ENTRANCE



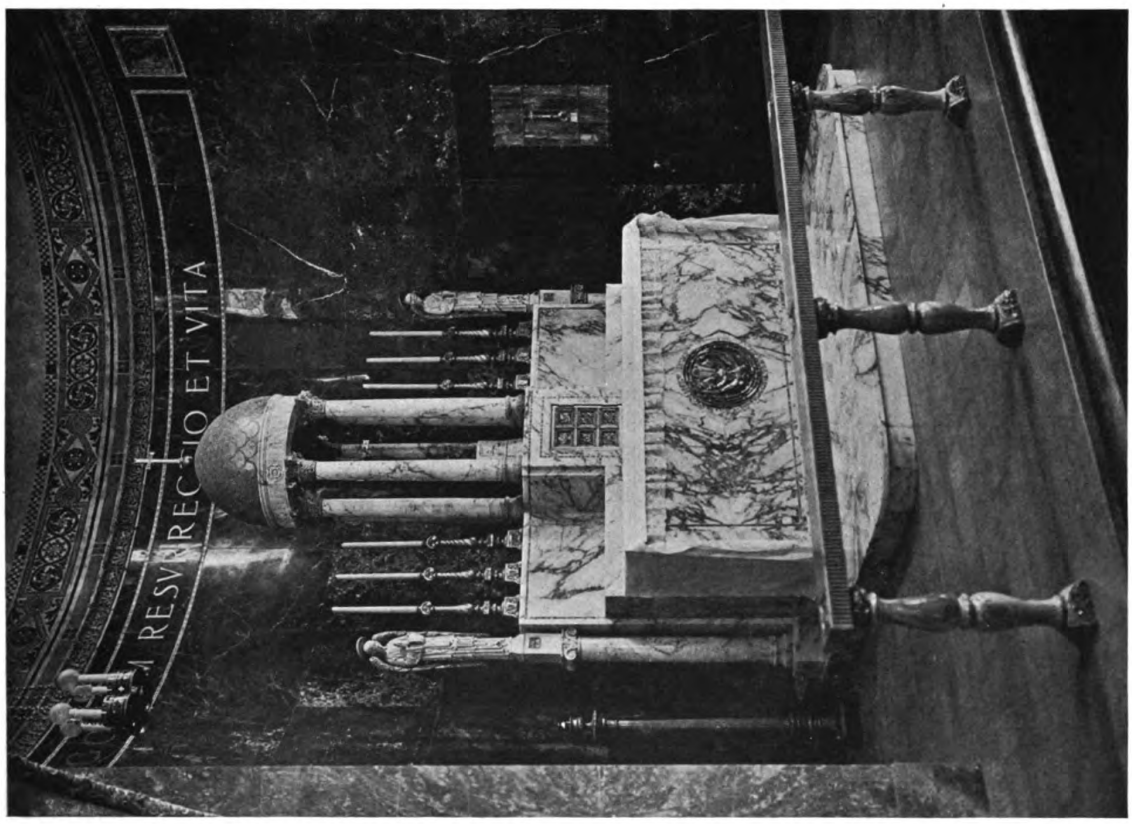
DETAIL OF LOWER STORY WINDOW

HELPERS OF THE HOLY SOULS BUILDING, NEW YORK, N. Y.

MAGINNIS & WALSH, ARCHITECTS



VIEW OF CHAPEL



DETAIL OF ALTAR

HELPERS OF THE HOLY SOULS BUILDING, NEW YORK, N. Y.

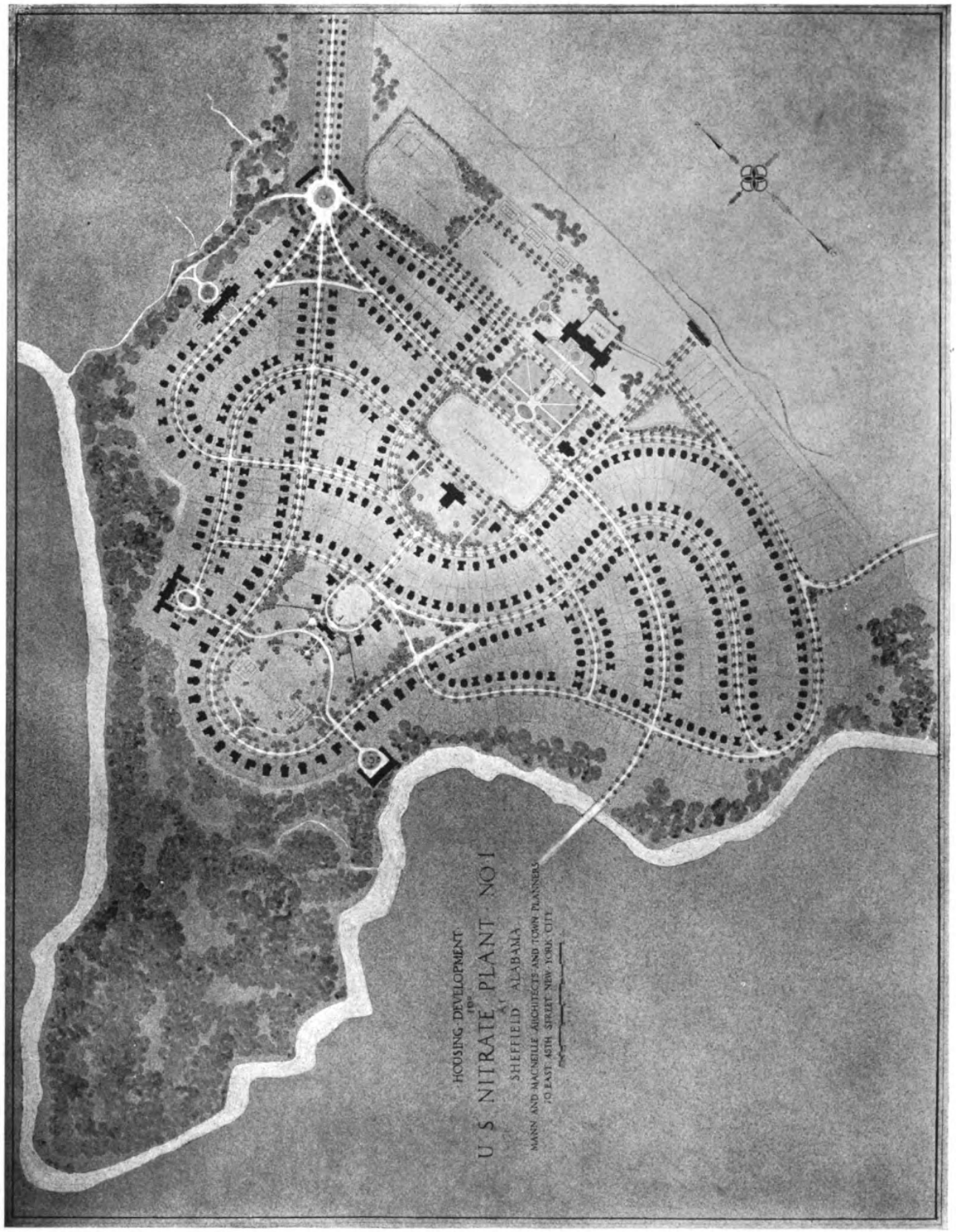
MAGINNIS & WALSH, ARCHITECTS

DETAIL OF SIDE AISLE OF CHAPEL

DETAIL SHOWING CONFESSIONAL IN CHAPEL

HELPERS OF THE HOLY SOULS BUILDING, NEW YORK, N. Y.

MAGINNIS & WALSH, ARCHITECTS

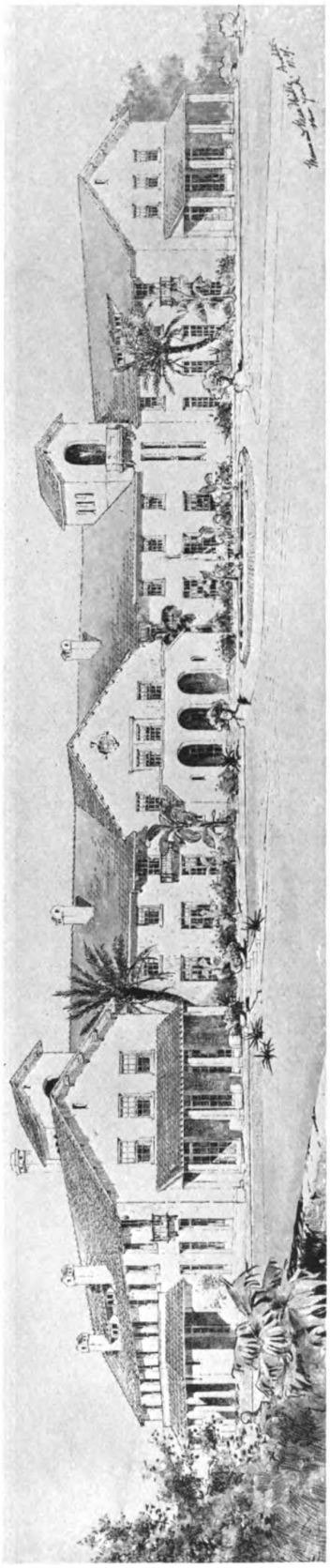


RENDERED PLAN OF HOUSING SCHEME AND CIVIC LAYOUT

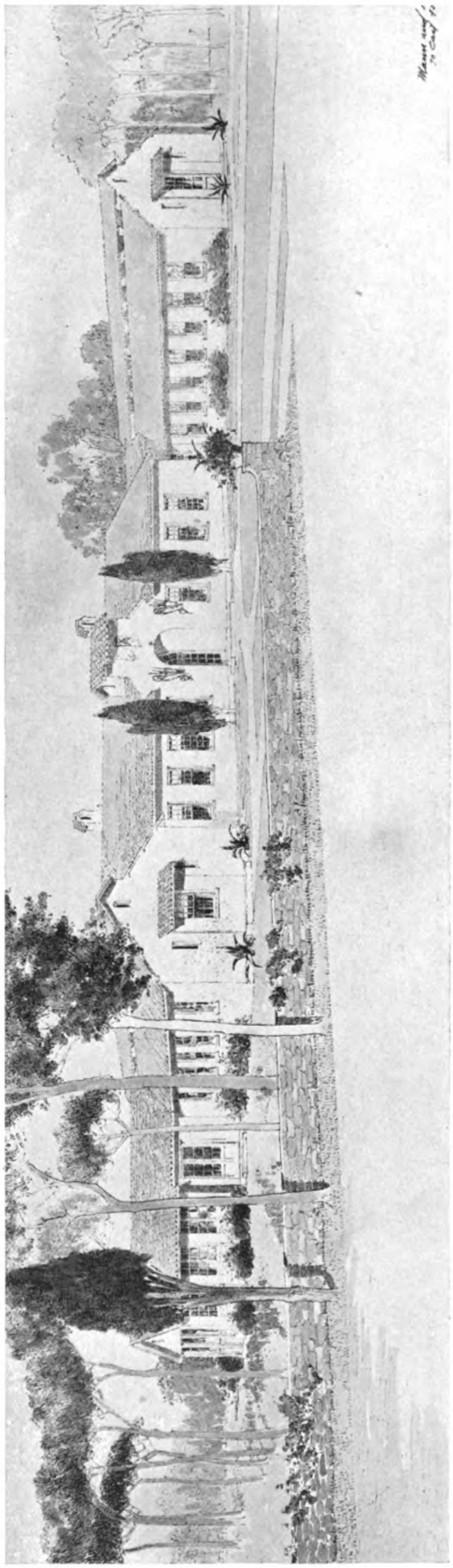
A Community Building
B School Building
C Shops
D Barracks
E Hospital
F Houses for Commanding Officer and his Staff
G Garage

HOUSING DEVELOPMENT, UNITED STATES NITRATE PLANT NO. 1, SHEFFIELD, ALABAMA

MANN & MacNEILLE, ARCHITECTS AND TOWN PLANNERS



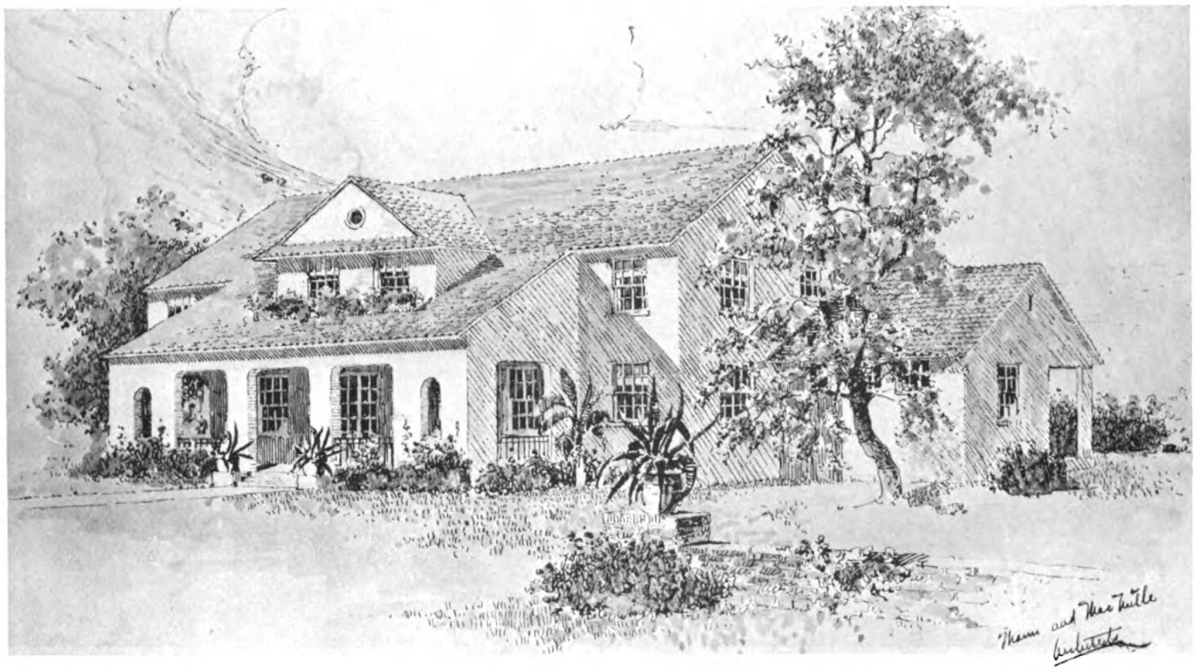
COMMUNITY BUILDING AND QUARTERS FOR OFFICERS AND EXECUTIVES



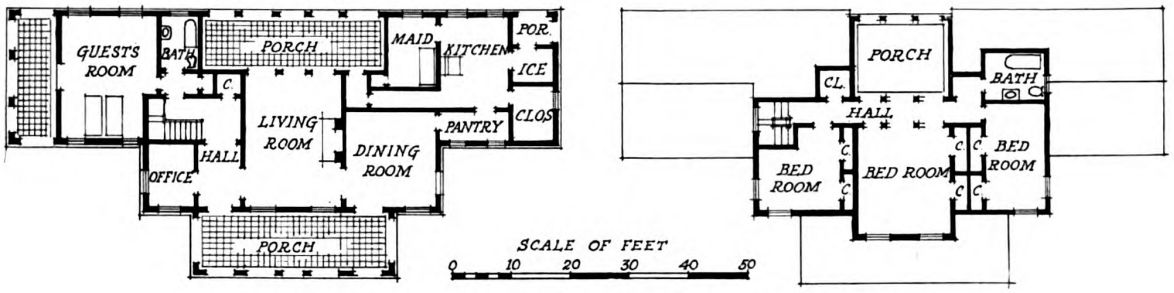
GENERAL HOSPITAL BUILDING FOR WHITE AND COLORED PATIENTS

HOUSING DEVELOPMENT, UNITED STATES NITRATE PLANT No. 1, SHEFFIELD, ALABAMA

MANN & MacNEILLE, ARCHITECTS AND TOWN PLANNERS

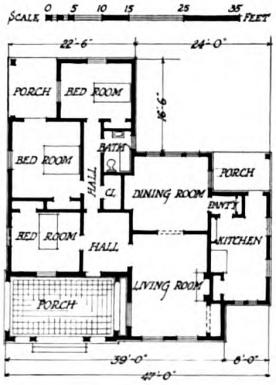


PERSPECTIVE VIEW OF ENTRANCE SIDE, COMMANDER'S HOUSE



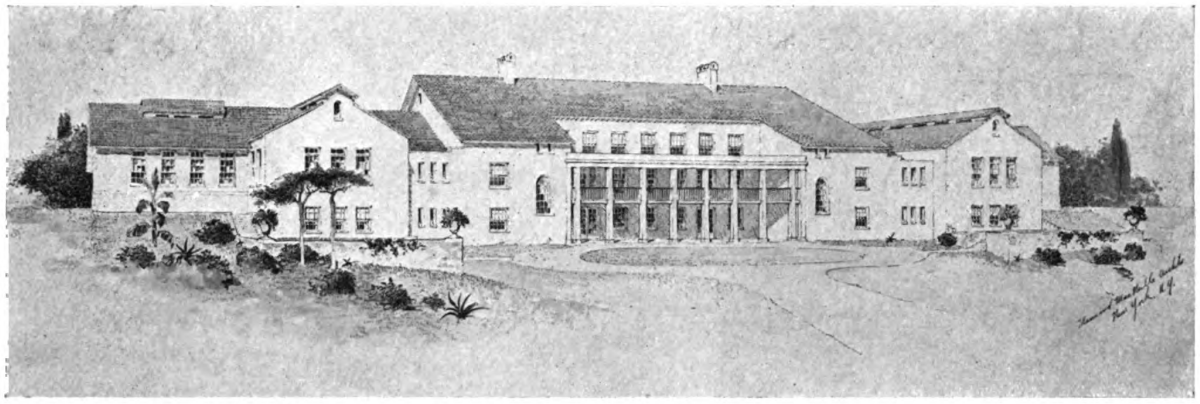
FIRST AND SECOND FLOOR PLANS OF COMMANDING OFFICER'S HOUSE

DESIGN FOR OFFICERS' HOUSE FOR CAPTAINS AND GRADES HIGHER



HOUSING DEVELOPMENT, UNITED STATES NITRATE PLANT No. 1, SHEFFIELD, ALABAMA

MANN & MacNEILLE, ARCHITECTS AND TOWN PLANNERS

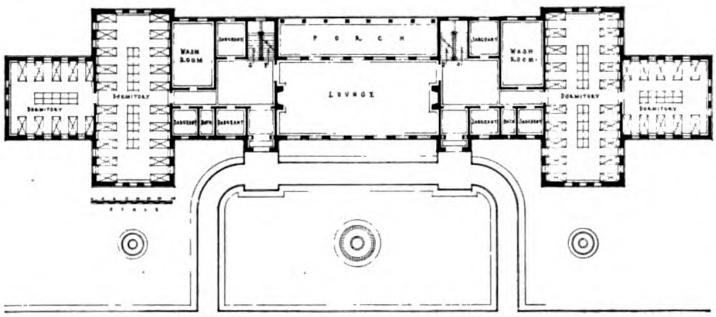


Perspective View of Guard Barracks

Housing Development for the Air Nitrate Corporation, Sheffield, Alabama

MANN & MacNEILLE, ARCHITECTS AND TOWN PLANNERS
By CHARLES C. MAY

Illustrations from drawings prepared by Leland H. Lyon of Mann & MacNeille, Architects



First Floor Plan of Guard Barracks

This building provides a dormitory and general quarters for a three-shift civilian guard Each floor is an independent unit to permit change of guard without disturbance

THE war has played tricks with many parts of our country, producing transformations which the wildest real estate speculative boom agent would have hesitated to prophesy. Returning travelers who have been absent from this country for any length of time tell us that nothing is so eloquent of an awakened America as the great number of new-born industrial communities which everywhere meet their eyes. Localities which considered themselves definitely fixed in the class of pasture, farm or waste land have suddenly found themselves snapped up and transformed into a factory group, a shell-loading plant or a chemical industry. Of the older industries, this latter has made the most spectacular expansion, but there have arisen new giants in the land of production, and among them nothing could surpass in romance the story of the inception of the air nitrate industry. Nor could the transformation of an area be more strikingly illustrated than in the section of northern Alabama adjoining the town of Sheffield.

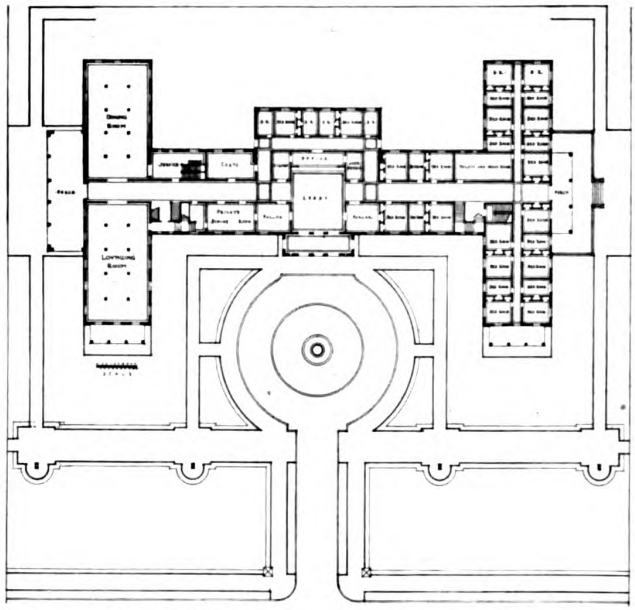
Lying advantageously upon the Tennessee River, the spot was selected for the erection of the huge Muscle Shoals Dam; just below were located air nitrate plants Nos. 1 and 2, which are destined to employ several thousand men as soon as capacity production can begin.

As a natural result of these premises, we find at least two good-sized towns in the process of building — one to house the workers in air nitrate plant No. 2 — the other, which is illustrated herewith, to act in the same way for plant No. 1. This town is the work of Messrs. Mann & MacNeille of New York, who are acting as architects and town planners. Their services are rendered directly to the Air Nitrate Corporation, but all work of every description is subject to approval by the governmental department having jurisdiction. In this case it is the Nitrate Division of the Ordnance Department at Washington.

The site of the present development is a plateau of interesting topography. It is roughly of a wedge shape, the acute angle being defined by the course of the river. The Tennessee is here subject to flood conditions periodically, when it climbs thirty feet or more up the slopes of the promontory. The town itself is, however, well insured against injury since its general elevation is another thirty feet higher than the high water level. It is safe to predict that the scenic effects during spring freshets, when the town becomes flood bound on two sides, will be one of the features of life in the community.

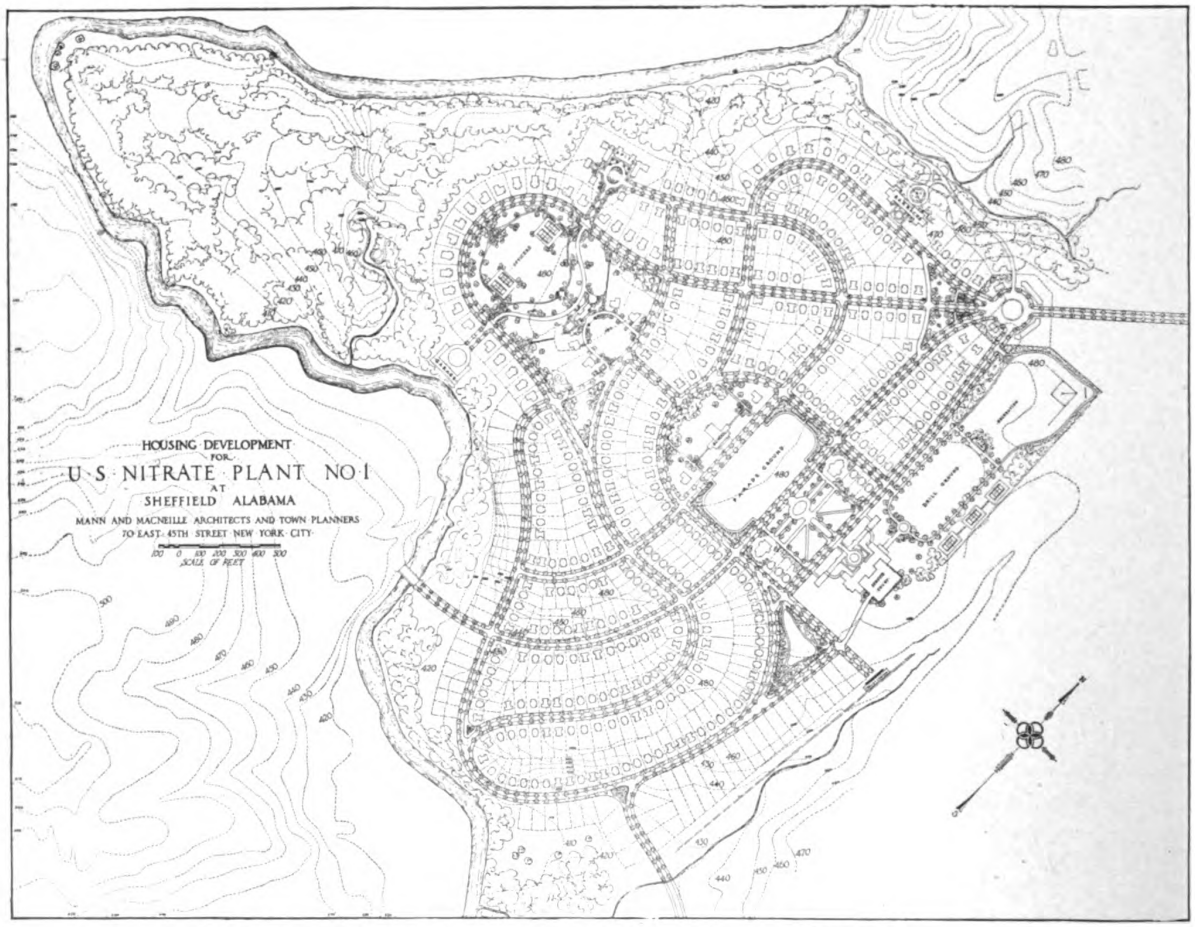
The town plan which Messrs. Mann & MacNeille have produced is a logical solution of the problem. The village is primarily residential and of a class considerably better than the average. It is permissible,

therefore, to adopt a layout of informal, curvilinear street system, with a minimum of business area, and allowances of exceptional generosity for parking, playgrounds and reservations of a like character. Of greater importance still, as a determining factor in the street system, was the topography. A comparison of the roadways with the contours will show at once how carefully the streets were laid out to give easiest gradients, best building sites, and the most natural adaptation to the lay of the land.



First Floor Plan of Community Building
The second floor is devoted entirely to bedrooms similarly arranged to those in the right-hand corner

The development being, as we have said, primarily residential, the zoning features are less marked than in many cases. The main subdivisions are between military and civilian occupancy, and between ranks in the military. The main approach from the town of Sheffield enters the village at a sort of neighborhood center—a rond-point as expressed in plan, about which will be disposed those shops which even the smaller sectional divisions of a town need to have provided. These will include a newsstand and



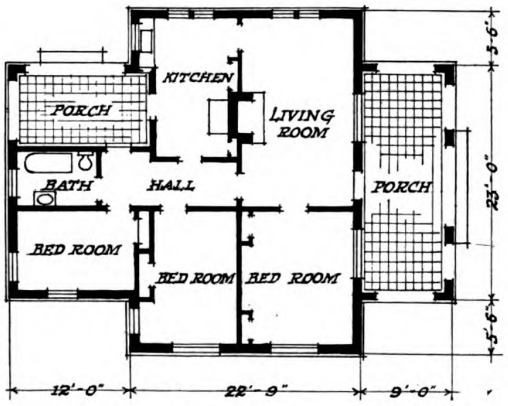
Layout of property showing topographical relations of streets and existing grades
Housing Development, United States Nitrate Plant No. 1, Sheffield, Alabama
Mann & MacNeille, Architects and Town Planners

cigar store, barber shop, drug store, tailor and shoe shop. Here, also, will be located a Government commissary and any further expansion of business which may later prove necessary.

From this point the main artery approaches the chief center of the village — the large, open square about which are grouped the school, the churches and the hotel. These are placed on the main axis of the plan — an axis which is carried up the slope to the house of the commandant, and beyond through the group of officers' houses which form a half circle around a semi-private park. This officers' group occupies the highest area of the tract, receiving also the benefit of practical possession of the high wooded promontory which looks out on two sides over the river below. The edges of these slopes at each side also give building sites for a community garage at the south and for a hospital at the north.

Street widths have, of course, been adjusted to the functions of different streets — the main approaches widest, though even secondary thoroughfares and residential streets are allowed 50 feet. Of this width, only 24 or even 20 feet will be constructed as roadway, which leaves space at each side for planting of street trees and for grass borders.

Design for Highly Skilled Mechanic's House



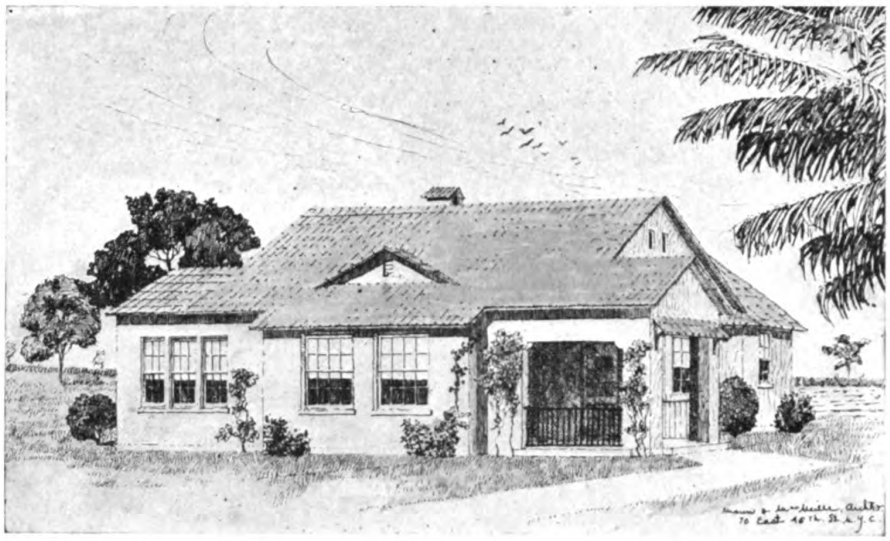
Floor Plan of Houses Above and Below

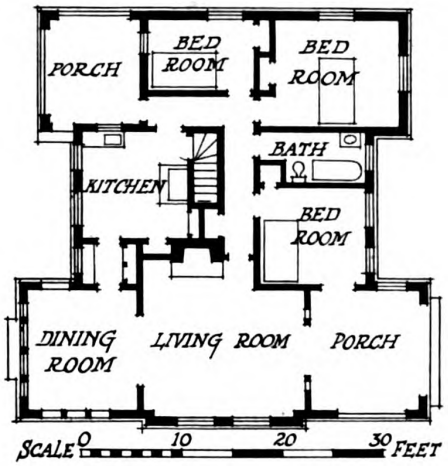
In a town plan of informal character such as this, the lotting is necessarily varied in size and shape. The variation in this case is increased by the requirements of the problem in the wide range between grades of house. Typically, the lots for employees' houses run 50 by 100 feet in depth. From these the size is graded up through the lots for other employees, officers of lower rank, then those for the four majors whose houses lie at each side of the commandant's, and finally the plot set aside for the commandant — a double-winged area containing altogether nearly two acres.

This plot is at the highest point of the plateau, looking down on the one side westward about the curving group of officers' houses, and on the eastward past the group for the majors, beyond the school and over the open square to the large hotel opposite.

This is one of a number of carefully planned compositions which

Design for Highly Skilled Mechanic's House





Perspective and Floor Plan of House for Highly Skilled Mechanics and Engineers

will produce interesting street pictures and provide adequate settings for the various buildings. The placing of these more important buildings at points of vantage in the town plan will also do much to obviate the monotony which might result from too numerous repetition of comparatively small units. This grouping will at the same time produce variety in height for, with the single exception of the commandant's house, this will be a town of one-story dwellings.

The present contract calls for the construction of four hundred houses besides the numerous buildings of special type. The houses have been designed in seven types so far as external appearance is concerned, though the plans of several of these apparently different houses are, in fact, identical. Compared with the majority of homes in workingmen's villages, these houses strike one by the spaciousness with which they are planned. This impression is heightened by the fact of having all the accommodations of a good-sized house on one floor, which, again, emphasizes the advantage of having ample space on the lots. It is distinctly an arrangement for use in cases where the original land cost is small, and a large lot may be assigned to the individual householder without making the original cost and consequently the rent unduly high. In this case the original cost of the land was so low as to become practically a negligible quantity.

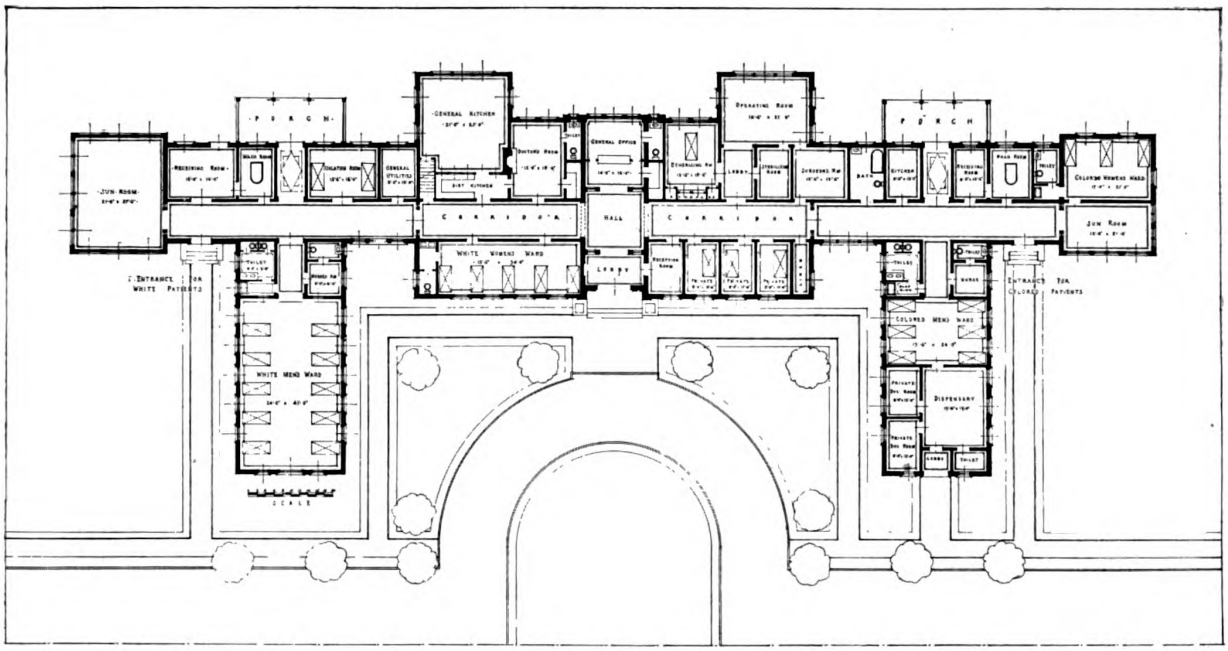
The smallest type is one of five rooms, three of them bedrooms. One of these opens from the living-room so that in small families it may be used as an additional day room, parlor, library, or what you will.

Mr. Veiller has recently called attention to the stock size rug as a standard for bedroom dimensions. He spoke only of the 9 x 12 size, which applies in a majority of cases only to the largest of the rooms. It may be permitted to extend the note to include the next size smaller rug (8 feet-3 inches x 10 feet-6 inches) which is the size most usually laid in a single bedroom. Even that size is too large for the minimum rooms accepted under the government standard of 80 square feet.

Other types have the usual trio of rooms for living purposes instead of combining the living and dining-rooms as in the case of many houses in other developments now under construction. The type assigned for use by the four majors is an L-shaped block containing seven rooms and bath. The same spaciousness prevails here, with an exceptionally good separation of the working portions of the house from the sleeping quarters.

The commandant's house dominates in size as well as in position. Its length of nearly 100 feet permits the inclusion of a guest's suite on the first floor, so that the second may be reserved solely for family uses. This house is further exceptional in possessing a cellar, which has in most of the houses been omitted.

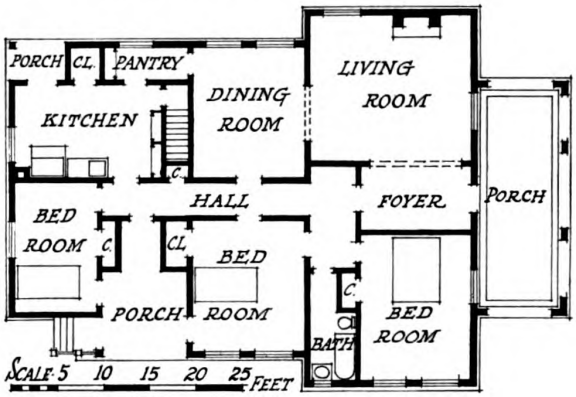
It seems that in this nitrate plant, which will be operated directly by the Government, the proportion of military population will be unusually large. This includes many officers, but also a considerable number of enlisted men, many of them skilled chemists, for whom living accommodations of high standards must be provided. A three-shift civilian guard is accommodated in a building, more like a college dormitory than a soldiers' barracks, which really affords a combination of hotel and club life that would



Floor Plan of General Hospital for White and Colored Patients

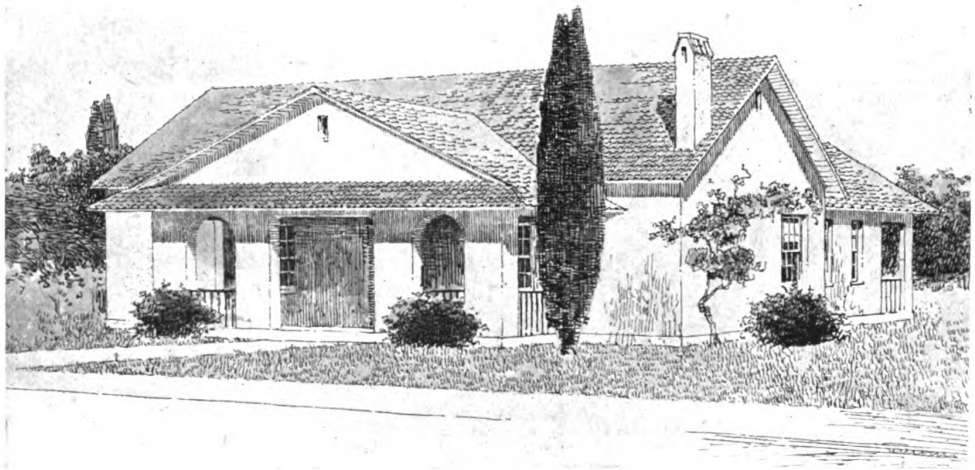
be hard to match outside a government plant. Each shift comprises about thirty men and in designing the building each floor was made a complete unit to avoid disturbance during guard change.

Besides these quarters there is special provision for unmarried officers in the community building, which furnishes in addition to sleeping quarters many features of club life. A single room is alloted to each man and the building will be occupied in addition to officers, by executives and heads of divisions, together with official visitors.



Floor Plan of House Shown Below

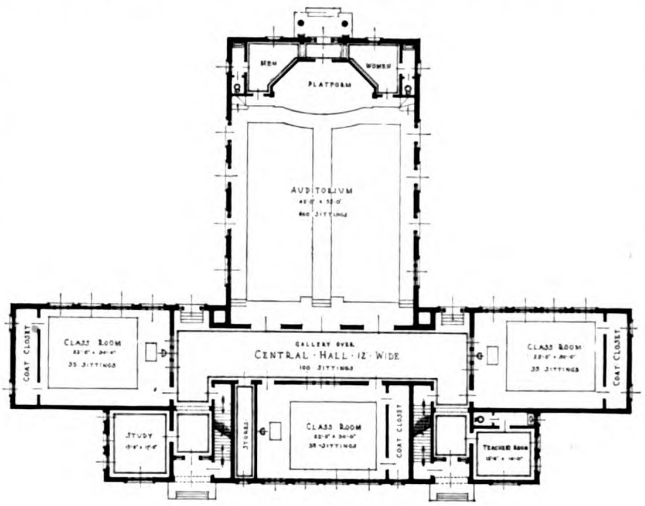
A well equipped hospital to be maintained by the government is a part of the first building program. This will take care of all classes of patients, young and old, including a wing for negroes. Grouped near by are houses for the doctors, and a home for the nurses. We have already noticed in passing that a large community garage for use of commissioned officers, is to be built, instead of a great number of tiny individual garages. It will be a great gain for the appear-



Perspective of Typical House for Officers of High Grade

ance of the neighborhood, at only the slightest sacrifice in accessibility because of its central location.

Besides these buildings of a semi-public nature there is the school, which contains, aside from usual classroom features, a corridor 12 feet wide. This will be used as a part of the regular school equipment, and not, as ordinarily, for a passageway and nothing more. The school also contains the auditorium, a comfortable room 42 x 52 feet, with stage and dressing-rooms.



Floor Plan of School Building
The auditorium seats four hundred people and will be used for Community Gatherings, Theatricals, etc.

The public utilities for the community are of new construction built for this purpose rather than extensions of existing facilities. Sewers, for example, are laid throughout, connecting to septic tanks, from which the effluent will discharge through Spring Creek into the Tennessee River. Electric light for street and house lighting will be supplied from the plant. Water supply will be secured from wells driven on the property.

The construction of the houses is as substantial as their planning is ample. Exterior walls are in no case of frame, but of hollow tile blocks, upon which is applied the stucco, which forms the surfacing material throughout. Floors, beams and rafters are of wood, as are interior partitions, but the roofs are to be covered with some form of tile, which will render the exterior of the houses fire-resisting to a high degree. From the view-point of the community this reduces the danger of general conflagration to a minimum. On the other hand, the unity in construction, in roofing and in material of exterior walls has given the architects a very exceptional opportunity to produce a homogeneous design which will lack nothing in variety of form, but should prove of the greatest value æsthetically to the completed town. The houses are all electrically lighted, and have complete plumbing installation. The matter of heat is, fortunately, not essential in Alabama. These houses are, accordingly, provided only with open fireplaces in the living rooms. For the rest, all elements that enter into the construction or equipment are in every way abreast of or ahead of the forward march of industrial housing standards, and give promise of a development which will be unique among the Government towns.

Perspective View of School Building
Mann & MacNeille, Architects

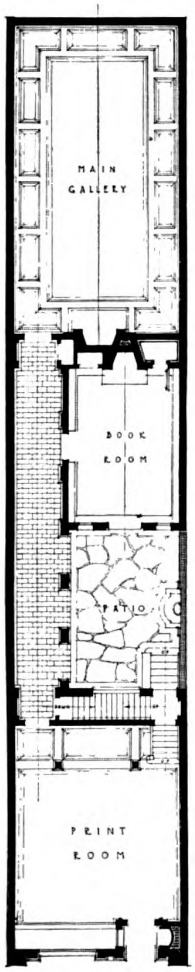
The Print Rooms of Hill Tolerton, San Francisco

WILLIAM C. HAYS, ARCHITECT

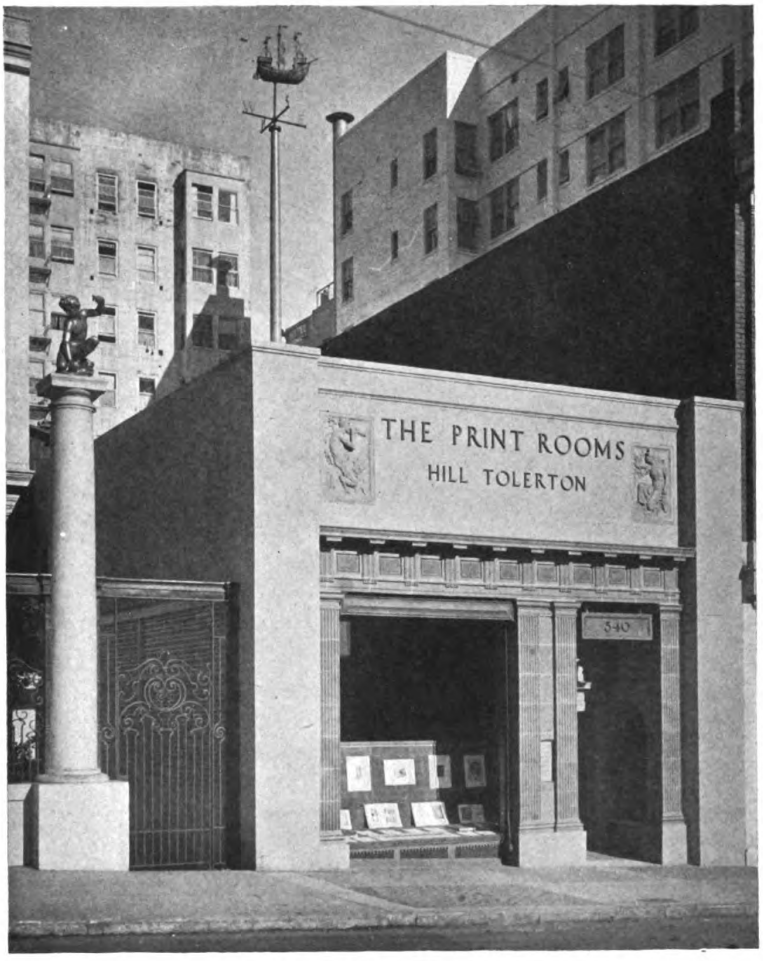
THE proper exhibition of paintings, prints and art objects for purposes of sale requires a fitting background of architectural character. The musty old book stalls where patrons browsed about have their place in literary memoirs but modern taste better appreciates an opportunity of seeing books and prints tastefully displayed so that the prospective purchaser may have ample room in which to examine what interests him and judge its effect in surroundings somewhat akin to those in which the object will eventually rest.

Such an establishment is the Print Rooms of Hill Tolerton in San Francisco. Here a narrow and deep lot has been utilized most successfully for a building but a story and one half high that expresses on its street facade, even in the most severely simple manner, the purpose to which it is dedicated. Once inside, the visitor is immediately placed in the appropriate atmosphere for a comfortable perusal of the art exhibited. The interior effect is of the most satisfactory order, yet it was obtained at a very moderate expenditure; it depends entirely upon good proportion, nicely balanced openings and wall surfaces relieved with judiciously placed ornament.

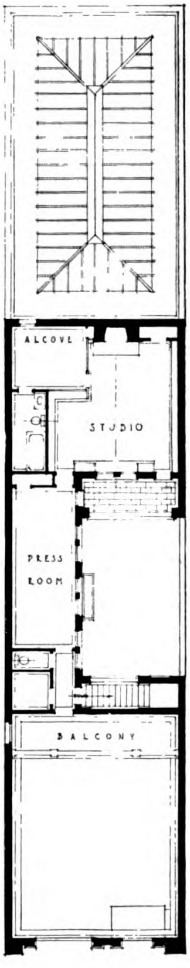
The main gallery at the rear is lighted by a large skylight and is reached from the print room at the street end by a long arcaded and paved corridor. This corridor forms one side of an open court for part of its length which serves to admit daylight into the center of the lot, enabling the entire building to be adequately supplied with natural light. It is paved with broken flags, edged by a brick border, repeated in the arch enclosing the marble wall fountain. The pleasing arches of the corridor and entrance to the book room, and the softly toned woodwork of the balcony, stair rail and flower boxes combine with the growing vines and plants to make a spot of the greatest charm.



First Floor Plan



View of Street Facade



Mezzanine Floor Plan

DETAIL OF PATIO, LOOKING TOWARD BOOK ROOM

PRINT ROOMS OF HILL TOLERTON, SAN FRANCISCO, CALIFORNIA

WILLIAM C. HAYS, ARCHITECT

The dual purpose of the building, that is as a salesroom and also an exhibit gallery is well expressed in the plan. The exhibition space is provided in the main gallery at the rear of the building, where under perfect lighting conditions exhibits may be viewed with no interruptions. The book room is equally well adapted to its use and the attractive vista to be had from it into the patio is an invitation to linger. A small vault at the side of the fireplace in this room allows space for the storage of especially valued books. The print room at the front of the building is equipped for the transaction of business and is also utilized for the display of pictures.

View of Main Gallery from the Entrance

View of Book Room, Looking Toward Patio

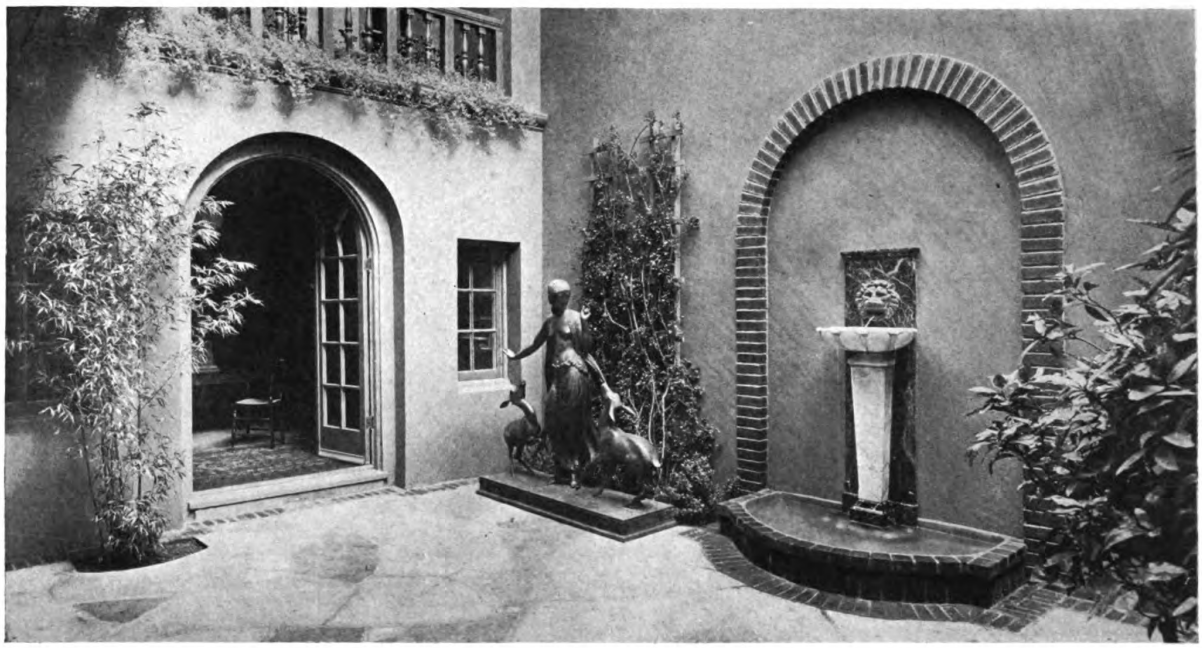
View of Print Room from the Entrance

On the mezzanine floor are the private office of the proprietor and a small room for the printing of etching plates.

The illustration of the gallery accompanying this article shows an exhibition of the work of Leon Bakst and Paul Manship. The sculptured group in the patio is also the work of the latter artist.

The street facade is severely simple in treatment though possessing a distinctive character that gives it prominence out of all proportion to its size. The main walls are of smooth cement plaster similar to the walls of the patio. The display window and entrance are framed with pilasters and a Doric entablature in terra cotta above which the name of the establishment appears in raised letters of chaste design, flanked by polychrome terra cotta bas-reliefs representing Minerva and Pan, the modeling for which was done by Herman A. MacNeil. An added touch of interest is the weather vane at one corner topped off with a model of a full rigged old sailing vessel.

The building is a successful solution of a special problem in a business structure and proves the value of expressing, through appropriate architectural treatment, the use for which a building is intended, as well as the further possibility of securing good architecture through a wise use of simple materials.



TWO VIEWS IN THE PATIO
PRINT ROOMS OF HILL TOLERTON, SAN FRANCISCO, CALIFORNIA
WILLIAM C. HAYS, ARCHITECT

The Problem of the Unethical Competitor

By WILFRED W. BEACH

IN a previous article* the writer touched upon the unbridled campaigns of advertising put forth by the more enterprising of those comparatively new constructionists who may be collectively styled the "cost-plus builders."

Undoubtedly, many architects who have not directly suffered from the inroads made by these concerns will fail to discern any great cause for alarm in their considerable increase. Since architecture first rose to the dignity of a profession there has ever been this, that or the other thorn to prick its practitioners into consciousness of the fact that their employment is not necessarily indispensable to the activities of the prospective owner.

It may be said, "Why all the outcry over these 'cost-plus' fellows? You kickers can always find something to complain about. But one should simply go ahead and attend to business and advise others to do the same. These business vexations take care of themselves and always have."

Well and good — for those whose practice has not been largely usurped by the clever and unscrupulous solicitors of these newcomers. But those who have been compelled to divide — and unequally — may well find just cause for alarm in the situation.

In one community supporting five architects there were six commercial buildings, costing upwards of one hundred thousand dollars each, erected in a recent season. Two of these were cared for by two of the local talent, one by an outside architect and the remaining three by stranger concerns of the "cost-plus" type; and the three aggregated seventy-five per cent of the cost of the six.

But by far the most prolific field for their endeavors is not in the cities, large or small, but in those growing towns where architects are as yet unknown or where the profession is misrepresented by some bumptious knave or ignoramus for whom his fellow citizens have no respect.

If these latter have a bank building or other considerable edifice to erect, they have been for some time storing away the "magazines" and other profusely illustrated literature of these magnificent advertisers, the majority of whom are worse charlatans than the promulgators of alcoholic patent medicines. The remarkable growth in number and wealth of these new builders is such that it may not be exaggeration to state that already more than half of all the larger banks, office buildings and hotels erected in cities and towns of less than a hundred thousand population throughout the entire central portion of the country is done without the assistance of architects of regular practice. And something of this is felt also in the larger cities and in the East as well.

Is this serious?

If our lost clients were now being better served through our frustration, it would be selfishness only that would induce our complaint; but in this instance we have the cause of the public as well as our own for which to fight. And the field of commercial building is the real backbone of our livelihood. In seeking a cause for the partial defection of this section of our clientele, we must gain a lively appreciation of the fact that your average citizen has little patience with that side of our professionalism which strives to maintain high ideals of beauty, primarily, and business ability, secondarily. What he most desires in an architect is a well-balanced blending of the two — in which he best values the business side. He admires an artist — but he hesitates about allowing that artist the control of his own or trust funds.

If we as a profession do not measure up to such standards, then may we surely anticipate still more loss of prestige to those who do not hesitate to magnify our shortcomings and the weaknesses of the contract system which we support.

True, we can, in each individual case, point out the falsity of the arguments presented against us and can prove, if afforded opportunity, that the cost-plus propaganda is offered generally only as a cloak under which unprincipled swindlers operate solely to build up their own fortunes. If we are good business solicitors, we can do this.

But such unequal competition is temporal only. Do we not need to completely revolutionize our methods of practice to meet conditions that are manifestly changing?

To recognize this more distinctly, it is essential that we take observation of the growing inclination in the best of our commercial laity to regard the contractor as a business friend rather than as a doubtful adversary. Such a client would much rather see his architect and contractor, together with their employees, working on amicable terms in the interest of their mutual employer than to witness the wrangling and working at cross-purposes which must often accompany the conscientious enforcement of the terms of a specification; and all but the architect working contrary to the well-being of the structure they are fabricating.

It is really this new-found friendliness of the owner for his builder that is our undoing — and his; and the association will increase with the growth of "community spirit" exemplified in fraternal orders, commercial clubs, and the like. Let us realize this and make up our minds to do, each of us, one of three things: continue as at present; or become relegated to the position of designing architect only, in the

* June and July, 1917.

direct pay of owner or builder, as the former may arrange; or prepare ourselves to maintain the position of controlling factor in building, or to regain such position if, perchance, it be already slipping from us.

Of the first and second of these courses there is little to be said. Natural processes of evolution will operate to determine their working out.

But the third possibility is worthy the consideration of every virile practitioner whose red blood and pride of calling clamor for a means of giving his client the best possible that should be.

To do this necessitates not, as Mr. Sturges suggests, "a return to older and wiser methods," but a rehabilitation of the old spirit of the "creator of structures."

The difference between the old and the desirable new lies mostly in the single matter of the financing of building. Generations ago, when nearly all work on a building was manual, the master-builder needed no capital. He and his assistants merely worked while the owner footed the bills.

With the increased use of machinery in actual building construction, a small amount of capital is necessary — not the enormous capitalization of the quasi-financial-contracting corporations of our largest cities — but merely enough to pay for the equipment and a month's running expenses of each job under way. Nor does the term "running expenses" include any part of the pay for material and subcontracts. Such can wait until the monthly estimate is forthcoming unless the owner or builder chooses to take advantage of the possible cash discount.

It is the lack of such equipment that is largely responsible for the failure of architects to compete on more equal terms with the "cost-plus" builders — and it is the use (or misuse) by the latter of capital for such equipment and for voluminous advertising and salesmanship that has enabled them to take their place among other acquisitors of sudden wealth.

Now, if the public wants cost-plus building, and wants it so earnestly that it is willing to pay enormous profits to those who furnish it unethically, is it not compulsory for us to provide such service *ethically?* Obviously it is, if we are to prove true servants.

To do this we must either (1) seek a place at the head of existing building concerns; or (2) gradually increase our functions to meet the new conditions; or (3) take the hazard at a single vault and provide the equipment and forces requisite for the complete work.

Few of us will find opportunity to do the first, if we should so desire; nor, if we did assume that position, would we be likely to find it possible to inculcate into such concern the ethical precepts for which our profession must remain sponsor.

To expand in the second or third manner means a very considerable step for most of us. It means:

1. Financing.
2. Field organization.
3. Advertising and soliciting, personally and otherwise.
4. Equipment.
5. Increased accounting, estimating, etc.

The providing of the first, fourth and fifth of these is simple and the third is purchasable. But the second is the stumbling block.

When the cost-plus solicitor chatters so nimbly about "our own forces" and what they so economically and efficiently do for the client, he is but guilty of one more misleading statement. In most cases the "own forces" consist of those in the office and a single man loaned therefrom to run the job, or perhaps one or two other foremen of varying terms of employment. The other employees are picked up as needed, which the agent will obligingly admit if his prospect insists upon recognition of local mechanics.

But, when an architect goes into this, he must do so from the ground up. He must know all his supply concerns so well that he can treat them as he is treated and must actually have his own forces that will take the materials these concerns deliver and install them with true economy and efficiency.

And when one of us shall attempt to serve honestly our clients in this manner, he will encounter concretely that fact with which we are all now more or less familiar in the abstract, *viz.:* that the real power in control of building at the present time is not the owner, nor yet the architect nor even the contractor, but the building trades union. Furthermore, in some of our larger cities, we would find that there were no building mechanics who would work for such an organization unless it were affiliated with a general contractors' association.

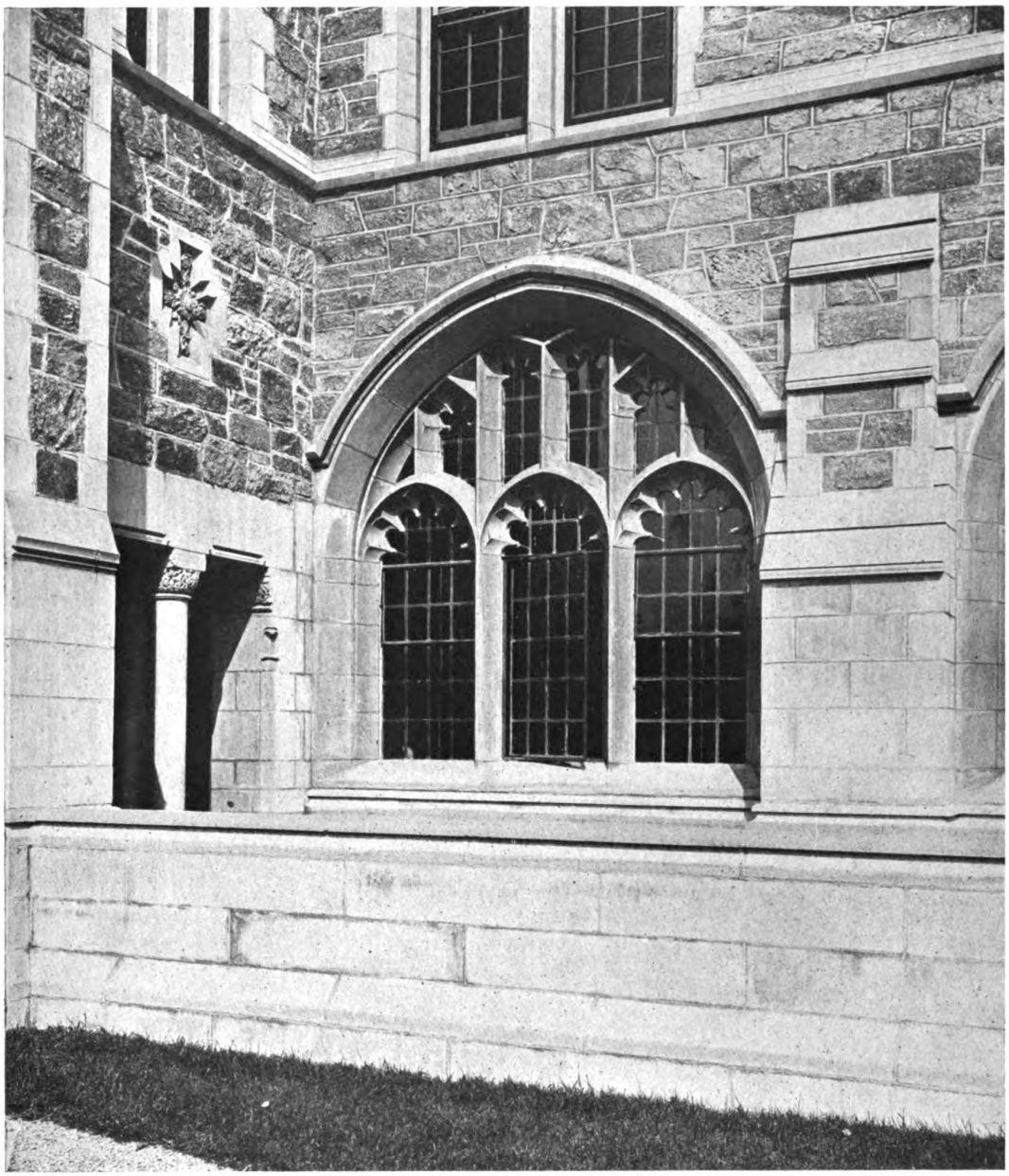
It has been suggested that the available supply of building mechanics not now controlled by the unions will have to be augmented by the product of the trade schools. But, perhaps, the need will be more adequately satisfied by a modification of the mechanical training institution as we now have it—a sort of "mechanical atelier" in which the architect, then a true master-builder, supervises through his departmental heads the training of apprentices in all lines of building activity, the while his field forces erect the buildings his office forces plan.

The word "apprentice" is used advisedly instead of "student" and expresses at once the fundamental difference between the training so acquired and that offered by regular schools. These apprentices would be paid for their services and would attend classes just as do the employees of great factories.

Mayhap those of us who are most visionary can look forward to the time when there will be a league of architects heading such building trades organizations — can imagine trade guilds founded on the principle, "He most deserves who best serves," instead of the present unwritten law of the trade union, "Do the least you may for the most you can exact."

THE FORUM COLLECTION OF MODERN GOTHIC ARCHITECTURAL DETAILS

PLATE EIGHT



THIS detail shows the adaptation of simple Gothic forms to window tracery where modern lighting conditions require a large glass area. A four centered arch was used because of the low story height. The tracery which is of concrete stone was designed to preserve proper scale with the typical classroom windows above, without losing the charm of good Gothic form.

TRACERIED WINDOW, ST. MARY'S HALL, BOSTON COLLEGE, NEWTON, MASS.

MAGINNIS & WALSH, ARCHITECTS

DETAIL DRAWING BY RALPH H. HANNAFORD ON FOLLOWING PAGE

First Story Window · St. Mary's Hall · Boston College ✝ · Maginnis & Walsh Arch'ts

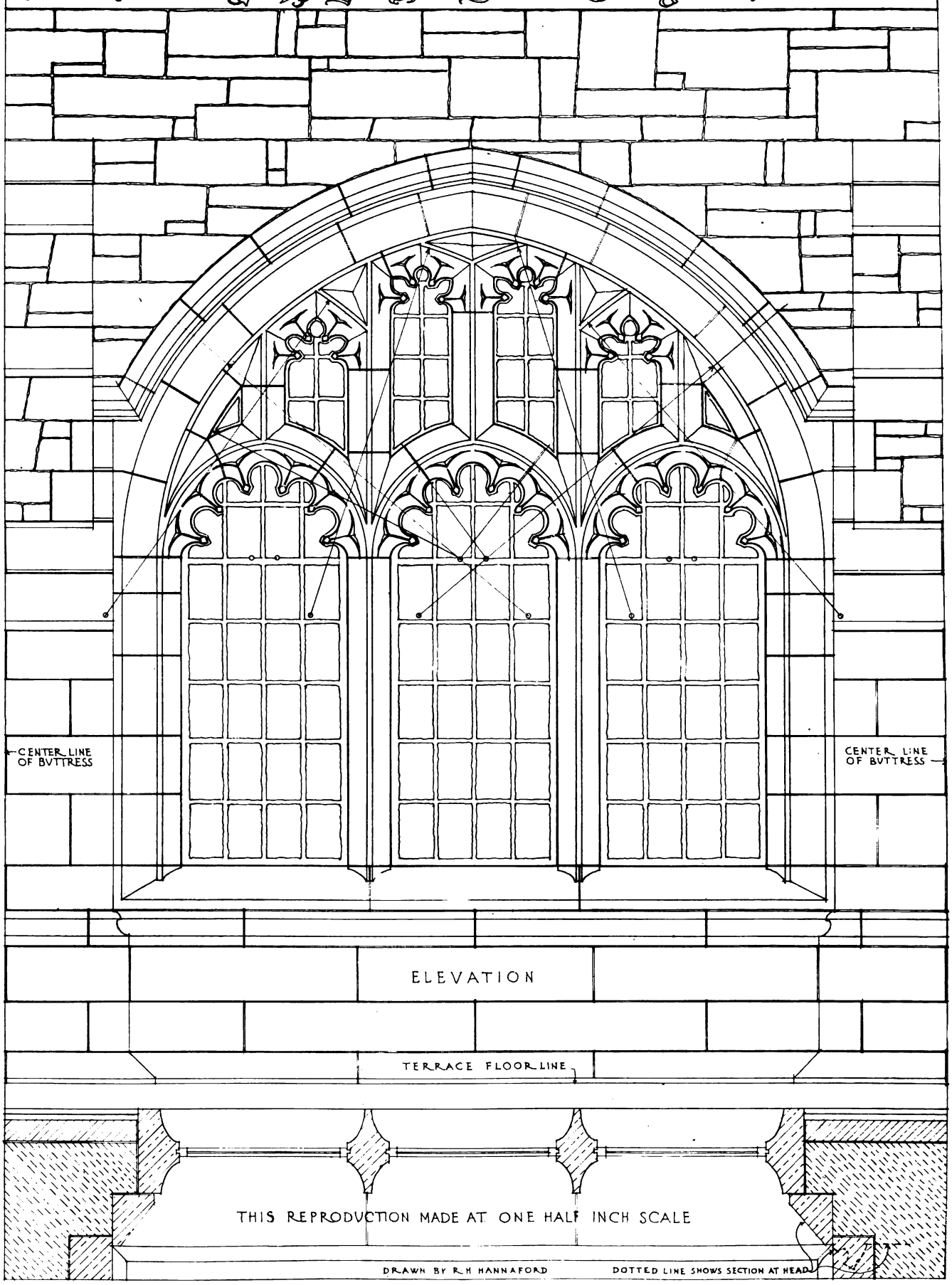


PLATE DESCRIPTION

PUBLIC LIBRARY BUILDING, INDIANAPOLIS, IND. PLATES 33–39. This building is of fireproof construction throughout. The interior is of Indiana limestone with granite steps and base course. The delivery room and surrounding galleries have walls of imitation Caen stone decorated with simple mouldings and modeled band courses of slight projection. The ceiling is of plaster decorated in brilliant color. The two reading rooms are wainscoted in oak with touches of gilt on the Hermes' heads dividing the bookcase sections. The ceilings are of plaster in simple designs. The entrance vestibules are of Indiana limestone. The remainder of the interior is finished with painted plaster walls and ceilings.

The building is equipped with its own heating and lighting plant, all principal rooms have indirect heat and are, therefore, ventilated. The window frames throughout are of iron. In all principal rooms these are sealed and opened only for cleaning. The building in summer is ventilated by the fans of the heating system, the fresh air being cooled and washed. The lighting in the principal rooms is by the indirect method. In the stack room there are two tiers of metal stacks so constructed as to admit of the addition of three additional tiers.

LABORATORY BUILDING, BROOKLYN BOTANIC GARDEN, BROOKLYN, N. Y. PLATES 40–41. This building is approached from the street by an entrance to the ground floor and from the garden by an external flight of steps leading to the rotunda in the main story. It is built of stucco in the North of Italy Renaissance style and is two hundred and forty-two feet long and seventy-five feet wide. The center of the building is occupied by the rotunda in the form of a Greek cross rising above the rest of the building. Internally the rotunda is domed, externally the dome is covered by an octagonal pitched roof cupola surmounted by a lantern. The central cupola is echoed at either end of the building by lesser rotundas surmounted by smaller cupolas.

The basement floor contains a lecture hall holding five hundred and fifty people and various smaller rooms for study and laboratory work. The domical rotunda on the main floor gives access to the library, which is on the main axis and shaped in the form of an apse, and faces the avenue. Corridors running at right angles to this axis in the center of the wings give access to classrooms, exhibition, research and laboratory rooms.

HELPERS OF THE HOLY SOULS BUILDING, NEW YORK, N. Y. PLATES 42–45. The Helpers of the Holy Souls, whose new convent on East 86th street, New York, is illustrated in the plates of this issue is a community of Sisters, numbering about twenty-five, whose charitable work is of a highly active and personal character. The activities of the Sisters are supported by a large committee of influential women who, besides furnishing pecuniary assistance, visit the convent at stated times to perform the work of making articles of clothing for the poor.

The plans of the first and second stories and of the basement are so arranged as to permit of complete seclusion of the Sisters, independent corridors being provided for lay-outsiders in connection with the public rooms and chapel. The chapel forms a very important element of the plan, and is designed for the use of the Sisters, and on certain occasions of the ladies' committee. The building is finished almost austerely in the interior, except for the chapel, which is rendered in terms of marble and mosaic in the Byzantine style. The marble is supplemented by a very interesting scheme of faience. The exterior is constructed of limestone for the first two stories and gray brick above. Directly south of this building, facing 85th street and connecting with it, is a school which is conducted by the Sisters, a construction of eight or nine years ago. Between the two is an open property which is developed as a garden.

BOOK NOTES

WIRING FOR LIGHT AND POWER. By Terrell Croft. 400 pp. 4¾ x 7½ in. Illus. New York: McGraw-Hill Book Company, Inc. Price $2.00 net.

With the constantly widening use of electricity for light and power the installation of such service becomes an important feature in the equipment of buildings. The best practices in use in this country are incorporated in a set of rules known as "The National Electrical Code" which is the recognized guide for effecting installations that will be at one and the same time economical and fire safe. The scope of the work covered naturally requires these directions to be as brief and concise as possible without explanations or elaborations. Detailed explanation of many points, however, is essential to a thorough understanding of the principles of electric installation. Such information is supplied by this book and further elucidation of the code is presented by means of the author's discussion of the reasons for the adoption of specific features. A complete index renders the book of very practical use.

LESSONS ON FORM. A Manual of Freehand Drawing. By A. Blunck. 20 pp. text, 104 pp. of drawings. 9 x 12 in. Cleveland: J. H. Jansen.

This book, primarily intended as its preface indicates for the use of teachers of freehand drawing, is, however, of no less value for the architectural student in obtaining a clear understanding of the development of architectural ornament from floral, human and geometrical forms. The plates reproduced on coördinate paper, indicating scale and proportion, cover a wide range of subjects and show discrimination and architectural judgment in their selection.

EDITORIAL COMMENT

THE United States Government in enacting the housing legislation prohibited the awarding of any contracts on a " cost plus " basis. Much of the Government work previous to this legislation had been carried out in this way, but a great deal of criticism of the method, whether in justice or not, was aired through the daily press and was undoubtedly instrumental in moving Congress to place this condition upon the use of the housing appropriation. The fact that this form of contract is prohibited indicates at least that the Government has found objectionable features in it which do not occur in other forms. It should not be assumed, however, that the Government in setting aside all " cost plus " contracts thereby condemns them as unworthy of consideration. It may be that after further comparison with guaranteed cost contracts the " cost plus " will appear in a more favorable light. There is no doubt that the majority of owners, in contracting for work, prefer to know exactly what the ultimate cost is to be and in a considerable number of cases prefer to pay a little more and know that the prices quoted will be the final prices.

This, however, is not entirely true of all people who have building projects in mind and some owners prefer the form of " cost plus " with the evident desire to save both time and money. There can be no reasonable doubt that time is saved on contracts where the " cost plus " system is used and there is every reason to believe that the owner profits financially by this form of contract when it is properly administered.

The difficulties of the market at the present time, not only in stabilizing prices, but also in securing material where transportation is involved, are far greater obviously than in normal times. Contractors, in estimating on work, are certain to protect themselves in their estimates against any possible price increase of labor or material if they are to be tied down to a fixed price contract.

In preparing material on which the contractor may estimate, that is, plans, specifications, etc., the work may be started far in advance of the time of the actual completion of all of the detailed drawings, provided the contract is to be awarded on a " cost plus " basis. If the contractor gives an estimate which is to be a guaranteed price on incomplete drawings and is held to this price as his contract amount, it is at once obvious that his estimate must be made to include items covering possible omissions. The " cost plus " contract does not include such items.

The simple " cost plus " contract which is in effect an order on the contractor to do certain work, to render bills to the owner, and charge on the total amount an agreed percentage as a profit, is not, however, the best form. In many instances it is preferable to have an estimated price and a fixed amount which shall represent the contractor's profit. Savings made below the amount of the estimated price may be credited to the owner, but a proportion of the savings should be given to the contractor as payment for increased efficiency. If the total cost should exceed the estimated price the amount may be charged against the contractor, if the excess of cost is due to neglect on the part of the contractor or due to his error. If, however, the excess of cost is due to additional work required by the owner, to changes made by the owner's order or to unexpected increases in the price of labor or material, the contractor's profit may be increased by an established percentage.

This form of contract recognizes and rewards increased vigilance and ability on the part of the contractor and places a responsibility upon his shoulders which possibly no other form may impose. In the hands of unscrupulous persons it might lead to undesirable results. The " guaranteed cost " contract is subject to this same condition.

There is much to be said in sustaining both forms of contract. The guaranteed price contract is a particularly good form where it is possible to obtain actual competitive estimates and where sufficient time may be allowed for a careful preparation of all of the items to be included in the contract.

The " cost plus " form, however, may be made a very desirable form where it is the honest intent on the part of the contractor to save money for the owner and to give the benefit to the owner of the best purchasing ability as well as the utmost efficiency of the organization work. It also contains an element of flexibility which seems particularly in keeping with the spirit of the time. There is no reasonable basis upon which to deny its efficacy in securing work done under conditions such as held in some of the early Government work, and it will undoubtedly be influential in effecting any later permanent form that may be evolved.

" Time was " when it was considered smart and an index of business acumen to secure a contract which might be used to the disadvantage of the contractor, which by subtlety might compel the contractor to give more than he could afford for the price he was to receive. Nor is it entirely unknown that contractors have used contracts to derive unjust benefits for themselves and to deliver to the owner not the maximum, but the minimum measure of service.

As yet it seems impossible to select a form of contract which may be without some criticism. It is not beyond the realms of possibility, however, that after the stress of the present day a new contractural relation may arise which will embody the principles of fair play and which will forever bar out the old " eye-for-an-eye " form of contract.

DETAIL VIEW OF SANCTUARY

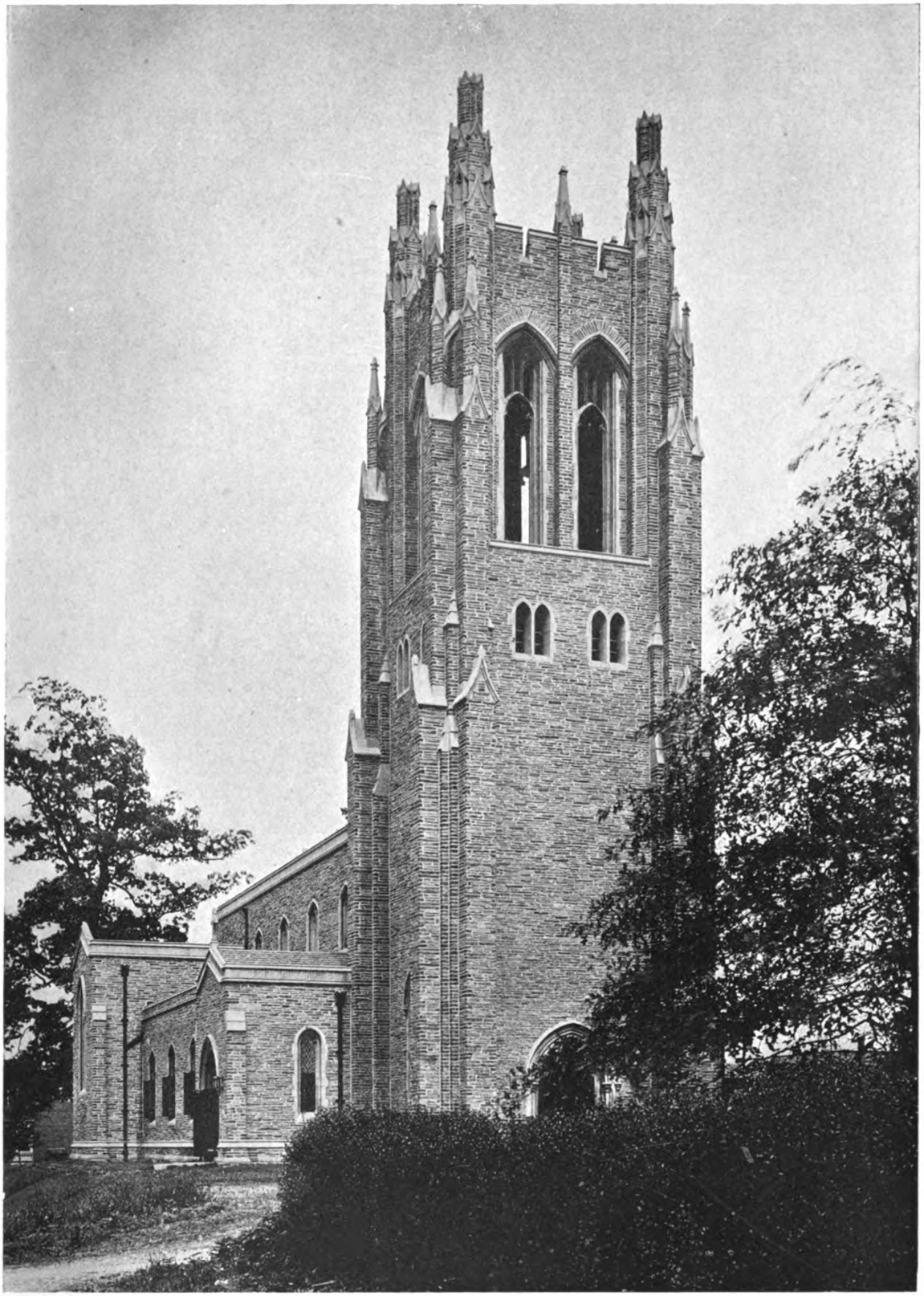
CHAPEL, SIDNEY SUSSEX COLLEGE, CAMBRIDGE, ENGLAND

T. H. LYON, ARCHITECT

DETAIL OF STALLS AND READER'S DESK

CHAPEL, SIDNEY SUSSEX COLLEGE, CAMBRIDGE, ENGLAND

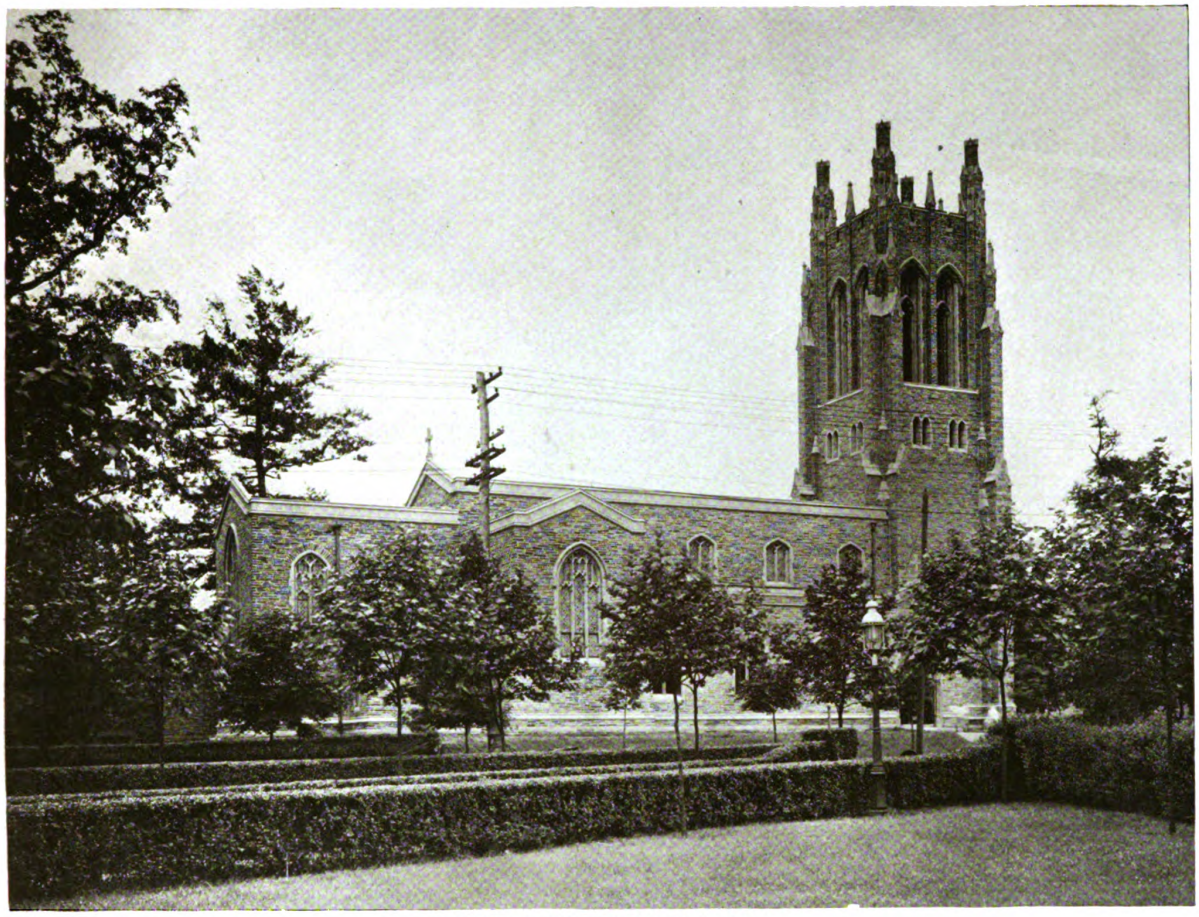
T. H. LYON, ARCHITECT



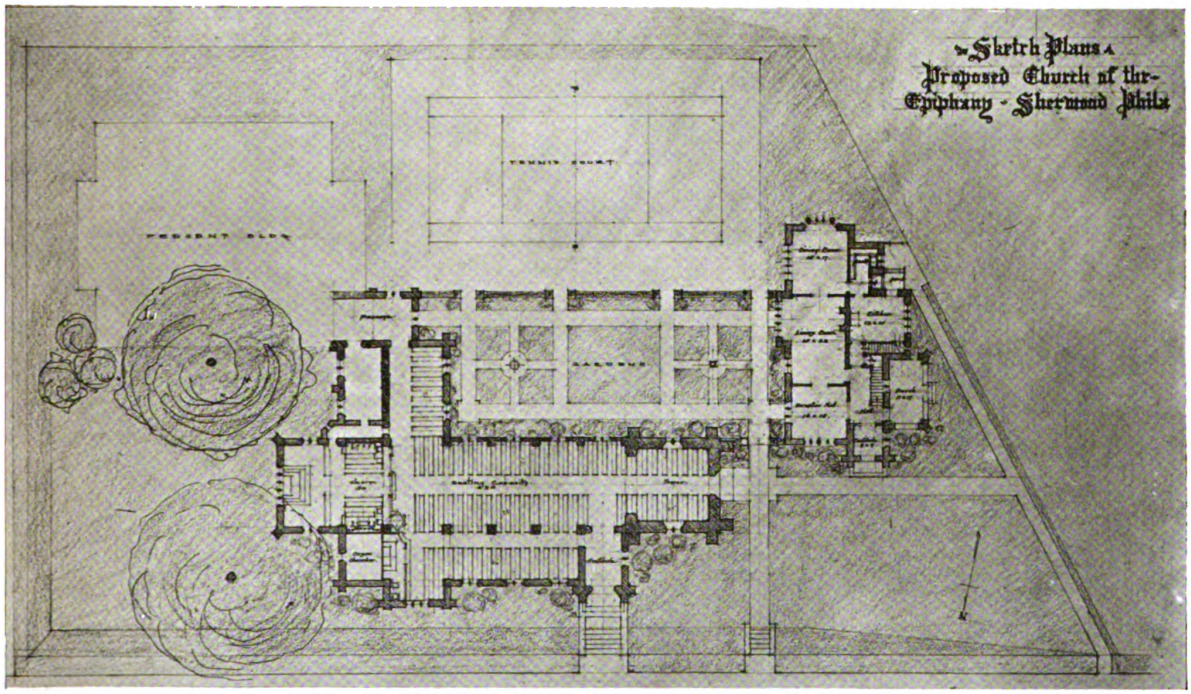
DETAIL OF TOWER

CHURCH OF THE EPIPHANY, SHERWOOD, WEST PHILADELPHIA, PA.

DAY & KLAUDER, ARCHITECTS; E. E. HENDRICKSON, ASSOCIATE



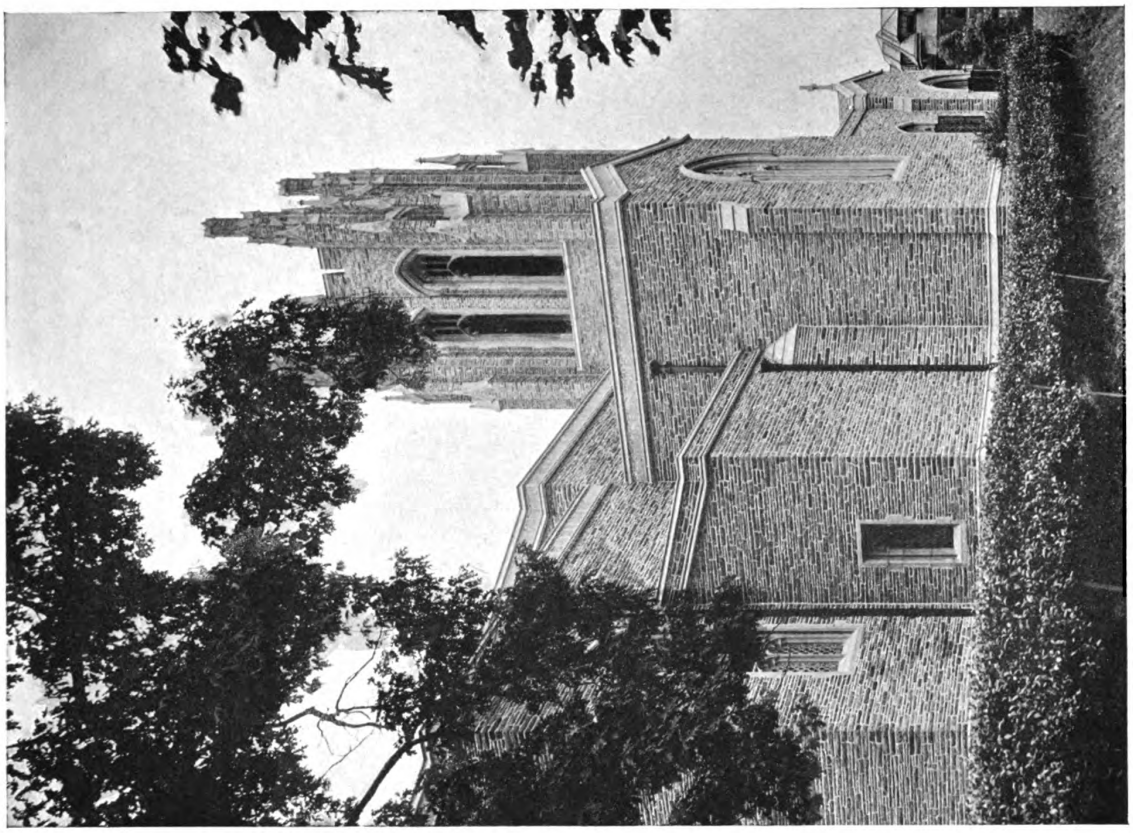
GENERAL VIEW FROM THE NORTH



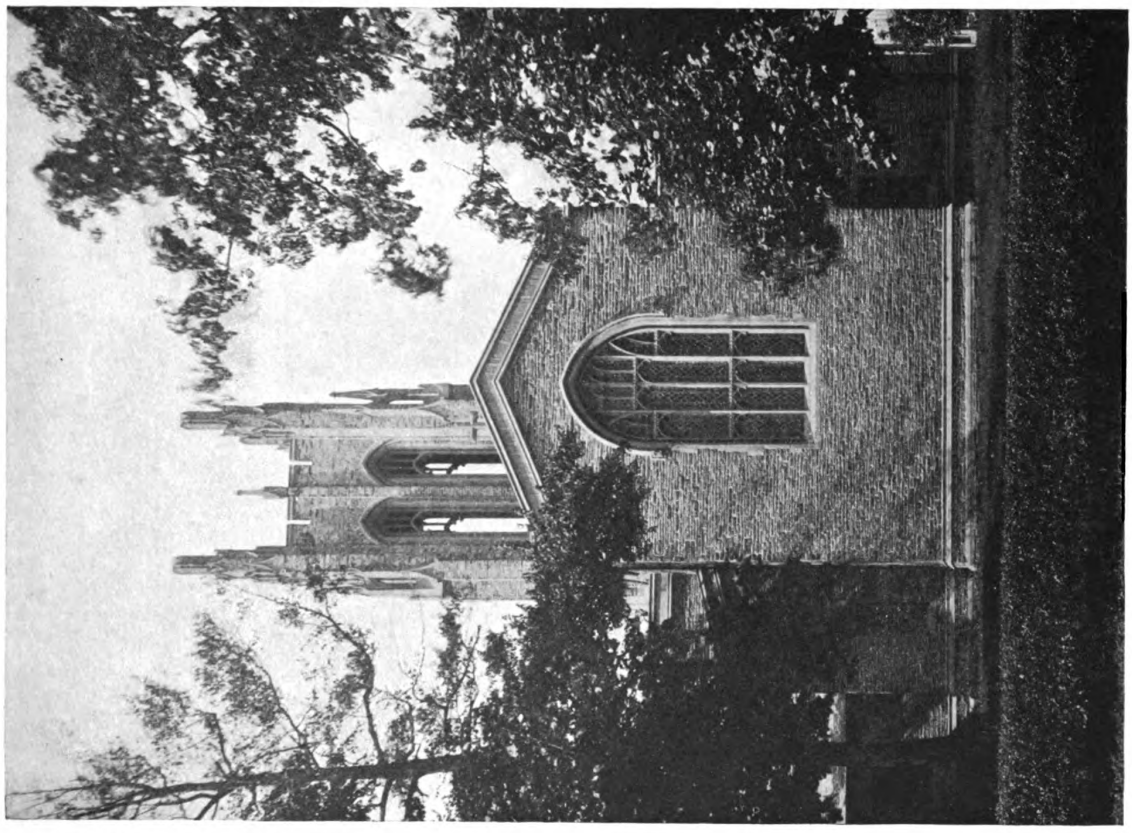
FLOOR PLAN OF CHURCH AND PROPOSED RECTORY

CHURCH OF THE EPIPHANY, SHERWOOD, WEST PHILADELPHIA, PA.

DAY & KLAUDER, ARCHITECTS; E. E. HENDRICKSON, ASSOCIATE



VIEW SHOWING NORTH TRANSEPT

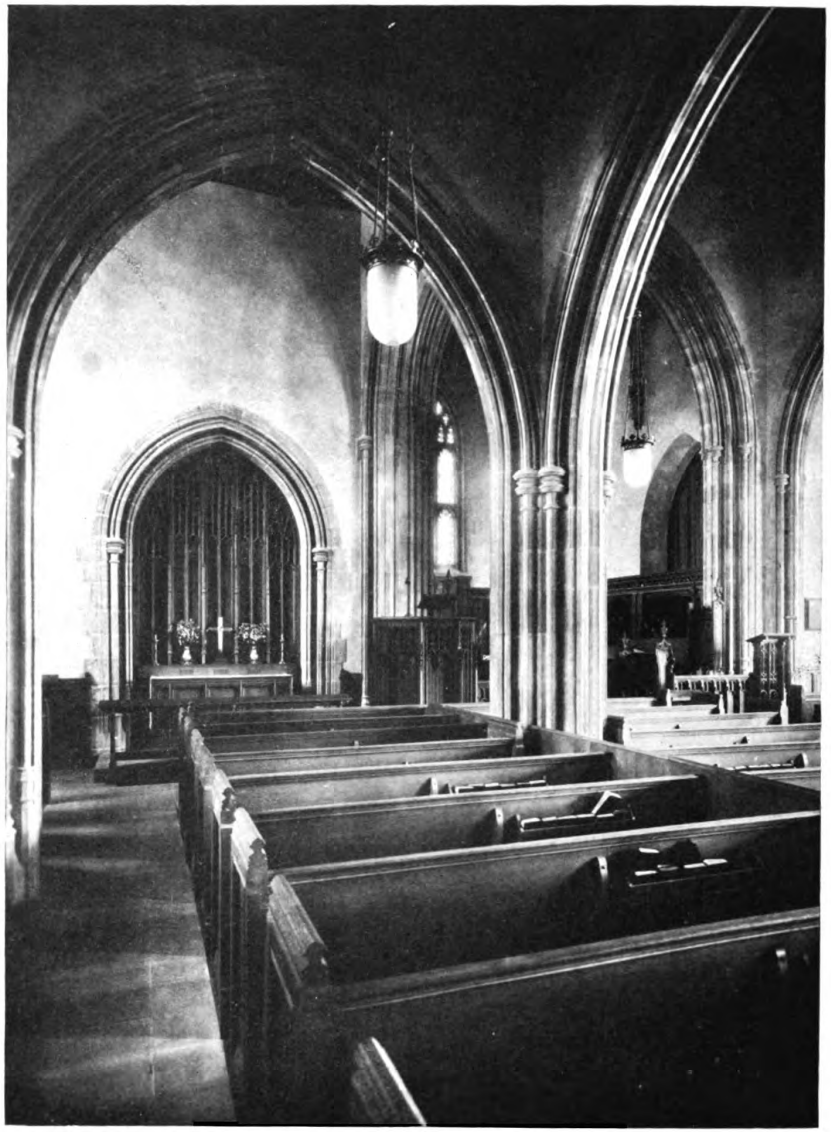


VIEW OF CHANCEL END

CHURCH OF THE EPIPHANY, SHERWOOD, WEST PHILADELPHIA, PA.

DAY & KLAUDER, ARCHITECTS; E. E. HENDRICKSON, ASSOCIATE

DETAIL OF SIDE ALTAR AND PULPIT



VIEW FROM SIDE AISLE TOWARD CHANCEL

CHURCH OF THE EPIPHANY, SHERWOOD, WEST PHILADELPHIA, PA.

DAY & KLAUDER, ARCHITECTS: E. E. HENDRICKSON, ASSOCIATE

THE ARCHITECTURAL FORUM

VOLUME XXIX NUMBER 4

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LETTERPRESS

Published Monthly by
ROGERS AND MANSON COMPANY
85 Water Street, Boston, Mass.
Advertising Department, 42 West 39th Street, New York

Yearly Subscription, payable in advance, U. S. A., Insular Possessions and Cuba $5.00
Canada ..... $5.50 Foreign Countries in the Postal Union 6.00
Single Copies ..... 50 cents All Copies Mailed Flat

Trade Supplied by American News Company and its Branches. Entered as Second Class Matter, March 12, 1892, at the Post Office at Boston, Mass.

THE CATHEDRAL AT AMIENS, FRANCE
FROM THE SOUTHEAST
FROM PHOTOGRAPH BY GEORGE F. MARLOWE

The Cathedral is reported but slightly damaged from German bombardment but the surrounding buildings are reduced to ruins

THE ARCHITECTURAL FORUM
FOR QUARTER CENTURY THE BRICKBUILDER

VOLUME XXIX OCTOBER 1918 NUMBER 4

The Small and Inexpensive Church

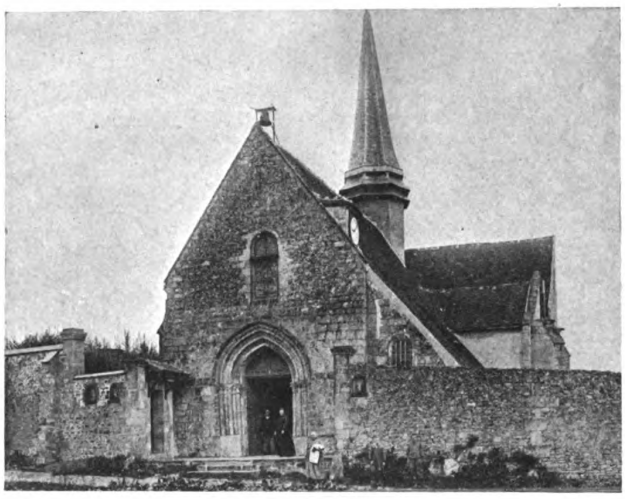
By GEORGE F. MARLOWE

THE utter depravity of that period of Cimmerian darkness of American architecture which probably reached its climax in the late seventies, was in no way more manifest than in church building. When at last the stimulus in England, largely due to the Oxford movement, began to have its influence in this country, there came the dawn of a better era which has already given us much that is worthy of comparison with the English work of the period.

Church of Ouilly-le-Vicomte
Lisieux, Normandy

Though we are known as a Christian nation, yet with our vast wealth, so in evidence that in the eyes of most foreigners coming to our shores we are thought of above all as a nation of spenders and prone to the greatest extravagance, with a few exceptions our churches are mean and unworthy in comparison with those of the poorest of European countries. An English writer of the last century says, "They dwelt in hovels and worshipped in houses exceedingly magnificent; we dwell in cedar and worship in meager or dilapidated churches." How many of our towns or villages have a parish church such as may be found, literally by hundreds, throughout the smallest hamlets of rural England and France? Or what city has even one to be compared with the half dozen in each of the larger towns or small cities of Europe?

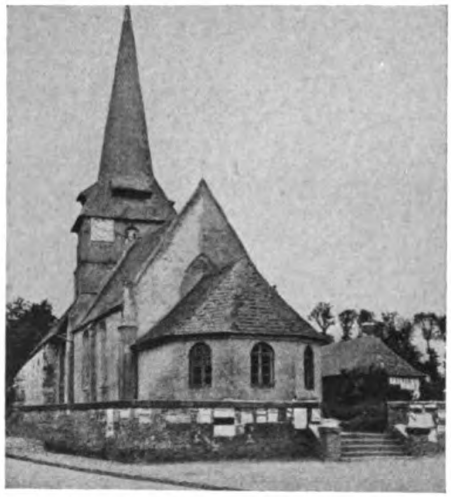
But, we are told, we do not think it best to spend our money in this way. All that was the mistaken zeal of a bygone age. Now we spend it for schools and colleges, hospitals and libraries. But do we? Do we spend it to any great extent for worthy architecture of any kind? To some extent, yes. In proportion to our means as compared to those of our ancestors, probably not. And the reason at least throughout that portion of our country still more or less influenced by the customs of our Puritan forefathers is not far to seek. To the Puritan mind the craving for beauty was in itself a sin. Moreover, any departure from those habits of thrift with which we of New England, at least, are to a great extent still credited, was looked upon with the strongest disapproval. Hence our heritage of bare and uncompromising meeting-houses; and dwellings, of a corresponding period, though not without a certain charm, scarcely less bare and uncompromising. And these characteristics, physical and moral, architectural and religious, as they have been diluted from generation to generation by the intermingling of our brothers from beyond the sea, have been replaced to a great extent by the scarcely less desirable ones to be expected from wealth newly acquired by those naturally unpossessed of the refining qualities requisite for its most intelligent expenditure, and lacking in that appreciation of the beautiful which comes only with generations of association with these self-same qualities.



Notre Dame de Brasseuse, Villeneuve, Normandy

It is with a feeling of great diffidence that any discussion under the present title is under-

taken, for the title in itself seems to imply at the beginning the attempting of a task which, in the very nature of the case, must be more or less unsatisfactory. We are not unmindful, either, of the opinion of a distinguished church architect, that any attempt to build in so temporary a material as wood is an abomination. Yet we may as well face the fact that we sometimes do have the problem of the parish too poor to build at once of stone or even brick throughout, and which for one reason or another is not prepared to undertake even a small part of a structure enabling satisfactory and enduring materials to be nsed.



Church at Languetot, Normandy

Unfortunately, building committees too often insist upon a scheme of some sort that may be completed at once. Sometimes the future of the community, where

Howell Church, Lincolnshire, England

changes follow each other in the rapid manner peculiar to a country still so new as ours, makes the building of a costly structure positively unwise. For the present, there seems to be a real need for buildings of simple design but with a churchly quality, and of a material cheap enough to be within the means of the people who are to use them.

The Georgian or Colonial "style" is adapted to a frank, straightforward treatment, with modern methods of construction, preferably in brick, and it is possible to get much charm and churchly feeling in work of this character. There are a number of examples of this, in one or two instances with a great deal of the spirit of some of the old London churches of the time of Wren. Most of them, however, have had too much of the traditional cold and forbidding quality of the New England meeting-house.

Very successful use has also been made of the brick architecture of Italy, adapted to modern needs, particularly in Catholic churches. Sentiment and tradition, however, seem generally to associate some form, or at least suggestion of the form, of Gothic, with the usage of the Anglican and the Episcopal church.

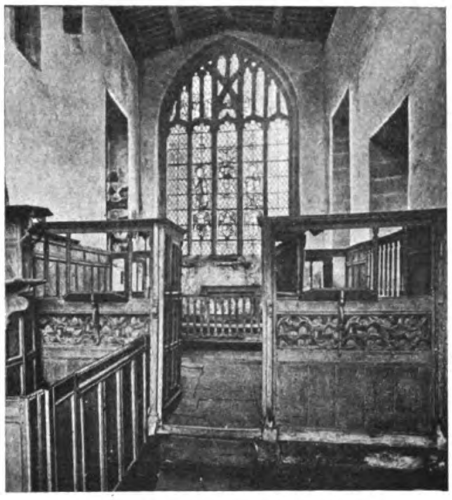
It has always seemed to the writer that the one great outstanding fault in the treatment of smaller churches (and some of the larger ones, too) has been a failure to recognize the simple, fundamental principles of design and the use of materials; the success of the first being absolutely dependent upon good judgment in the latter. Passing over some of the cruder attempts of a quarter of a century ago, with their cobblestone or even shingled buttresses, one still finds heavy overhanging gable ends with verge boards and artificial half-timber, and concrete walls with parapets and buttresses naïvely attempting to imitate the lines of European stone architecture.

It is quite surprising how many men returning from abroad with books full of the most attractive sketches have failed utterly to grasp the essentials when the opportunity came with a church commission. The short nave, low and broad, which persisted in this country for so many years, even in Episcopal and Catholic churches, while in part a concession to the desire on the part of every member of the congregation to "see the minister," was also largely due to a lack of appreciation of the essential principles of church building. It is true that many examples of the short and broad plan are to be found, particularly among the smaller English parish churches. It will be found, however, in most instances that breadth has been obtained by the addition of side aisles, often of a later date than the nave, and separated from it by piers, carrying the walls and roof above. In the Vic-

Church at Neufchatel-en-Bray, Normandy

torian era, these were usually reduced to iron columns, or the aisles omitted, and the width of the nave so exaggerated as to be out of all proportion to the length and height of the building.

There has been a rather natural tendency to turn for inspiration to the familiar country churches of England, and with all the charm which age has given them, in their indescribably beautiful setting, they are, in their way, unsurpassed by anything in Europe or in the world. The fact is, however, that the typical English parish church, with its buttressed and battlemented towers and traceried windows is an absolute impossibility in any material except stone, or in some instances brick, and there is practically nothing about it which is in any way suitable to wood construction, except the roof.



Chapel of Haddon Hall, England

Among the little village churches of Normandy and Brittany, however, though these are generally of stone, one finds the simple plain surfaces and natural roof treatment of a type which lends itself to a free rendering in rough cast, with shingle or slate roof. The belfry, spire or small flêche is frequently of timber, the walls often totally devoid of buttresses or copings, the windows rather small and without tracery, and the whole suggestive of a frank, practical, American construction. In other words, without any improper attempt at imitating one material in the use of another totally different one, we may yet obtain much churchly character with a perfectly proper use of our common building materials.

Such is the little church of Ouilly-le-Vicomte at Lisieux, and the churches at Neuchatel-en-Bray and Languetot, all in Normandy, and all adapted to simple treatment in stucco, with overhanging roofs of shingles or slate. The round-headed windows might be quite honestly rendered in stucco walls with plain "cathedral" glass without tracery, the tower of the former not by any means impossible as a light superstructure on the roof. Notre Dame de Brasseuse is a similar type, though somewhat more monumental.

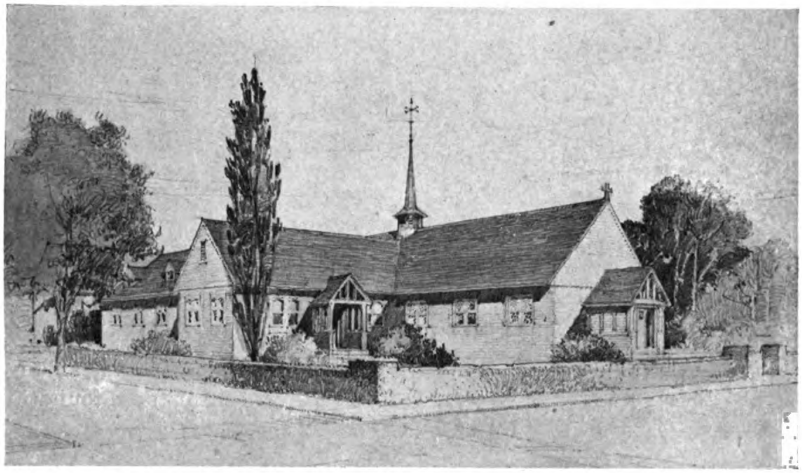
These are merely examples selected at random, among countless others to be found in France.

The destruction of great numbers of these little churches within the present battle lines, scarcely less precious in their way than some of the greater ones, is one of the saddest features of the war, and is one of the eternally unforgivable crimes to be laid to the Hun. It is to be hoped that it may be the privilege of the architects of America, as it was the dearest wish of the late Professor Warren, to aid in some small measure in the restoration of some of these churches, together with the towns or villages where they stood, so far as it may be possible to reconstruct in the twentieth century what it has taken the art and labor of many centuries to produce.

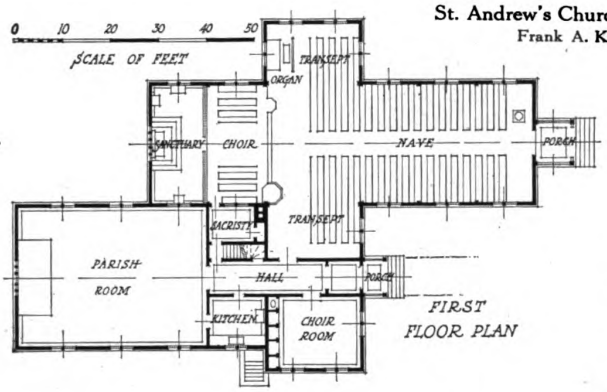
Chapel at South Byfield, Mass.
George F. Marlowe, Architect

Episcopal Church at Wollaston, Mass.
I. Howland Jones, Architect

The exterior of Howell church in Lincolnshire is of the English type perhaps most easily rendered in stucco. The well proportioned interior of the chapel at Haddon Hall is also the sort of thing adapted to inexpensive treatment. With the large perpendicular window replaced by a small high window over the altar, without tracery and glazed with heavy leads, or with high dorsal or reredos, and the chancel lighted by windows in the side walls, we should have a very satisfactory design. The roof timbering could perfectly well be of stained spruce. The screen, with balusters and paneling



St. Andrew's Church, Framingham, Mass.
Frank A. Kendall, Architect



characteristic of the period, might well be done in pine or white wood. The carved ornament could be omitted and replaced by plain paneling.

A tower, unless it may be of stone or brick, is a dangerous expedient. For the committee that feels that a church is not a church without one, if the lines of the building were simple the tower might be of stucco, low and broad, placed at the side rather than at the front and utilized as a porch or vestry, avoiding formality which could hardly fail to be unsatisfactory. Needless to say, it should be devoid of any attempt at false buttresses, traceried windows, or battlements. With simple pitched roof, slightly overhanging cornice and finial with vane, it may be fairly acceptable.

All of the foregoing are of a type suitable for the church in a village or small town, and to be effective must have the space and setting of a rural district, if possible among trees and with ample planting of hedges and shrubbery.

No amount of skill on the part of the architect can produce a satisfactory result if the site is an unattractive one, or surrounded by ugly buildings of a character entirely out of keeping with the church, and yet this is frequently entirely ignored and money wasted on an undertaking hopeless from the start.

In the case of the crowded and closely built district of the town or small city (the city church scarcely comes within our province at this time), the problem is a very different one, and more difficult. In fact, in this case, even if the building laws allow it, to attempt to build entirely of wood is quite hopeless. All thought of a tower should be abandoned at the start, as obviously, unless it is of a monumental character, it will be completely dwarfed and wholly insignificant in its surroundings.

Here it is much more difficult to find examples among the old work for precedent or inspiration. In the church building age, excepting in the larger cities like London and Paris, near-by houses were low, often not more than two or three stories, and the prevailing type of country church, with walls carried higher and with moderately lofty tower, perhaps surmounted by a spire, was quite satisfactory. In our case, however, with the means at our disposal, the best result will usually be obtained by giving all the height possible to the façade, accentuating it with vertical breaks or simple pilaster-like buttresses. A small flêche, of wood or metal, more suitable than a tower, will give a touch of interest and suggestion of ecclesiastical character. If skillfully used, brick will often be quite satisfactory. Openings should be simply treated, avoiding traceried windows unless they may be of stone. Wooden tracery painted to look like stone is an abomination. If the fire laws allow, and extreme economy is necessary, fairly satisfactory results may sometimes be obtained by carrying the brick or stone at the sides only as high as the window sills, which should be as high as possible, when stucco may be used above to the eaves.

Most successful, as illustrating some of the principles referred to, is Messrs. Maginnis & Walsh's Chapel of the Ladies of the Cenacle. One might almost believe it to have been directly inspired by the church at Villeneuve. The textures of brick and stone combined in connection with the plain stucco wall surfaces are most agreeable. The building as a whole is extremely simple, its success depending upon the three all-important elements in architectural design: Good proportion, intelligent use of materials, and well considered detail.

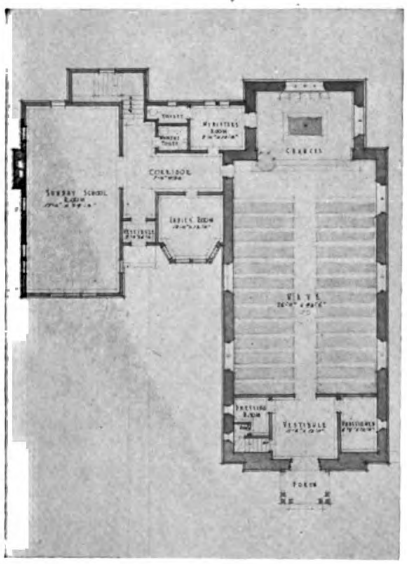
The three little wooden churches at Wollaston, Framingham and South Byfield are perhaps suggestive of the more primitive types in Normandy and Brittany, referred to. In the case of both Wollaston and Framingham, the churches were built some time ago, and the parish halls, etc., added afterwards. The latter is a fairly complete plan for a small mission.

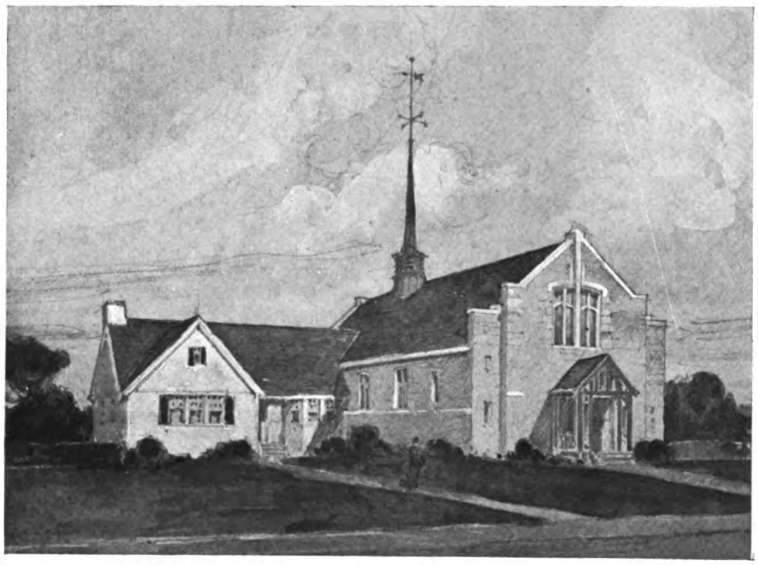
The one at South Byfield was built for a chapel for a religious community rather than for a parish church, and seats about three hundred. It is to be regretted that the shingles might not have been whitewashed, or better still, the walls rough cast, possibly with stone ends, when it might have had much the character of a little Normandy church. It was built complete in 1916, with simple heating apparatus, for about $5000. The interior is finished in gray plaster, the roof trusses and rafters left rough and stained. The altar is of the simplest, but the vestments and red dorsal give a touch of color and interest to its otherwise severe simplicity.

Chapel, Ladies of the Cenacle, Newport, R. I.
Maginnis & Walsh, Architects

The sketch for a Unitarian church in Reading, Mass., is an illustration of a possible treatment for a small town church with parish house, etc. Here, by using stone only for the ends and to the height of the window sills, the cost was kept down. The interior proportions would have been improved if the walls might have been carried higher, though an effect of fair height is obtained in the façade by the breaking back of the vertical lines, the copings of the buttress-like breaks rising slightly above the roof. The parish house was designed to be of stucco on frame construction.

Messrs. Cram and Ferguson's recently completed Universalist Church at Somerville, Mass., is an excellent example of good design in the use of inexpensive materials, — in this case stucco on terra cotta block with brick "trimmings" around doors and windows, and for cornice, string courses and buttress caps. The cost might exclude it from consideration in this article, but the principles of design are so good that they may be used to illustrate our theories and all of them might equally well be applied to a less costly building. The interior walls are treated in a warm gray plaster, applied directly to the blocks, a somewhat uneven surfacing with the trowel evidently having been given with the intention of avoiding the "hard" appearance which the large plain surfaces would otherwise have. The arrangement of the chancel is to be commended. While it may be questioned whether a liturgical plan is really wholly to be desired for a non-liturgical congregation, it does supply the architectural "climax" so indispensable in any church and which is lacking in the "meeting-house." The communion table is well placed with a satisfactory dorsal behind it, and the pulpit and reading desk are exceedingly well designed. (See plates 56, 57.)



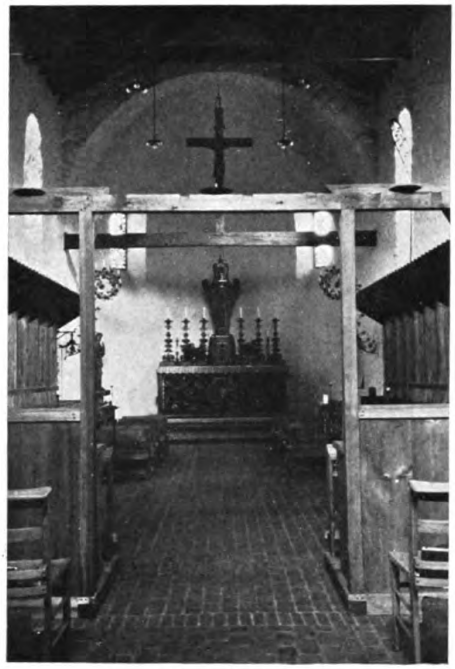


Floor Plan and Perspective of Unitarian Church at Reading, Mass.
Adden & Parker, Architects

Two small chapels from this office must be spoken of as further illustrating the principle that satisfactory results may be obtained with the most simple or even primitive materials.

The cost of the stone work of St. Anne's Chapel at Arlington Heights might again exclude it from our consideration, but the principles involved in the interior could be equally well applied to the cheapest forms of construction. The chapel was designed for the use of a conventual order.

In Mr Cram's own chapel at Sudbury, similar theories were carried out. In both cases the interior surfaces of the stone were merely whitewashed. Beams and rafters are of spruce left rough and stained. The screen and stalls of St. Anne's are of planed spruce of the simplest design, with a coat of stain.

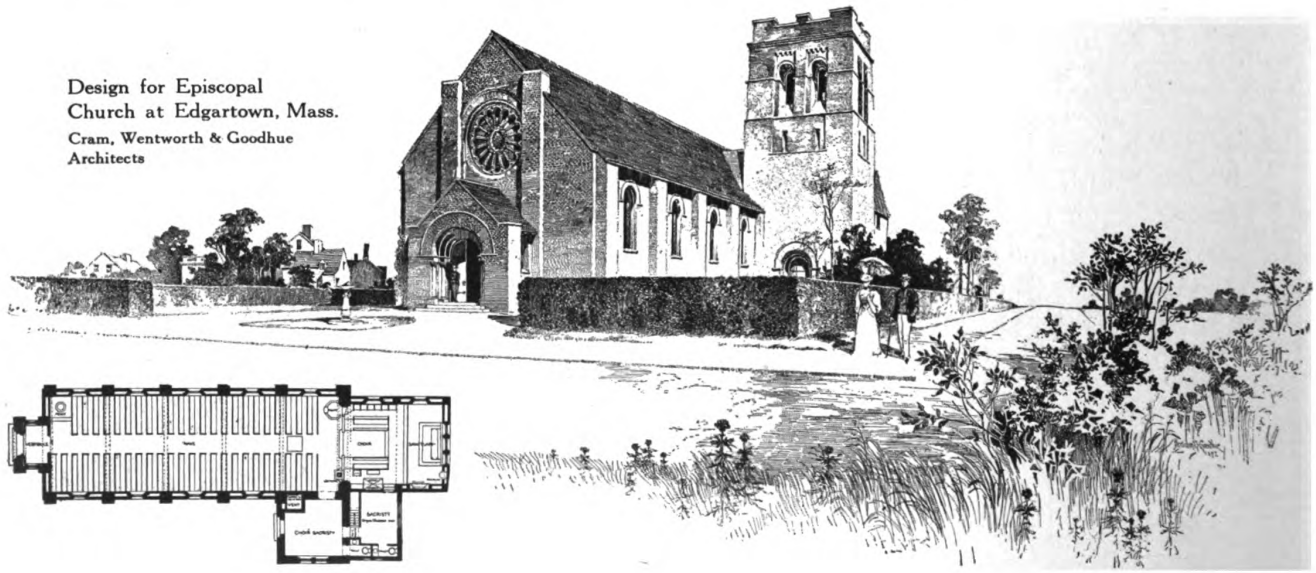


St. Anne's Chapel, Arlington, Mass.
Cram & Ferguson, Architects

Too much praise cannot be given to the design for a church at Edgartown, Mass. Mr. Goodhue's beautiful rendering of this was published in *The Brickbuilder* long ago, and it is greatly to be regretted that the church was never built. It would be hard to conceive of a more satisfactory and intelligent use of brick. The plain wall surfaces, simple roof treatment, and round-headed windows, with the exception of the west one, apparently devoid of tracery, all go to show how a really fine result may be obtained with the simplest materials. How much more satisfactory than any attempt at a cheap imitation of Gothic tracery! Although the drawing indicates a rural site, the front has height enough to carry fairly well in a town street.

Mr. Edgar Wood's Scientist church at Manchester, England, which appears a trifle bizarre at first glance, in reality seems to illustrate certain well considered principles of design as applied to the less monumental buildings. The use of the round arch with deep reveal in plain concentric courses of brick as a foil to the plain stucco wall surfaces is most effective, and the roof treatment, in spite of the somewhat exaggerated lines, seems altogether satisfactory.

Interior effect will be found to be dependent upon good proportions and again the intelligent use of materials, however simple. No amount of elaboration will make a success of a badly proportioned building. Properly arranged lighting is most essential, and here the difficulty in most cases will be to avoid too much light, either natural or artificial. The "dim religious light" is not wholly a matter of sentiment, though it undoubtedly does add to the architectural effect and in larger buildings supplies that sense of mystery and unexplored spaces to which a church interior owes much of its charm. Nothing is more annoying and disturbing than a constant glare of strong light from thinly glazed windows or many unshaded lamps, at



Design for Episcopal
Church at Edgartown, Mass.
Cram, Wentworth & Goodhue
Architects

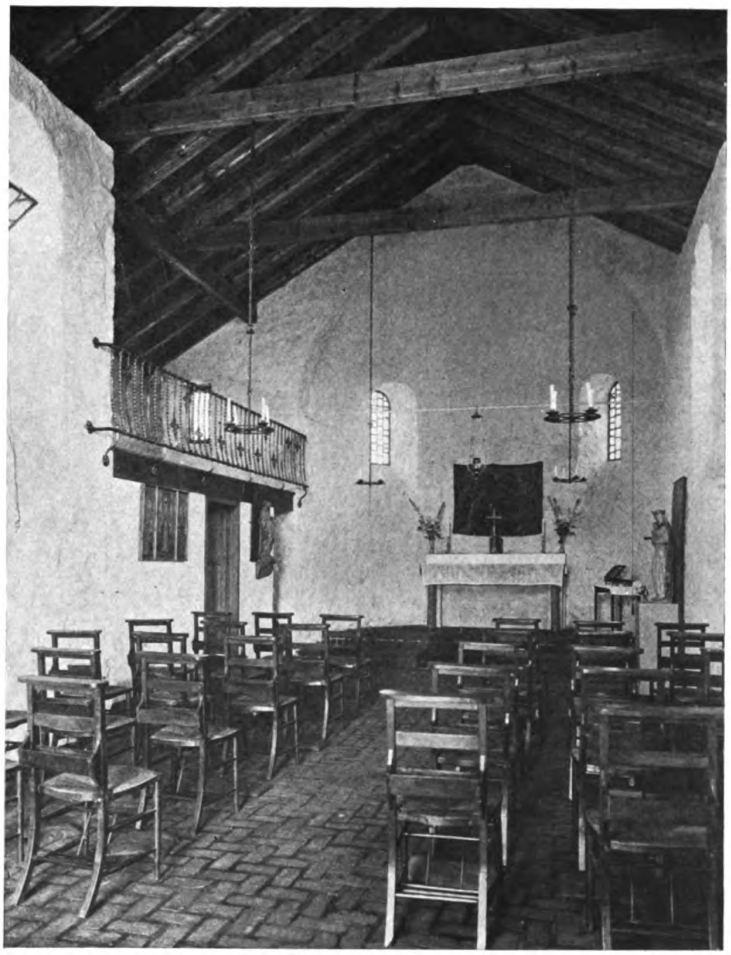
Exterior and Interior Views of St. Elizabeth's Chapel, on Estate of Ralph Adams Cram, Architect, Sudbury, Mass.

times becoming positively painful; and nothing is more conducive to quiet rest and religious meditation than the subdued light of a properly designed church interior. It should not be the aim, in a church above all places, to hide poor workmanship by turning down the light, but plain wall surfaces and simple furnishings will often prove quite satisfactory and require less elaboration under proper lighting, which would not be adequate under the full glare of the sun or many high-powered electric lamps.

Plain chancel paneling, if well proportioned and of a good color, may often be nearly as effective as if elaborately carved. The altar, if there is one, may be of the simplest. It should not be too short, — a mistake often made. The frontal is required by the Ornaments Rubric of the Church of England, and if this practice is followed, any elaboration of the altar front is unnecessary. Velvet, damask, or other stuffs may be used for the dorsal. The high dorsal, sometimes with canopy or sort of baldachino which has of late come into vogue both in this country and in England, is at times most effective. It is, however, apparently contrary to the custom of the builders of old English churches, and the conservative practice seems to be to have the dorsal of a height above the altar somewhat less than that of the altar itself, either with or without the wings or riddels, and according to ancient practice, these should be at right angles to it.

If the scruples of the evangelical faith exclude a fixed altar, the communion table may be so designed as to stand against the wall of the chancel when not in use, and with a properly arranged motif in the paneling above, or a well placed hanging or dorsal, may be perfectly dignified and satisfactory. Obviously the clergyman's seat will be placed at one side, preferably against one of the side walls of the chancel.

The chancel is more effective if lighted from rather high windows at either or both sides, rather than by a large window over the altar, and the east window should be avoided unless it is assured that it may be filled with extremely good glass sufficiently heavy in design to avoid the otherwise unpleasant glare. Unless really good stained glass may be afforded, windows should be glazed with plain "cathedral" or other low toned, plain glass, as heavy as may be obtained, in slightly varying shades nearly colorless, and set in



heavy leads, usually arranged in simple rectangular or lozenge-shaped patterns.

A permanent and dignified effect will be obtained if the floor of the chancel, and if possible, at least the aisles of the nave, are of tile or brick. If heating apparatus can be placed under one end or under the vestry or parish house, the portion under the main part of the church need be excavated only sufficiently to give access to pipes.

Christian Science Church, Manchester, England
Edgar Wood, Architect

Chairs are in some ways more satisfactory than pews, and less expensive. As they are also much less comfortable, they are generally objected to by building committees.

A well designed reading desk or lectern may often be used temporarily to preach from instead of a pulpit. Choir stalls are difficult to manage when the appropriation is small, but may be perfectly satisfactory with simple paneled ends. Elaborately carved ends should be avoided unless they are skillfully designed, and no carving should be attempted unless it may be well done.

In the small churches and chapels which we have been considering, some difficulty will probably be experienced in the proper arrangement of the organ in the limited space available. If a small pipe organ is to be used, the pipes sometimes may be placed in the space above the ceiling of the sacristy or vestry, opening into the chancel over the choir seats, or an organ chamber may have to be built outside the chancel, on the opposite side from the vestry. Room for the manual and organist's seat may usually be found against the chancel wall by shortening one of the choir stalls. The small motor for blowing is best placed in the basement below, as it is difficult to eliminate all sound.

Lighting fixtures are perhaps more often a cause of failure on the part of the unskilled designer than any other one thing, and if left to the discretion of the building committee, may ruin a good building. There seems to be a feeling that to be ecclesiastical, they must be in some way rather weird and unusual. Hence every conceivable form of hammered, bent, twisted or curled tin, brass, copper or iron. The more extraordinary the invention, the more ecclesiastical. Imitation candles are most objectionable. In a country chapel, where the expense of wiring may be a burden, why not real candles? Simple and effective chandeliers or wall brackets may be designed and made of black iron or even of wood, at comparatively small expense. Small round, frosted bulbs are perfectly satisfactory, and not particularly trying to the eyes, if the design does not permit of their being shaded.

With the revival of interest in iron craftsmanship, hardware offers an obvious opportunity for indulgence in one of the minor requirements which go to complete the perfection of the whole, but in the present case the allowance for this is likely to be of the smallest. Quite satisfactory black, wrought iron strap hinges may now be obtained from a certain number of dealers, but if even these are too great an extravagance, one may have recourse to the plain and unobtrusive commercial "butts," finished a dull black, and if nothing better may be afforded, simple cast-iron thumb latches are always practical, and perhaps rather more appropriate than the modern round knob.

In the foregoing, an attempt has been made to show that success in church building is not necessarily directly in proportion to the funds available, but rather that it is dependent upon a certain familiarity with good precedent together with care and judgment in the use of materials and their adaptation to modern needs and present-day methods of construction.

Chapel of Sidney Sussex College, Cambridge, England

T. H. LYON, ARCHITECT, LONDON

OF the old colleges in the University of Cambridge, England, Sidney Sussex College and Queen's College are the only two which have found it necessary to build a new chapel during the last hundred years. An architect must feel something of the burden of a great responsibility when undertaking to add his quota to the architectural beauty of the old English Universities. Here, perhaps, more than anywhere else, he lays himself open to the blessings or the cursings of future generations.

The original chapel at Sidney Sussex College was perhaps the smallest in the University. It measured 20 by 30 feet, and with its flat ceiling, was scarcely more than a lofty room. However, even moderately old college buildings have a historical value; and fortunately it was possible to incorporate the shell of the old chapel with the new building. The chapel is now 90 feet in length.

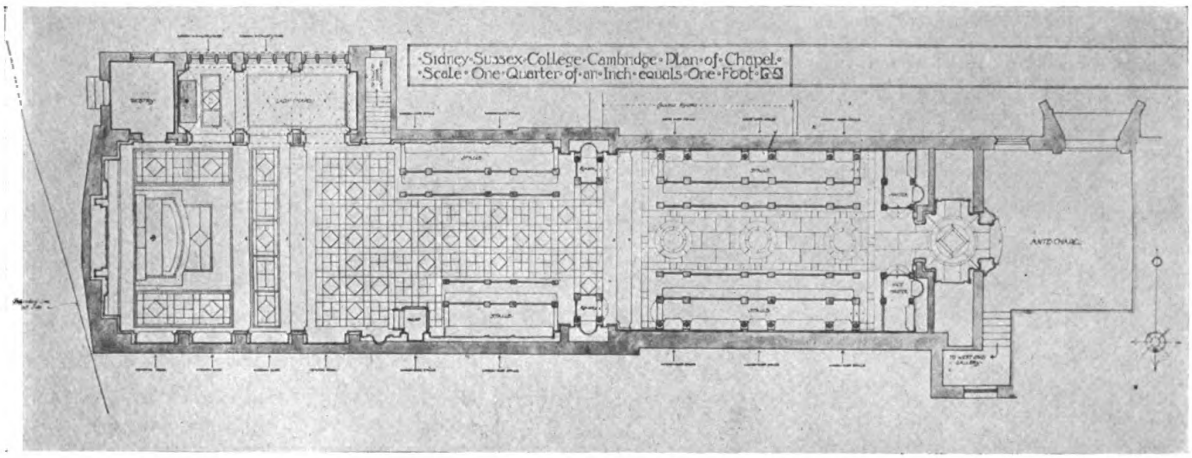
As (for proportional reasons) it was necessary to make the new portion wider than the old, it became necessary also to give a special treatment to the junction between these portions. This was accomplished by placing the Readers' stalls at this point, which is also a good position for them, both from the Readers' and the listeners' point of view.

Two steps lead from the old portion of the chapel to the new, and form, almost at the entrance, the beginning of a gradual ascent to the altar, an arrangement which adds very much to the dignity of the building.

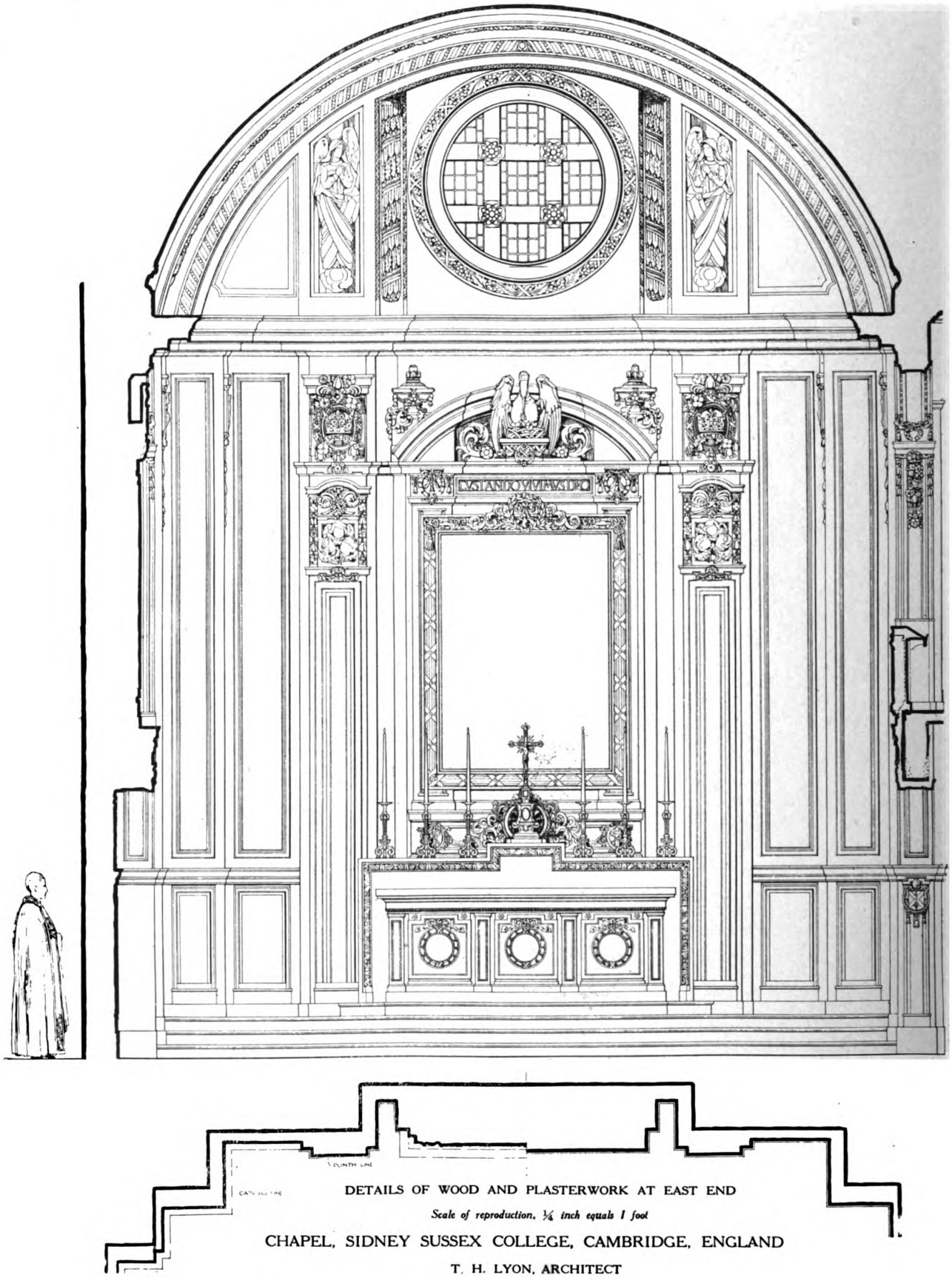
The floor is of marble, the colors used being soft gray, black, white and medium dark green; in addition two pieces of Arizona in front of the Readers' stalls, and one square of yellow Sienna in front of the altar give a touch of richness to a quiet color scheme.

The walls of the chapel are paneled in oak to the cornice, which is also in oak and 19 feet above the floor level. Over the sanctuary, decorative ceiling ribs, modeled in plaster, connect the oak pilasters forming the wall divisions. On these ribs interlaced with a ribbon band on which the words "*Laus Deo*" are modeled as a repeat, the following subjects are represented in a decorative manner: "The Angels of Men," "The Beasts of the Field," "The Sun, Moon and Stars," "The Fishes of the Sea," and the "Birds of the Air." On the oak pilasters immediately

Detail of Carving on Pilasters on Either Side of Altar



Ground Floor Plan of Sidney Sussex College Chapel

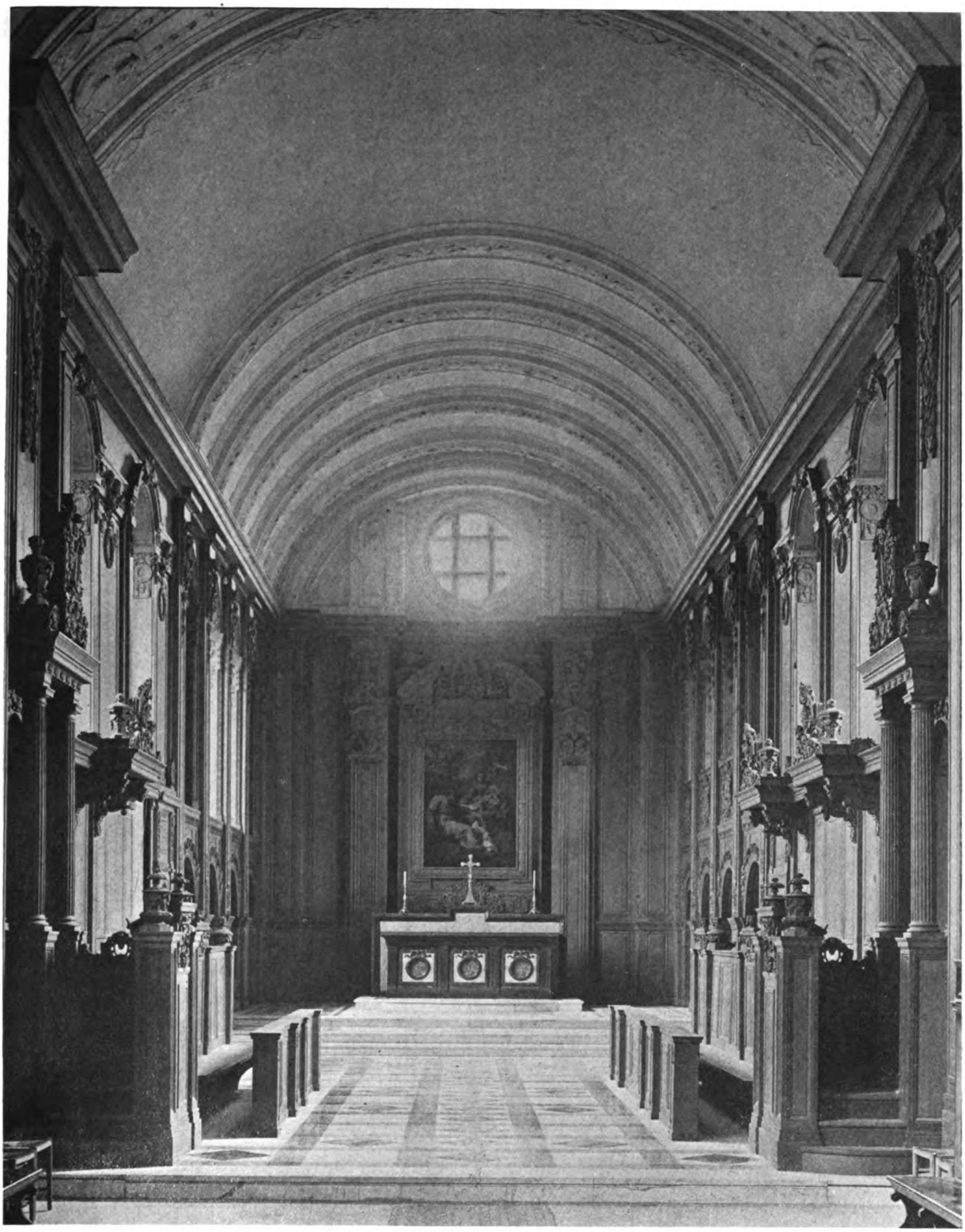


DETAILS OF WOOD AND PLASTERWORK AT EAST END

Scale of reproduction, ¼ inch equals 1 foot

CHAPEL, SIDNEY SUSSEX COLLEGE, CAMBRIDGE, ENGLAND

T. H. LYON, ARCHITECT



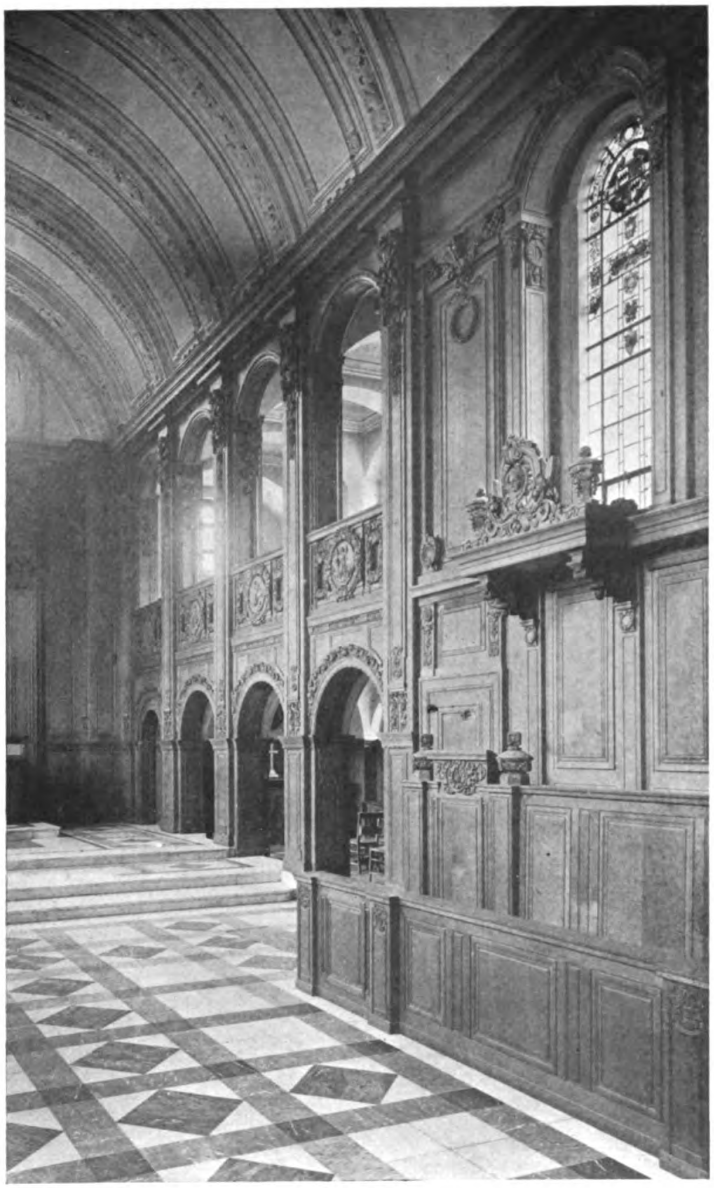
GENERAL VIEW LOOKING TOWARD EAST END

CHAPEL, SIDNEY SUSSEX COLLEGE, CAMBRIDGE, ENGLAND

T. H. LYON, ARCHITECT

under the cornice, there are carved bosses which, on the south side present the symbols of the five writers of the Epistles, and on the north side the four Evangelists, together with a representation of the angel carrying the Gospel into the world. Over the arches which divide the sanctuary from the Lady Chapel there are four circular subject panels, representing "The Feeding of the Children of Israel with Manna in the Wilderness," "Our Lord Feeding the Five Thousand," "Moses Striking the Rock" and "The Soldiers Piercing Our Lord's Side." On the north side the inner divisions contain each a window, one in honor of the Passion, and the other of the Sacrament of the Altar. The divisions on either side of these windows are arranged as memorial panels, one in memory of the benefactors of the College, and the other of all Sidney Sussex men who have departed this life. These panels are surmounted by the college arms and the inscriptions are in Latin, carved in low relief.

The altar and the retable are of marble and bronze; the bronze wreaths enclosing yellow Sienna of a beautiful rich tone. It was designed to form the altar slab of Belgian black marble, but as it became impossible to obtain a piece of sufficient size, owing to the war, a dark gray Devonshire marble was used for this purpose. The cross and candlesticks on the altar are temporary and they will be replaced after the war by others in scale with their surroundings. The retable stands five feet from the east end wall, an arrangement which gives a sense of spaciousness to the sanctuary and adds dignity to the altar. A picture brought from Italy and said to be a copy of a Rubens, which formed part of the reredos in the old chapel, has been incorporated in the oak paneling at the east end of the new building.

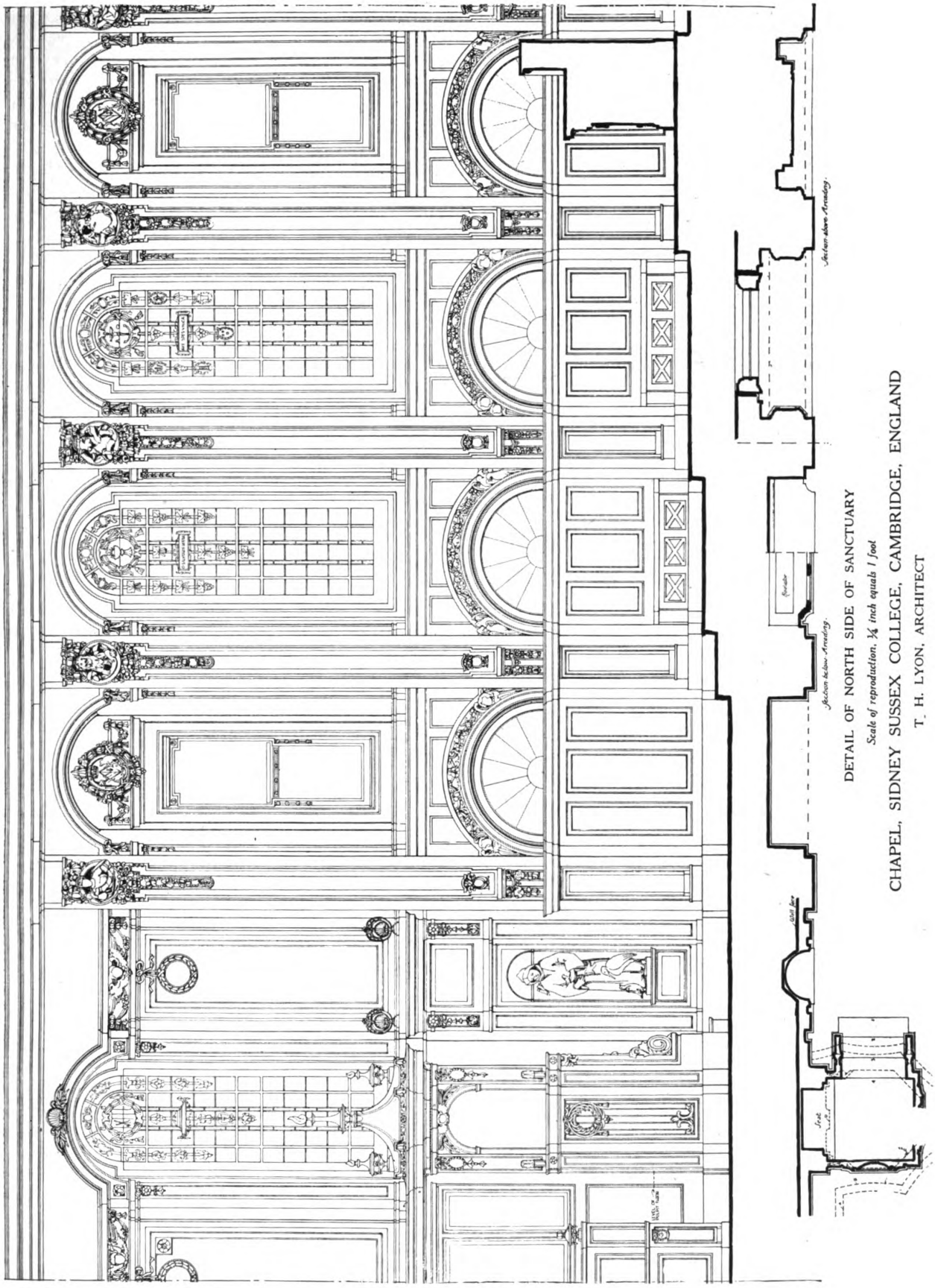


View in Chapel Looking Toward Lady Chapel and Visitors' Gallery Above

There is a gallery for visitors over the Lady Chapel on the south side of the sanctuary, which is approached through a doorway from the main portion of the chapel. The Lady Chapel has a vaulted ceiling; and on the oak paneling to the piers, symbols of Our Lady are carved in low relief. On the east end wall there is a circular panel of the Madonna and Child, executed in plaster and colored.

The windows in the main portion of the chapel display the armorial bearings of the college benefactors. These heraldic devices and the ornamental swags which surround them are set as architectural design in uncolored glass. By this treatment the windows have become pre-eminently factors in the whole architectural effect, and are not merely a series of glass pictures such as would be equally suitable to almost any type of building.

The chapel was begun in 1912 and it is now completed from the east end to the division between the old portion and the new. The old portion of the chapel when completed will contain the Fellows' stalls, the west end gallery; and possibly also war memorials, for which two niches have been arranged on the south side where there are no windows corresponding to those in the opposite wall.



DETAIL OF NORTH SIDE OF SANCTUARY

Scale of reproduction, ¼ inch equals 1 foot

CHAPEL, SIDNEY SUSSEX COLLEGE, CAMBRIDGE, ENGLAND

T. H. LYON, ARCHITECT

The somewhat traditional method of finishing the west end by placing the organ case over the gallery has not been followed. Paneling, similar in character to that on the side walls, will form a screen across from wall to wall, leaving an opening flanked by columns in the center which will offer an attractive view looking up the chapel. The organ will be placed behind the screen on one side; the acoustic properties of the building being such as make quite a small organ effective. A special feature of the west end will be the Master's and Vice-master's stalls, which will have domed tops supported on columns and backed by long vertical panels ending in pediments and carved work.

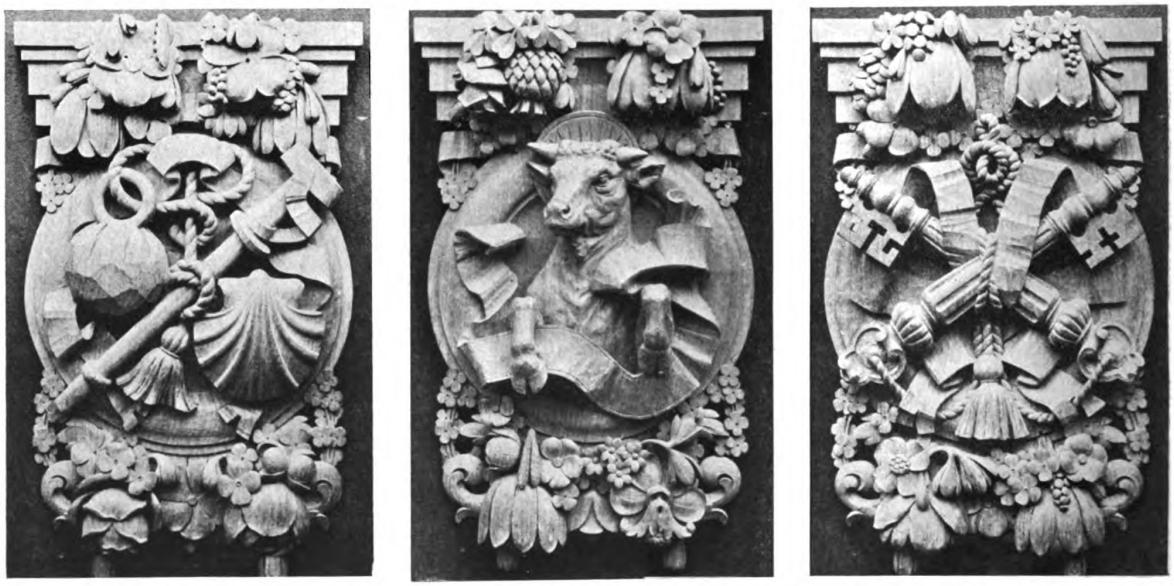
A word is necessary as to the character of the carving. It represents an adaptation to oak of a type of carving which lends itself in its most decorative form only to soft woods, such as pear. The aim was to utilize this type of carving so that it would become part of the architecture itself rather than applied decoration; and at the same time to make it serve as a higher tone of " architectural color," in a scheme where delicate fillets and sinkings present the quieter tones. Obviously, the " cut," which that clean, continuous sweep of the carving tool forms, and which gives so much life to the work of Gibbons, the " cut " without which all carving in soft wood becomes flabby in appearance, could not be obtained in oak. But the carving could be so managed that the tool found that clear way out at every point, which is characteristic of Gibbon's work, and contributes greatly to breadth of surface and definition in cutting.

When carving is to be used as " architectural color form " rather than as applied decoration, it is particularly necessary to study carefully the planes with a view to the effect they will produce as gradations between high light and deep shadow. Models in plaster were made as far as expenditure in money would allow. In the case of repetition work, such as the bosses to the pilasters in the sanctuary, one model served as a guide to the carver, which, as regards the planes, he was instructed to follow absolutely, but with full liberty to vary detail at his will.

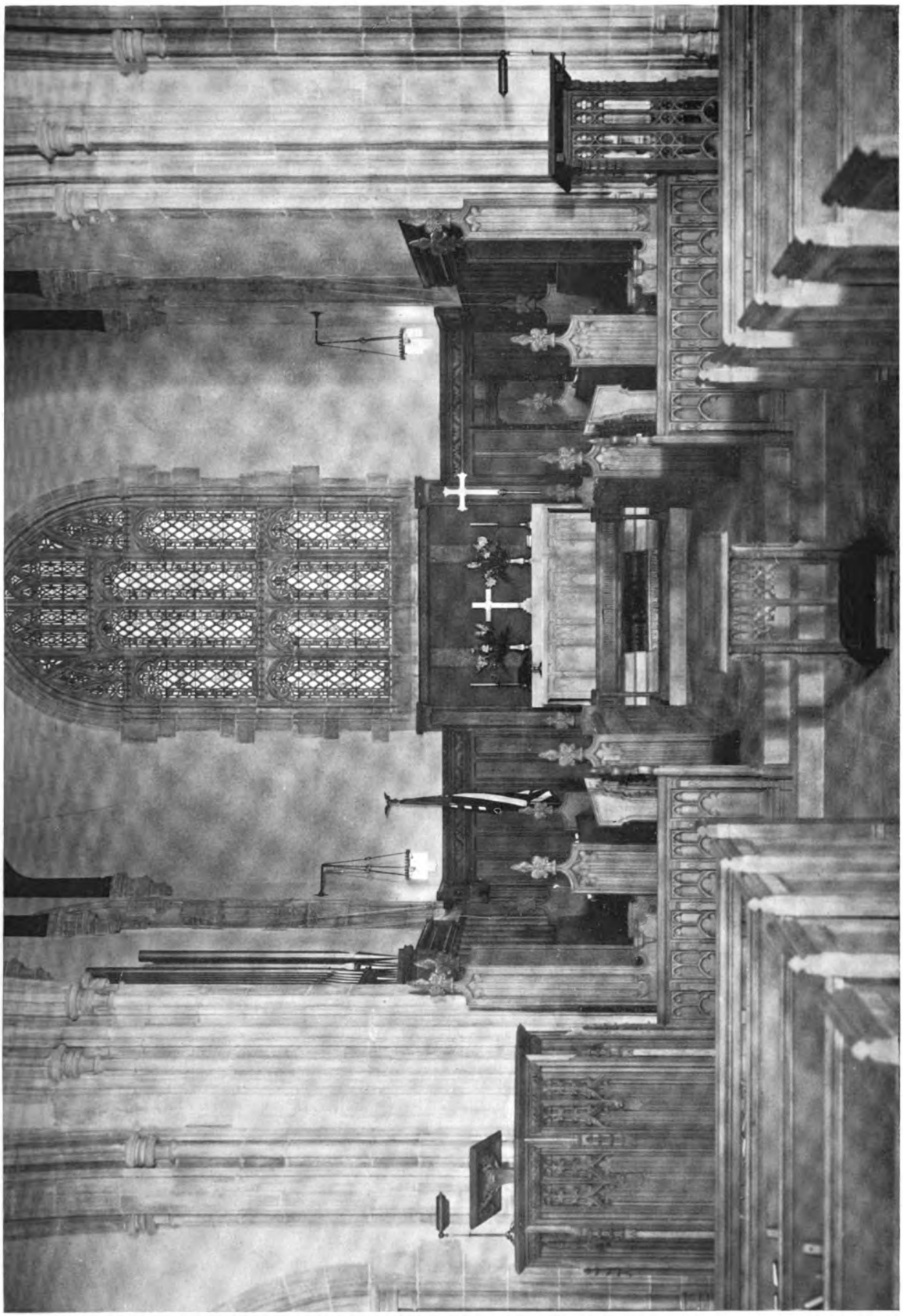
An overcrowded effect is one of the principal dangers to be avoided in carving where the motive is floral and somewhat naturalistic. The principle adopted in the work under notice was that it was easier to cut out than to add; and the one man, who did all the carving with the exception of four circular panels, showed exemplary patience when the " cutting out " process was ruthlessly applied to his work.

The total cost of the chapel when completed will be $60,000.

As has been stated, the work was begun in 1912; and in these days of hurry and impatience, it is rare indeed that one is allowed as much time for thought and study and careful execution, as was accorded to their architect by the Master and Fellows of Sidney Sussex College. The work on the chapel will be continued as soon after peace is declared as possible. Many Sidney men who took the keenest interest in its development lie under the battlefields of France. One of these, before leaving his college never to return, made a visit to the chapel his last act.



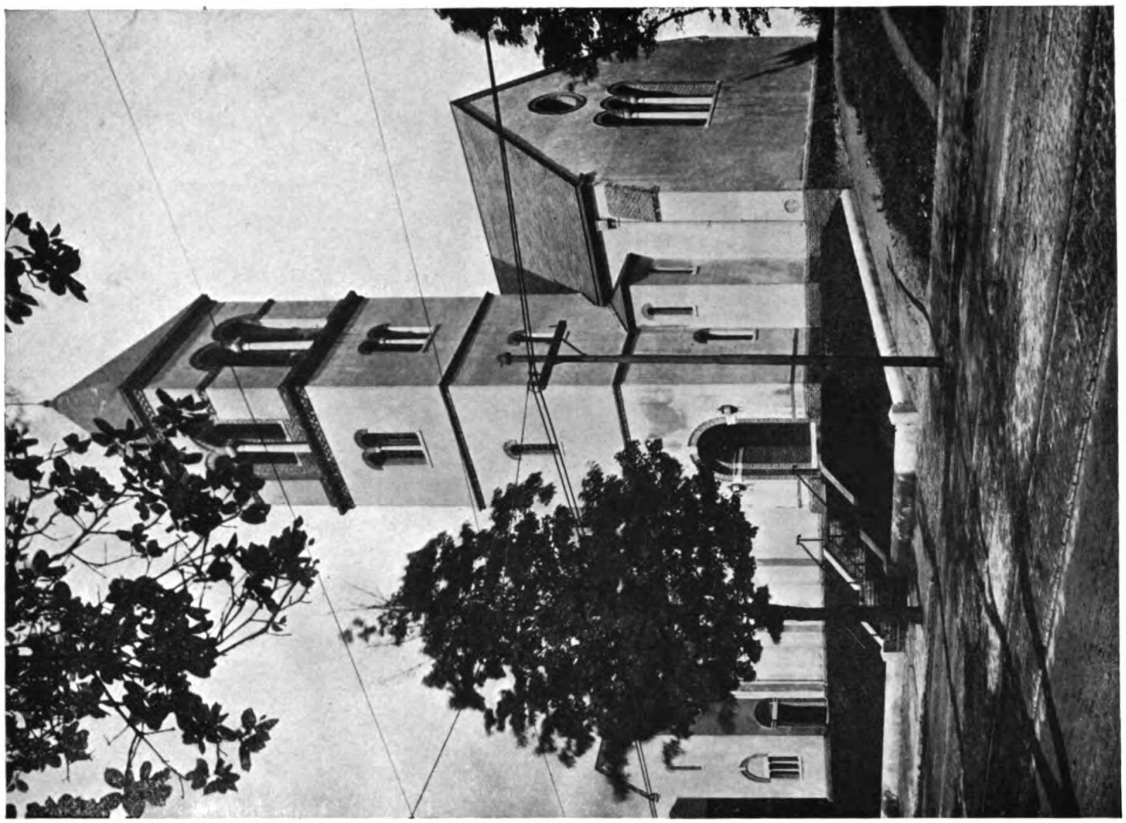
Details of Carving Representing Symbols of the Evangelists and Writers of the Epistles, on the Pilasters at Either Side of the Sanctuary

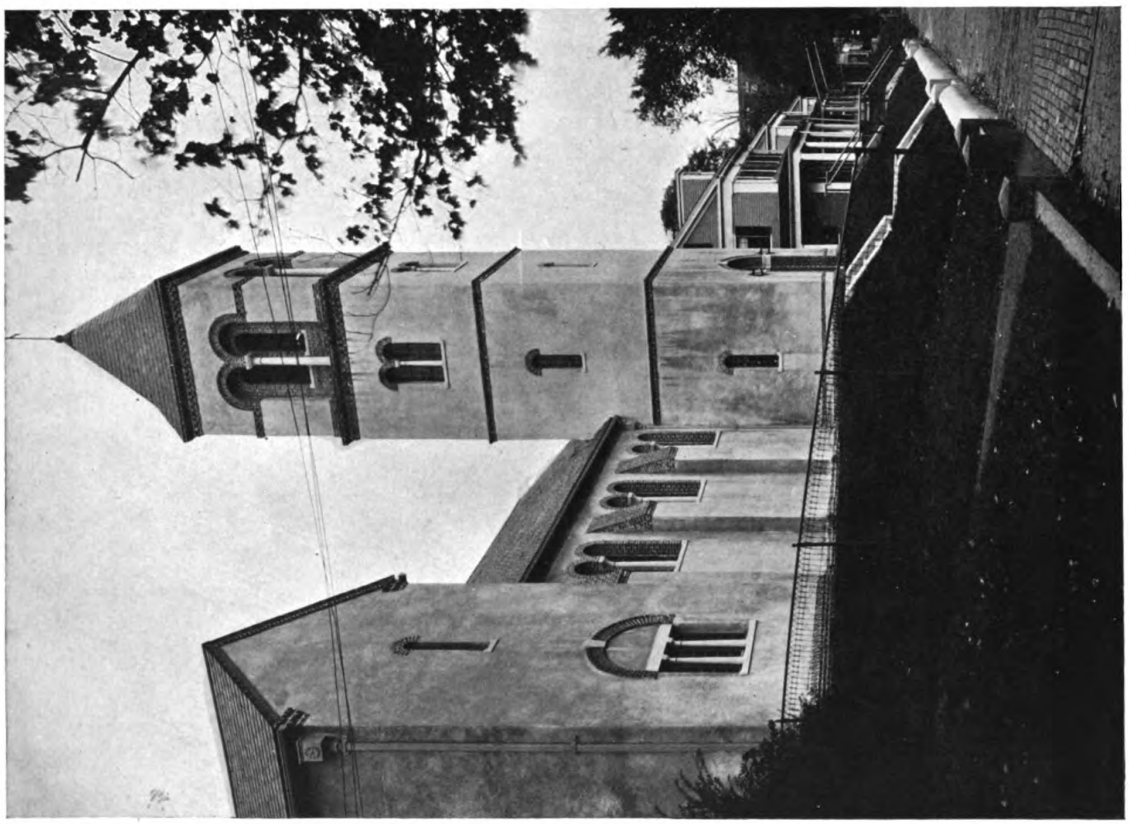


DETAIL VIEW OF CHANCEL

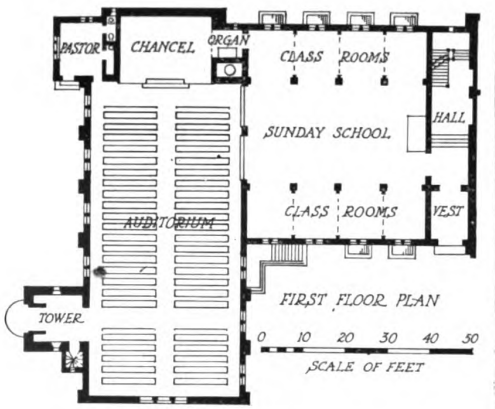
CHURCH OF THE EPIPHANY, SHERWOOD, WEST PHILADELPHIA, PA.

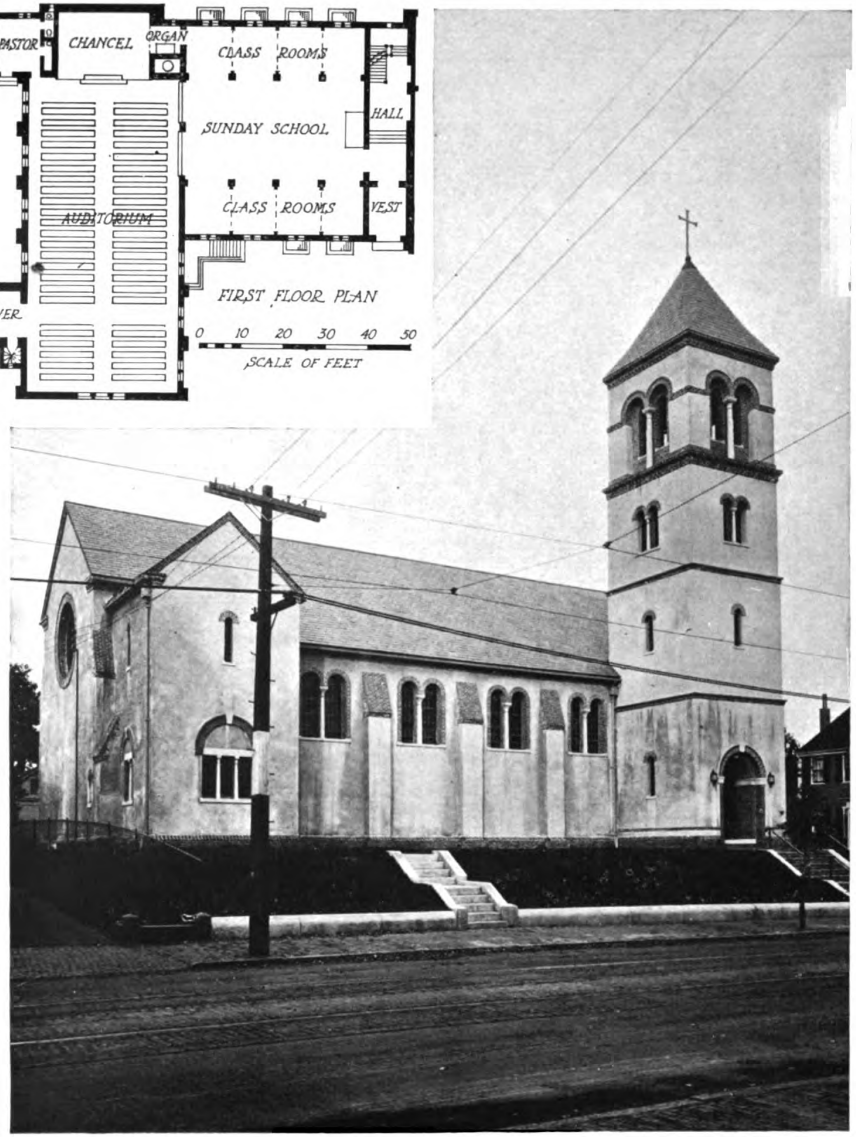
DAY & KLAUDER, ARCHITECTS; E. E. HENDRICKSON, ASSOCIATE



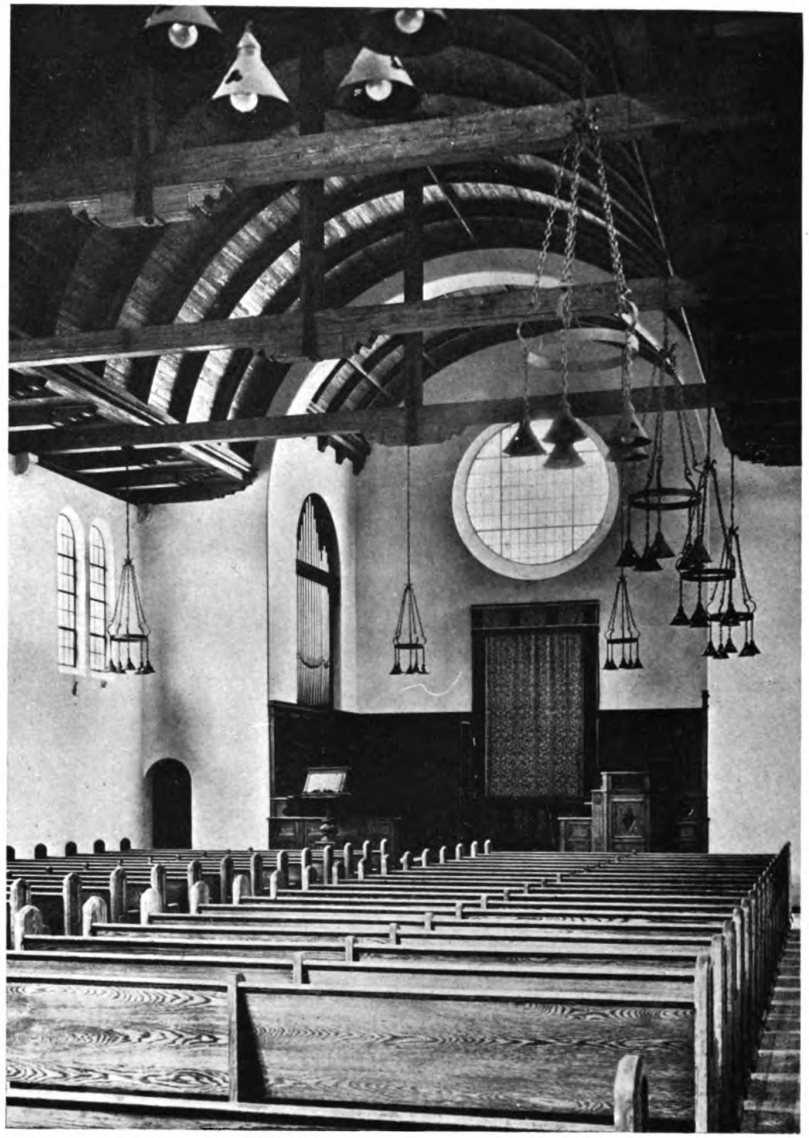


FIRST UNIVERSALIST CHURCH, SOMERVILLE, MASS.
CRAM & FERGUSON, ARCHITECTS





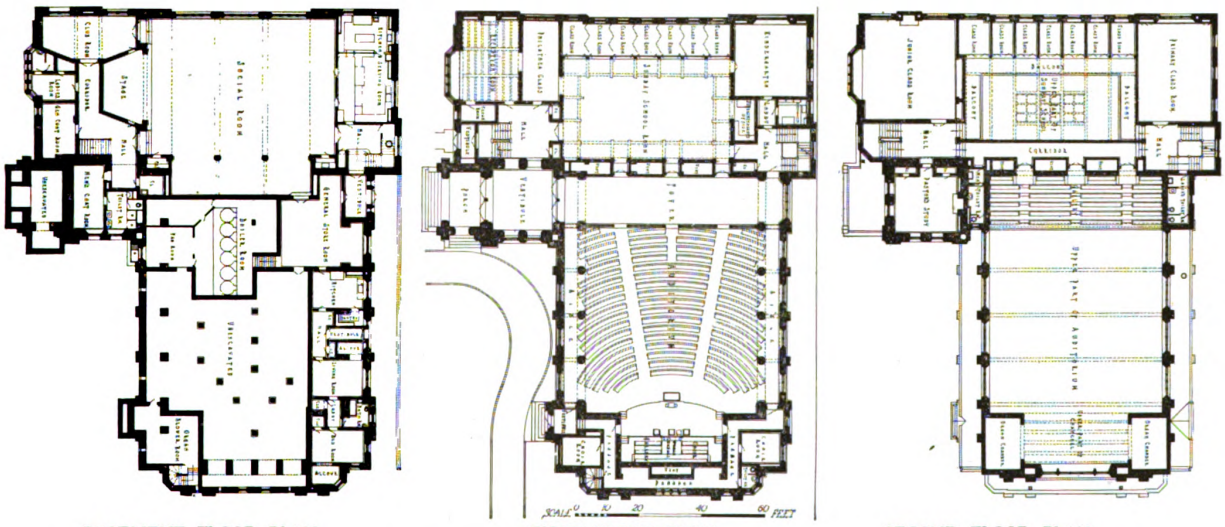
GENERAL VIEW OF EXTERIOR



AUDITORIUM, LOOKING TOWARD CHANCEL

FIRST UNIVERSALIST CHURCH, SOMERVILLE, MASS.

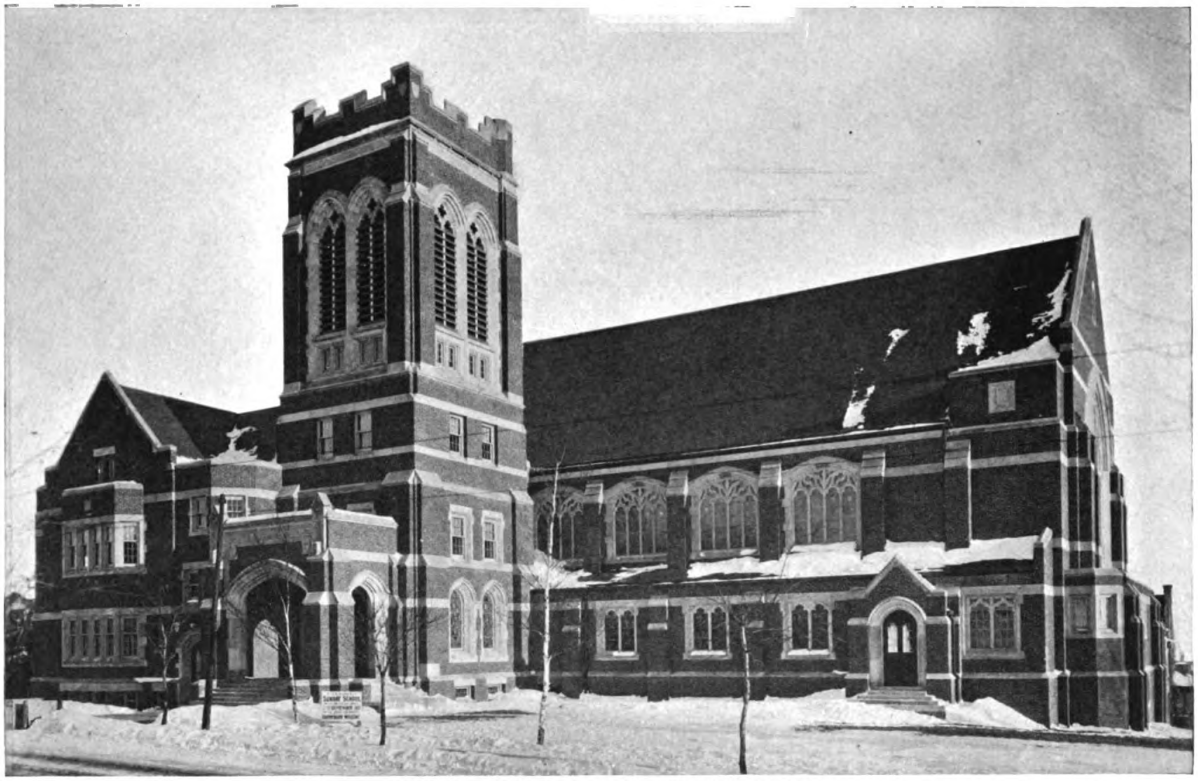
CRAM & FERGUSON, ARCHITECTS



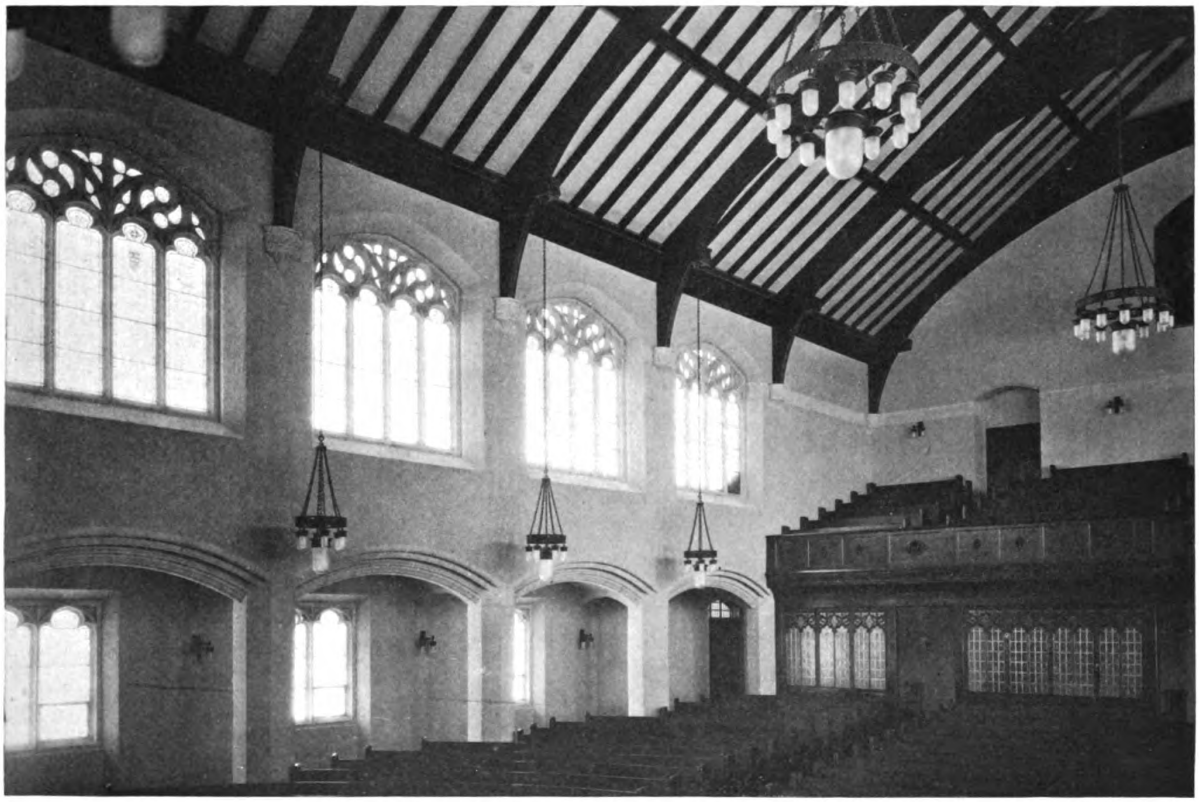
BASEMENT FLOOR PLAN FIRST FLOOR PLAN SECOND FLOOR PLAN

PILGRIM CONGREGATIONAL CHURCH, DULUTH, MINN.

GERMAN & JENSSEN, ARCHITECTS



GENERAL VIEW SHOWING MAIN ENTRANCE

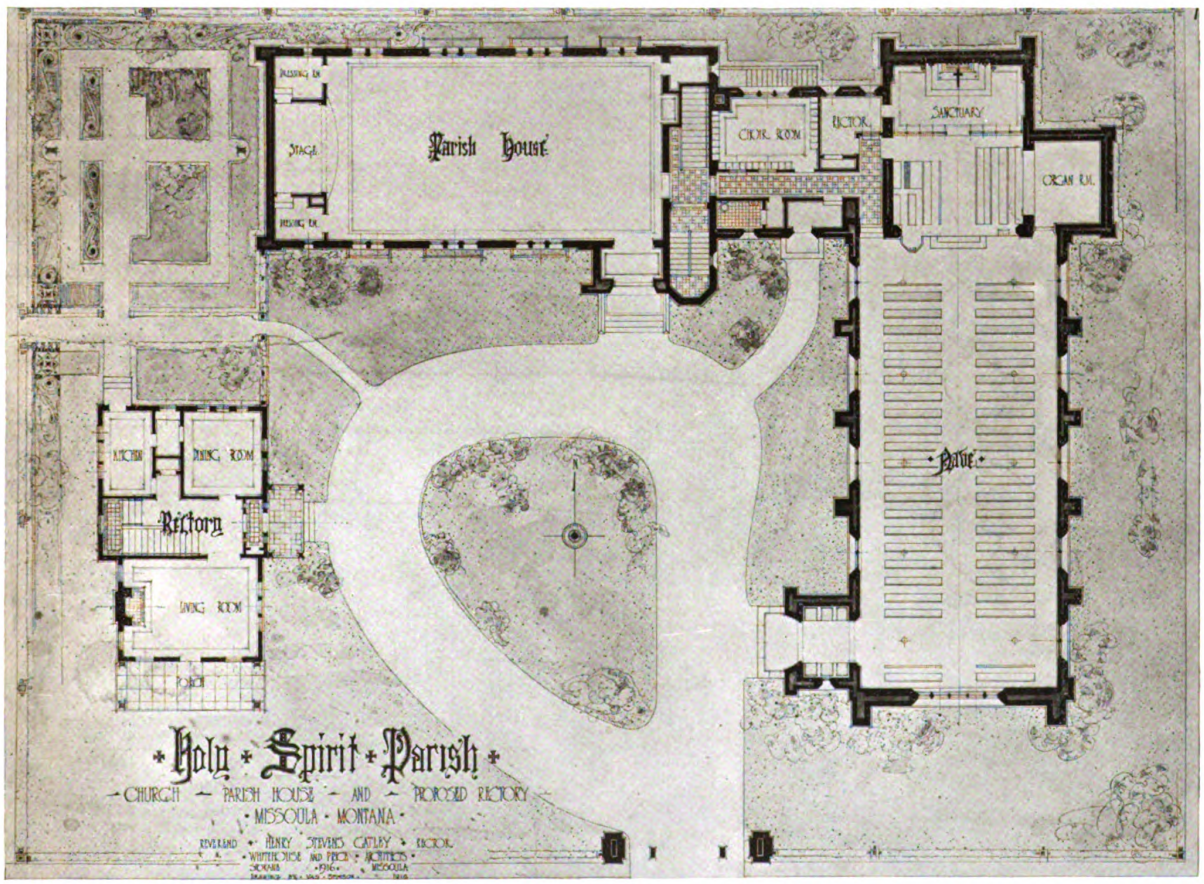


INTERIOR OF AUDITORIUM LOOKING TOWARD GALLERY

PILGRIM CONGREGATIONAL CHURCH, DULUTH, MINN.

GERMAN & JENSSEN, ARCHITECTS

GENERAL VIEW OF EXTERIOR

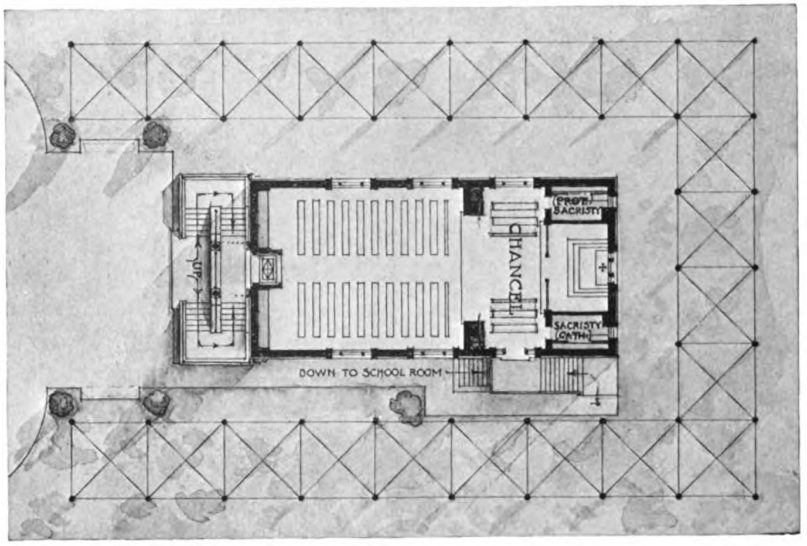


HOLY SPIRIT CHURCH AND PARISH HOUSE, MISSOULA, MONTANA

WHITEHOUSE & PRICE ARCHITECTS

DETAIL OF ENTRANCE PORCH

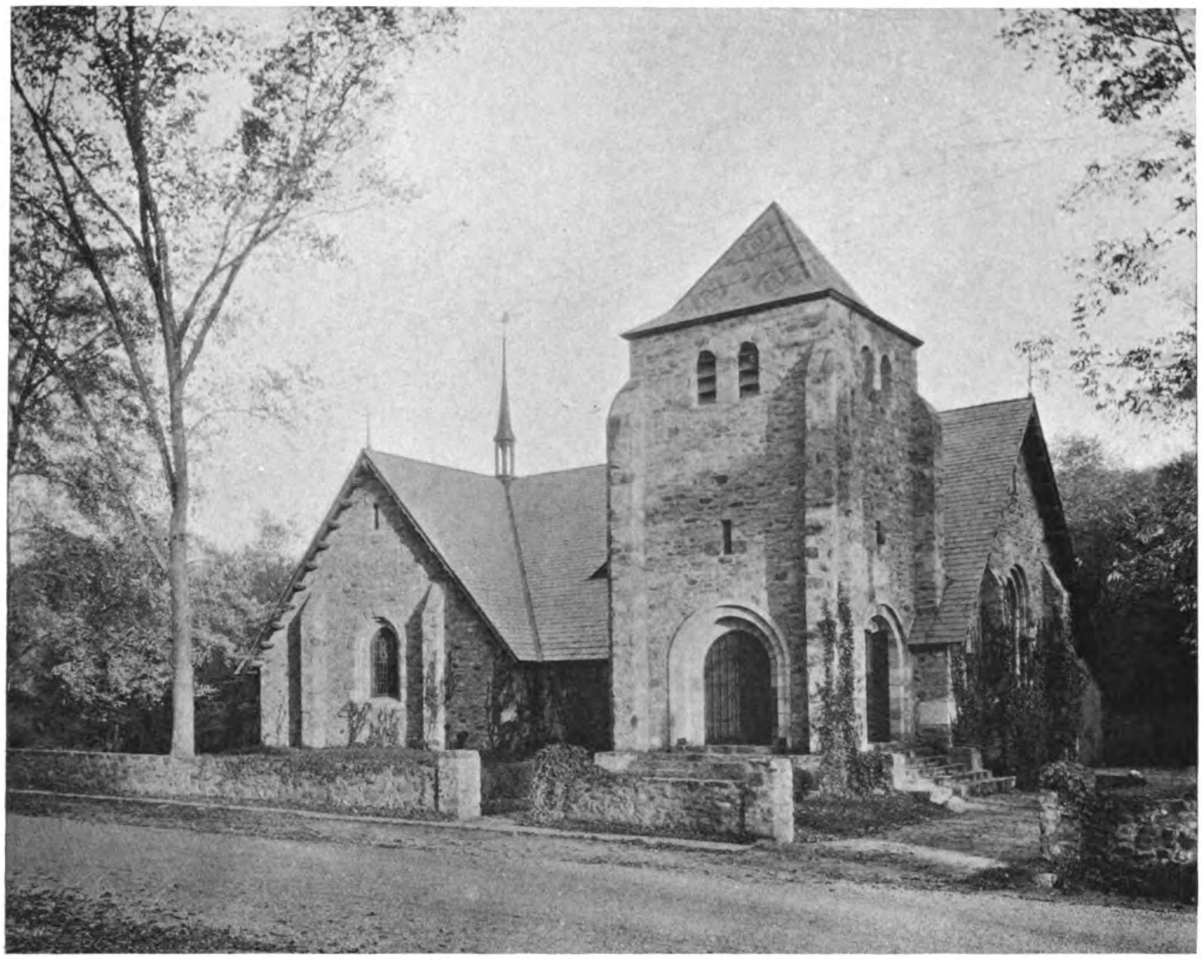
GENERAL VIEW OF EXTERIOR



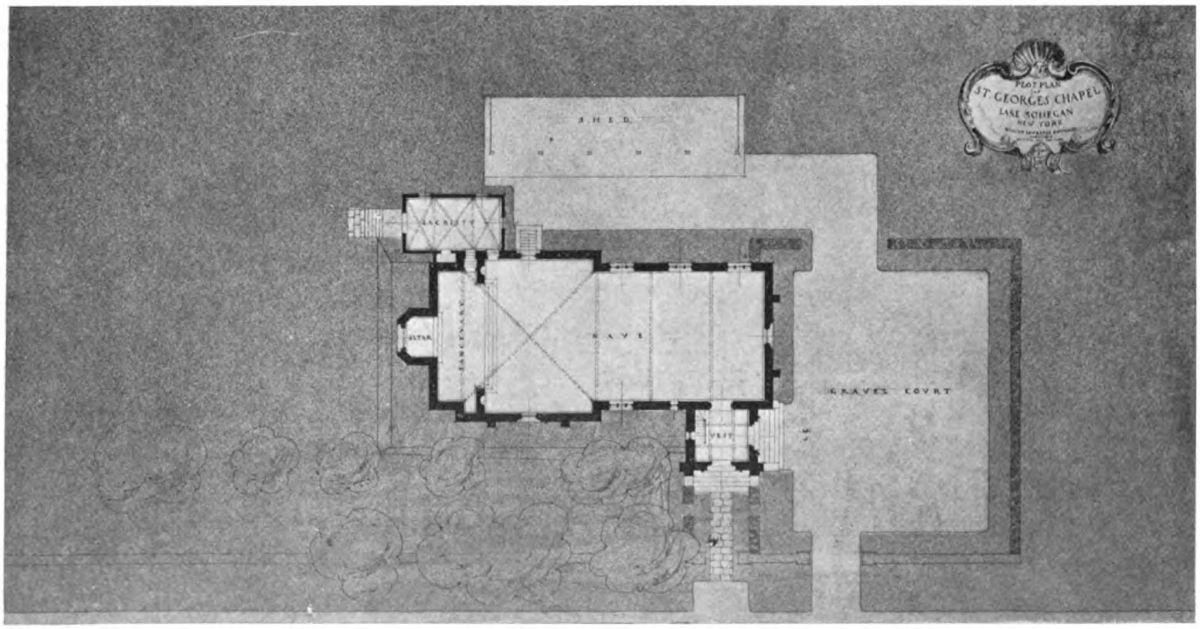
FIRST FLOOR PLAN

CHAPEL, CLINTON FARMS, CLINTON, N. J.

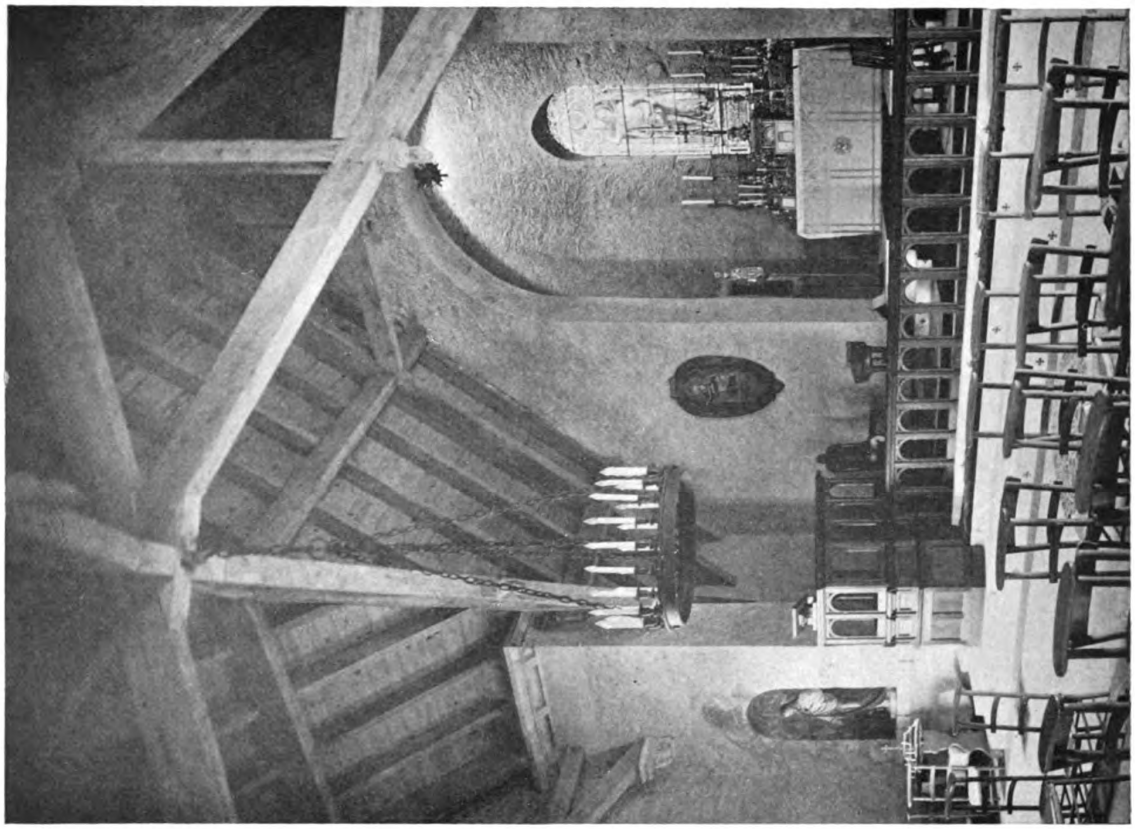
DELANO & ALDRICH, ARCHITECTS



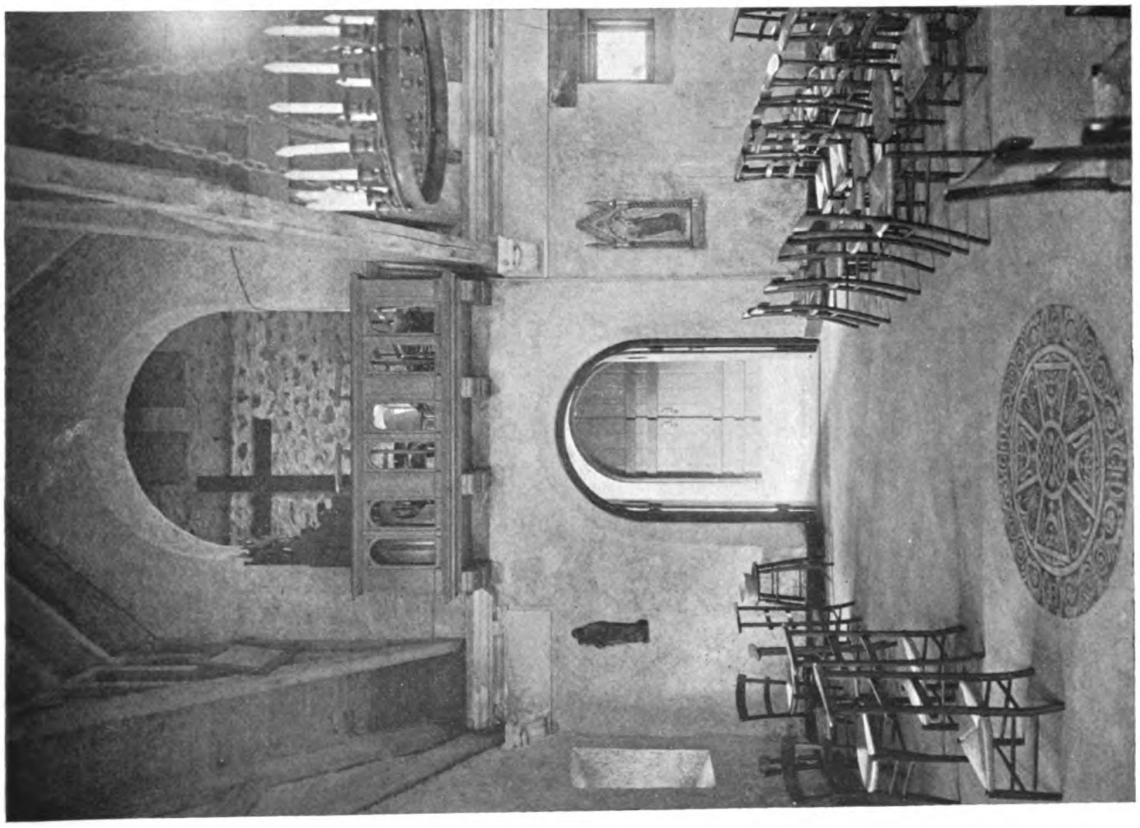
GENERAL VIEW OF EXTERIOR



ST. GEORGE'S ROMAN CATHOLIC CHAPEL, LAKE MOHEGAN, N. Y.
WILLIAM LAWRENCE BOTTOMLEY, ARCHITECT



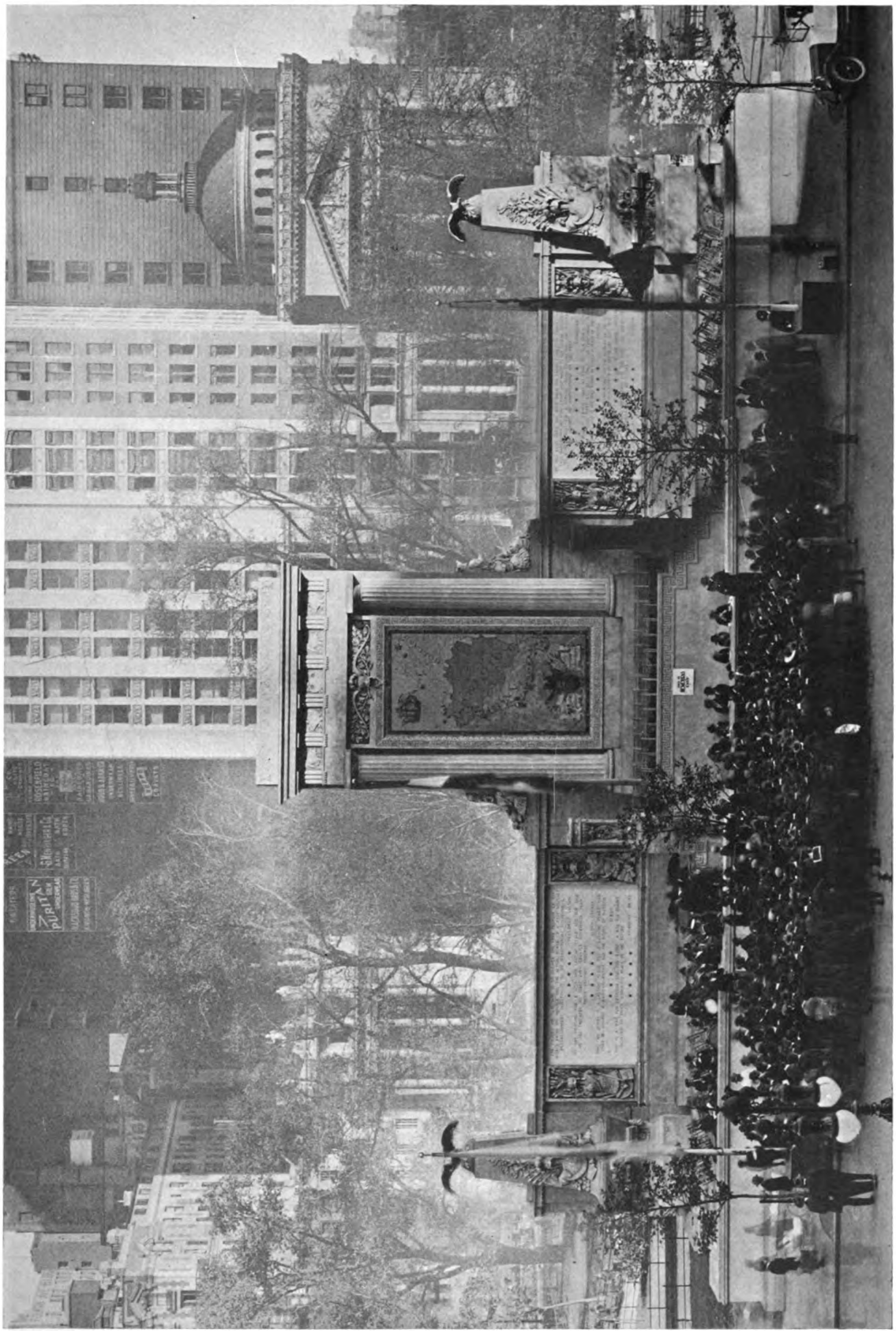
VIEW OF SANCTUARY AND ALTAR



VIEW LOOKING TOWARD ENTRANCE

ST. GEORGE'S ROMAN CATHOLIC CHAPEL, LAKE MOHEGAN, N. Y.

WILLIAM LAWRENCE BOTTOMLEY, ARCHITECT



THE "ALTAR OF LIBERTY," MADISON SQUARE, NEW YORK, N. Y.
ERECTED IN CONNECTION WITH THE FOURTH LIBERTY LOAN CAMPAIGN
THOMAS HASTINGS, ARCHITECT

St. George's Chapel, Lake Mohegan, New York

WILLIAM LAWRENCE BOTTOMLEY, ARCHITECT

By HAROLD DONALDSON EBERLEIN

ST. GEORGE'S CHAPEL is essentially a memorial church built in memory of George Lewis Heins, the architect, and also contains many memorials to John La Farge, the artist, and to former members of his family. It was designed by William Lawrence Bottomley, while a member of the firm of Hewitt & Bottomley.

The building is not English, nor French, nor Italian, and yet it is somewhat of each in a felicitous way. More than all else, it is an indigenous growth and fits convincingly *into* its surroundings because it is *of* them. First of all, let us rehearse its physical characteristics and history, reserving critical comment and judgment until afterward.

The fabric of St. George's Chapel presents an eminently sane use of native building materials, literally gathered together upon the spot and turned to telling account. That is one reason why the work rings true. Westchester County, in the neighborhood of Lake Mohegan, is plentifully strewn with a deposit of glacial granite boulders. It was the local custom from time out of mind, in clearing the fields, to gather up these boulders and make boundary walls of them instead of using post and rail fences. St. George's Chapel is built of the stone taken from a number of these old walls.

These seam-faced granite stones, many of them weathered and moss grown, were disturbed as little as possible by dressing or other manipulation. Moss and lichen growths were let alone and, just as chance brought them, the stones were incorporated in the rubble walls, great care being taken to lay them on a flat bed according to strata. The pointing is flush and the only stones cut and fully dressed are those surrounding the doors and windows. This random use of different colors and sizes resulted in a thoroughly agreeable texture of mellow tone.

The roof is of gray green Vermont slates, laid in graduated widths ranging from twelve inches in the courses at the eaves to six inches in those at the ridge. On the roof of the tower, the diamond pattern, derived from an old French design, is wrought in black slates.

Theoretically, the plan of the chapel is cruciform. As a matter of fact, however, the transepts are so wide and so shallow that the structure is virtually all nave, save only for the exterior effect of the roof contour and the added interior space and loftiness.

General View from Roadway
St. George's Roman Catholic Chapel, Lake Mohegan, New York

Within, the girders are of yellow pine, the rafters are of spruce and the boarding of the roof is of fir. All the timbers of the roof and all the boarding are stained a warm gray with distemper paint, a treatment that has this double advantage — it brings out and emphasizes all the quality of the wood grain and, in the second place, it greatly helps the light. The carved pine cone drops or pendants hanging from the junctions of the king posts with the timbers of the scissors trussing are painted in dulled blues, greens and reds with occasional touches of gilding in the mediæval manner.

Painted Wooden Cartouche of St. Peter

Of the same stone as outside, the interior walls are flush pointed or drag-dashed, thus producing a texture rough and irregular but somewhat smoother than the exterior surface. The cornice is of cast cement and the Romanesque-patterned corbels are of bastard granite, carved *in situ* by the Italian workmen. In the apse, the walls were first covered with a coat of waterproof paint and then gilded. Elsewhere it was felt that the spottiness and diversity of color in the stone was a bit disturbing and so an agreeable uniformity was secured by giving cornice, corbels, and walls a wash of light gray distemper paint, quite covering all the stonework with the exception of the arch stones above the niches.

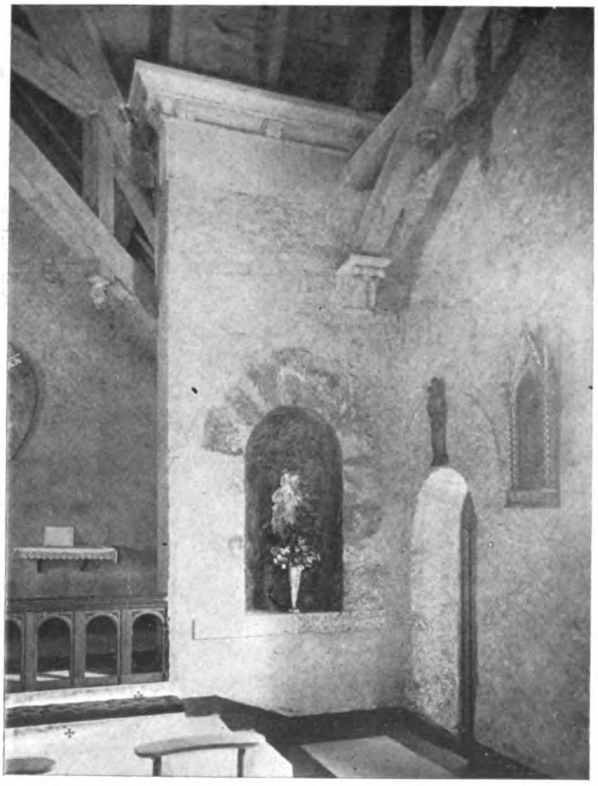
The irregularity of the wall texture prevents monotony and the luminosity of the interior is largely attributable to the reflective quality of the light gray wash. This is important because the building gives the impression of being exceptionally well lighted, although the proportion of window space is apparently small and the windows at the sides, just below the eaves, are not large.

The floor is of gray composition and is embellished with medallions of black and white marble mosaic. Black marble tiles define the angle between the floor and walls. Leaded glass of a pale bluish green tinge, and almost transparent, fills the windows in the sides of the chapel and in the transepts, while the east and west memorial windows are filled with leaded glass.

The most important part of the simple decoration employed is the work of John La Farge. The large west window of leaded stained glass representing an architectural frame of the Italian Renaissance, originally exhibited at the Paris Salon, is his work, which after his death was converted into a memorial to the artist's parents. The oil painting which hangs above it, a panel of three saints' heads, is also by him, and is dedicated to his memory. The brilliant St. George window over the altar is after a sketch by Mr. La Farge. Also of interest is a small jewelled glass panel inserted in one of the windows, in which are used amethysts and topazes, one of the earliest specimens of the glass introduced by him over thirty-five years ago, and since then so universally copied.

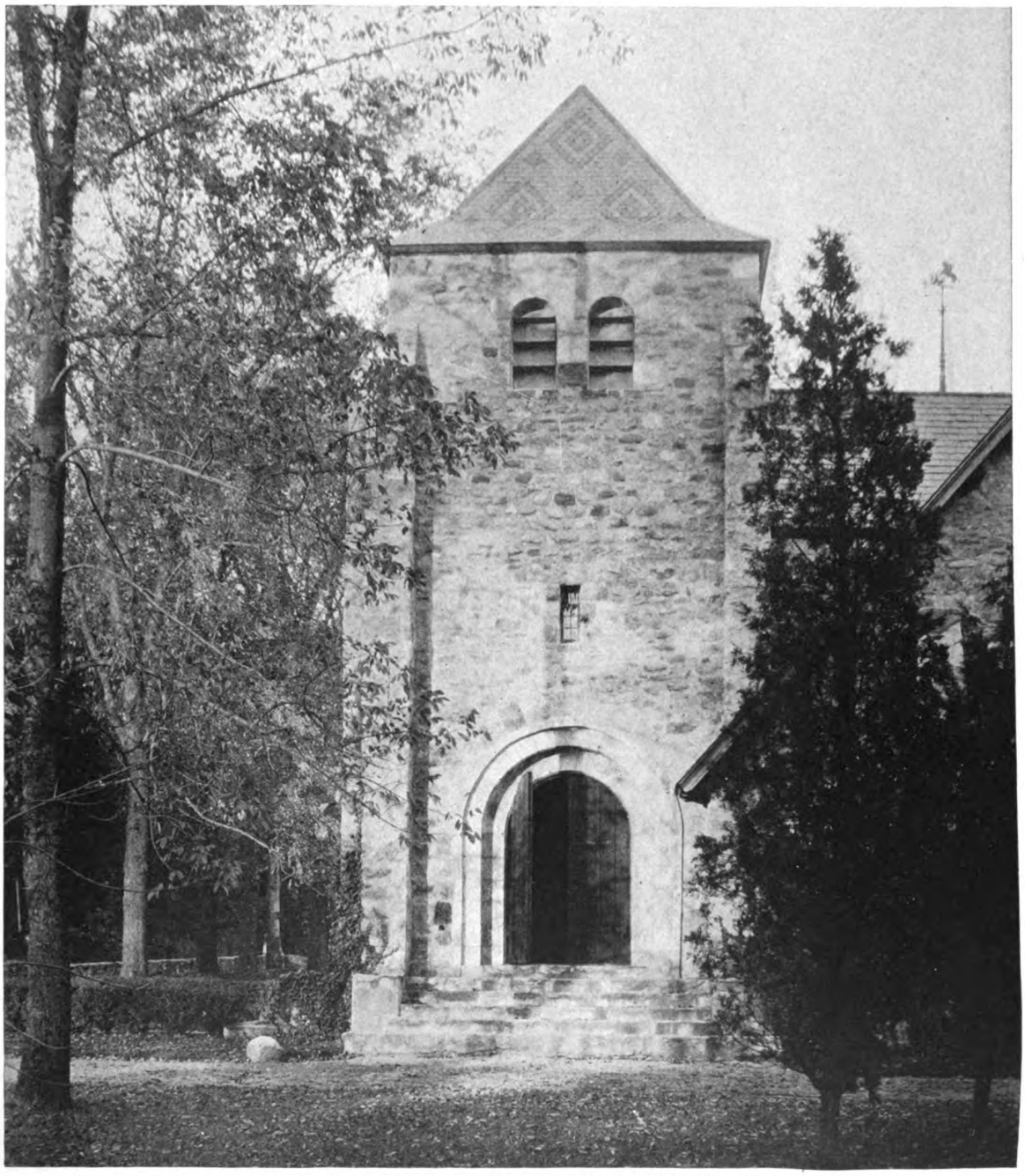
The west window was also designed by him. These windows and paintings, the gilded wall of the apse, and the two painted wooden cartouches, of St. Peter and St. Paul, supply the necessary interest of strong color to relieve an interior that might otherwise prove somewhat austere. The rush-bottomed chairs and kneelers, finished in the natural wood, were brought from France and are of a pattern commonly found in French churches. The extreme length of the chapel, including the apse, is one hundred and twenty-five feet; the width is thirty feet.

St. George's Chapel is, it is true, reminiscent of



Detail at Side of Sanctuary Showing Door to Sacristy

French, of Italian, and, to some degree of English, ecclesiastical prototypes, as the illustrations indicate. It is not, however, the embodiment of a mere bit of clever archæology or of archæological adaptation. It defies any attempt to pigeonhole it stylistically by a cut and dried process of classification. It is reminiscent of certain types because the architect, through loving study and long familiarity with those types, was imbued with their subtle spell, and naturally incorporated somewhat of their spirit in fresh creative work because that spirit, by assimilation, had become a part of his own mental background. But the chapel is *only* reminiscent; it is not mimetic. The whole composition is perfectly sincere and free from any tricks or affectation and there is not the least hesitation in departing from alluring precedent by frankly making the special requirements of the individual case a matter of the first importance and by utilizing local resources in an original and, let us add, wholly common sense manner.

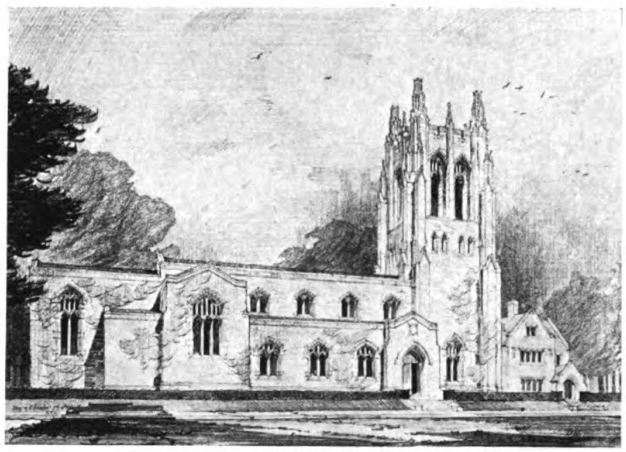


Detail of Tower, St. George's Chapel, Lake Mohegan, New York
William Lawrence Bottomley, Architect

Description of Churches in the Plates

CHURCH OF THE EPIPHANY, SHERWOOD, WEST PHILADELPHIA, PA. PLATES 51–55. In designing this church a very desirable piece of land which was to be the building site afforded a rare opportunity for the architects. A tower was always contemplated, and to place it with the best effect was an abiding thought. The land, consisting of about three-fourths of an acre, had irregular boundaries, by virtue of which it was possible to place the church in any one of several directions, each having the tower on axis with the street terminating obliquely opposite it.

An early perspective design produced by the architects and shown herewith displays lower and thicker proportions than appear in the finished church. Upon additional seating space being found necessary, the architects' advice to make the building longer and higher without changing its width fortunately prevailed with the church authorities. This modification is the more readily noticed in the tower.



Early Study for Church of the Epiphany
Showing Thicker Proportions than Completed Structure

The churches built in this neighborhood are nearly all of the mica schist stone from Chestnut Hill (Philadelphia). It is generally used, when economy is to be considered, as a rock face stone, and in thicknesses which run from one and one-half inches up to six inches. Manifestly the use of stone six inches high makes a very coarse surface which ill accords with the fine detail called for by Gothic doors, windows, traceries, pinnacles and the like. In this church, therefore, the maximum height of the stone was restricted to three inches and the length to a minimum of one foot. This gives a beautiful texture and, by virtue of the narrow stone, very little rock face. The masonry, therefore, does not distract the eye as is the case where larger stones are used. The use of the local material in this manner is regarded as a salient feature of the design. Furthermore, its use in this way enabled the pinnacles of the tower to be built of the same material as the main walls. This is quite a departure from local custom and less expensive than is the cut stone ordinarily used. The keeping of the whole design restrained to the utmost degree has been carried out even to the extent of substituting a parapet consisting of a frieze of letters in low relief, forming inscriptions, for the usual crenelated and less restful battlement, to the end that the more ornate design at the top of the tower might stand out more prominently by contrast with the simplicity of the rest of the church. The architects were fortunate in that, while it was not at first contemplated, the use of designed furniture for the chancel and other parts of the interior enabled them to add immeasurably to the success of the building.

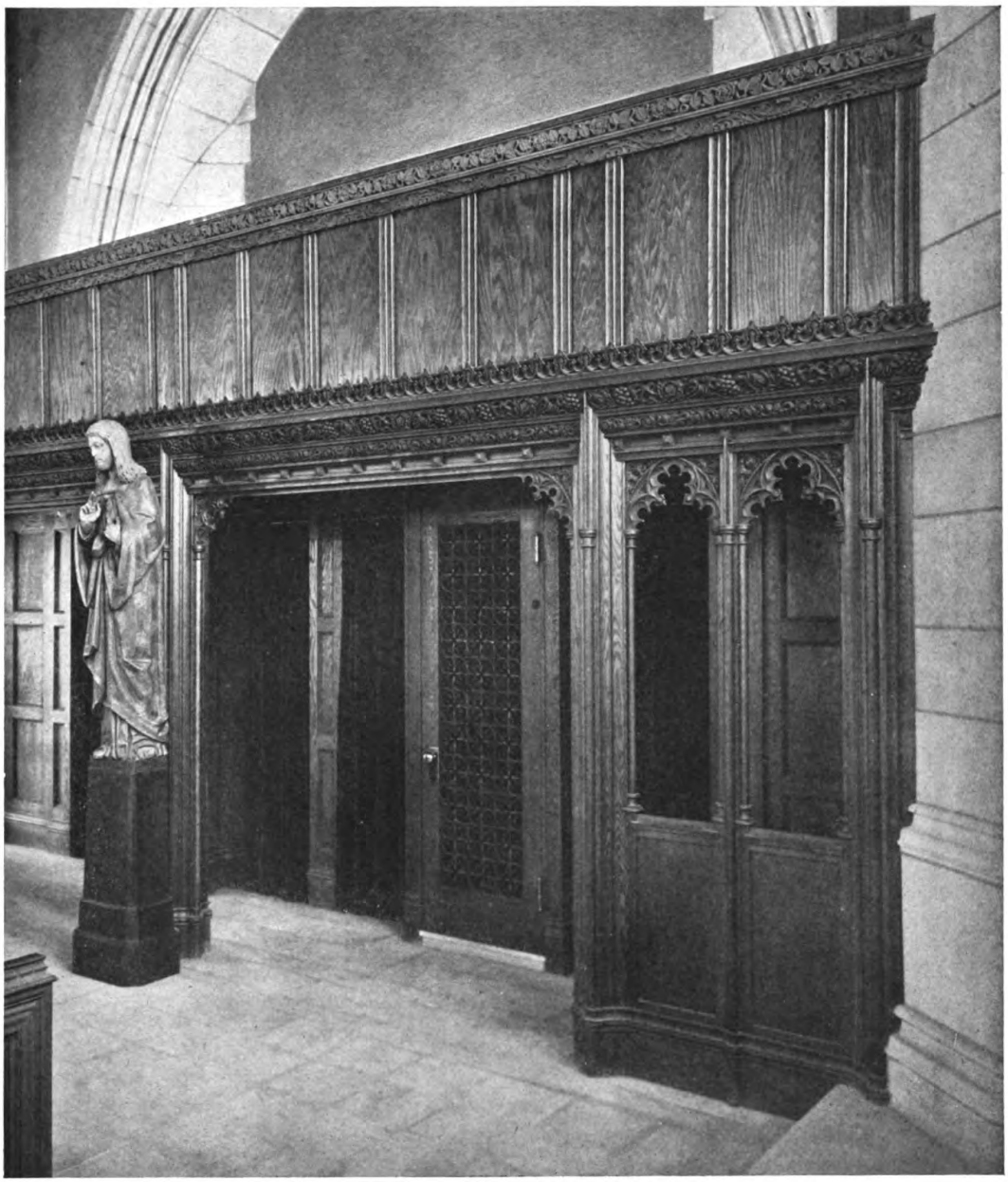
HOLY SPIRIT PARISH PROTESTANT EPISCOPAL CHURCH, MISSOULA, MONTANA. PLATE 61. The general scheme as shown by the plan forms a rectangular close, bounded on three sides by the structures. The rectory will be built at a later date to harmonize with the rest of the group. The exterior walls are faced with a rough wire cut brick, varying in color from a dark reddish brown to a light brown and laid up with seven-sixteenths of an inch flush mortar joint. The trimmings are of buff sandstone varying in shade. The present roof is temporary and is covered with cedar shingles to be replaced with variegated slate in graduated thicknesses. Those windows throughout that open are steel casements. The glass of other windows is set in the stonework. The main entrance is unfinished. It is contemplated to have a decoration in low relief cast in lead and placed in the tympanum over the entrance doors. The roof construction on the interior of the nave is formed of open trusses, purlins, and rafters of Oregon pine. The walls are plastered throughout. Stone quoins surround the windows of the nave and the plastering is brought up flush with them.

CHAPEL, CLINTON FARMS, CLINTON, N. J. PLATE 62. This chapel, erected as a memorial at Clinton Farms, is built of terra cotta blocks covered with stucco and trimmed with brick, thinly painted. The entrance steps, of painted brick with a wrought-iron railing, lead up to the porch under which is a reproduction of a blue and white Della Robbia.

The chapel itself is finished with plain plaster walls trimmed with deep red brick and decorated with other Della Robbia reproductions. The main chapel is so arranged that the curtains in the chancel arch can be drawn when other functions than religious ones are to be held. There is a separate sacristy for Catholic and Protestant officiants. The altar is of carved stone, painted and gilded; over it is a memorial window. The basement is occupied by a schoolroom.

THE FORUM COLLECTION OF MODERN GOTHIC ARCHITECTURAL DETAILS

PLATE NINE

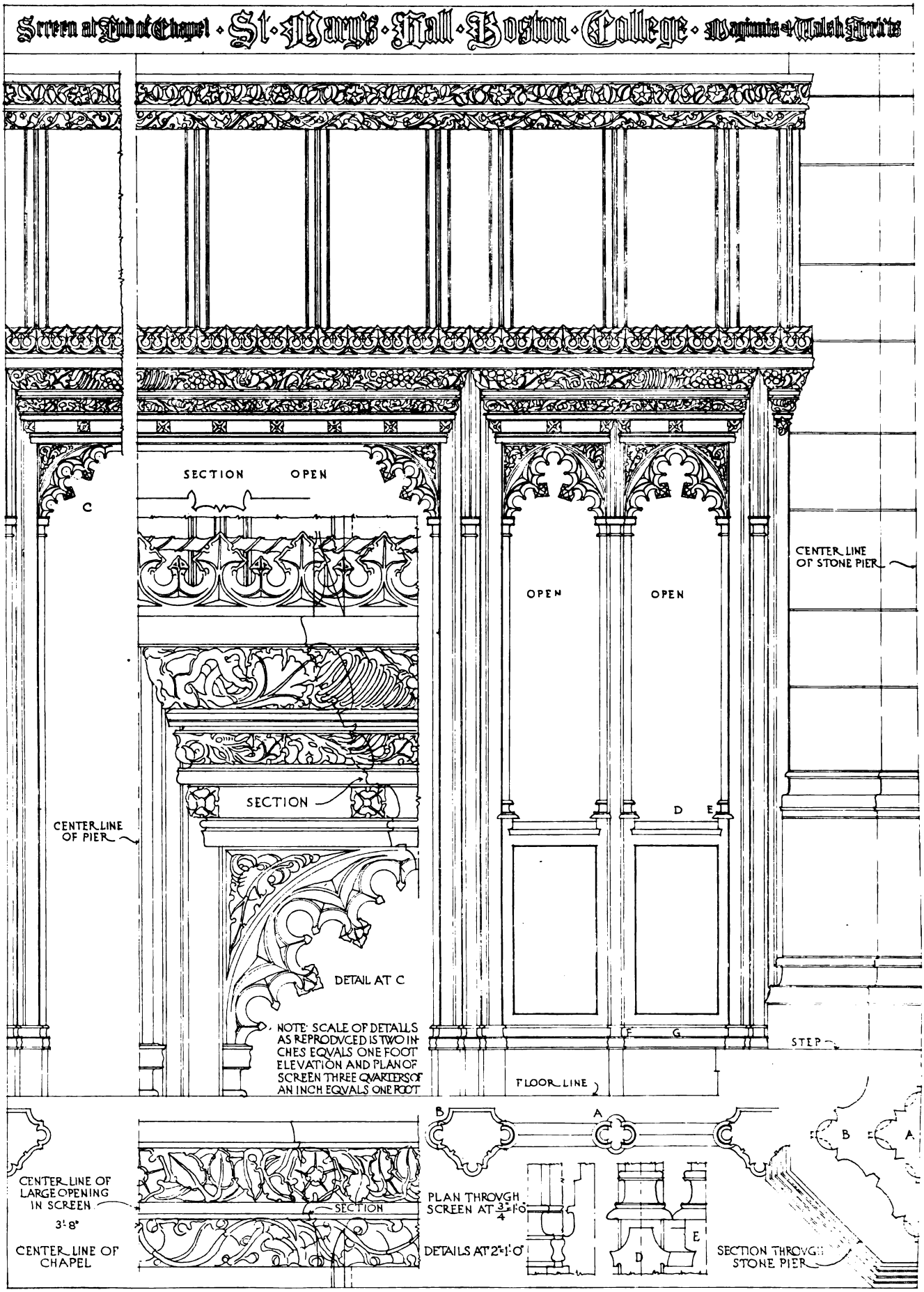


THIS illustrates one half of a screen at the rear of the Chapel of Boston College, in which small scaled Gothic forms have been used in oak, following early English precedent. It supports a small organ gallery above and screens the two confessionals directly behind, and a secondary entrance at the left, giving access to them from the outside.

CHAPEL SCREEN, ST. MARY'S HALL, BOSTON COLLEGE, NEWTON, MASS.

MAGINNIS & WALSH, ARCHITECTS

DETAIL DRAWING BY RALPH H. HANNAFORD ON FOLLOWING PAGE



Lighting Fixtures for the Church

By E. DONALD ROBB

ACCOMPANIED BY SKETCHES OF OLD AND MODERN ENGLISH LIGHTING FIXTURES BY E. T. P. WALKER

THAT question of the lighting fixtures for the church! Who has not been baffled by it?

If we take our Gothic from Pugin, Bond or the " Sketch Book " we look in vain for suggestions, and the reason is plain enough, for as a general thing they did not have lighting fixtures in the Middle Ages.

It is true that if we turn to our books on Spanish iron work, we shall find certain sconces or very elaborate hanging fixtures, but somehow they seem crude and much too barbaric for our delicate tastes.

Then we make a tour of the lighting fixture houses to see what they have to offer in " Gothic." We are shown many articles in that line all be-cusped and be-crocketed and ornamented with pointed arches to prove the designer's familiarity with the style; and covered with hammer marks to prove they are handmade.

We do not find them suited to our refined tastes, rather they remind us unpleasantly of the " Gothic " apartment house we pass every day going to and from the subway, or the cafe where we have lunch.

Neither do we like those fake candles with little glass flames screwed into the ends.

We return to the office and look through our classified magazine plates. Now we begin to see light, for we have come to some modern English churches where this question, as well as many others, has been solved for us.

Bodley, Bently, Scott and Comper have taken the old iron candle brackets of the Middle Ages and the oil lamp holders of the last century and have worked them into interesting forms for electric lights.

We still find some modern churches where the architect has evidently persuaded the clients to retain a few candles for sentimental reasons, but there is small chance of our being able to " put this over " in these United States.

Let us accept the conditions imposed by the modern electric light and make the best of them.

In designing fixtures, of course, we should never forget that they are intended primarily to shed light and secondarily to be good to look at. If they fail in the first, they will never be thought beautiful by those who know them intimately. The method of lighting a church auditorium, or any large room, whether by hanging fixtures, brackets or standards, is a question which deserves some study. Probably the most popular way to light the former is by chandeliers hung from truss or vault, or from brackets projecting far out from the clerestory wall.

Here is an opportunity to add interest to the otherwise empty space which is the result of our unusually wide naves; and our fancy is free to do many things that are not possible with the bracketed light.

We can use either chains or rods in any number, although it is well to remember that three of them will not hang symmetrically from all sides. If we use chains, they can be of long links or short ones — or both in combination. If we use rods, they also can be long or short or both. They can be twisted at intervals and touched with gilt and color.

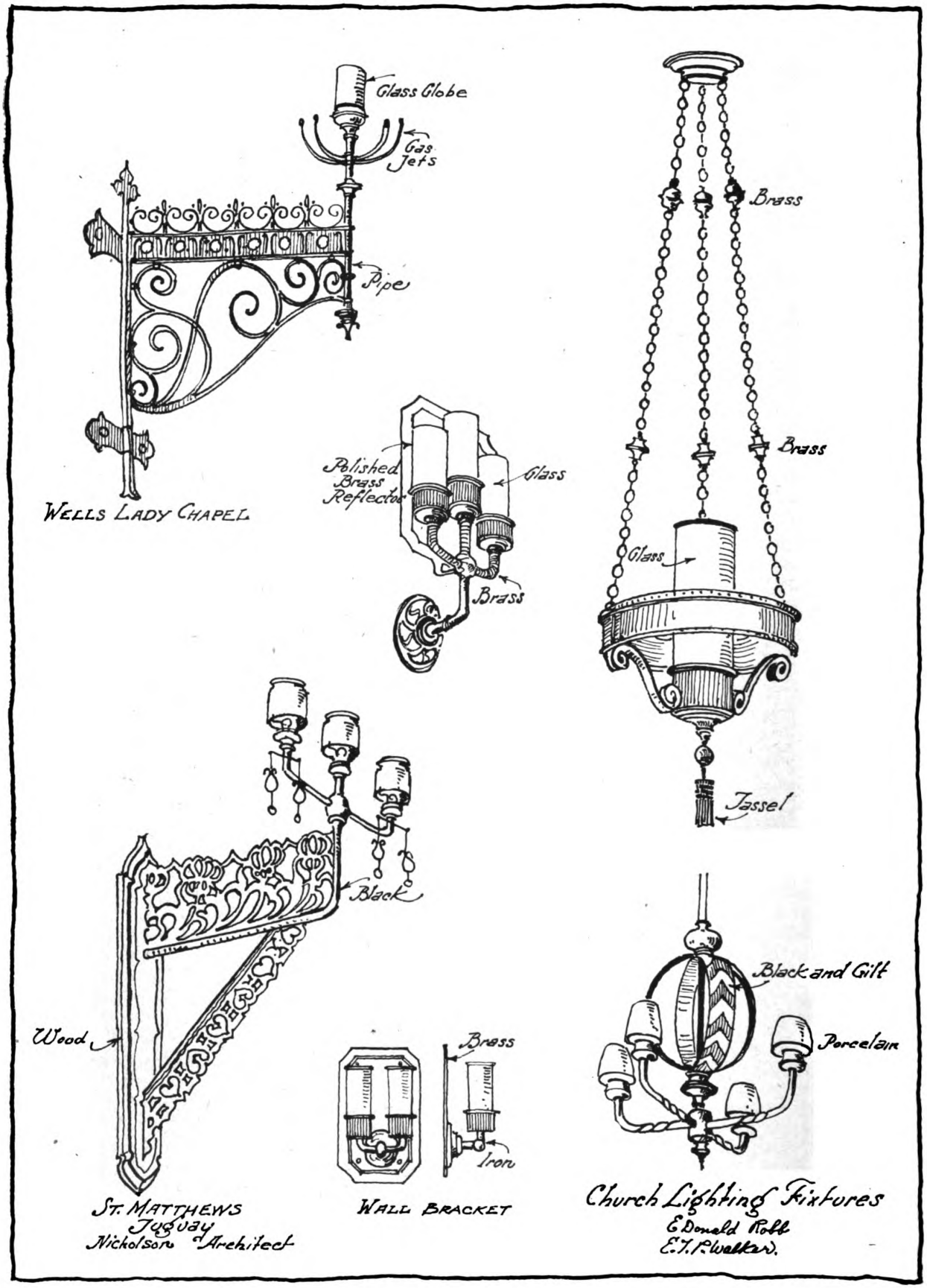
The lamps may hang from the ends of silk cords unadorned by socket cover or reflector, as shown in some of the illustrations, or they may grow from elaborately wrought silver or iron reflectors. Others may combine a reflector with an inverted glass chimney or silk shade. The parts of the fixture should never be needlessly heavy. It is better to err on the side of delicacy than clumsiness; for we have now passed safely through the " mission " period and only the timid engineers require large factors of safety.

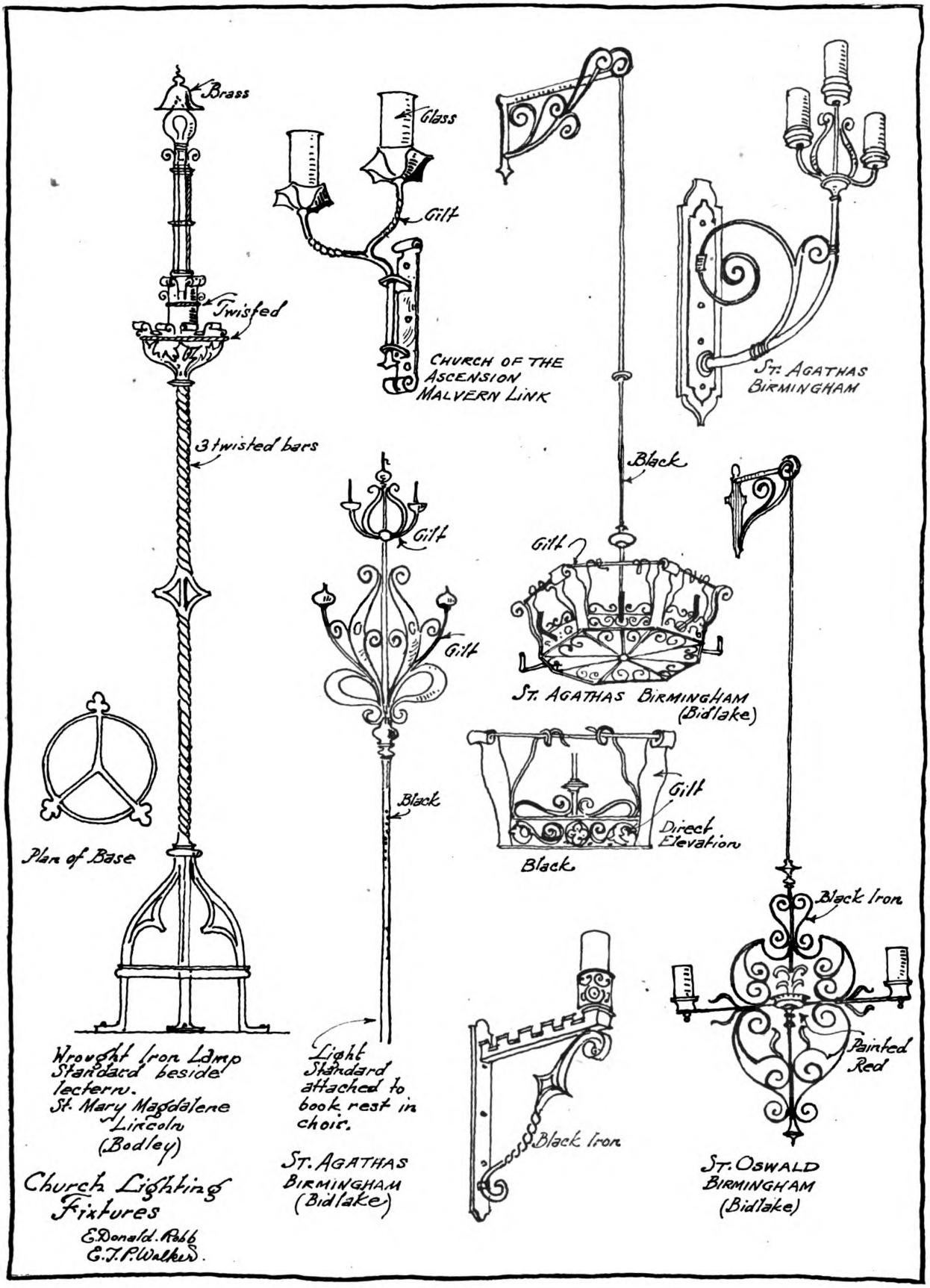
Another thing is well worth remembering in connection with hung fixtures. While we may imagine our chains describing graceful curves from the canopy to the lights, we are very apt to be disillusioned when we see them hung in place, for unless the chains are weighted at intervals with balls or ornamental scrolls, they will most certainly be pulled taut by the weight of the hoop or other features below.

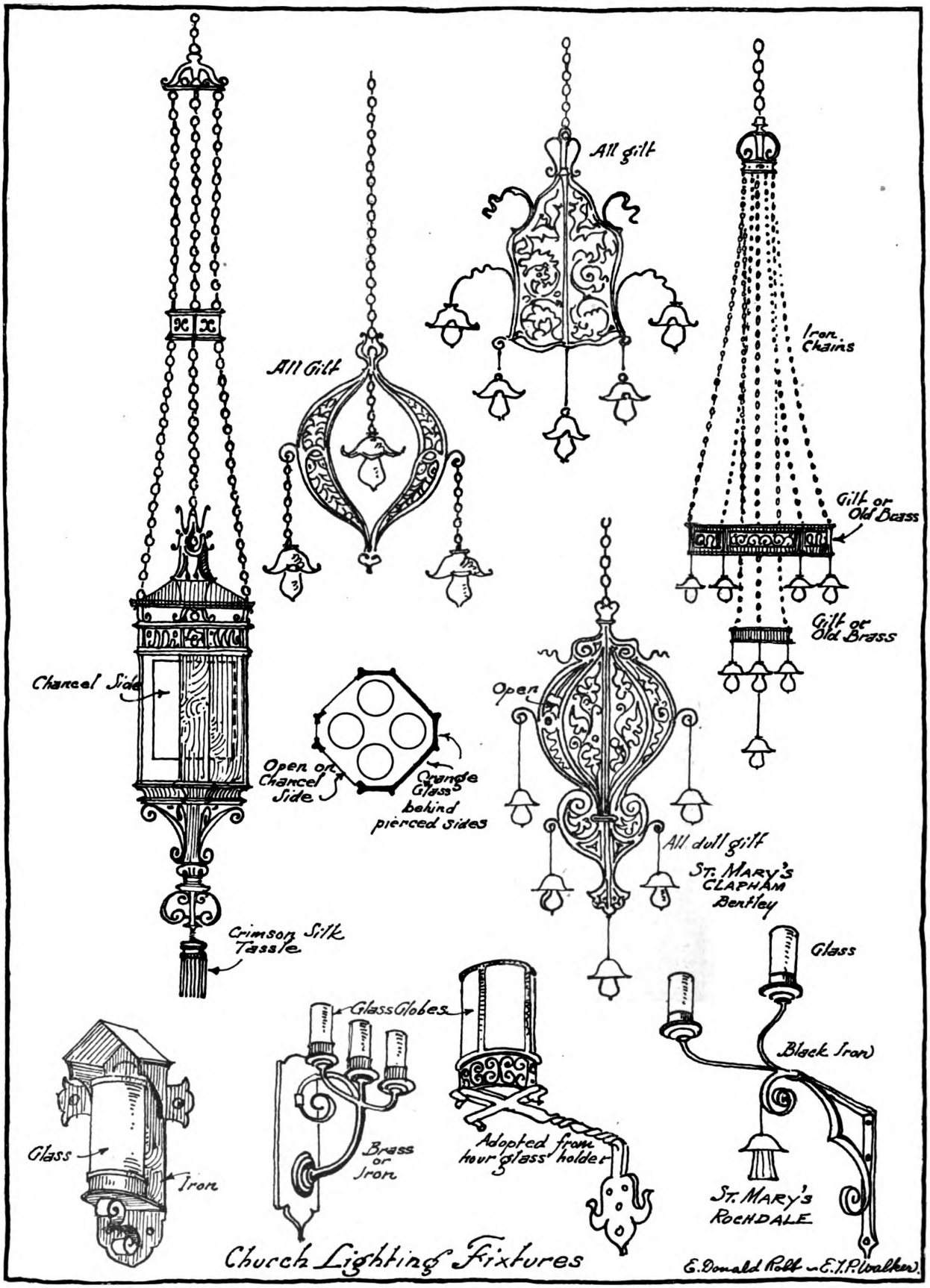
From a practical standpoint, the hung fixture is probably the best, for it delivers the light nearest to the place where it is required; and yet we are usually compelled to pay for a needless amount of piping and wiring, which is sometimes attended by structural difficulties, in order to get the current to the fixture. Is it not much more sensible to use standards attached to the backs or the ends of the pews with our BX all below the floor? Examples of this kind of fixture are not common, but the two illustrations may serve as suggestions upon which others may be built.

Much might be said concerning bracket lights if space permitted. It is likely, however, that the accompanying sketches will be more helpful than descriptive text.

It is greatly to be regretted that the ready-made fixtures in — so-called — Gothic are so very inferior to those we can buy in the Renaissance styles. We are compelled to have them hand wrought to our order — which indeed is the proper way. They need not be expensive if they are reduced to their simplest terms, and after all the simplest is often the best.







The Problem of the Impossible Contract

By WILFRED W. BEACH

IN previous articles* having to do with the rapid increase of those systems of building construction collectively styled "cost-plus" work, the writer has touched upon the practical impossibility of so wording a contract, covering such building as legally to safeguard the owner's part therein.

A considerable majority of such documents are at present drawn without the assistance of an architect; done either by the business solicitor of the building company or by an attorney called upon for the purpose. This latter will likely prepare one without much trouble (under the careful dictation of the aforesaid solicitor) but he will undoubtedly overlook certain essentials, the omission of which render the instrument worthless to the owner, except as a record of what *he* intended thereby. But it serves the purpose of the builder quite well — as was its real intent.

The difficulty in making it a *bona fide* contract, equally protecting both parties, depends not at all upon the method provided for the remuneration of the "contractor." Whether or not he professes to guarantee the maximum cost makes some difference. Without such guaranty, he is simply a purchasing agent and superintendent for the owner, making use of his special ability in providing an organization and equipment for the assembling of the needed materials and their fabrication and installation, and for the designing also, if the builder employs the "architect."

In the latter event, if the guaranty is also tacked onto the proposition, the builder becomes a *de facto* contractor, endowed with the vicious privilege of formulating the details of the contract *after* the instrument is "signed, sealed and delivered"; and, later, the function of officially interpreting its terms.

Thus the two chief defects which our lawyer friend quite fails to remedy for the benefit of the owner are the real lack of a limit of cost of the structure and the limit of profit of the builder. A third is the lack of a time limit for the period of construction. We know that none of these things can be guaranteed by such a contract.

If we are to assume that our profession should continue to control that large field of commercial building which is now being so thoroughly harvested by those builders who seek to supplant the architect entirely, then it is needful that we analyze such contract forms to the end that with changes they will conserve the welfare of *both* parties thereto.

To perform adequately our duty to our clients we must go even further and determine if the business administration of the building organization is such as to make for economy of overhead expense, as well as for efficiency in purchasing, directing operations and so forth. For, to decide properly which of two or more candidates for a given work is to be retained, we should be possessed of a thorough understanding of what constitutes a proper financial return for such services and also to what extent the overhead expenses are covered in such remuneration and what proportion of same is to be charged directly to the job or to be paid for out of other building funds.

We should lose no time in standardizing these matters. There should be no reason for doubt as to what a builder should receive for the service rendered in a given construction — nor should the latter be the sole arbiter in the matter. He can scarcely be considered an unprejudiced party. At present, he gets all he can, plus all-else-possible, in most cases.

While it must be admitted that the average of these new concerns which have jumped into the "cost-plus building game" without having graduated from general contracting, have a far better business organization than the average of the old-fashioned builders, yet it does not follow that this conduces to the advantage of the "ultimate consumer." It can hardly be demonstrated that it was so intended.

Let us then consider what constitutes a fitting emolument to the builder of our structures, assuming that we are not yet prepared to embark upon such enterprise ourselves, as an adjunct to the present business of our profession. When we do decide to launch forth in that direction, the same information will be of value in determining our own charges.

To insist in arriving at this, let us differentiate on the start between that class of constructionists who can be said to operate in a strictly ethical manner, eliminating unnecessary office and operating expenses, eschewing undue advertising and depending upon good reputation for the acquisition of new business; and that other class having less stringent ethics (or none at all) which operates on an elaborate scale and spends abnormally for business solicitation.

At the outset, then, we need to distinguish between normal and abnormal overhead expenses. Obviously, our client should have the privilege of deciding whether or not he wishes to pay for the abnormal as well as the normal — whether other characteristics of the service offered by a concern sufficiently outweigh those of another builder unit normally conducted.

Also, under the title of normal overhead costs, we should set apart those that are general to the business of the builder from those that are directly chargeable to the particular work under consideration. These costs do not automatically classify themselves under these two headings.

For instance, we may say in a contract that all

*June and July, 1917; September, 1918.

overhead expenses directly ascribable against the work shall be paid for by the owner and that all other overhead expenses incidental thereto shall be borne by the contractor. This is not sufficiently specific. Neither is it enough to state that such overhead work as is carried on at the site shall be billed to the owner and that the contractor's own office expenses shall be taken care of by himself. There is naught to prevent his moving half, or the whole, of his office to the job. Nor does such generalization take proper care of architectural and engineering services. These should never be left, in cost-and-per-cent work, to be paid for by the contractor, but should be billed in the same fashion as all other specific charges against the job.

To be more concise, we must resolve the whole subject of overhead expenses, for it may otherwise prove a very misleading term instead of being the precise expression supposed. Such exegesis might be very illuminating to the average of those owners who have already been on one side of this kind of contract, having been misguided thereinto under the allegation of its "simplicity." It would serve to broaden his view of the whole building problem by exhibiting the multiplicity of details, large and small, which were overlooked when that contract was drawn, but each of which probably meant an added increment to that swollen fund ambiguously alluded to as "plus."

Proceeding then to a tabulation of the whole subject matter of such a contract, we can divide it under the following heads and subheads, due regard being given to each item with especial reference as to whom belongs the responsibility for its performance (or neglect) and by whom the cost is borne.

I ADMINISTRATION.
- A. Office Duties of the Contractor.
  - a. General administration.
  - b. Checking drawings and specifications.
  - c. Estimating quantities and costs.
  - d. Preparing shop drawings.
  - e. Preparing bills of materials.
  - f. Advertising for and receiving bids.
  - g. Letting and executing contracts.
  - h. Miscellaneous purchasing.
  - i. Employing miscellaneous labor.
- B. Field Duties of Contractor.
  - a. Interpreting drawings and specifications.
  - b. Co-ordinating and directing forces.
  - c. Inspecting materials.
  - d. Supervising construction.
  - e. Superintending special contracts.
  - f. Receiving and checking materials.
  - g. Hauling.
  - h. Storing.
  - i. Policing.

II OVERHEAD.

(Under this caption come all expenses for items of organization, "make-ready," etc., due to the construction, or business incidental thereto, and which do not remain tangible parts of the completed work.)

- A. Architectural Services.
  - a. Preliminary consultations, sketches, etc.
  - b. Research.
  - c. Designing.
  - d. Landscaping.
  - e. Preparing working drawings.
  - f. Writing specifications.
  - g. Preparing detail drawings.
  - h. Checking.
  - i. Supervising the following:
    1. Preparation of shop drawings.
    2. Purchasing materials.
    3. Letting of contracts.
    4. Inspection of materials.
    5. Installation of contract items.
    6. Care of stores.
    7. Handling of labor
    8. Disbursements.
    9. Auditing of accounts.
    10. Acceptances.
  - j. Travelling and hotel expenses.
- B. Engineering Services.
  - a. Foundation engineering.
  - b. Structural engineering.
  - c. Reinforced concrete engineering.
  - d. Electrical engineering.
  - e. Mechanical engineering:
    1. Power plant.
    2. Heating plant.
    3. Cold storage plant
    4. Filtration plant.
    5. Ventilating plant.
    6. Miscellany.
  - f. Sanitary engineering.
  - g. Acoustical engineering.
  - h. Illuminating engineering.
  - i. Engineering of special subjects.
  - j. Surveying.
  - k. Preparing shop drawings.
  - l. Checking.
  - m. Testing.
  - n. Inspecting.
  - o. Traveling and hotel expenses.
- C. Legal Services.
  - a. Review and approval of contracts.
  - b. Review and approval of bonds.
  - c. Arbitration of disputes.
  - d. Settlement of mechanics' liens.
  - e. Defense of suits.
- D. Insurance.
  - a. Fire insurance.
  - b. Tornado insurance.
  - c. Earthquake insurance.
  - d. Accident insurance.

e. Employees' liability insurance.
f. Guaranty bonds.
g. Pensioning.

E. Make-Ready at Site.
a. Disposition of existing structures.
b. Protecting permanent objects.
c. Clearing site.
d. Temporary fences.
1. Billboard privilege.
e. Temporary walks.
f. Temporary offices.
g. Temporary storage sheds.
h. Temporary toilet facilities.
i. Workmen's temporary shelters.
j. Transportation of employees.
k. Housing of employees.
l. Feeding employees.
(Note: Items k and l apply only to large isolated structures.)
m. Laying out work.
n. Shoring or otherwise protecting adjoining property.

F. Apparatus and Utensils.
a. Excavating equipment.
b. Barrows and buckets.
c. Pile drivers.
d. Concrete and mortar mixers.
e. Temporary power plant.
f. Hoists.
g. Temporary heating devices.
h. Forms.
i. Scaffolding.
j. Jacks.
k. Ladders and stairs.
l. Tarpaulins.
m. Trade tools.

G. Permits and Fees.
a. General building permit.
b. Special building trade permits.
c. Trade union assessments.
d. Licenses.
e. Fines.
f. Royalties.
g. Water fees.
h. Electric current fees:
1. Office lighting.
2. Construction lighting.
3. Lighting for special contracts.
4. Power current.
i. Miscellaneous fees.

H. Storage of Materials.
(See E-g for provision for temporary warehousing.)
a. Store keeper and assistants.
b. Limits of storage at site.
c. Storage away from site.
d. Storage at site of materials for other jobs.
e. Temporary leasing of space on premises to outsiders.
f. Demurrage.

J. Cleaning and Salvage.
a. Re-use of salvage.
b. Using other second-hand materials.
c. Disposition of rejected materials.
d. Disposition of debris.
e. Disposition of second-hand materials.
f. Disposition of surplus materials.
g. Disposition of used equipment:
1. Property of contractor.
2. Property of subcontractors.
3. Property of owner.
h. Cleaning building for acceptance.

K. Office Expenses, Specific.
a. General management.
b. Employing.
c. Bookkeeping.
d. Time keeping.
e. Corresponding.
f. Miscellaneous clerical.
g. Office furnishing.
h. Office supplies.
i. Telephone rental.
j. Telegraph tolls.
k. Travelling and hotel expenses.

L. Emergencies and Policing.
a. Owner's errors.
b. Architect's errors.
c. Engineering errors.
d. Builder's errors.
e. Errors of other employees.
f. Flood damage.
g. Other non-insurable accidents.
h. Damages due to delays:
1. To owner.
2. To subcontractors.
3. To adjoining property owners.
4. To other individuals.
i. Strike and riot disturbances.
j. Theft.
k. Watchmen.
l. Special guards.
m. Miscellaneous protective measures.

III PURCHASING.
Under this head, there should be an exact understanding as to the extent to which the owner intends to direct personally the purchasing, and the restrictions he wishes placed upon the contractor as to that party's financial interest in the purchases made or contracts awarded.

A. By Competitive Bidding.
a. Minor items below stipulated amount.
b. Major items above stipulated amount.
c. Advertised or selective competition.

B. In Open Market.
  a. Minor items.
  b. Major items.
C. By Force Account.

IV FINANCING.

A checking account being necessary to run the job, it must be decided whose are the funds to be deposited for the purpose and how and by what authority payments should be made therefrom.

A. Appropriated Funds on Hand.
  a. Ownership of funds.
  b. In what name carried.
  c. In what bank carried.
  d. Amount of average balance.
  e. Interest on average balance.
B. Disbursements.
  a. Petty cash items.
  b. Auditing of vouchers.
  c. Signing and countersigning of vouchers.
  d. Discounts.
  e. Payroll.
  f. Monthly statements.
  g. Partial payments of continuing contracts.
  h. Final payments of continuing contracts.
  i. Reserve balances to cover guaranties.
  j. Mechanics' liens.
  k. Damages.
  l. Professional fees.
  m. Builder's profits. (See V.)
C. Limitation of Cost.
  a. No guaranty.
  b. Guaranty by cash deposit or certified check.
  c. Guaranty by deduction from profits.
  d. Guaranty by surety bond.
  e. Extra items not covered by guaranty.

V CONTRACTOR'S PROFITS.

A. Lump Sum.
  a. Method of determining.
  b. Effect of extras on same.
B. Percentage on Cost.
  a. On what reckoned.
    1. Items purchased by contractor.
    2. Items covered by separate contracts.
    3. Items supplied by owner.
    4. Professional services.
    5. General overhead expenses.
    6. Specific overhead expenses.
    7. Fees and licenses.
    8. Miscellaneous items.
    9. Furnishings.
    10. Decorating.
C. Other Profits.
  a. Purchasing (agent's) commissions.
  b. Discounts.
  c. "Volume of Business" and other special rebates.
  d. Dividends from ownership in supply and subcontracting concerns.
  e. Royalties.
  f. All other "drawbacks."

These last items of "Other Profits" will bear especial watching. While some of them may be ethical; if permitted by the client, others are distinctly the reverse. The safest procedure is the elimination of the entire group, but this is not always practicable. If a builder owns a shop or warehouse and is better able to serve his clients by buying in car lots or by fabricating certain materials, it should be permissible for him to do so and to receive additional remuneration; but this should be the subject of a specific understanding between the parties.

To be sure, the importance, or relative importance, of many of the items scheduled will vary directly with the size of the building and the amount of the total expenditure. The size of the builder's fee and the number of duties to which he will be expected to give his personal attention will also vary accordingly. And these two will be interdependent.

If, as is usually the case with large undertakings, the constructing unit is a building corporation, in which every employee assigned to the work (save some of those in the home office) is remunerated directly therefrom, then manifestly the size of the fee can be less. In this case all costs of superintendence and management are paid by the owner as salaries, the fee only paying overhead and dividends.

Now, in order to arrive at an approximate idea of what would form a just basis for the reckoning of such fee, let us consider a typical building corporation of moderate capitalization, say $100,000, with two chief members, both competent builders and giving their entire time to the business, one to the office management and one to outside affairs.

Such a concern could readily handle a gross average business of $1,200,000 yearly, with an aggregate general overhead expense about as follows:

Salary of manager	$5,000.00
Salary of assistant manager (estimator)	2,000.00
Salary of superintendent	5,000.00
Salary of assistant superintendent (paymaster)	2,000.00
Salary of bookkeeper	1,800.00
Salary of assistant bookkeeper	1,0 0.00
Salary of chief clerk	1,50 .00
Salary of stenographer	900.00
Salary of office boy	600.00
Office rent	90 .00
Automobile and upkeep	900.00
Equipment and upkeep	4,2 0.00
Miscellaneous travelling expenses	1,500.00
Incidentals	1,50 .00
Interest on capital stock	6,000.00
Emergency and sinking fund	6,000.00
Taxes, insurance, etc	1,200.00
Total annual income	$42,?00.00

A gross return of $42,000 or forty-two per cent on the capital stock would thus bring a net return to each "partner" of $5000 in salary and $3000 in dividends. Each additional one-half of one per cent charged on the volume of business would bring him an added personal profit of $3000; thus, if they did business at four per cent, each would draw an annual income of $11,000.

These figures are purely arbitrary and capable of much manipulation. But the gist of the whole matter is that lucrative gains can be made in such business at a moderate percentage charge on gross costs, provided that the affairs of the company are economically administered.

Another feature of the problem that must be given consideration is that, included in the gross business of the company is the oversight of contracts concerning which the function of this builder is that of superintendent only. Obviously, he should receive a lower commission on these purchases than on those items for which he handles all details. Architects receive from two to five per cent for such service, according to size and character of the work. The builder, if he performs the same duties, is entitled to similar fees.

Curiously enough, it has recently been decided by an Illinois court that a general contractor under a cost-plus-per-cent contract is entitled only to "the actual cost of the labor and material to the subcontractor, plus the specified percentage thereon, and not the amount for which the subcontract was let plus such percentage thereon."

This decision would allow the general contractor nothing for the performance of his functions as purchasing agent and superintendent for the owner, nor does it take cognizance of the fact that the average subcontractor has a heavier investment in proportion to the amount of business transacted than has the general contractor — must, therefore, charge a larger commission on his contract, sometimes as high as twenty-five per cent gross, as against the general contractor's four or five per cent. And, again it may be shown that the decision is quite contrary to custom; but the answer of the court to that may well be that one's contract should be specific, regardless of custom.

In all the foregoing, I have considered only the case of a building concern of medium size doing the average business in fair-sized buildings of which its organization is capable and with "normal" overhead costs. A smaller business or a business of smaller jobs would show less profits or must collect higher fees and, inversely, a larger unit erecting greater structures could operate for less.

When, however, a building concern indulges in "abnormal" overhead expense, it can quickly run up those costs. Under this head, I would class:

1. Rental of expensive office suites.
2. Elaborate display advertising.
3. Costly "pamphleteering."
4. Assiduous personal soliciting.
5. Fees for securing business.
6. Unearned salaries to principal stockholders acting as figurehead officers.
7. Promotion expenses.
8. Loan brokerage.

It may be safely assumed that such criticism as this article may evoke anent the subject of proper commission for "cost-plus work" will emanate from either of the two classes into which most of the larger concerns of this kind can be divided. The one class includes those spending for the first, second, third and fourth, and perhaps the fifth and sixth of the above items, while the second class embraces those giant promotion and construction corporations which "get behind" a sound commercial venture that needs more backing than can be had through regular financial channels and, by virtue of the support thus given, are able to dictate not only the amount of their own fees but also the selection of the architect and much else relating to the policy and development of the project.

It is such as these that have done much toward generalizing a ten per cent fee charge for building service, when, in reality, a large part of the service they render is purely promoting and should be paid for as such, instead of under the guise of construction. Thus, in criticising this, as well as any other such fee, there must always be taken into consideration the kind, character and extent of service rendered. Those that redound to the benefit of the owner are correct, of course; others are open to question. And it is difficult to understand how any of the first six of the abnormal expenses listed can work benefit to the client. It is said that some of the concerns thus operating spend many times as much in such manner as for legitimate operating expenses. This means that the owner employing such a one pays two to five per cent, or more, of the cost of his building to finance the advertising and traveling salesmanship of his contractor.

Perhaps the conclusion of the whole matter is that, for small work, say under $25,000, the fee should be from eight to twelve per cent; for work running from $25,000 to $100,000, six to eight per cent, and for larger work from three to six per cent; all depending upon the size and character of the construction. The contractor pays out of his fee only the general office expenses I have indicated, all other overhead costs being met by the owner. The exact line of demarcation between these, as well as a flexible sliding scale of fees, could and should be worked out and more or less standardized in order that we may intelligently make recommendations to our clients.

EDITORIAL COMMENT

THE most recent happening of interest to architects in these days of fast changing conditions is the order of the War Industries Board, through the State Councils of Defence, restricting all building exceeding $2500 in cost, not directly connected with the war. This order is, of course, a drastic and sweeping measure, but in its effect it will in general change but little the conditions existing now for some time — and, what might be considered an advantage, it definitely determines through the means of an examining board the question of what constitutes essential construction and what unessential. It further has the encouraging feature of placing jurisdiction over building in one board, instead of permitting divers committees to supervise the matter, as formerly was the case, with the constant possibility of confliction of orders. Those operations which have full justification for being carried out may now be placed before an examining board having definite authority, and upon being approved proceed without interruption.

The enforcement of the order will be through priority powers invested in the War Industries Board. Pledges have been secured from all building material manufacturers and dealers not to supply materials which are not authorized under the regulations.

The Government building program has been constantly expanding, and from April, 1917, to the present time, total operations, including those now in prospect, are estimated to have reached the sum of $1,200,000,000. Most of the work now under construction will be completed by the first of the year, excepting some of the larger permanent work, which will extend into the summer of 1919.

The ban on building may, therefore, be looked upon as very temporary. Aside from the fact that the Government's program is now well under way, the general commandeering of existing structures for Government use and the curtailment of private building are fast resulting in consumption of all available space in the larger centers, with the inevitable result that soon this condition must be relieved by more general building. It may confidently be expected that the present hardships will not be prolonged for any great length, and that the early future of the building industry will be especially bright. In contrast to some other industries that are less fundamental and may not be restored to their normal status for some time, building will be the first of peace-time industries to regain a permanent footing.

It is generally understood that the regulation was prompted indirectly by the shortage of labor. It is well known that practically every war industry is not able to reach 100 per cent production because it cannot get the necessary help. It is easy to realize, therefore, that every project not of a war nature is using materials and the labor of men that could at the moment be more profitably employed elsewhere. The speedy ending of the war depends to a large extent on the industries furnishing supplies, and if this work is delayed through the diversion of labor and materials, the cost will be reckoned in American lives.

The enforcement of the order will possibly work damage to some in the building industry, but in the opinion of the authorities this is the lesser loss and one of the deplorable results of war. It remains for those adversely affected to make every effort to find opportunity of serving the Government in completing its huge building program, thereby lending their support in the most effective manner toward ending the war and restoring normal conditions.

In a country so large as the United States and with the activities of the Government necessarily confined to a few sections, there remains the possibility of materials now stocked in some sections lying idle through the operation of this order. It is to be hoped that the ruling will be broadly enough interpreted to recognize the advisability and necessity of permitting work to proceed in those sections removed from war centers, so that local labor and materials may not remain idle, thereby preventing unnecessary business disasters. The recently formed National Federation of Building Industries is providing a needed unified organization to follow these restrictions closely, and from the data it is now collating, the Federation will be in a position to bring to the attention of the War Industries Board any evil effects that too rigid a curtailment may cause.

BOOK NOTE

THE ENGLISH HOME. From Charles I to George IV. Its Architecture, Decoration and Garden Design. By J. Alfred Gotch, F. S. A., F. R. I. B. A. 410 pp. 5¾ x 9 in. 300 illus. New York: Charles Scribner's Sons. London: B. T. Batsford, Ltd. $13.50 net.

Special interest attaches to this volume from a modern architectural standpoint because of the sympathetic manner in which the author has treated the smaller houses in the country districts of England which have contributed in no less measure to English domestic architecture than the larger houses. The work of Inigo Jones, Wren and other masters is not neglected but takes its place in a logical recital of the development of over two centuries. Foreign travel and the comfortable life of the nobility led to a wide appreciation of art, with the result that the noblemen vied with one another in the erection of great houses surrounded with fine gardens. They have symmetrical facades of classic beauty and lofty interiors, but comfortable living and sanitary conveniences were sacrificed to obtain them. The smaller houses, many illustrations of which are given, do not indicate this artificial character and are consequently of much greater value in modern work.

THE ARCHITECTURAL FORUM

VOLUME XXIX NUMBER 5

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PLATE ILLUSTRATIONS

LETTERPRESS

Published Monthly by
ROGERS AND MANSON COMPANY
85 Water Street, Boston, Mass.
Advertising Department, 42 West 39th Street, New York

Yearly Subscription, payable in advance, U.S.A., Insular Possessions and Cuba $5.00
Canada ..... $5.50 Foreign Countries in the Postal Union 6.00
Single Copies ..... 50 cents All Copies Mailed Flat

Trade Supplied by American News Company and its Branches. Entered as Second Class Matter, March 12, 1892, at the Post Office at Boston, Mass.

MISSION, SANTA BARBARA, CALIFORNIA

THE ARCHITECTURAL FORUM
FOR QUARTER CENTURY THE BRICKBUILDER

VOLUME XXIX NOVEMBER 1918 NUMBER 5

Recent Distinctive Schoolhouses in California

PART I

By WILLIAM C. HAYS

A CYNIC has said that life offers to us nothing but board and lodging. Fortunately, the cynic's is not the only view toward life, for, on the other hand, George de Maurier wrote:

"A little work, a little play
To keep us going — and so good-day!

A little warmth, a little light
Of love's bestowing — and so, good-night!

A little fun to match the sorrow
Of each day's growing — and so, good-morrow!

A little trust that when we die
We reap our sowing! and so — good-bye."

Ripening experience of life may lead us to neither view to the total exclusion of the other. But, on the whole, which of these opinions appeals to us? On the one hand, that of the materialist, or, on the other, that of the idealist? For myself, a philosophy of life which rejects the things of the spirit is inconceivable. Board and lodging! These, differing only in degree, are provided for all creation alike. Life makes indeed a poor host if there is not offered to man's pilgrim soul the further grace of entertainment, in addition to mere food and shelter. Nature, after all, has a leaning toward three-part terms when she symbolizes stability and completeness. Who, among architects, has not been taught that the triangle is the one non-deformable geometric figure? So, if we are to make for completeness of life (surely one function of every thinking man and woman), we must reckon on the spiritual, side by side with the material.

But if we are to dare to mould this fluid plastic something — life — the task must begin while the medium will still respond, that is to say, in youth. And of all youth's environment, scarcely excluding the home, it is in the school where the opportunities offered for influence are greatest. Some one has said, "Whatever you would have appear in the Nation's life you must first put into the schools. . . . Whatever we would have appear in our home life . . . whatever we would have appear in the community life we must also first put into our public schools."

"We reap our sowing!" What a challenge — to those who design schoolhouses, as well as to those who administer and teach in them! Something of California's contribution toward this vital problem of schools and schooling it is the purpose of these papers to point out.

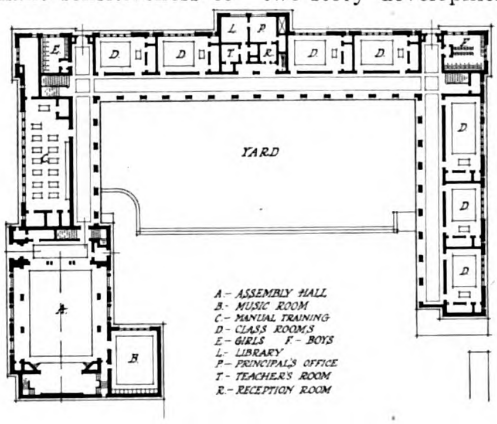
It will have been surmised that the writer believes that the *characteristic* of the better schoolhouses, not only locally, in California, but everywhere, is not of "material" quality, but that they are designed with appreciation of the complex "spiritual" nature of child life. Granting that to a limited extent standardizations, formulæ, tabulations and even handbooks have their useful function, the writer believes that such data, far from being helps, are unsafe weapons when in the hands of a designer who does not realize that laws and rules, once they are fully understood, are for the breaking, when a higher reason dictates. Standardization, which is a useful servant of man, docile while kept in its place, may, like the creature of Frankenstein, develop powers embarrassing to its creators. When one is dealing with so delicate an adjustment as is the child mind, one cannot safely give much force to arguments that are no more than mechanical and statistical.

As a nation at war, we are now hurrying to build standardized ships, and to some extent standardized houses for working men. This we do, not because we believe such ships and houses to be *better* as ships and houses, but because they can now be produced to meet a war emergency more effectively, and at minimized cost of the time and labor that are in normal times properly expended upon design. It would be folly *now* to do otherwise. But when the emergency has passed it would become still greater folly to continue such a course. The need will then be less for quantity than for quality, and normally it is important that a "quality" standard should govern. This fact is important in the designing of schoolhouses. But the quality standard can be attained and maintained only if standardization be regarded as the servant, to move at the bidding of the creative mind. Standardizations, at best, are only part and parcel of certain valid data, from which free choice shall be made. And, after all has been said on behalf of the formulæ-makers, the architect — in his function as an artist — has his own "standardizations," in force equally with those of the educator, or of the educational statistician (the two latter being species quite distinct in themselves).

But if we are to face the problem of completely suiting an environment to the demand of the "child-mind," we have an unachievable task ahead of us. To understand any problem fully is to solve it. But what *is* this "child-mind," adaptation to which is to be the norm, the measure, of our performance? We must admit the impossibility of ever "understanding" fully. Surely no *fixed* or determinable thing, but more variable than the wilful winds of springtime. Who shall say "such and so is the mind of the child, the mind of youth, or of the man"? "Habits, desires, needs and aspirations vary too greatly among mankind to admit of subjecting all to common control. This is natural law." But, by studying and observing many types of children, we may reach some reasonable deductions. These deductions will indicate those conditions which will give the maximum latitude — the possibilities as to genial environment for the average "child-mind." There must be found, too, a way of minimizing conditions that are distressing for the high-strung sensitive pupil; while, for the stolid pupil, the task is the quite different one of awakening the dormant sensitiveness to some degree of appreciation. But while the problem calls for great breadth of vision, the *unrestricted* freedom advocated by some radicals is not only highly illogical, it is contrary to life itself. "Freedom of choice and will" — these are pretty phrases only. There *is* no freedom, for *there is no isolation*. Free yet fettered — such, and such only, can life ever be for social-functioning mankind.

These are questions not solely for the psychologist, for they deeply concern the thinking architect. The physical environment too, and the sense of being physically "at ease," both important phases of the question, lie within the architect's control. In two previous papers it has been shown how a few California architects have answered the problem's challenge. The examples used were intended to illustrate the natural development of one-story and open-air schoolhouses, and were almost entirely grade schools.

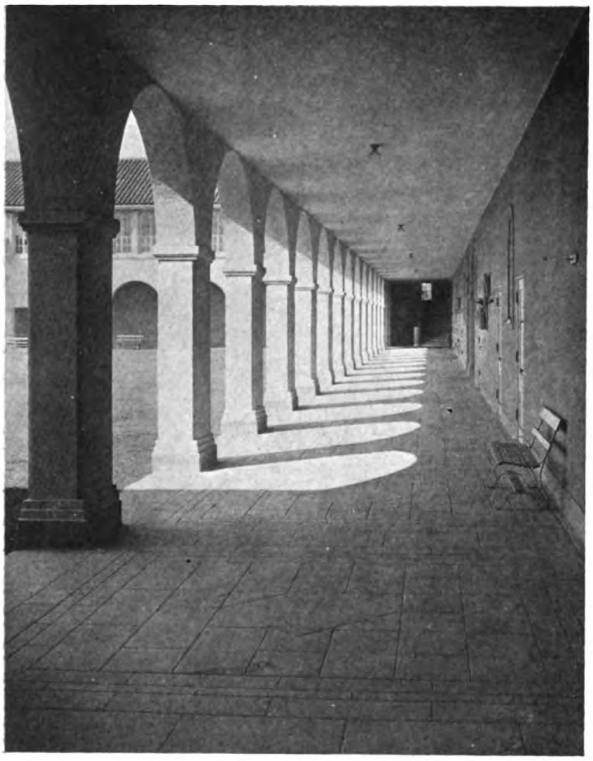
It has been pointed out that the one-story school, with open-air rooms and outdoor circulation, is a logical type of school building in great parts of California, responding as it does so well to climatic conditions. From one-story buildings of this type to two stories is an obvious and natural development, for either of several reasons: First, sometimes the ground available is too small to accommodate all of the requirements on one floor; second, the requirements may be so great in extent that a one-story group would be too scattered, even though there was any amount of land at hand. In the better examples the two-story development, where adopted, is found to have most of the advantages found in the one-story type. Many of the advantages of the open-air room may be retained, even where conditions force the compromise of placing certain rooms in a second story extending over part, or even all, of the first-floor area.



First Floor Plan, Frances Willard School

An admirable illustration of the two-story building with open-air circulation is the Frances Willard School in Berkeley, designed by Lewis

Frances Willard Intermediate School, Berkeley, California
Lewis P. Hobart and C. H. Cheney, Associate Architects; Walter H. Ratcliff, City Architect
The closed-in portion of the second floor corridor is used as a girls' lunchroom during the noon hour

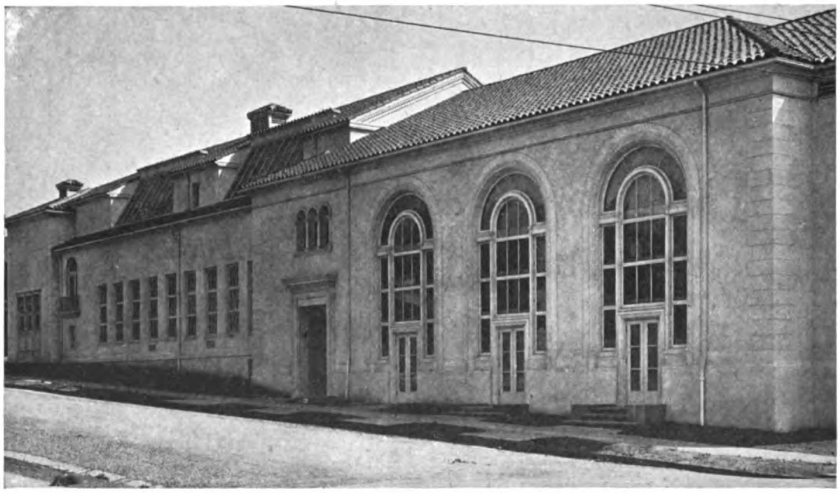


Frances Willard Intermediate School

Interior view of open corridor which forms the only hall space, fifteen feet wide, and is used as play space in rainy weather

P. Hobart and C. H. Cheney, in association with City Architect Walter H. Ratcliff, Jr. It should be stated that there are certain faults inherent in the site because of which the architects were confronted with a choice of evils. The plot is ample and almost level, rising slightly toward the rear. It commands a view across San Francisco Bay to the Golden Gate, and is on a fine, broad avenue. But on this avenue runs a main car line between Oakland and Berkeley. These cars are inevitably noisy, and so they compelled the adoption of a *parti* in which the bulk of classrooms should be removed as far as possible from the street. The plan adopted is that of a relatively deep U shape, the court opening toward the street and the principal classrooms being in the main body of the building. In the wings are manual training shops, auditorium and, generally speaking, the rooms which are either occupied the least proportion of time, or in which the work is least affected by outside distractions. This would be all very well, except for the fact that the prevailing winds in the neighborhood, at times persistent and heavy, blow from the west and, the site being on the east side of the street, the court lies open to form a wind pocket. Reversal of the building to obviate this defect would have been at the cost of bringing the main classrooms too near the street, while it would also have sacrificed the architectural effect of the building. And the fact must not be ignored that any community has a right to expect that its school buildings shall be dignified and worthy of them, as well as that they shall function well *as schools*. Here the court motif, which is a free adaptation of the *cortile* of Santa Maria della Pace in Rome, has been skilfully studied and the building as a whole is thoroughly satisfying in both mass and color. The classrooms are admirably planned and lighted, as all the other technical problems are well solved.

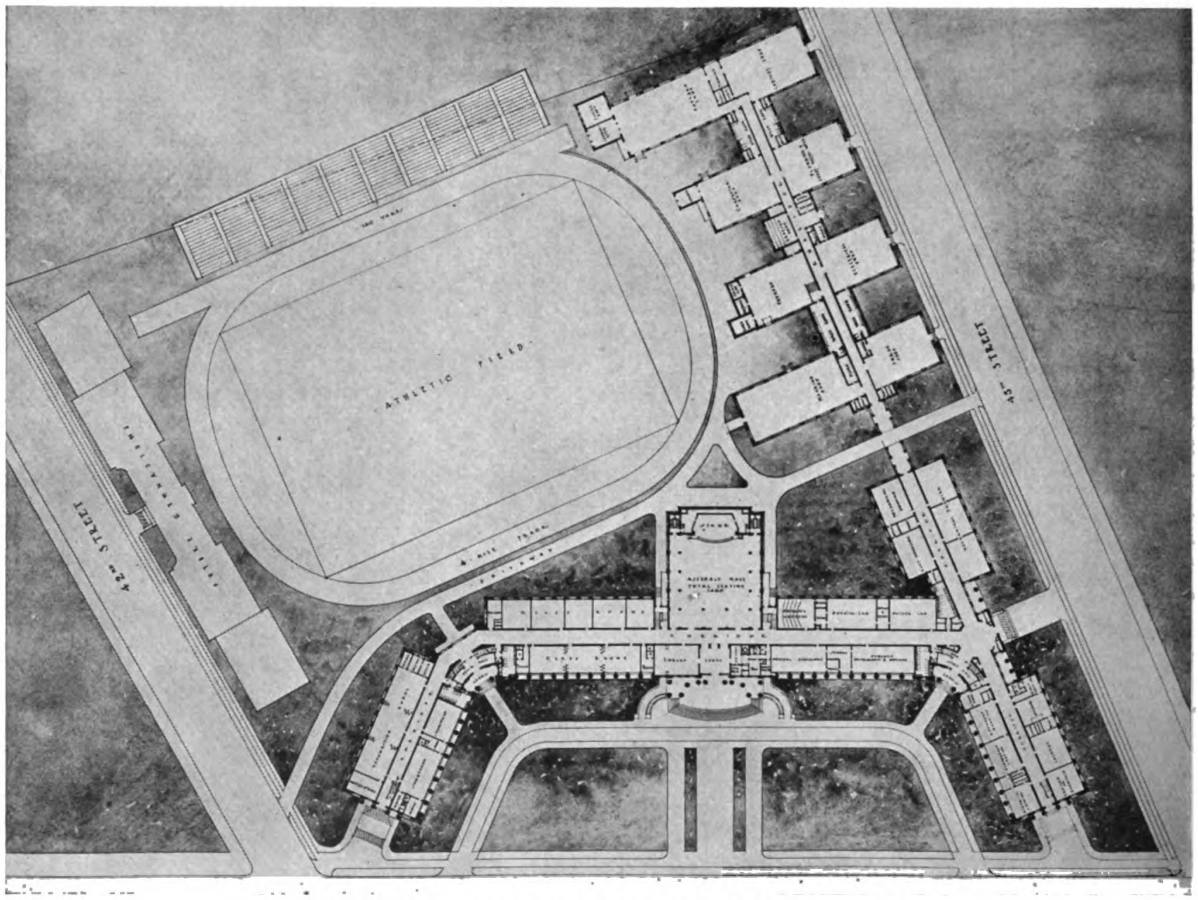
By a study of this Berkeley school it will be seen that the resemblance between some of the newer schools of the two-story type and the pure one-story type is found, first, in the extensive spreading shape of the plan, and, second, in the use of outdoor circulation. One practical advantage of open-air corridors which is self-evident (once pointed out) is that they insure a complete change of air for all the students at the time that they make changes of classrooms between the successive class periods. Outdoor circulation systems have little virtue, perhaps, unless between rooms which are themselves largely "outdoor rooms." Otherwise, they offer the possibility of chill, if the classrooms are closed and heated. But where the rooms are "open" the type is most desirable, and openness may easily be had by the use of full-area types of windows, placed in either or both of the long walls. (It has been shown in a previous article that where the open-air corridor is amply



Frances Willard Intermediate School

North elevation, showing Auditorium at right and Manual Training Room at left, with studio-lighted Drawing Rooms above

CENTRAL PORTION OF BROADWAY ELEVATION



GROUND FLOOR PLAN AND PLOT LAYOUT

OAKLAND TECHNICAL HIGH SCHOOL, OAKLAND, CALIFORNIA

JOHN J. DONOVAN, ARCHITECT, HENRY HORNBOSTEL CONSULTING ARCHITECT

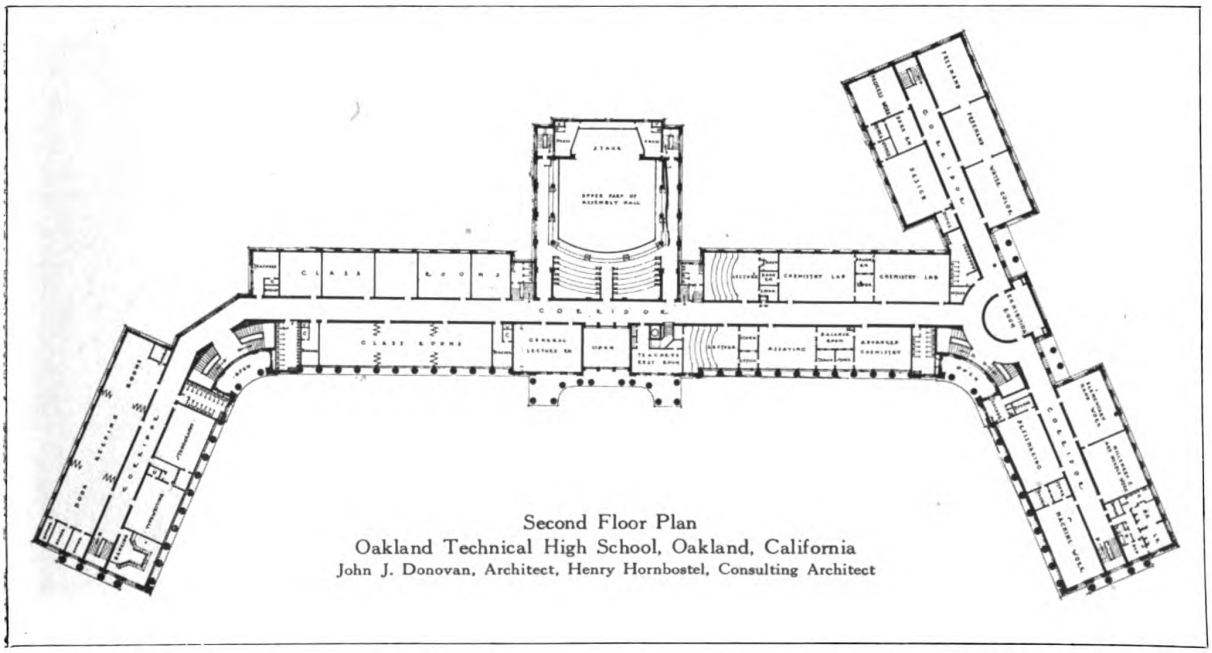
View of the Shops on Forty-fifth Street, Oakland Technical High School

broad there is no inconvenient "bilateral" classroom lighting from openings on the corridor side.)

There have been successful experiments by the designers of certain California high schools and, in several cases, of grammar schools, to arrange groups of separate buildings, connected by arcades or corridors, instead of housing the institution in an uninteresting bulk under one roof. This is especially true of the trade, or technical schools, in which such an arrangement was well nigh a necessity, it being impracticable to house noisy shops within the same building as other classrooms that are intended for intensive study and quiet concentration. It is not improbable that these industrial or manual training high schools, having justified the "group plan" type, show how similar methods might be advantageously made use of and for other, subtler reasons than merely that of avoiding noises. The fact that, psychologically, a group of small buildings is less institutional in look and hence less forbidding, less remote from the home environment and hence less strange, must commend itself favorably to any one giving thought to the matter.

Not far from the Frances Willard School (Berkeley) is the Oakland Technical High School, designed, as was the Berkeley example, by a collaboration of the City Architect and an associate. It is doubtful if such an arrangement is generally satisfactory. Here, however, the associates were of types well complementing each other. Mr. John J. Donovan, the City Architect, had most systematically collected and collated all available data, based on experience everywhere. Mr. Donovan invited Mr. Hornbostel to become his associate and his choice was a most happy one, Mr. Hornbostel bringing to the task not only his keen imaginative power, but also his unexcelled experience along just this line, acquired at the Carnegie Technical Schools in Pittsburgh. The architects were fortunate in the site assigned to or selected by them, whichever the case may have been — for it is large in extent, almost flat and perfectly lighted; the one trouble (and there is too often some such drawback in the conditions offered to the architect) is that Broadway, the main street, is an artery of traffic between Oakland and Berkeley, carrying a noisy line of heavy high-speed cars.

The planning problem was one which resolved itself



Second Floor Plan
Oakland Technical High School, Oakland, California
John J. Donovan, Architect, Henry Hornbostel, Consulting Architect

into three main elements: (1) administrative and academic, (2) technical, (3) athletic. The architects wisely made no attempt to treat these elements alike. Instead, they set about solving each unit in the way which most perfectly satisfied the demands of its program, believing it possible to unify the composition by harmony of materials and by honest study of mass composition, as seen in the large. There was a conflict of *parti* for the reason already mentioned, that Broadway being a noisy street, a classroom building would suffer if placed too far forward, whereas the workshops might easily be so placed, with no serious drawback. But the administrative and academic unit naturally was given the commanding position on the Broadway frontage. The difficulty was met by adopting a shallow U-shaped plan; and by this means the academic classrooms were set back some distance from the street line, while dignity of approach and an effective composition were the architectural results. Slightly more than half of the plot, lying behind the academic building, is divided approximately into thirds, the north third being given over to the shops — the southern portion to the athletic field. As the circulation through the shops is near the center of the group, and these buildings extend approximately north and south, there is the needed diversity of lighting conditions, one part having south and the other north-end light, in addition to bilateral and overhead. It was necessary, too, to have various sizes of shops devoted to different purposes. The uneven lengths are turned toward the athletic field and are so disposed, the shorter ones in the center, as to save all possible room for the length of running track. The shops of even length being uniformly placed, the composition of the street side is quite as interesting and well studied as that facing Broadway.

This group of buildings is a rare combination of two desirable, not to say essential, conditions of good school architecture; first, from every technical consideration it embodies the latest accepted standards, and second, its architecture is distinctive, imaginative and, to an exceptional degree, expressive in structural integrity and the spirit of its times. No school building *could* be better lighted and in passing it might be added that few, if any, are. But this result has been reached without the all too common forcing of apparent window area. This virtue is truest, as it is rarest, of the academic building. One need only to turn the pages of books on school architecture to realize how essentially harsh are the voids and wall surfaces of the average "modern" school building, with their monotony of broad, ill-proportioned windows and repeated narrow mullions. Nearly every architect struggling with the problem has found himself forced to endless experiments in wall textures or color, or both, to give interest to his composition. This struggle has been his tacit acknowledgment that the main proportions are, in themselves, bad. Here is no such condition, for the vertical lines introduced by means of the colonnades give logical structural expression to the building, while the lighting areas are ample. In detail, the building has highly distinctive architectural quality. It was a daring thing to simplify the entablature into its "lowest terms" as done here, but one must admit this form to be more logical under the circumstances than would have been the use of a pure Greek Doric order. Not only is it more logical; it has piquancy, because it is the uncommon thing done in a masterly way — its designer having behind him the soundest knowledge of the convention which he abandoned. There has been some criticism to the effect that the pseudo-cornice, virtually a coping, is a trifle light and also that the irregular columnar spacing at the entrance is unhappy. A building so large must be exceptionally good, when the criticisms heard are of details so minute in nature. Few, if any, technical school buildings are better.

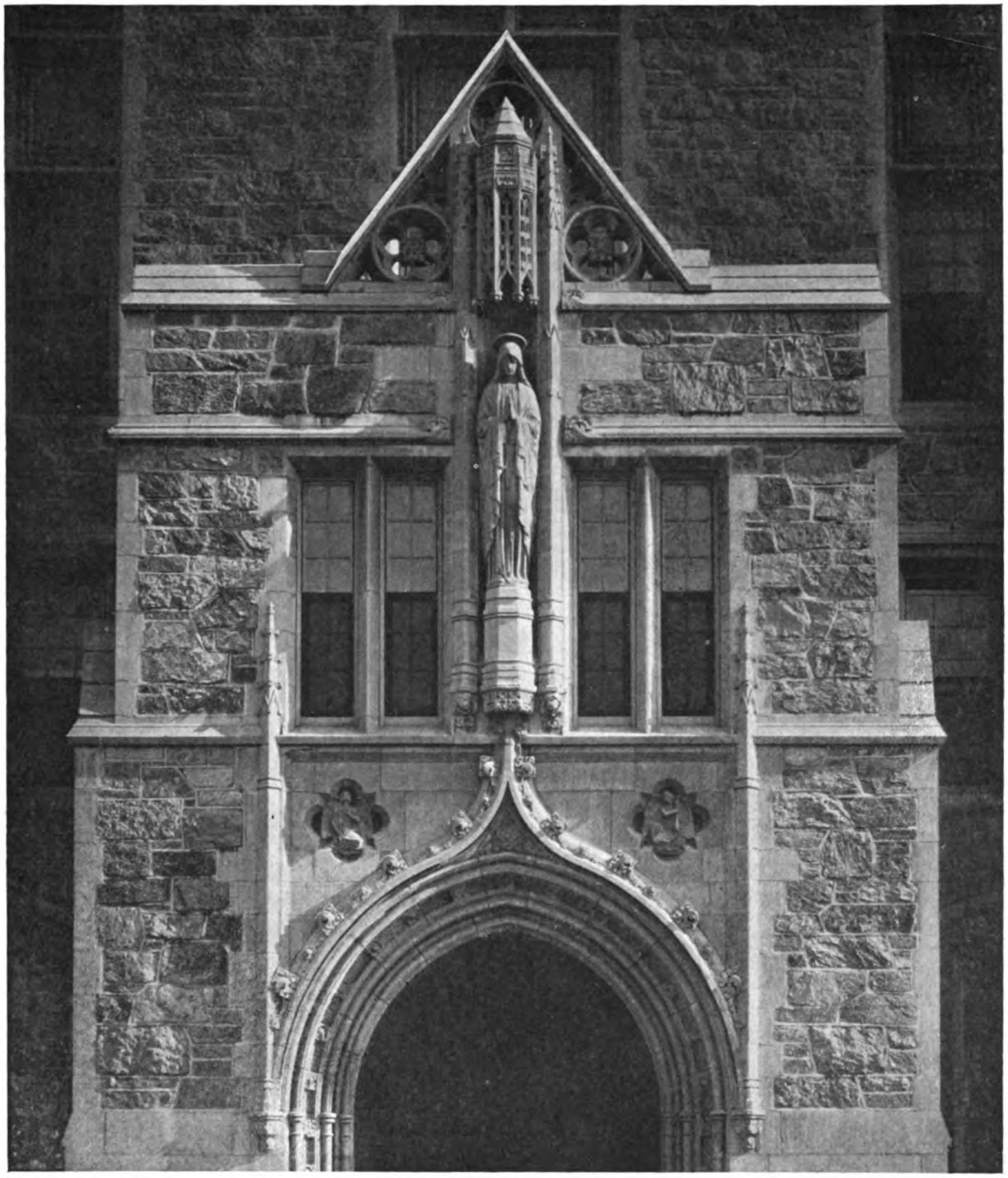
Cooking Room

Machine Shop

Oakland Technical High School, Oakland, California

THE FORUM COLLECTION OF MODERN GOTHIC ARCHITECTURAL DETAILS

PLATE TEN



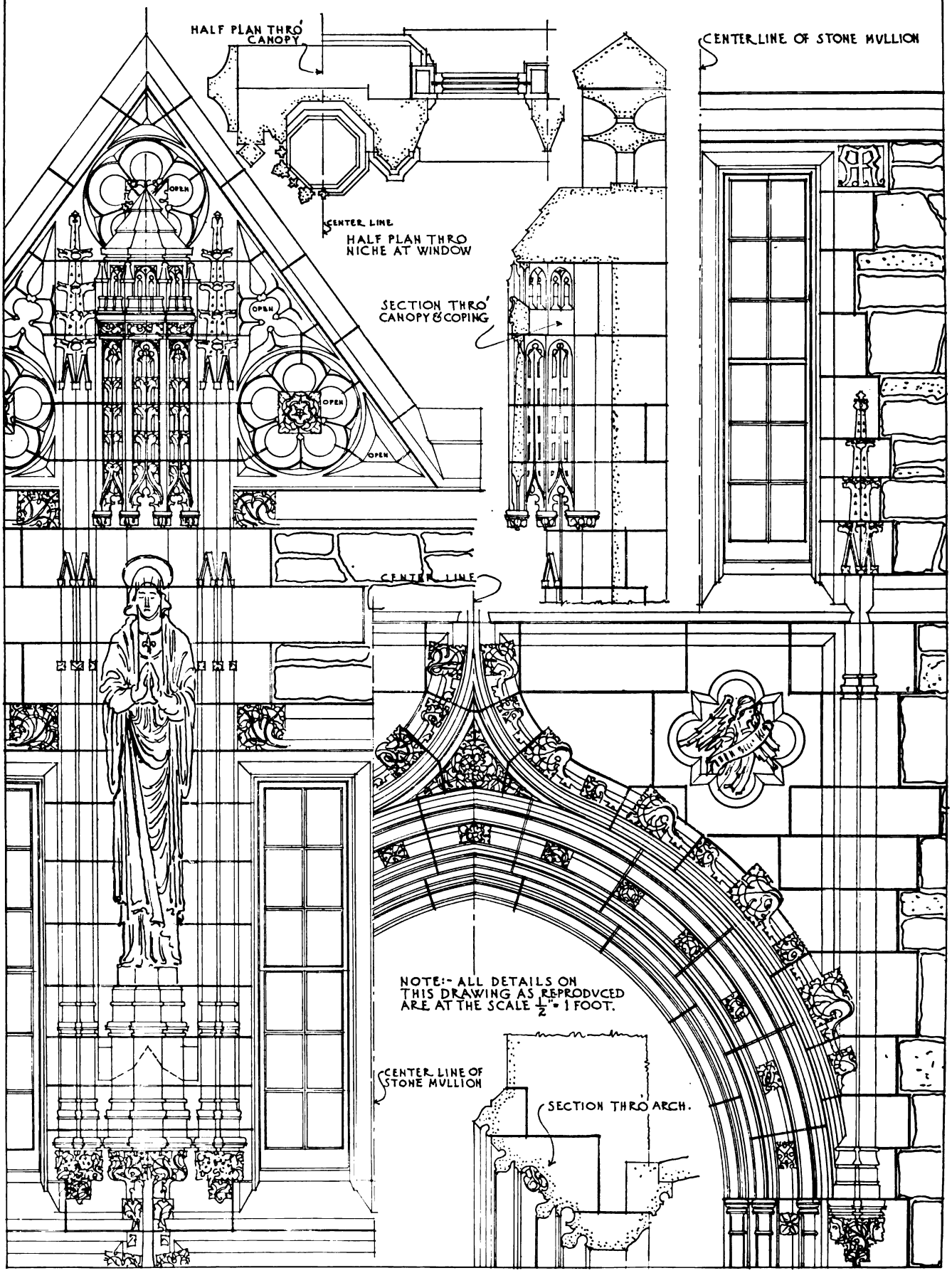
THIS porch provides the center of interest on a collegiate building designed in the spirit of English Tudor Gothic, differing materially from its precedent, however, in having a height of four stories instead of the usual low elevations. The resulting change in proportions has been extended to the component parts, thus the porch has two stories, enabling the arch label mould to be carried up to support a figure of the saint to whom the building is dedicated.

ENTRANCE PORCH, ST. MARY'S HALL, BOSTON COLLEGE, NEWTON, MASS.

MAGINNIS & WALSH, ARCHITECTS

DETAIL DRAWING BY RALPH H. HANNAFORD ON FOLLOWING PAGE

Upper Part of Porch St. Mary's Hall Boston College Maginnis & Walsh Archts



Planning Buildings for Daylight*

By HERBERT S. SWAN AND GEORGE W. TUTTLE

IN the natural illumination of buildings, daylight is more important than sunshine. Daylight is the sunlight diffused and reflected by the sky and clouds as distinct from that received directly from the sun. Sunshine is obtained from but one point, viz., the sun. Daylight, on the other hand, is obtained from the whole visible sphere of the sky. Direct daylight as thus distinguished from sunshine is the subject of this paper.

To what extent will the daylight illumination in a given room be reduced by raising the height of the opposite building one story? How much will it be diminished if the space between the two buildings is made one foot narrower? If the length of the opposite buildings were doubled? What has the shape of a court to do with its lighting efficiency? Which is the better court, the square court or the oblong court? How does an outer court compare with an inner court? With a side yard? What is the effect of a recess? How much light does a forty-inch cornice cut off from the lower stories as compared with a ten-inch cornice? What is the superiority of a large window over a small one? And what has the position of a window to do with the admission and maximum utilization of light within a room?

That elementary questions like these in daylight planning have never been scientifically answered by our building codes, except in a hit-or-miss fashion, is in large measure due to the fact that there have existed no data to show the relative amount of daylight obtained by different kinds of open spaces. It is this deficiency that prompted the preparation of this paper, the object of which will be to present a part of the data necessary for the framing of scientific height and area regulations.†

In making a quantitative analysis of the daylight illumination at any particular point three classes of general conditions must be distinguished from one another: (1) Where the entire quantity is direct light. This condition is rare except in the case of surfaces completely open to the sky. (2) Where the daylight is in part direct light and in part indirect or reflected light. This is the more usual condition so far as concerns the exterior of buildings in built-up communities. The exact proportion of direct and indirect light received depends in each case upon the height of the buildings, the dimensions of the open space, and the coefficients of reflection possessed by the different wall surfaces. (3) Where the entire quantity is indirect or reflected light. This is the case in many rooms where the interior obtains no direct light, all the illumination received being indirect or reflected light.

This paper will be limited strictly to a consideration of direct daylight. Surfaces receiving both direct and indirect light will be considered only in so far as the direct light is concerned. Those receiving only reflected light will not be treated at all.

The Daylight Factor

An obstructed wall, that is, one from which part of the sky illumination is cut off, receives less direct daylight than an unobstructed wall. The direct daylight illumination a wall enjoys diminishes with the extent of the obstruction: If it is completely obstructed it receives no direct illumination whatever; if it is wholly unobstructed it receives the maximum amount of direct sky illumination. The illumination received by an unobstructed wall may therefore be considered unity or one hundred per cent, and that received by an obstructed wall its proper percentage of this unit value.

The Tables

It is on this basis that the accompanying tables have been computed. Each table gives the per cent illumination received at the lower corners of a rectangular court on each of the respective surfaces — the side wall, the end wall, and the bottom.‡ The width of the court has in each case been represented as unity; the height and length of the court, respectively, as multiples of the width.

Table I gives the per cent illumination enjoyed by inner courts and also that enjoyed by outer courts in so far as the illumination is derived from the top of the court; Table II the per cent illumination obtained

† See articles by Herbert S. Swan and George W. Tuttle on Sunlight Engineering in City Planning and Housing, THE ARCHITECTURAL FORUM, June, 1918; Planning Sunlight Cities, *The American City*, September and October, 1917; and Report New York Commission on Building Districts and Restrictions, 1916, pp. 176-188.

‡ The distinct advantages in presenting the illumination for these particular points on each plane or wall surface rather than for some other points are as follows:

1. They are the points on each plane respectively receiving the least illumination.
2. They are the only points on each plane respectively receiving all their illumination from one quarter of the sky. In this respect they are unique. All other points receive their illumination from two or more quarters of the sky.
3. They are the only points at which the illumination, if computed for a large number of courts, will at the same time readily give the direct daylight value of every point in any rectangular court.
4. They are the only points for which the illumination can be computed that will at the same time readily give the direct daylight received by other planes, such as a side yard, a street facade, or the level of a street.
5. They are the only points for which the illumination can be computed that will readily give the amount of daylight received anywhere within a room.
6. They are the only points which readily admit of appropriate allowance being made for the illumination cut off by neighboring obstructions, if any, on all of these different planes.

by outer courts from the open end only, all illumination from the top being considered as cut off; and Table III the per cent illumination received by outer courts from both the top and the open end.*

Application of the Tables

The reader will observe that the illumination received at any point of an inner court is best obtained by considering the court as subdivided at that point by an infinitesimally thin vertical wall into two or more inner courts. The illumination received by each of these theoretical courts, as given directly by the tables, will, if added together, give the illumination at the desired point.† Usually the illumination need be computed for only two of these theoretical courts (See Diagrams 1-5). Where the point for which the illumination is desired is on the bottom of the court away from all the bounding walls, however, the illumination is found from four theoretical courts (See Diagram 6).

The daylight illumination received at any point on the side wall or on the bottom of an outer court through the open end is the illumination received at that point by such a court having a length equal to the distance of the point from the open end. If the total illumination obtained from both the top and the open end of the court at this point is desired, then two additional quantities must be added to the foregoing value. These quantities are the illuminations received at the given point through inner courts into which the outer court would be divided, after closing its open end, by a plane parallel thereto passing through the given point (See Diagram 10 where the total illumination at point M of the outer court is made up of that from the open end plus that from the two inner courts into which it is divided, after closing the open end, by a plane through M, indicated by the dotted line.

To find the illumination received at any point on the end wall of an outer court from the open end, the court should, as in the two foregoing cases, be subdivided at that point by an infinitesimally thin wall into two courts. The illumination received by these two theoretical courts at the desired point will, if added together, give the illumination received through the open end of the court considered. The method of computing the illumination received at this point through the top of the court has already been described.

The accompanying diagrams make it unnecessary to describe in detail the method of using the tables. These diagrams illustrate the method of ascertaining the direct illumination on any surface partially obstructed by other surfaces, situated either parallel or at right angles to the surface considered.

Progress of Daylight Planning

Planning buildings for daylight has been given little thought until recently but the principles to be observed are gradually being developed as its importance is appreciated. Natural illumination has been given considerable attention, however, in the last few years in the designing of factories, hospitals and schools and the improvement in conditions has been marked. As the view that every dark room is a menace to public health seems to be generally accepted, what we need most now is probably the definition of scientific standards of daylight and their incorporation into our building codes rather than popular education in daylight planning itself.

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* Two formulæ were developed for the computation of the tables. They serve to compute the direct illumination from the sky through any rectangular opening at any point on a plane perpendicular to one of the sides of the opening or on any point of a plane parallel to the plane of the opening in terms of the sky illumination on a vertical plane.

If we let

l = the length of the court
b = the breadth of the court
h = the height of the court

$\tan a = \frac{b}{h}$ $\tan c = \frac{b}{l}$ $\tan x = \frac{l}{h}$

then letting I_R = per cent of illumination from sky on unobstructed surface received through top of court (area lb) on either side (lh) at right angles thereto, at any one of the bottom corners of court

and I_P = per cent of illumination from sky on unobstructed surface, received through open end of court (area hb) on closed end parallel thereto, at either bottom corner. Then we have

$$I_R = \frac{100}{\pi}\left[\arctan\frac{b}{h}\,\frac{-h}{l\sqrt{l^2+h^2}} \arctan\left(\frac{b}{l\sqrt{l^2+h^2}}\right)\right]$$

$$\text{or } I_R = \frac{100}{\pi}\,[a - \cos x \arctan(\cos x \tan a)]$$

and

$$I_P = \frac{100}{\pi}\left[\frac{b}{\sqrt{l^2+b^2}} \arctan\left(\frac{h}{b\sqrt{b^2+l^2}}\right) + \frac{h}{l\sqrt{l^2+h^2}} \arctan\left(\frac{b}{l\sqrt{h^2+l^2}}\right)\right]$$

$$\text{or } I_P = \frac{100}{\pi}\,[\sin c \arctan(\cot x \cos c) + \cos x \arctan(\sin x \tan c)]$$

The illumination received upon certain planes through the top of an inner court, it will be seen, is identically the same as that received upon other planes through the open end of an outer court, provided the height and length of the courts are considered as respectively interchanged. There are three such instances:

(1) The illumination received on the side wall of an inner court through the top is equal to the illumination received on the side wall of an outer court through the open end (compare Tables I A and II A);

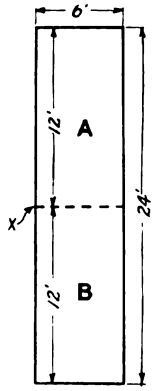
(2) The illumination received at the bottom of a court through the top is equal to the illumination received at the closed end of an outer court through the open end (compare Tables I C and II B); and

(3) The illumination received at the closed end of an outer court through the top is equal to the illumination received at the bottom of an outer court through the open end (compare Tables I B and II C).

† When the illumination is to be found in an inner court at any point above the bottom a horizontal plane through that point is to be considered the bottom for the purpose of the computation. Such a plane does not affect the direct illumination in any way. The illumination received at the given point through the imaginary courts into which we divide the actual court must be found not only for the particular point, but also on the particular plane required.

This division of the court into parts often makes a wall which is a part of the side of the original court become the end of the smaller one. This fact is to be observed in taking out quantities from the tables as the shorter boundary is deemed the end and the longer the side. Thus, on Diagram 2, we add the illumination received at point X on the end wall of Court A to that received at point X on the side wall of Court B to get the illumination from the entire court.

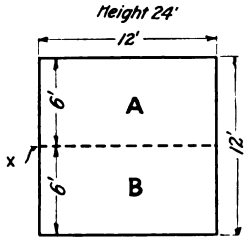
DIAGRAMS 1-3. ILLUMINATION AT ANY POINT OF SIDE WALL, INNER COURT



Plan, Diagram 1

DIAGRAM 1. Add value of illumination at X

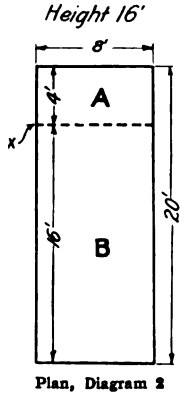
Side wall, inner court A (l=2, h=4)=	.811%
Side wall, inner court B (l=2, h=4)=	.811%
Total,	1.622% Answer



Plan, Diagram 3

DIAGRAM 2. Add value of illumination at X.

End wall, inner court A (l=2, h=4)=	1.529%
Side wall, inner court B (l=2, h=2)=	4.218%
Total,	5.747% Answer

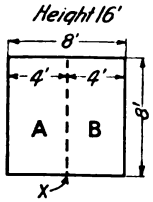


Plan, Diagram 2

DIAGRAM 3. Add value of illumination at X

End wall, inner court A (l=2, h=4)=	1.529%
End wall, inner court B (l=2, h=4)=	1.529%
Total,	3.058% Answer

DIAGRAM 4. ILLUMINATION AT ANY POINT OF END WALL, INNER COURT

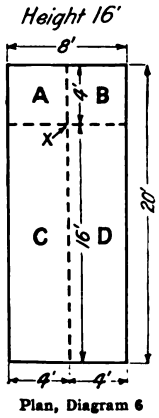


Plan, Diagram 4

DIAGRAM 4. Add value of illumination at X.

End wall, inner court A (l=2, h=4)=	1.529%
End wall, inner court B (l=2, h=4)=	1.529%
Total,	3.058% Answer

DIAGRAMS 5, 6. ILLUMINATION AT ANY POINT OF BOTTOM, INNER COURT



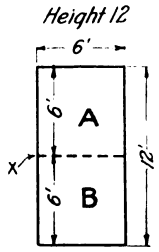
Plan, Diagram 6

DIAGRAM 6. Add value of illumination at X.

Bottom, inner court A (l=1, h=4)=	3.672%
Bottom, inner court B (l=1, h=4)=	3.672%
Bottom, inner court C (l=4, h=4)=	9.868%
Bottom, inner court D (l=4, h=4)=	9.868%
Total,	27.080% Answer

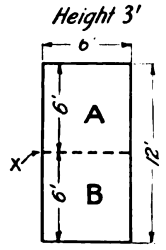
DIAGRAM 5. Add value of illumination at X.

Bottom, inner court A (l=1, h=2)=	11.797%
Bottom, inner court B (l=1, h=2)=	11.797%
Total,	23.594% Answer



Plan, Diagram 5

DIAGRAM 7. ILLUMINATION IN A SHALLOW INNER COURT, WIDTH BEING GREATER THAN HEIGHT



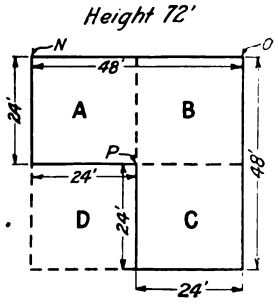
Plan, Diagram 7

DIAGRAM 7. Value of illumination on wall at X for court.

A is equal to difference between Vertical wall, one-half obstructed*		50.000%
And Side wall, inner court (l=2, h=2)	4.218%	
End wall, from open end outer court (l=2, h=2)	18.036%	
	22.254%	22.254%
		27.746%
Value of illumination at X for Court. B is equal to that of Court A		27.746%
Total,		55.492% Answer

*The illumination at X in A if opposite side and end wall were removed would be half that on a vertical wall or 50% from which we subtract the illumination cut off by the side wall and that cut off by the end wall to get the actual illumination.

DIAGRAM 8. ILLUMINATION AT ANY POINT OF L-SHAPED INNER COURT



Plan, Diagram 8

DIAGRAM 8. *Point N.* Add following values of illumination on wall at N

Difference between Side wall, inner court A B C D (l=1, h=1½)	4.975%	
End wall, inner court A D (l=2, h=3)	3.077%	
	1.898%	1.898%
Plus End wall, inner court A (l=1, h=3)		.990%
Total,		2.888% Answer

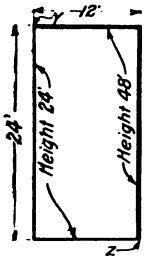
Point O Add following values of illumination on wall at O.

Side wall, inner court A B (l=2, h=3)	1.679%	
End wall, inner court B C (l=2, h=3)	3.077%	
	4.756%	4.756%
Subtract Side wall, inner court B (l=1, h=3)		.990%
Balance,		3.766% Answer

Point P. Add following values of illumination on wall at P

End wall, inner court A (l=1, h=3)	.99%
End wall, inner court B (l=1, h=3)	.99%
Total,	1.98% Answer

DIAGRAM 9. ILLUMINATION IN INNER COURT HAVING WALLS OF DIFFERENT HEIGHTS



Plan, Diagram 9

DIAGRAM 9, *Point Y*. Add following values of illumination on wall at Y

Difference between		
End wall, from open end, outer court (l=2, h=4)	21.363%	
And		
End wall, from open end, outer court (l=2, h=2)	18.036%	
	3.327%	3.327%
Plus		
End wall, inner court (l=2, h=4)		1.529%
Total,		4.856%

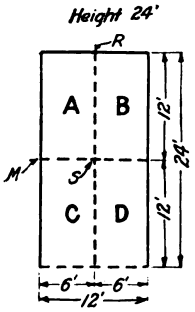
Answer

Point Z. Value of illumination on wall at Z is equal to End wall, inner court (l=2, h=2) 7.113%

Minus		
Difference between		
End wall, from open end, outer court (l=2, h=4)	21.363%	
And		
End wall, from open end, outer court (l=2, h=2)	18.036%	
	3.327%	3.327%
Balance,		3.786%

Answer

DIAGRAM 10. ILLUMINATION AT ANY POINT OF OUTER COURT



Plan, Diagram 10

DIAGRAM 10, *Point M, Side Wall*. Add following values of illumination at M.

Side wall, outer court C D (l=1, h=2)	16.515%
Side wall, inner court A B (l=1, h=2)	2.784%
Total,	19.299%

Answer

Point R, End Wall. Add following values of illumination at R

End wall, outer court A C (l=4, h=4)	13.727%
End wall, outer court B D (l=4, h=4)	13.727%
Total,	27.454%

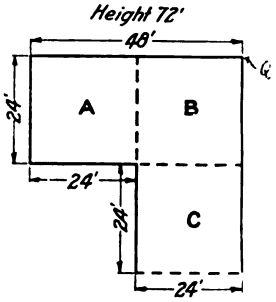
Answer

Point S, Bottom. Add following values of illumination at S.

Bottom, inner court A (l=2, h=4)	6.615%
Bottom, inner court B (l=2, h=4)	6.615%
Bottom, outer court C (l=2, h=4)	18.242%
Bottom, outer court D (l=2, h=4)	18.242%
Total,	49.714%

Answer

DIAGRAM 11. ILLUMINATION AT ANY POINT OF OUTER L-SHAPED COURT



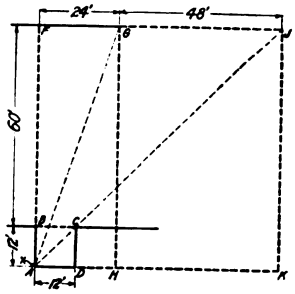
Plan, Diagram 11

DIAGRAM 11.

Point Q. Add following values of illumination on wall at Q.

End wall, inner court A B (l=2,h=3)	3.077%	
Side wall, outer court B C (l=2,h=3)	6.574%	
	9.651%	9.651%
Subtract		
Side wall, inner court B (l=1,h=3)	.990%	
Balance,		8.661%

Answer



Plan, Diagram 12

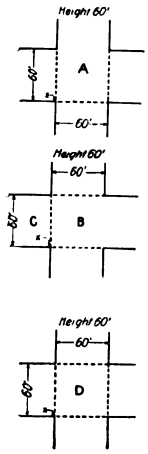
DIAGRAM 12. ILLUMINATION AT ANY POINT OF OUTER COURT, PARTLY OBSTRUCTED AT OPEN END

DIAGRAM 12. Add following values of illumination on wall at X.

Difference between		
Side wall from open end, outer court A F G H (l=3, h=6)	2.465%	
Side wall, from open end, outer court A F G H (l=3, h=1)	.990%	
	1.475%	1.475%
Plus difference between		
Side wall, from open end, outer court A F J K (l=1, h=2)	13.731%	
Side wall, from open end, outer court A F G H (l=3, h=6)	2.465%	
	11.266%	11.266%
Plus		
Side wall, inner court A B C D (l=1, h=2)		2.784%
Total,		15.525%

Answer

DIAGRAM 13. ILLUMINATION ON FRONT OF BUILDING AT STREET INTERSECTION, BUILDINGS OF UNIFORM HEIGHT

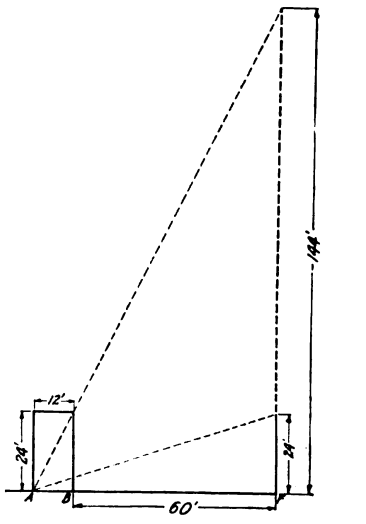


Plan
Diagram 13

DIAGRAM 13. Add following values of illumination at X

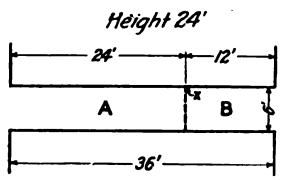
End wall, outer court A (l=inf., h=1)	24.990%	
Side wall, outer court B l=inf., h=1)	14.636%	
Side wall, outer court C (l=inf., h=1)	14.636%	
	54.262%	54.262%
Minus		
Side or end wall, inner court D (l=1, h=1)		11.140%
Balance,		43.122%

Answer



Elevation, Diagram 12

DIAGRAM 14. ILLUMINATION AT ANY POINT ON WALLS OF SIDE YARD OR STREET FACADE IF ILLUMINATION IS NOT OTHERWISE OBSTRUCTED



Plan, Diagram 14

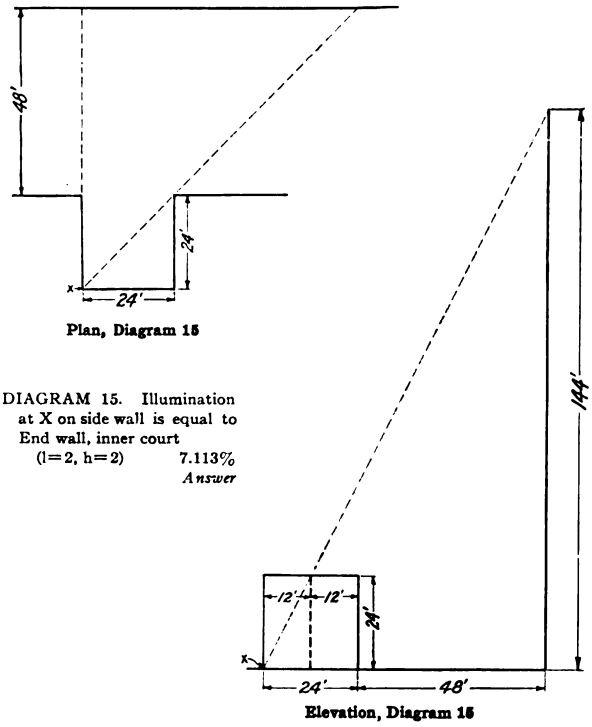
DIAGRAM 14. Add following values of illumination at X

Side wall, outer court A (l=4, h=4)	2.430%
Side wall, outer court B (l=2, h=4)	5.715%
Total,	8.145%

Answer

DIAGRAM 15. ILLUMINATION IN OUTER COURT

(Open end wholly obstructed and top partly obstructed)



Plan, Diagram 15

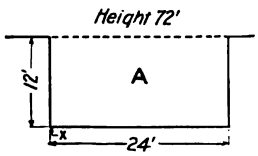
Elevation, Diagram 15

DIAGRAM 15. Illumination at X on side wall is equal to End wall, inner court (l=2, h=2) 7.113%

Answer

DIAGRAM 16. ILLUMINATION ENTERING AN UNOBSTRUCTED OUTER COURT

(Having the side instead of the end open)



Plan, Diagram 16

DIAGRAM 16. Value of illumination at X on side is equal to Difference between

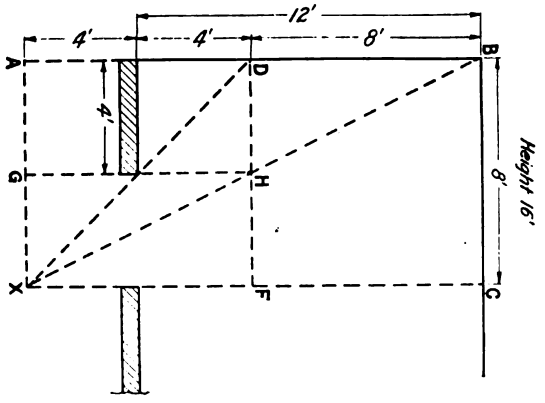
Vertical wall, one-half obstructed	50%

And

Side wall, from open end, outer court (l=2, h=6)	5.188%
Balance,	44.812%

Answer

DIAGRAM 17. ILLUMINATION WITHIN ROOM ON HORIZONTAL SURFACE THROUGH WINDOW



Plan, Diagram 17

DIAGRAM 17. Value of illumination on floor at X is equal to Difference between

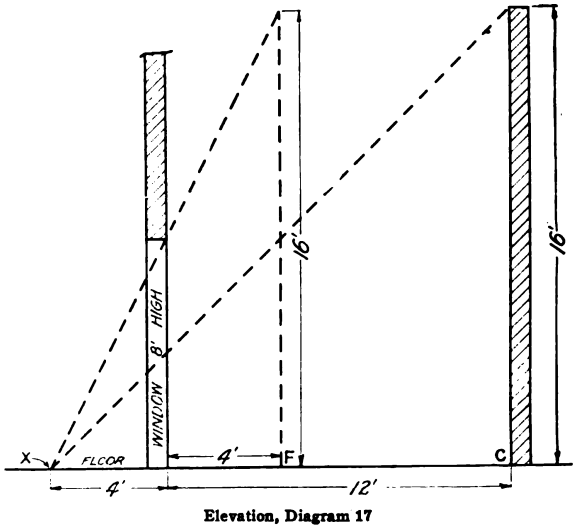
Bottom of inner court A B C X (l=2, h=2)	18.036%

And

Bottom of inner court A D F X (l=1, h=2)	11.797%
	6.239%

Answer

(Window being situated near end of court)



Elevation, Diagram 17

TABLE I — DIRECT DAYLIGHT ILLUMINATION IN INNER COURTS

Expressed as a per cent of the direct daylight illumination received by an unobstructed vertical wall.

A. Side Wall

Length of Court in Terms of Width

Per Cent Illumination at Either End of Wall at Given Distance from Top

Distance down from top in terms of width		0	1	2	3	4	5	6	7	8	9	10	Infinite
	0		50.000	50.000	50.000	50.000	50.000	50.000	50.000	50.000	50.000	50.000	50.000
	1	0	11.140	13.731	14.311	14.490	14.559	14.590	14.600	14.618	14.627	14.631	14.636
	2	0	2.784	4.218	4.895	4.904	5.140	5.188	5.220	5.243	5.256	5.265	5.279
	3	0	.990	1.679	2.075	2.284	2.400	2.465	2.490	2.515	2.531	2.554	2.565
	4	0	.450	.811	1.063	1.215	1.313	1.377	1.406	1.438	1.445	1.454	1.493
	5	0	.240	.445	.606	.715	.793	.840	.879	.909	.922	.936	.972
	6	0	.145	.311	.375	.445	.511	.547	.590	.597	.627	.636	.681
	7	0	.090	.172	.250	.304	.345	.384	.409	.429	.438	.447	.502
	8	0	.056	.120	.168	.213	.247	.277	.295	.311	.327	.343	.386
	9	0	.040	.086	.127	.156	.181	.206	.220	.240	.254	.268	.304
	10	0	.034	.065	.093	.118	.138	.161	.181	.188	.193	.200	.209
	Infinite	0	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

B. End Wall

Length of Court in Terms of Width

Per Cent Illumination at Either End of Wall at Given Distance from Top

Distance down from top in terms of width		0	1	2	3	4	5	6	7	8	9	10	Infinite
	0		50.000	50.000	50.000	50.000	50.000	50.000	50.000	50.000	50.000	50.000	50.000
	1	0	11.140	18.995	21.904	23.154	23.779	24.136	24.356	24.502	24.604	24.677	24.990
	2	0	2.784	7.113	9.981	11.627	12.586	13.175	13.556	13.822	14.006	14.143	14.754
	3	0	.990	3.077	5.029	6.475	7.459	8.138	8.604	8.940	9.181	9.363	10.238
	4	0	.450	1.529	2.765	3.859	4.711	5.359	5.845	6.211	6.484	6.697	7.793
	5	0	.240	.861	1.647	2.440	3.122	3.688	4.143	4.522	4.786	5.013	6.284
	6	0	.145	.522	1.043	1.606	2.140	2.618	3.022	3.356	3.629	3.859	5.256
	7	0	.090	.340	.697	1.106	1.518	1.900	2.475	2.545	2.802	3.022	4.515
	8	0	.056	.225	.486	.781	1.100	1.413	1.709	1.965	2.197	2.386	3.952
	9	0	.040	.165	.347	.570	.820	1.075	1.313	1.543	1.756	1.938	3.515
	10	0	.034	.125	.300	.443	.643	.715	1.047	1.240	1.418	1.584	3.175
	Infinite	0	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

C. Bottom of Court

Length of Court in Terms of Width

Per Cent Illumination at Any Corner of Bottom in Court of Given Height

Distance down from top in terms of width		0	1	2	3	4	5	6	7	8	9	10	Infinite
	0		50.000	50.000	50.000	50.000	50.000	50.000	50.000	50.000	50.000	50.000	50.000
	1	0	27.690	33.456	34.681	35.040	35.177	35.243	35.281	35.306	35.313	35.315	35.340
	2	0	11.797	18.036	20.397	21.363	21.788	22.009	22.131	22.200	22.250	22.275	22.361
	3	0	6.163	10.445	12.843	14.090	14.763	15.125	15.352	15.481	15.570	15.629	15.809
	4	0	3.672	6.615	8.622	9.868	10.650	11.122	11.420	11.609	11.750	11.834	12.125
	5	0	2.418	4.502	6.193	7.227	8.002	8.522	8.875	9.113	9.284	9.395	9.811
	6	0	1.704	3.238	4.504	5.477	6.195	6.711	6.990	7.350	7.550	7.693	8.222
	7	0	1.238	2.211	3.443	4.265	4.913	5.409	5.552	6.063	6.272	6.427	7.075
	8	0	.963	1.890	2.704	3.400	3.968	4.427	4.781	5.065	5.284	5.475	6.195
	9	0	.770	1.506	2.179	2.768	3.268	3.681	4.020	4.290	4.504	4.684	5.515
	10	0	.629	1.231	1.786	2.293	2.734	3.114	3.418	3.679	3.893	4.070	4.979
	Infinite	0	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

TABLE II — DIRECT DAYLIGHT ILLUMINATION ENTERING OPEN END OF OUTER COURTS

Expressed as a per cent of the direct daylight illumination received by an unobstructed vertical wall.

A. Side Wall

Length of Court in Terms of Width

Per Cent Illumination at Inner End of Wall at Given Distance from Top

Distance down from top in terms of width	0	1	2	3	4	5	6	7	8	9	10	Infinite
0		.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
1	50	11.140	2.784	.990	.450	.240	.145	.090	.056	.040	.034	.000
2	50	13.731	4.218	1.679	.811	.445	.311	.172	.120	.086	.065	.000
3	50	14.311	4.895	2.075	1.063	.606	.375	.250	.168	.127	.093	.000
4	50	14.490	4.904	2.284	1.215	.715	.445	.304	.213	.156	.118	.000
5	50	14.559	5.140	2.400	1.313	.793	.511	.345	.247	.181	.138	.000
6	50	14.590	5.188	2.465	1.377	.840	.547	.384	.277	.206	.161	.000
7	50	14.600	5.220	2.490	1.406	.879	.590	.409	.295	.220	.181	.000
8	50	14.618	5.243	2.515	1.438	.909	.597	.429	.311	.240	.188	.000
9	50	14.627	5.256	2.531	1.445	.922	.627	.438	.327	.254	.193	.000
10	50	14.631	5.265	2.554	1.454	.936	.636	.447	.343	.268	.200	.000
Infinite	50	14.636	5.279	2.565	1.493	.972	.681	.502	.386	.304	.209	.000

B. End Wall

Length of Court in Terms of Width

Per Cent Illumination at Either End of Wall at Given Distance from Top

Distance down from top in terms of width	0	1	2	3	4	5	6	7	8	9	10	Infinite
0		.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
1	50	27.690	11.797	6.163	3.672	2.418	1.704	1.238	.963	.770	.629	.000
2	50	33.456	18.036	10.445	6.615	4.502	3.238	2.211	1.890	1.506	1.231	.000
3	50	34.681	20.397	12.843	8.622	6.193	4.504	3.443	2.704	2.179	1.786	.000
4	50	35.040	21.363	14.090	9.868	7.227	5.477	4.265	3.400	2.768	2.293	.000
5	50	35.177	21.788	14.763	10.650	8.002	6.195	4.913	3.968	3.268	2.734	.000
6	50	35.243	22.009	15.125	11.122	8.522	6.711	5.409	4.427	3.681	3.114	.000
7	50	35.281	22.131	15.352	11.420	8.875	6.990	5.552	4.781	4.020	3.418	.000
8	50	35.306	22.200	15.481	11.609	9.113	7.350	6.063	5.065	4.290	3.679	.000
9	50	35.313	22.250	15.570	11.750	9.284	7.550	6.272	5.284	4.504	3.893	.000
10	50	35.315	22.275	15.629	11.834	9.395	7.693	6.427	5.475	4.684	4.070	.000
Infinite	50	35.340	22.361	15.809	12.125	9.811	8.222	7.075	6.195	5.515	4.979	.000

C. Bottom of Court

Length of Court in Terms of Width

Per Cent Illumination at Either Corner of Bottom at Inner End in Court of Given Height

Distance down from top in terms of width	0	1	2	3	4	5	6	7	8	9	10	Infinite
0		.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
1	50	11.140	2.784	.990	.450	.240	.145	.090	.056	.040	.034	.000
2	50	18.995	7.113	3.077	1.529	.861	.522	.340	.225	.165	.125	.000
3	50	21.904	9.981	5.029	2.765	1.647	1.043	.697	.486	.347	.300	.000
4	50	23.154	11.627	6.475	3.859	2.440	1.606	1.106	.781	.570	.443	.000
5	50	23.779	12.586	7.459	4.711	3.122	2.140	1.518	1.100	.820	.643	.000
6	50	24.136	13.175	8.138	5.359	3.688	2.618	1.900	1.413	1.075	.715	.000
7	50	24.356	13.556	8.604	5.845	4.143	3.022	2.475	1.709	1.313	1.047	.000
8	50	24.502	13.822	8.940	6.211	4.522	3.356	2.545	1.965	1.543	1.240	.000
9	50	24.604	14.006	9.181	6.484	4.786	3.629	2.802	2.197	1.756	1.418	.000
10	50	24.677	14.143	9.363	6.697	5.013	3.859	3.022	2.386	1.938	1.584	.000
Infinite	50	24.990	14.754	10.238	7.793	6.284	5.256	4.515	3.952	3.515	3.175	.000

TABLE III — DIRECT DAYLIGHT ILLUMINATION IN OUTER COURTS

Expressed as a per cent of the direct daylight illumination received by an unobstructed vertical wall.

A. Side Wall

Length of Court in Terms of Width

Per Cent Illumination at Inner End of Wall at Given Distance from Top

Distance down from top in terms of width	0	1	2	3	4	5	6	7	8	9	10	Infinite
0		50.000	50.000	50.000	50.000	50.000	50.000	50.000	50.000	50.000	50.000	50.000
1	50	22.280	16.515	15.301	14.940	14.799	14.735	14.690	14.674	14.667	14.665	14.636
2	50	16.515	8.436	6.574	5.715	5.585	5.499	5.392	5.363	5.342	5.330	5.279
3	50	15.301	6.574	4.150	3.347	3.006	2.840	2.740	2.683	2.658	2.647	2.565
4	50	14.940	5.715	3.347	2.430	2.028	1.822	1.710	1.651	1.601	1.572	1.493
5	50	14.799	5.585	3.006	2.028	1.586	1.351	1.224	1.156	1.103	1.074	.972
6	50	14.735	5.499	2.840	1.822	1.351	1.094	.974	.874	.833	.797	.681
7	50	14.690	5.392	2.740	1.710	1.224	.974	.818	.724	.658	.628	.502
8	50	14.674	5.363	2.683	1.651	1.156	.874	.724	.622	.567	.531	.386
9	50	14.667	5.342	2.658	1.601	1.103	.833	.658	.567	.508	.461	.304
10	50	14.665	5.330	2.647	1.572	1.074	.797	.628	.531	.461	.400	.209
Infinite	50	14.636	5.279	2.565	1.493	.972	.681	.502	.386	.304	.209	.000

B. End Wall

Length of Court in Terms of Width

Per Cent Illumination at Either End of Wall at Given Distance from Top

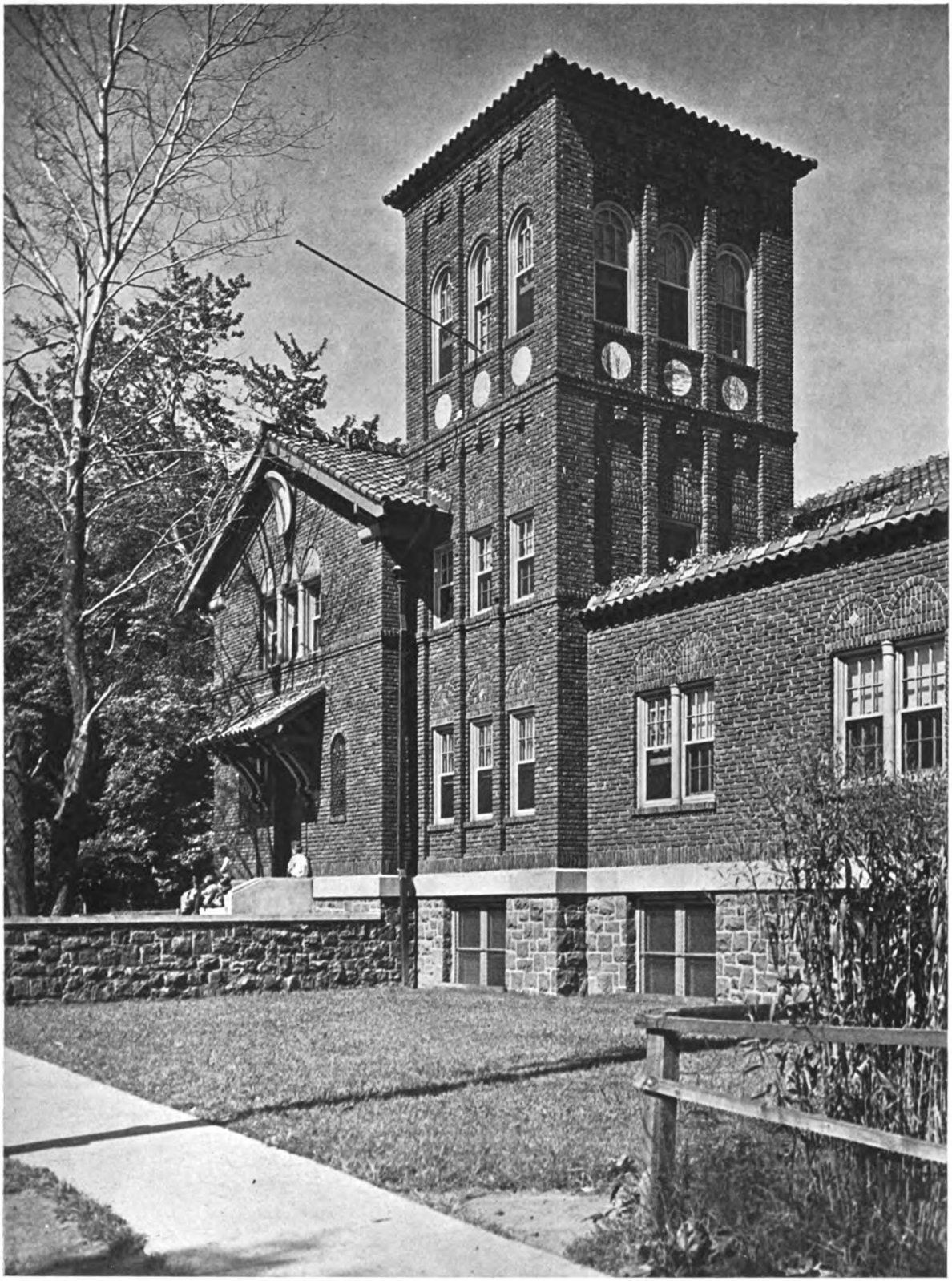
Distance down from top in terms of width	0	1	2	3	4	5	6	7	8	9	10	Infinite
0		50.000	50.000	50.000	50.000	50.000	50.000	50.000	50.000	50.000	50.000	50.000
1	50	38.830	30.792	28.067	26.826	26.197	25.840	25.594	25.465	25.374	25.306	24.990
2	50	36.240	25.149	20.426	18.242	17.088	16.413	15.767	15.712	15.512	15.374	14.754
3	50	35.671	23.474	17.872	15.097	13.652	12.642	12.047	11.644	11.360	11.149	10.238
4	50	35.490	22.892	16.855	13.727	11.938	10.836	10.110	9.611	9.252	8.990	7.793
5	50	35.417	22.649	16.410	13.090	11.124	9.883	9.056	8.490	8.054	7.747	6.284
6	50	35.388	22.531	16.168	12.728	10.662	9.329	8.431	7.783	7.310	6.973	5.256
7	50	35.371	22.471	16.049	12.526	10.393	8.890	8.027	7.326	6.822	6.440	4.515
8	50	35.362	22.425	15.967	12.390	10.213	8.763	7.772	7.030	6.487	6.065	3.952
9	50	35.353	22.415	15.917	12.320	10.104	8.625	7.585	6.827	6.260	5.831	3.515
10	50	35.349	22.400	15.929	12.277	10.038	8.408	7.474	6.715	6.102	5.654	3.175
Infinite	50	35.340	22.361	15.809	12.125	9.811	8.222	7.075	6.195	5.515	4.979	.000

C. Bottom of Court

Length of Court in Terms of Width

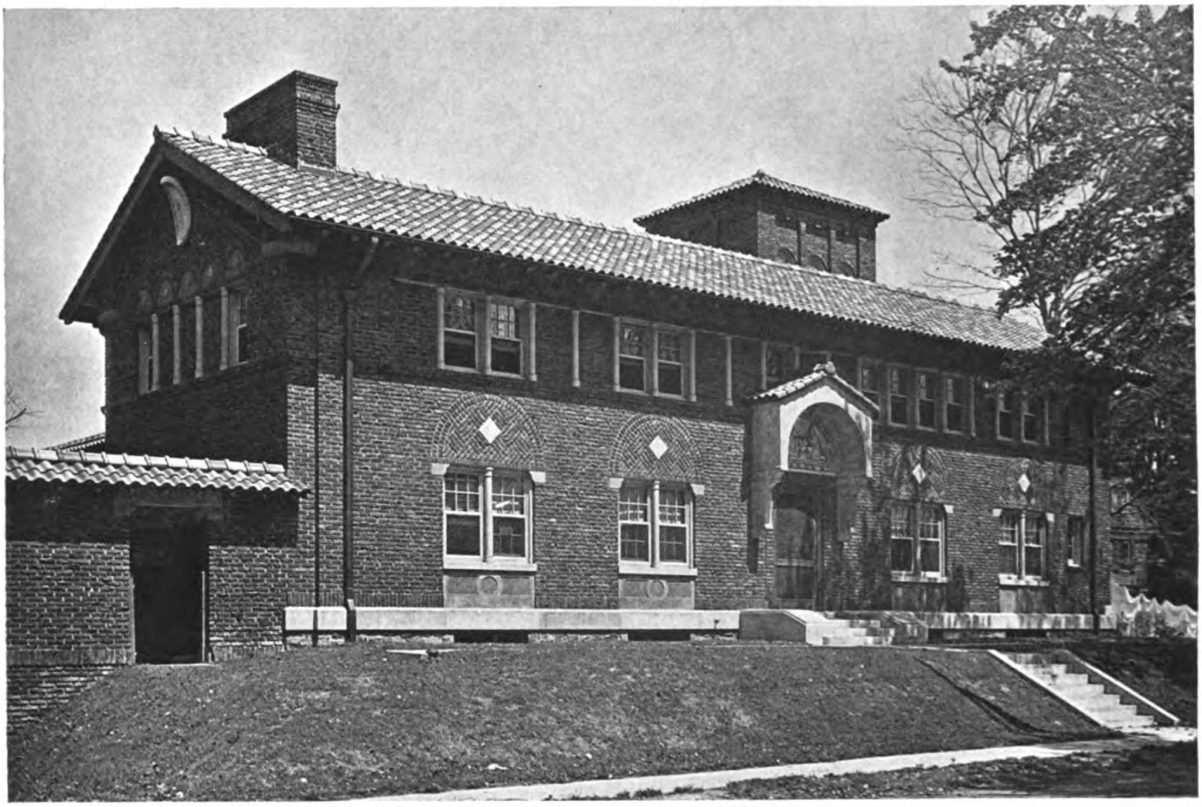
Per Cent Illumination at Either Corner of Bottom at Inner End in Court of Given Height

Distance down from top in terms of width	0	1	2	3	4	5	6	7	8	9	10	Infinite
0		50.000	50.000	50.000	50.000	50.000	50.000	50.000	50.000	50.000	50.000	50.000
1	50	38.830	36.240	35.671	35.490	35.417	35.388	35.371	35.362	35.353	35.349	35.340
2	50	30.792	25.149	23.474	22.892	22.649	22.531	22.471	22.425	22.415	22.400	22.361
3	50	28.067	20.426	17.872	16.855	16.410	16.168	16.049	15.967	15.917	15.929	15.809
4	50	26.826	18.242	15.097	13.727	13.090	12.728	12.526	12.390	12.320	12.277	12.125
5	50	26.197	17.088	13.652	11.938	11.124	10.662	10.393	10.213	10.104	10.038	9.811
6	50	25.840	16.413	12.642	10.836	9.883	9.329	8.890	8.763	8.625	8.408	8.222
7	50	25.594	15.767	12.047	10.110	9.056	8.431	8.027	7.772	7.585	7.474	7.075
8	50	25.465	15.712	11.644	9.611	8.490	7.783	7.326	7.030	6.827	6.715	6.195
9	50	25.374	15.512	11.360	9.252	8.054	7.310	6.822	6.487	6.260	6.102	5.515
10	50	25.306	15.374	11.149	8.990	7.747	6.973	6.440	6.065	5.831	5.654	4.979
Infinite	50	24.990	14.754	10.238	7.793	6.284	5.256	4.515	3.952	3.515	3.175	.000

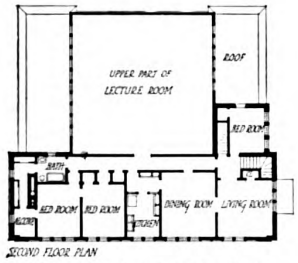


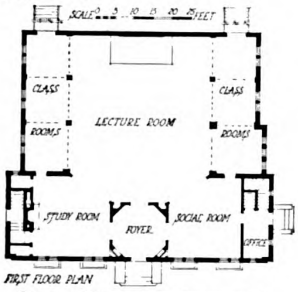
ENGLEWOOD NEIGHBORHOOD HOUSE, ENGLEWOOD, N. J.

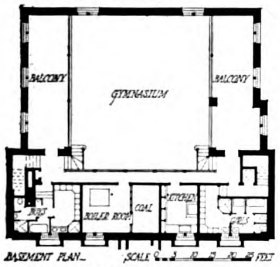
MANN & MacNEILLE, ARCHITECTS



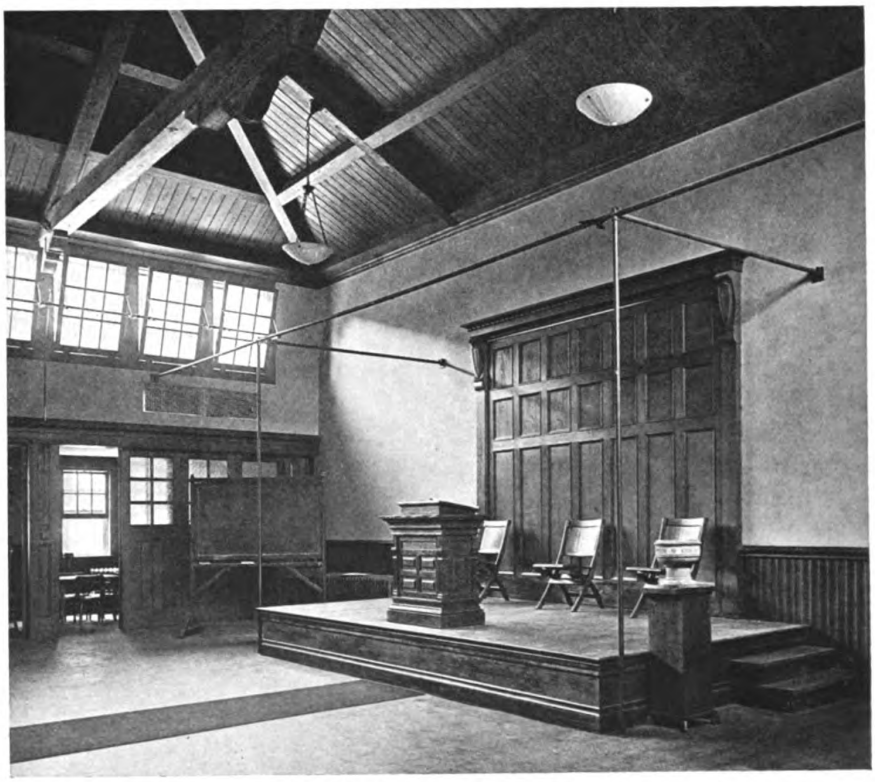
GENERAL VIEW OF EXTERIOR







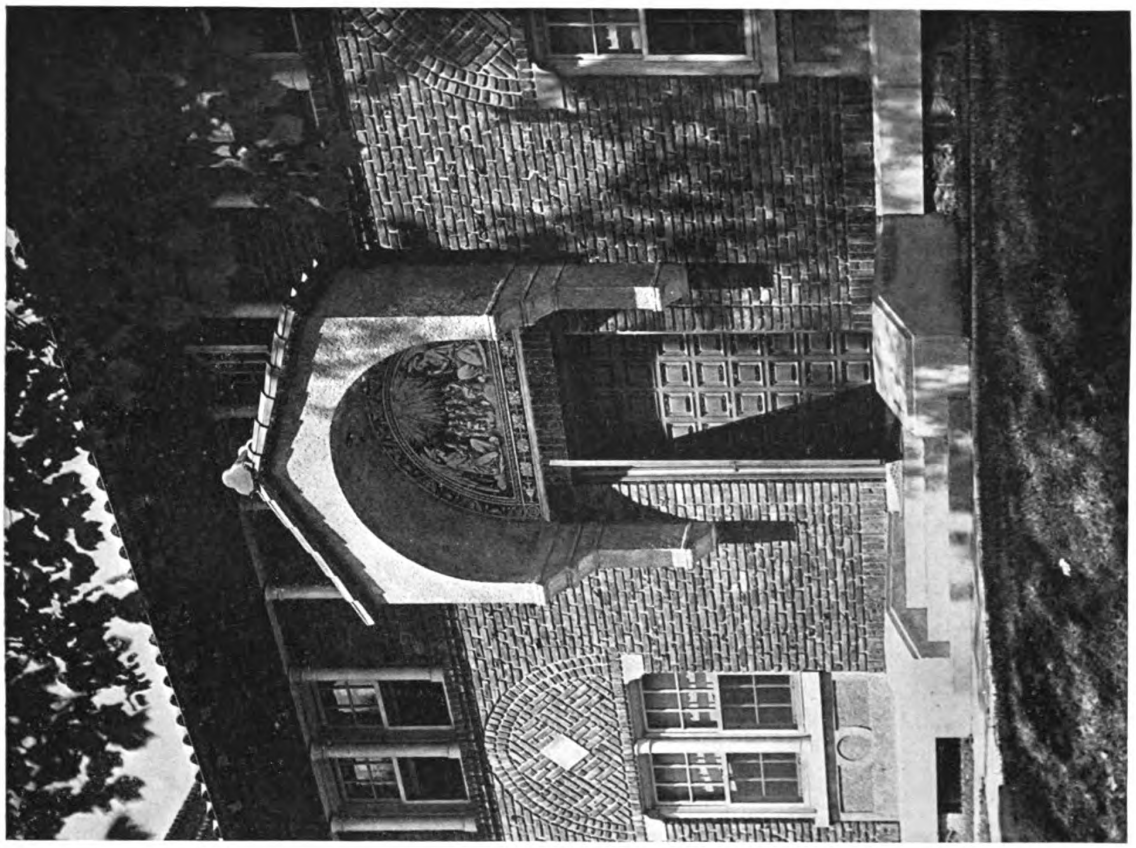
FLOOR PLANS



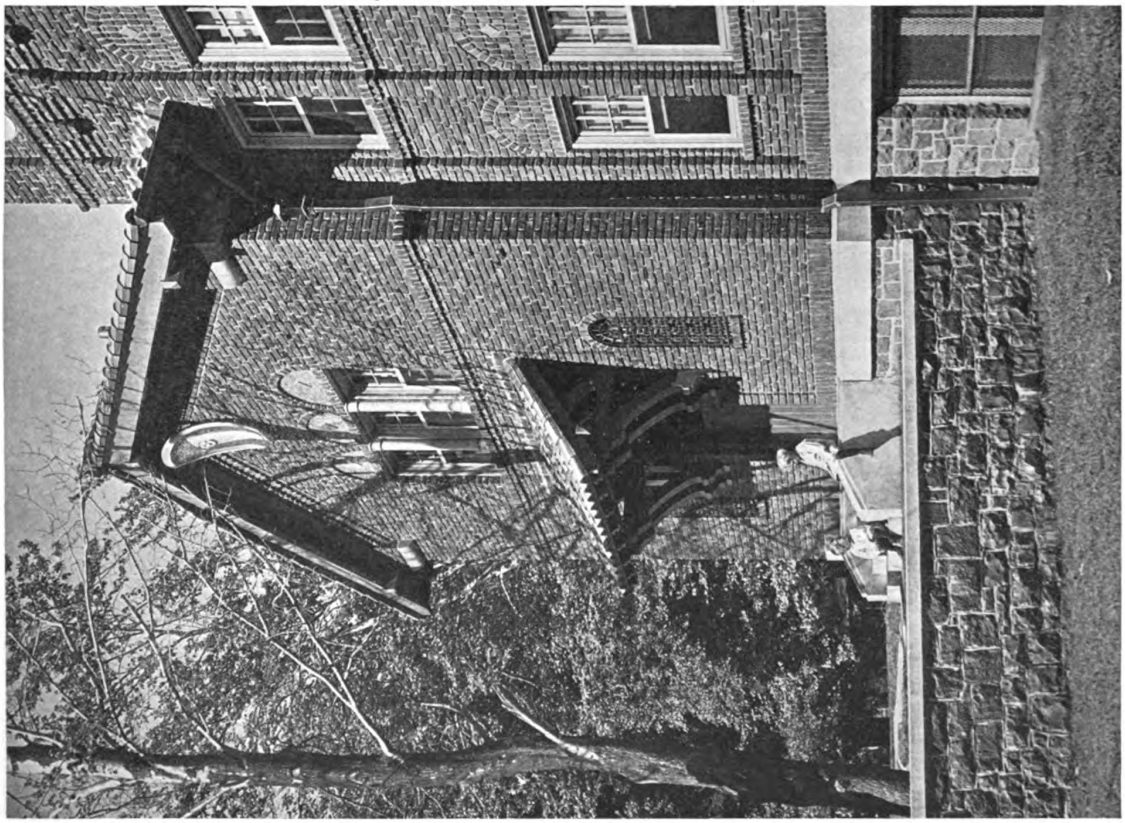
INTERIOR OF LECTURE ROOM

ENGLEWOOD NEIGHBORHOOD HOUSE, ENGLEWOOD, N. J.

MANN & MacNEILLE, ARCHITECTS



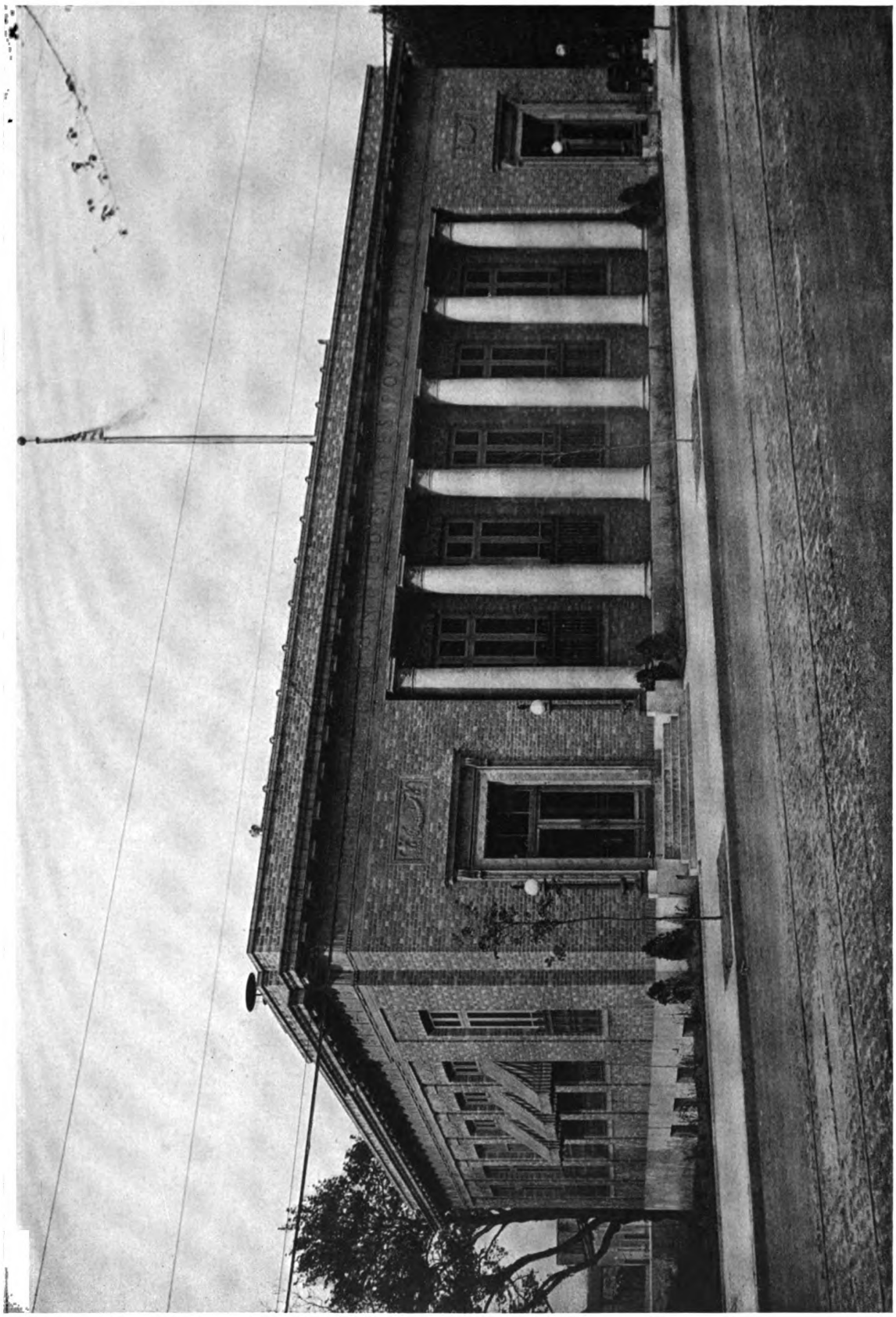
DETAIL OF MAIN ENTRANCE



DETAIL OF GABLE AND ENTRANCE

ENGLEWOOD NEIGHBORHOOD HOUSE, ENGLEWOOD, N. J.

MANN & MacNEILLE, ARCHITECTS



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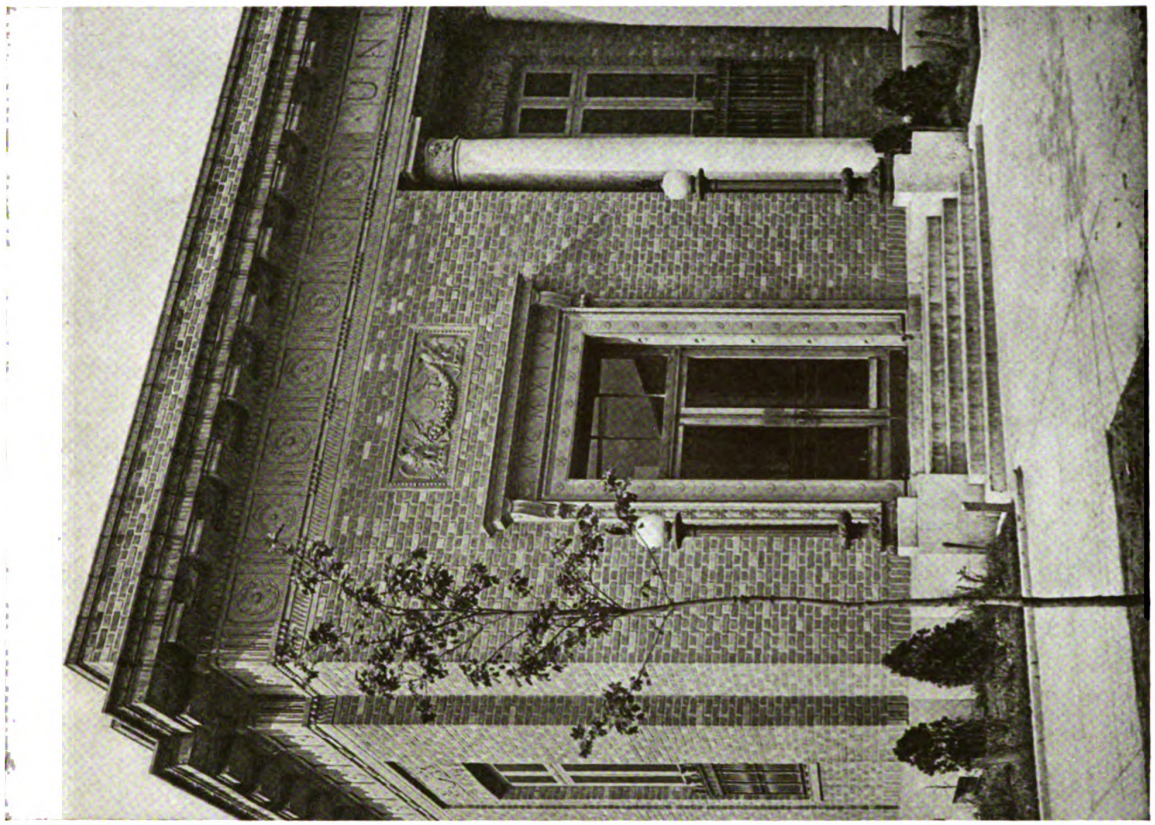
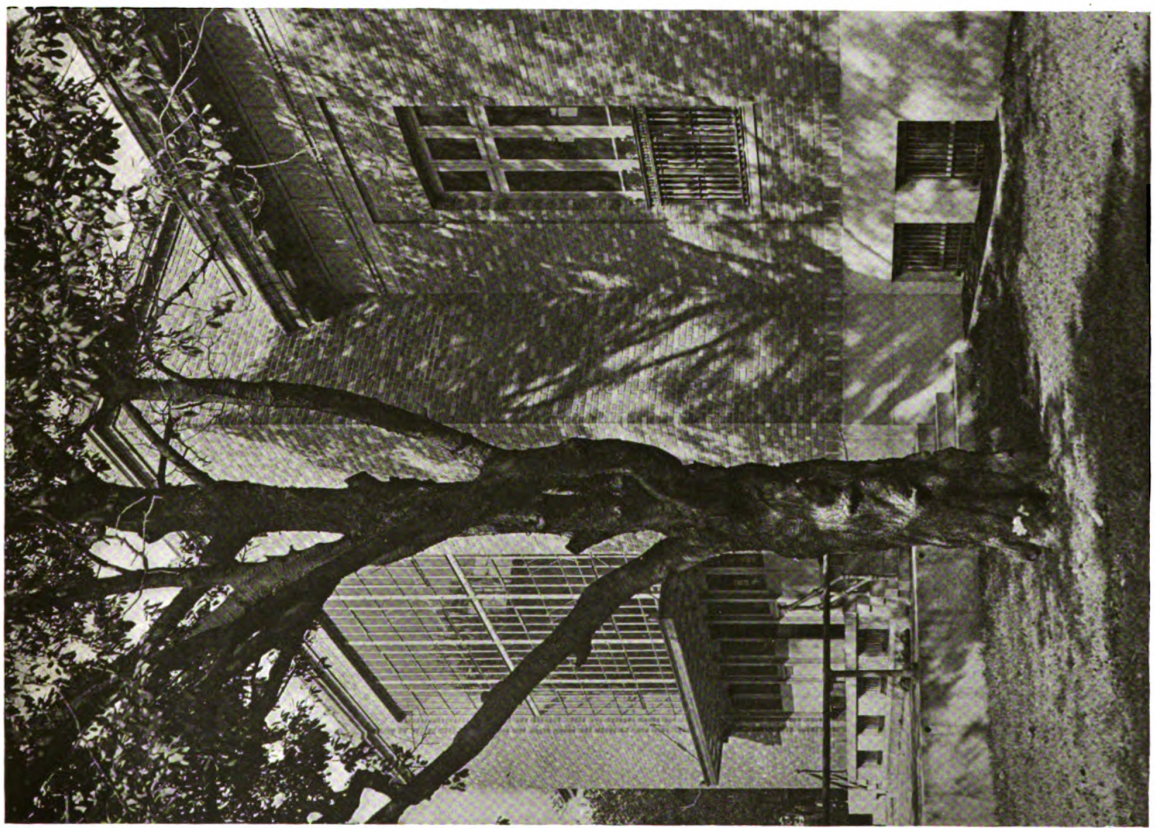


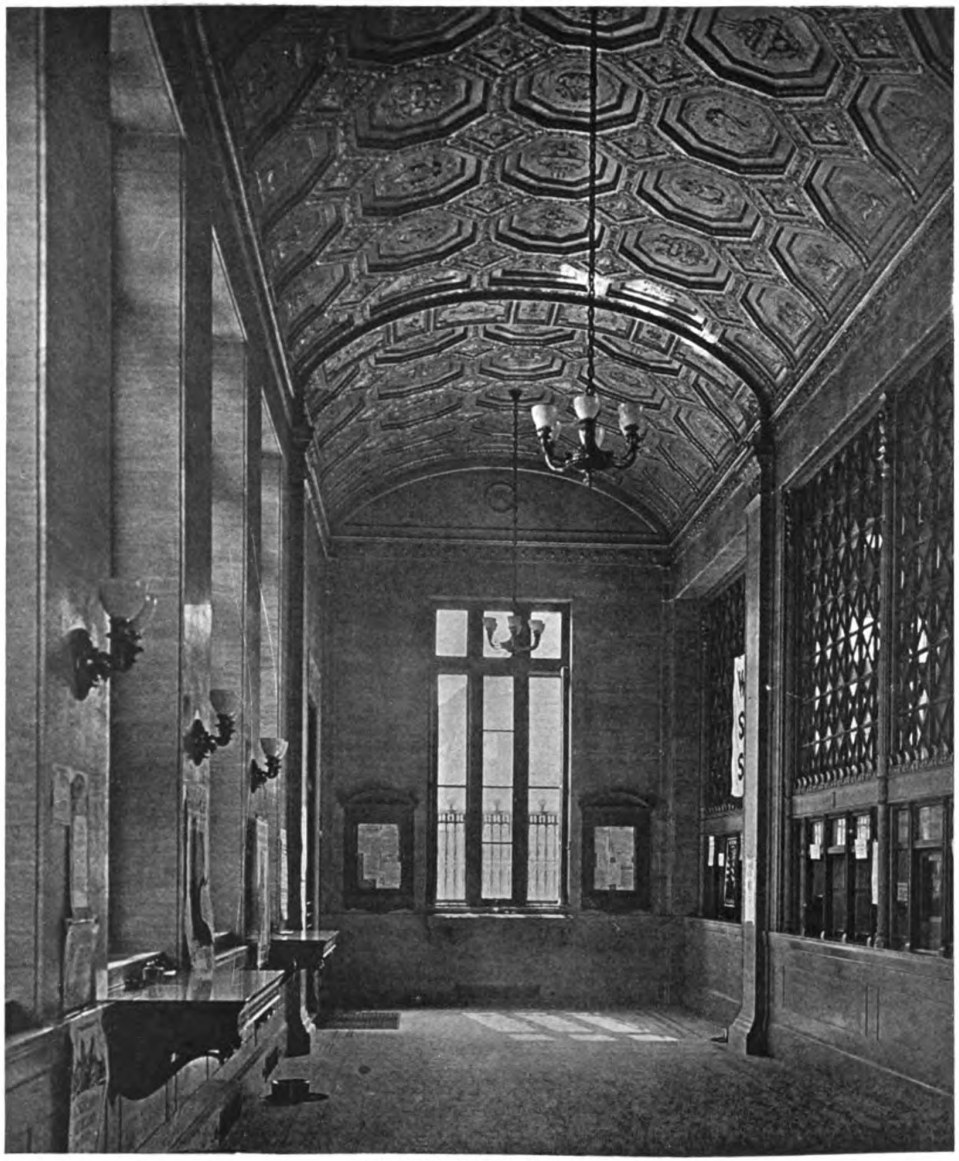
DETAIL OF LEFT ENTRANCE, MAIN FACADE



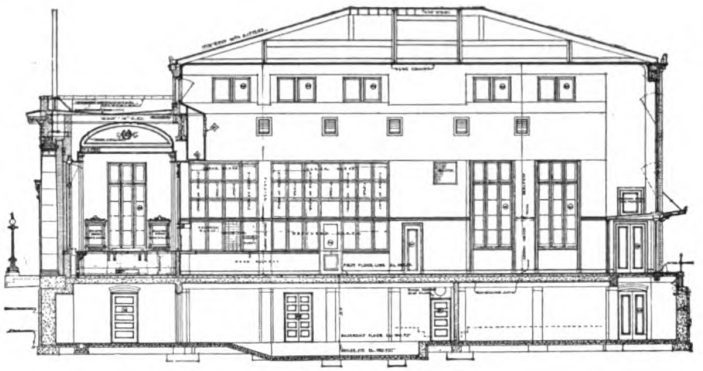
VIEW OF REAR SHOWING MAILING PLATFORM

UNITED STATES POST OFFICE, ORANGE, N. J.

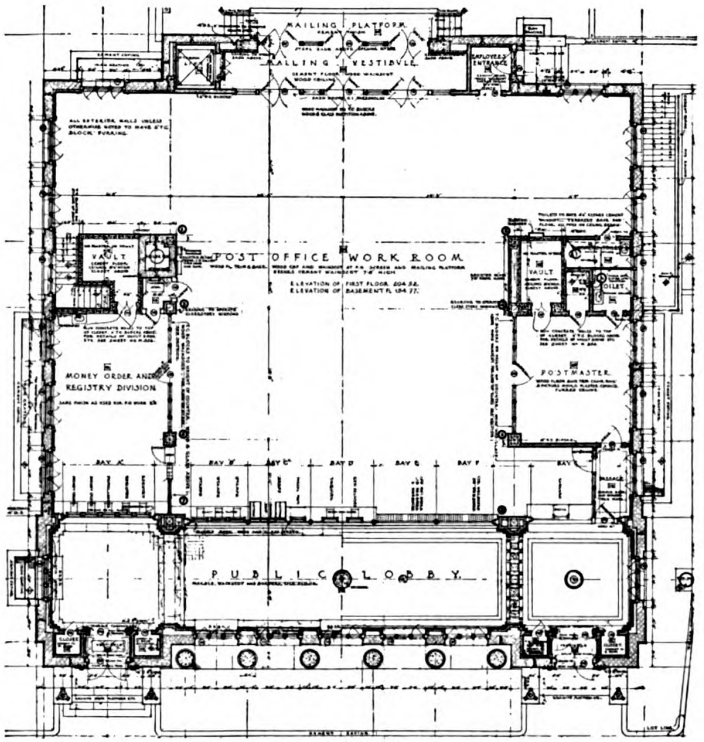
YORK & SAWYER, ARCHITECTS



INTERIOR OF PUBLIC LOBBY



LONGITUDINAL SECTION



FIRST FLOOR PLAN

UNITED STATES POST OFFICE, ORANGE, N. J.

YORK & SAWYER, ARCHITECTS

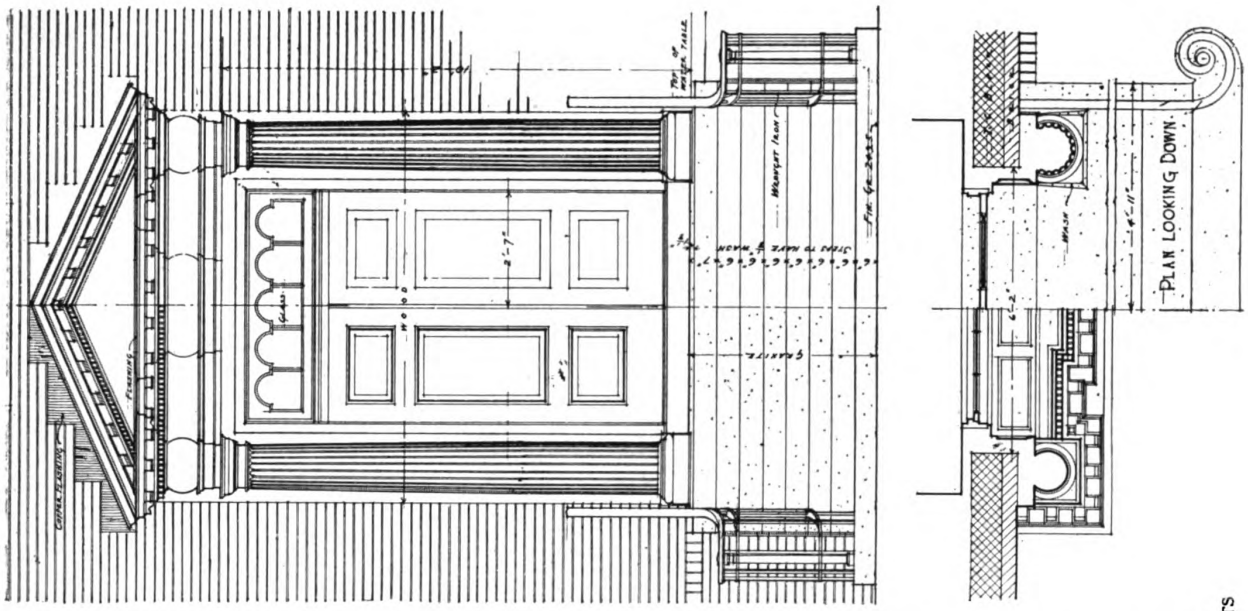
FIRST FLOOR PLAN

SECOND FLOOR PLAN

VIEW OF MAIN FACADE

TOWN OFFICE BUILDING, READING, MASS.

ADDEN & PARKER AND G. H. SIDEBOTTOM, ARCHITECTS



DETAIL OF SIDE ENTRANCE

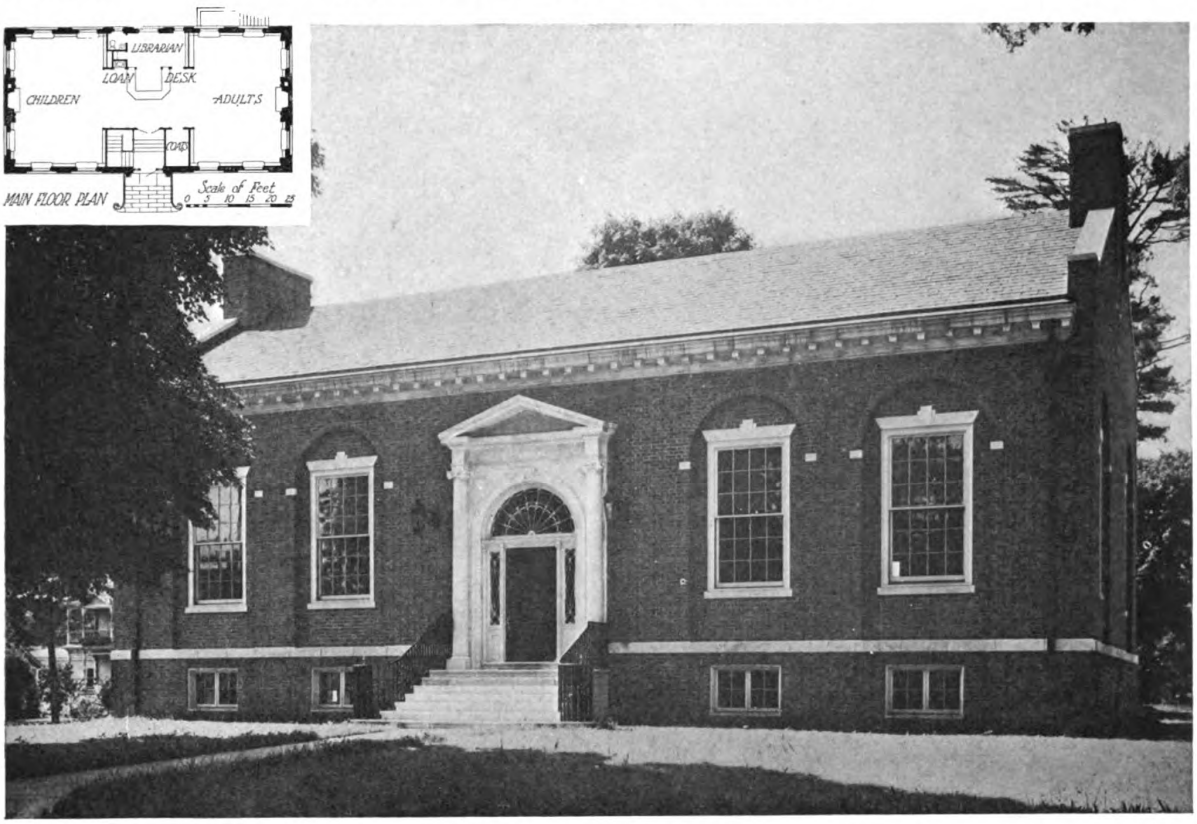
TOWN OFFICE BUILDING, READING, MASS.

ADDEN & PARKER AND G. H. SIDEBOTTOM, ARCHITECTS

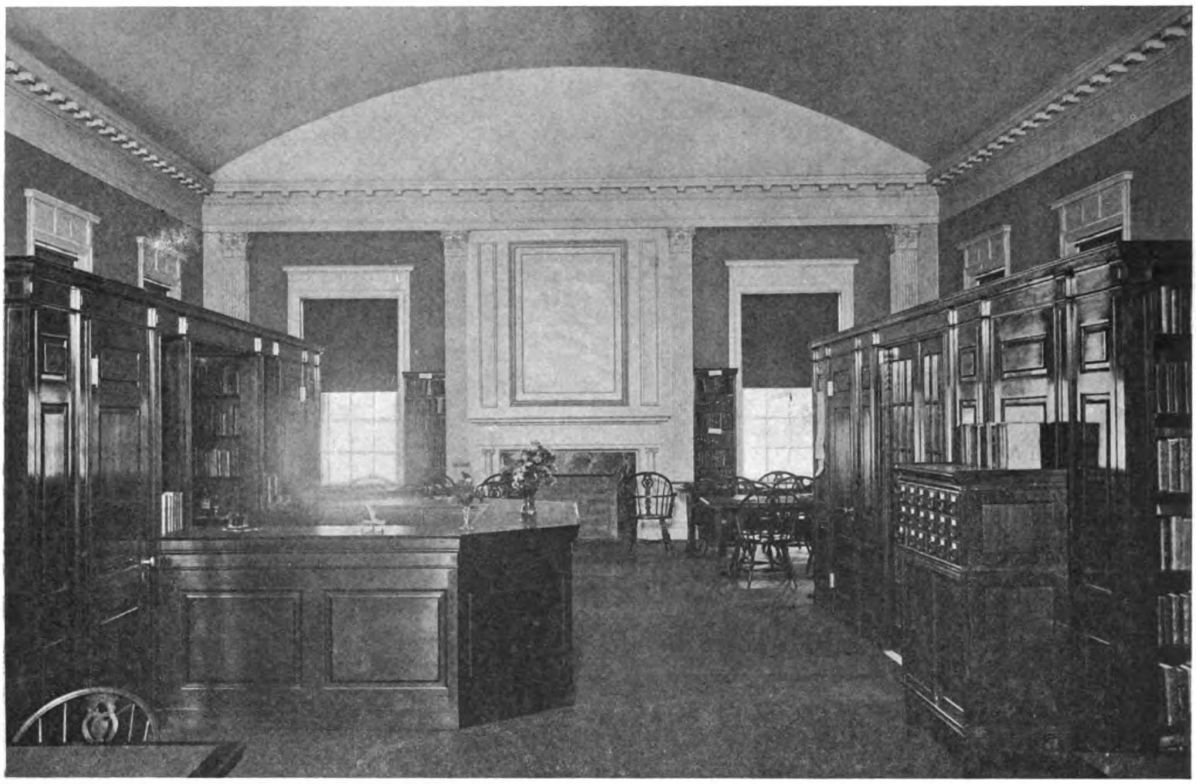
GENERAL VIEW OF LIBRARY AND TOWN OFFICE BUILDING

PUBLIC LIBRARY BUILDING, READING, MASS.

ADDEN & PARKER, ARCHITECTS



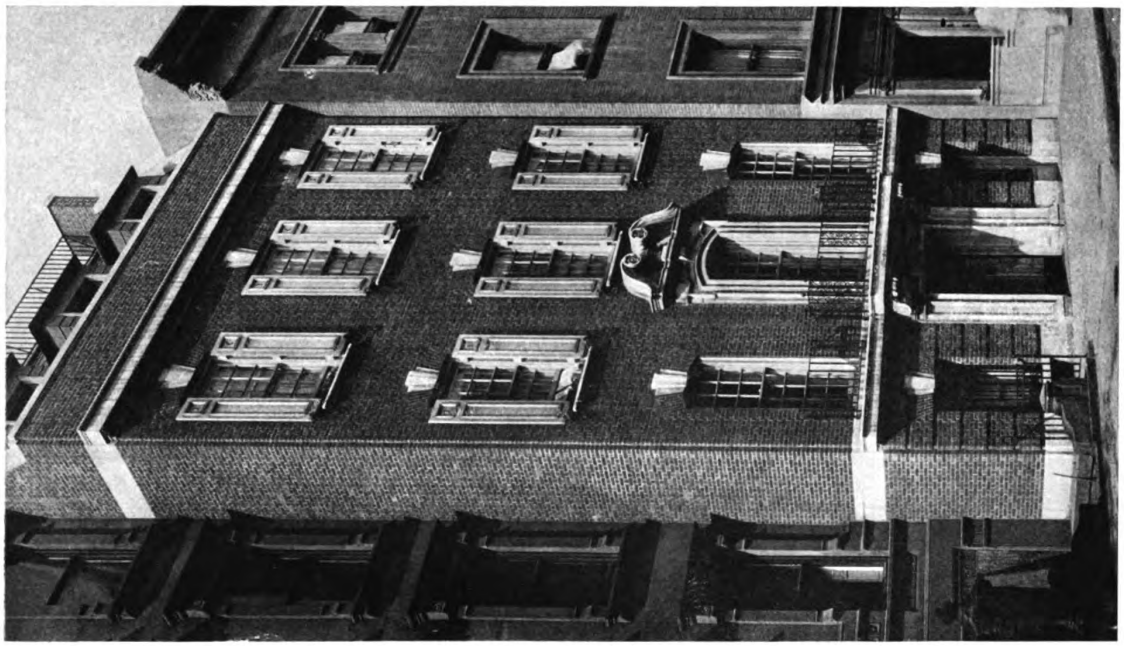
GENERAL VIEW OF EXTERIOR



GENERAL VIEW OF INTERIOR

PUBLIC LIBRARY BUILDING, SEYMOUR, CONN.

MURPHY & DANA, ARCHITECTS

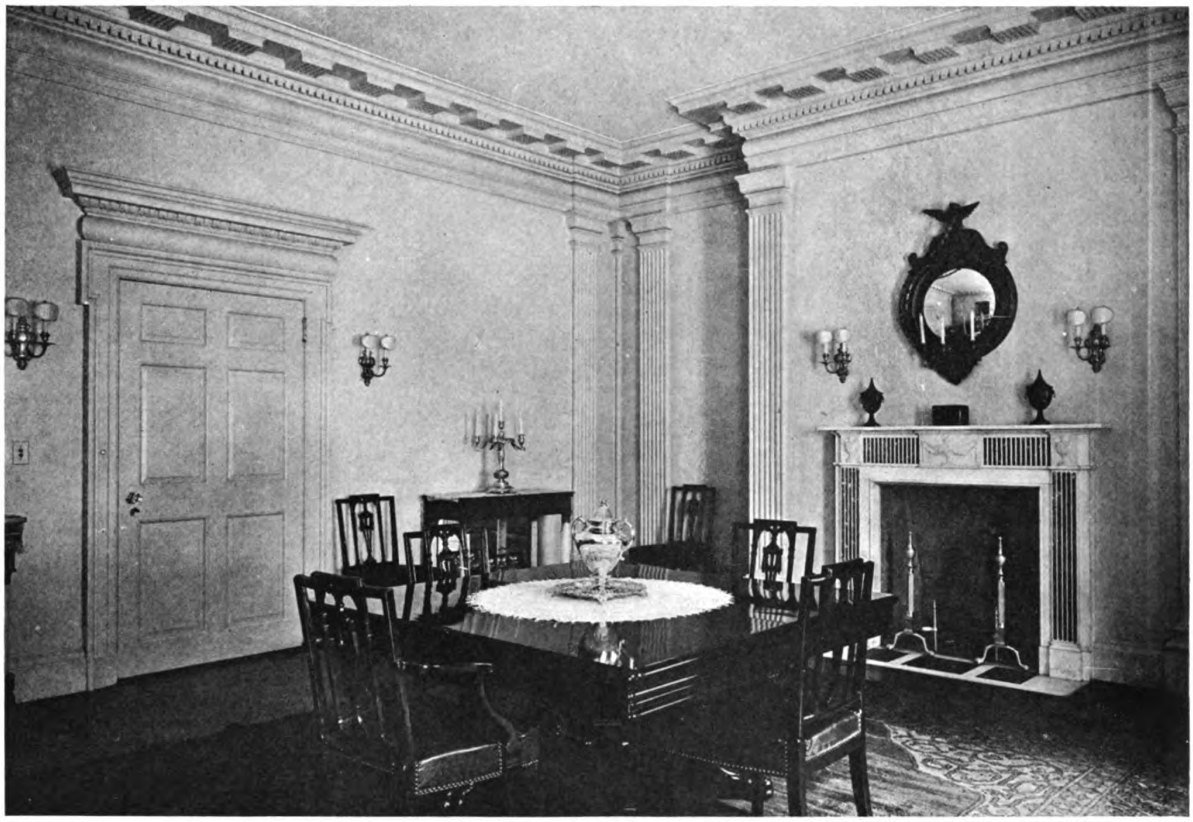


GENERAL VIEW OF FACADE

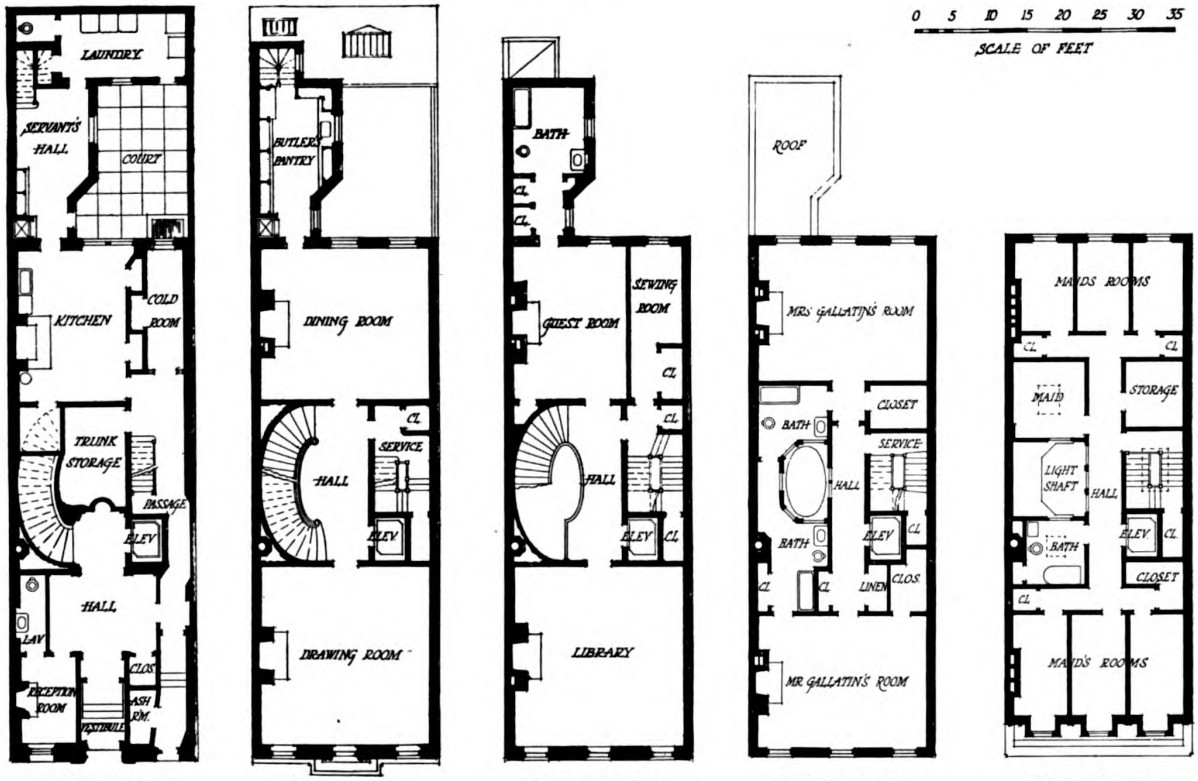
DETAIL OF LOWER STORIES

HOUSE IN EAST SEVENTY-FIFTH STREET, NEW YORK, N. Y.

F. BURRALL HOFFMAN, JR., ARCHITECT



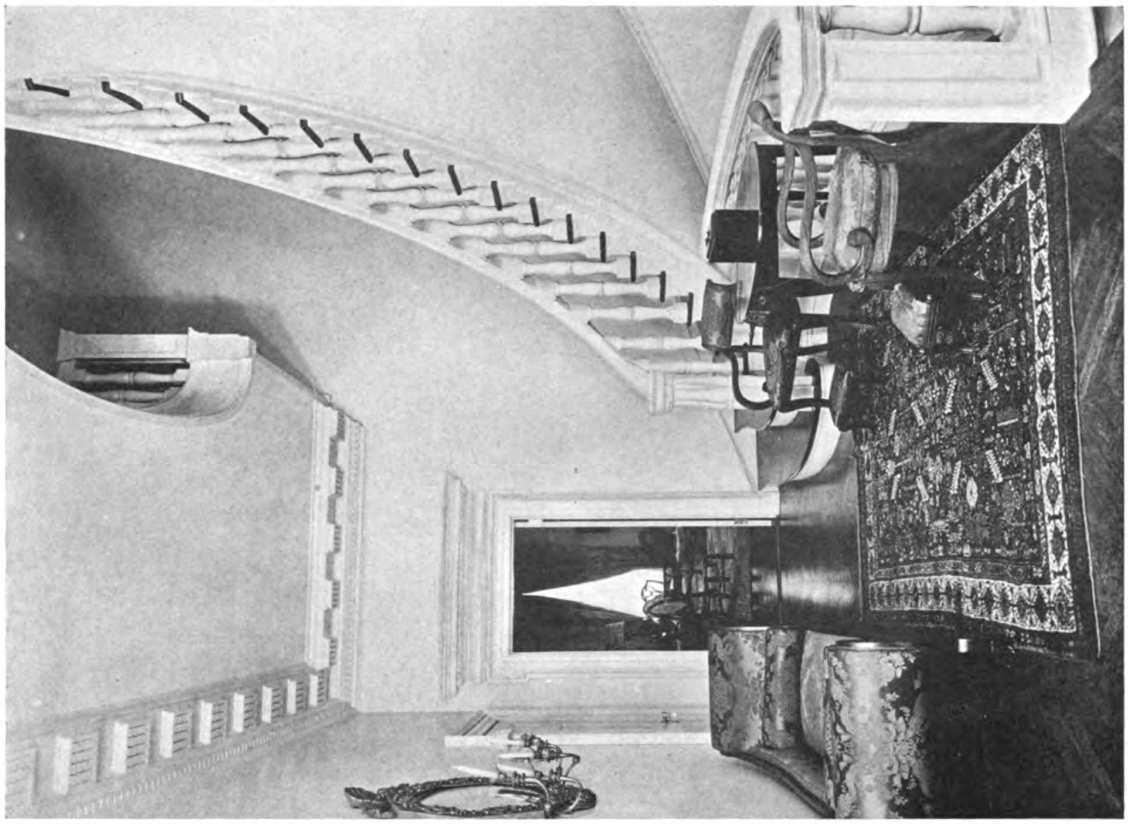
DINING ROOM



GROUND FLOOR FIRST FLOOR SECOND FLOOR THIRD FLOOR FOURTH FLOOR

HOUSE IN EAST SEVENTY-FIFTH STREET, NEW YORK, N. Y.

F. BURRALL HOFFMAN, JR., ARCHITECT



FIRST FLOOR HALL AND STAIRS

VIEW OF DRAWING ROOM

HOUSE IN EAST SEVENTY-FIFTH STREET, NEW YORK, N. Y.

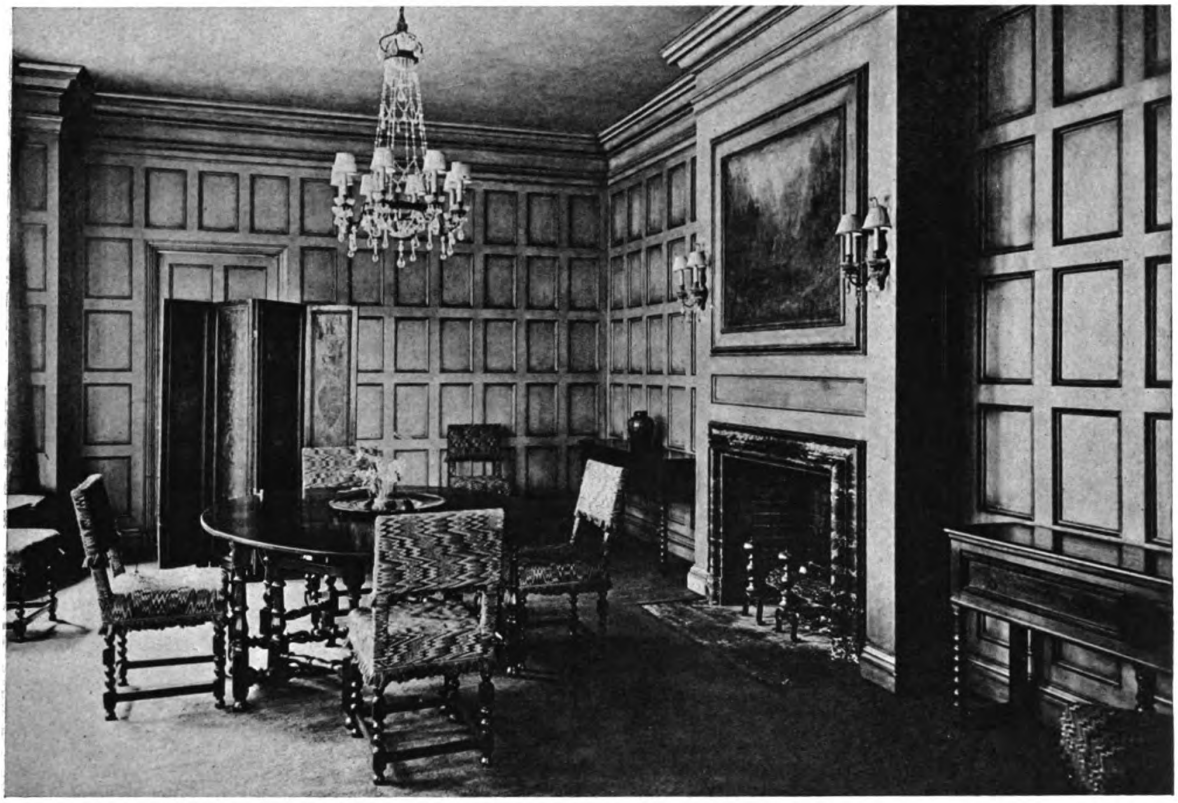
F. BURRALL HOFFMAN, JR., ARCHITECT

GENERAL VIEW OF FACADE

DETAIL OF ENTRANCE

HOUSE OF JAMES M. LEOPOLD, ESQ., EAST EIGHTIETH STREET, NEW YORK, N. Y.

HARRY ALLAN JACOBS, ARCHITECT



VIEW OF DINING-ROOM

GROUND FLOOR FIRST FLOOR SECOND FLOOR THIRD FLOOR FOURTH FLOOR

HOUSE OF JAMES M. LEOPOLD, ESQ., EAST EIGHTIETH STREET, NEW YORK, N. Y.

HARRY ALLAN JACOBS, ARCHITECT

LIVING-ROOM LOOKING TOWARD BALCONY

LIVING-ROOM LOOKING TOWARD STREET

HOUSE OF JAMES M. LEOPOLD, ESQ., EAST EIGHTIETH STREET, NEW YORK, N. Y.

HARRY ALLAN JACOBS, ARCHITECT

The Offices of Albert Kahn, Architect, Detroit, Michigan

By GEORGE C. BALDWIN

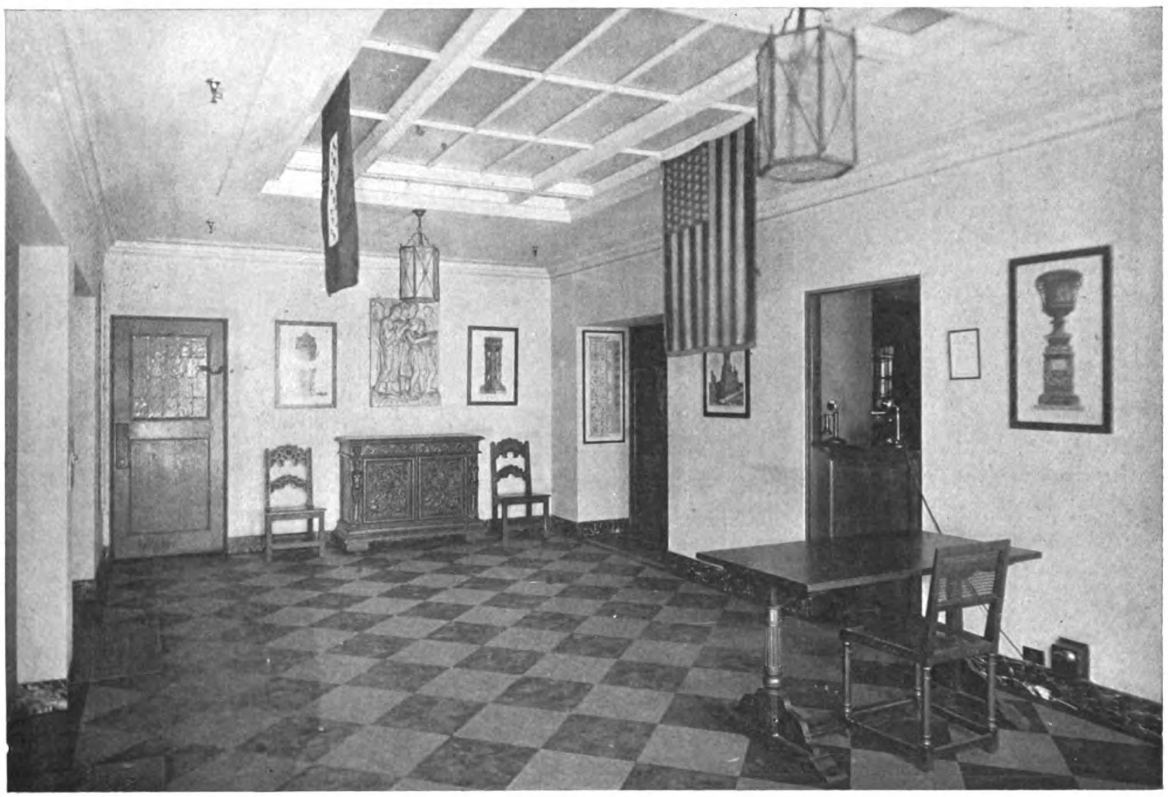
THE offices of Albert Kahn, Architect, occupy the entire upper floor of the Marquette Building, a structure originally used as a power building and recently remodeled into a loft building.

The offices were especially designed by Mr. Kahn about two years ago with the idea of affording his organization every advantage and up-to-date facility for taking care of his business interests.

The various departments occupy approximately 14,000 feet of floor space. In addition to the executive and administrative offices, lobby, corridors, vaults, toilets, sample room, girls' rest room, reception and conference rooms and library, there are two large drafting rooms, separate structural and mechanical engineering rooms, designing room, two specification rooms, one for the specification writers and a separate room for the typing and assembling of specifications, chief superintendent's office and field superintendent's room, estimating room for contractors, two filing rooms for contracts, correspondence, etc. The executive offices and conference rooms are arranged along one side of the building, the drafting rooms on the other. The mechanical engineering department is at one extreme corner, the structural engineering department at the opposite corner. The grouping of contractors' space for estimating, the accounting department, and the chief superintendent's office, as well as the office for field superintendents, works out particularly well. It brings these closely related departments into easy communication with one another.

Entrance to the lobby is direct from the public elevators and the position of the telephone room is such that the operator can see at once any one entering the office; there is one entrance from the outer lobby for the use of clients, another at the side for the use of contractors, and a third at the opposite side for the use of the employees who pass through the cloakroom to their respective rooms.

The placing and arrangement of the vault for filing of drawings is very satisfactory. It is conveniently near the drafting and specification rooms where reference to drawings is most often needed. The vault is large and high and so arranged that all drawings are readily accessible by means of a vertical suspension filing system and boxes for the folded, full-sized details. A copy of each specification is kept here in filing cabinets. An attendant is in charge, who



Entrance Lobby

passes out the drawings and keeps a record of their destination. He also sees to their being returned to their proper places.

The corridor running parallel to the large drafting room is arranged for the handling of blueprints, for packing and mailing; this work is thus kept out of the main drafting room.

Filing of correspondence is arranged by trades, and steel fireproof files are used for both current and transfer files. These files are concentrated in one room with a clerk in charge, thereby making it an orderly process to refer to any matter and avoiding the confusion that would be entailed if each department had individual files. The contractors' room is served by a plan room adjacent to the file room, where copies of current plans, specifications and bulletins are on file for use of contractors in taking off quantities and other data.

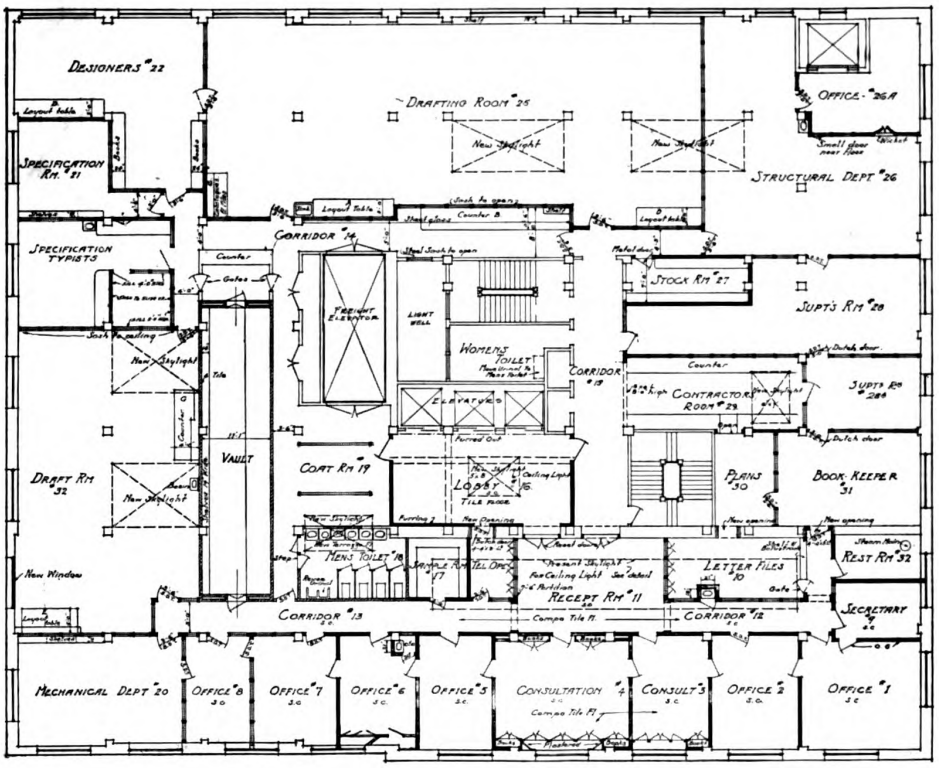
The offices of the executives are arranged in two groups at either side of the consultation room. The corridor which serves them is floored with composition tile to insure quietness. A very useful adjunct to the offices is a sample room off this corridor and conveniently near all the executive offices. Herein a fairly complete line of building materials is exhibited for office reference and the information of clients.

Interior of Typical Private Office

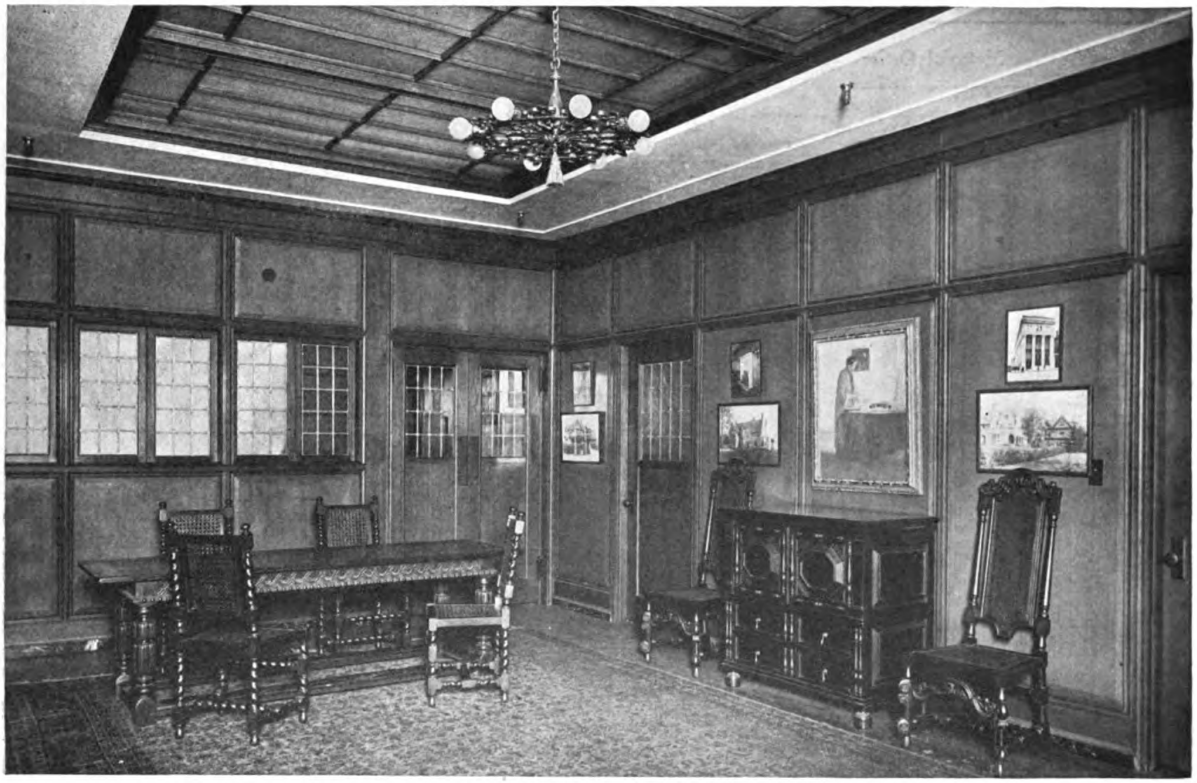
The several drafting rooms are divided by partitions glazed with clear glass. The private offices are divided by solid partitions.

Each office is equipped with a city telephone, an inter-office telephone and a buzzer. The city telephones are connected with a private switchboard in the information room at the entrance lobby. The inter-office telephone system is independent of the city lines and operates through an automatic switch-board.

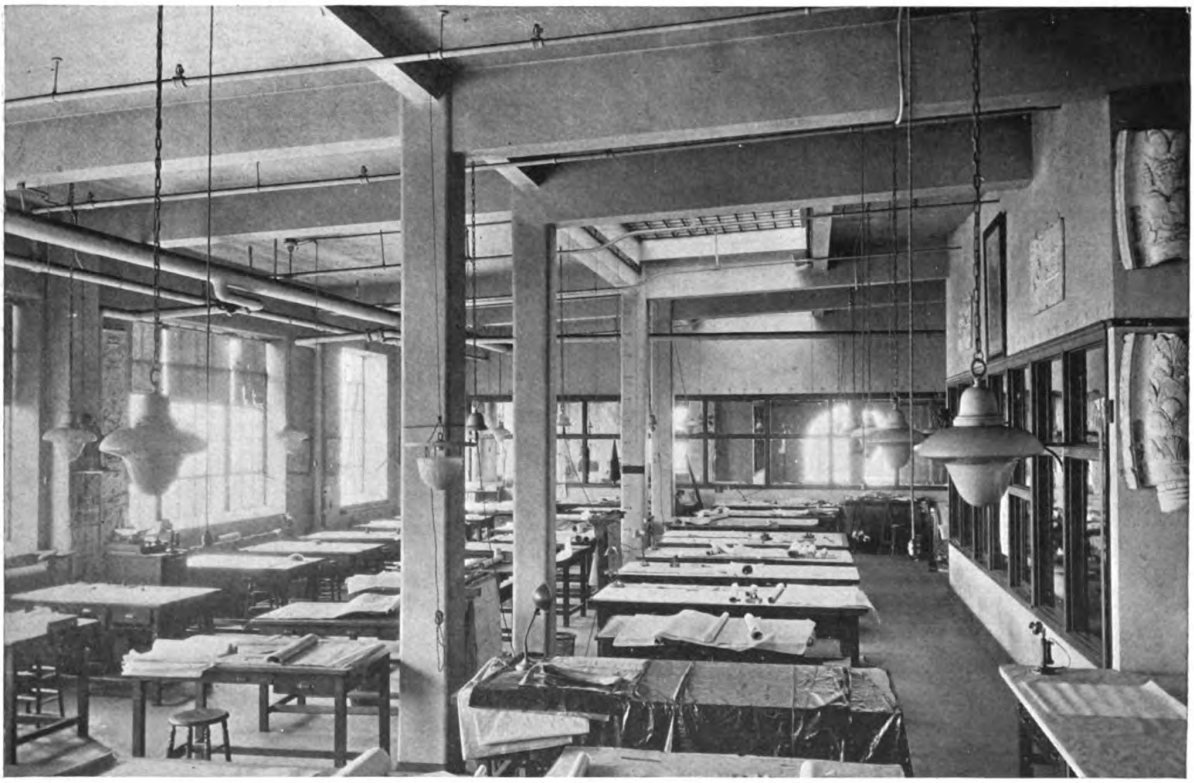
The outer lobby is treated with walls in imitation of Caen stone and hung with a number of Piranesi prints and plaster casts. The floor is of composition tile, finished at the walls with a black marble base. The inner lobby as well as the conference rooms are paneled to the ceiling in oak. These rooms have ornamental plaster ceilings. The larger conference room has a number of built-in bookcases, which hold the more important works of Mr. Kahn's library. The bound volumes of architectural magazines and other technical books are kept in the designers' room.



Floor Plan, Offices of Albert Kahn, Architect

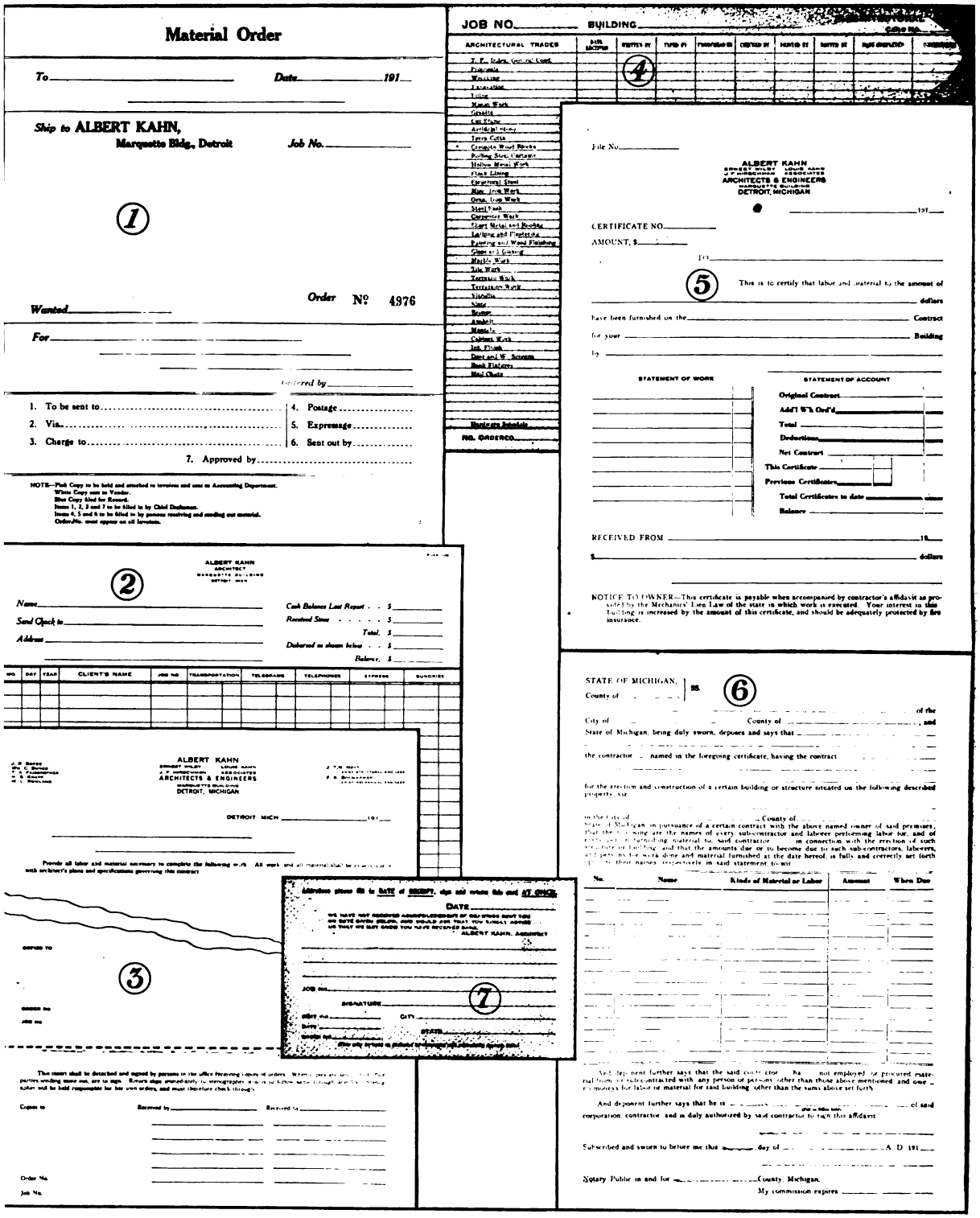


VIEW OF RECEPTION ROOM



VIEW OF LARGE DRAFTING ROOM

OFFICES OF ALBERT KAHN, ARCHITECT, DETROIT, MICH.

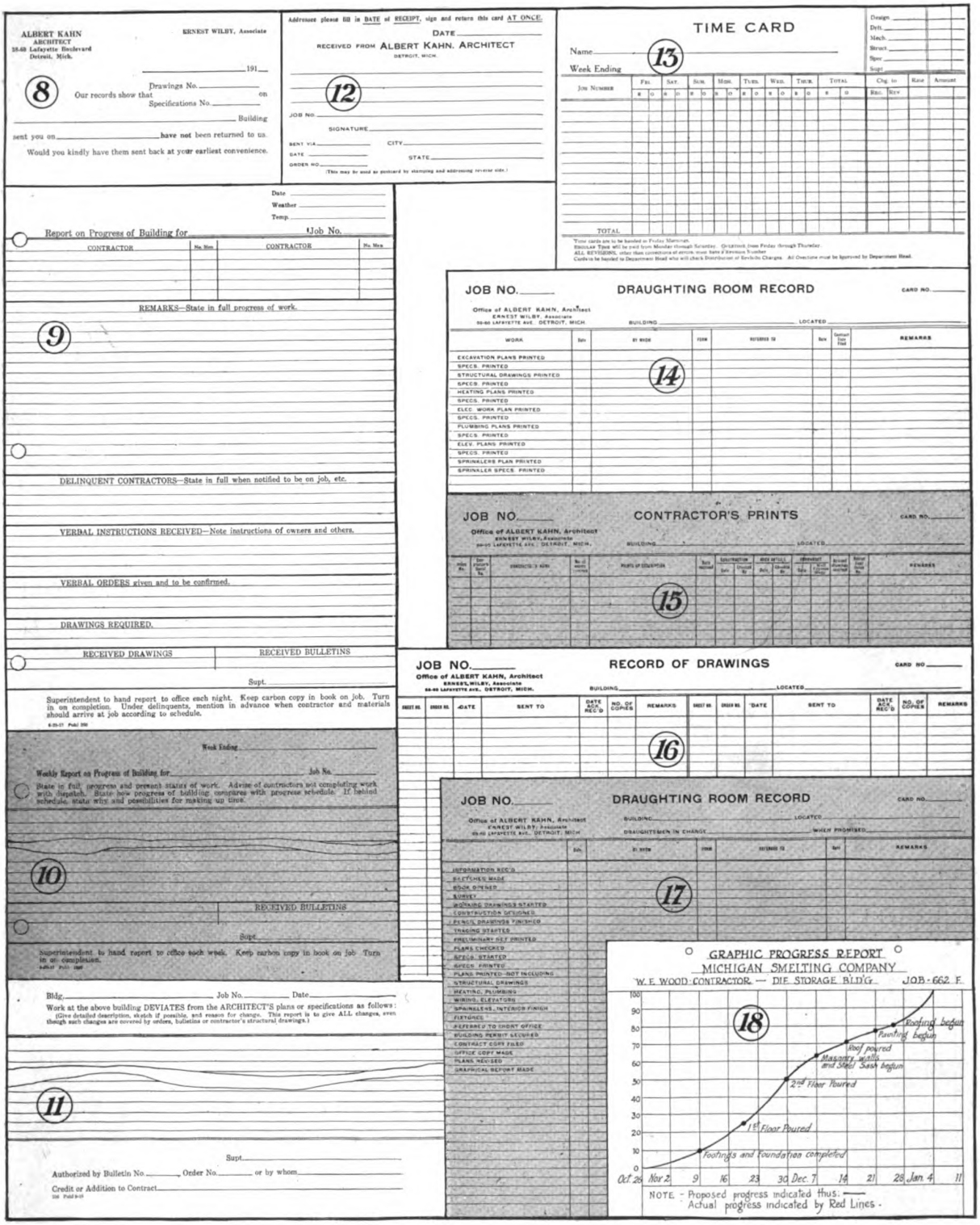


Material Order
Expense Account
Work Order on Contractors

4 Schedule of Sub-Contracts (Architectural)
Reverse of this card has schedule
of Mechanical Trades

5 Certificate for Payments
6 Reverse of Payment Certificate
7 "Follow-up" Receipt Card

REPRODUCTION OF FORMS IN USE IN THE OFFICES OF ALBERT KAHN, ARCHITECT



8 "Follow-up" Return Card
9 Superintendents' Daily Report
10 Supts.' Weekly Report (size 7½x10)
11 Superintendents' Report (size 8¼x10¾)
12 Receipt Card
13 Draftsman's Time Card
14 Office Print Record
15 Contractors' Print Record
16 Progress Record of Drawings
17 Office Record of the Commission
18 Graphic Progress Report

REPRODUCTION OF FORMS IN USE IN THE OFFICES OF ALBERT KAHN, ARCHITECT

In Mr. Kahn's practice, particular attention is paid to the business administration of the work. To this end a practical, up-to-date system and a staff of competent accountants are employed.

All departments have graphical progress reports for their work. At the beginning of any work the estimated progress is indicated by a curve in black ink on co-ordinate paper, and the actual progress recorded from day to day in red ink. Any marked divergence in these curves indicates serious delay, and daily inspection of the records enables prompt action to be taken to remove it. The superintendent reports his progress in this way and also by means of daily and weekly reports. Reproduction of the superintendent's progress schedule is shown herewith, others for drafting and specification rooms are similar. Thus a general and detailed supervision of all work is possible from the executive offices.

Examples of the various reports kept for the different items of work are illustrated herewith, also samples of reports and certificates. The general scheme of office procedure is, briefly, inter-office communication for preliminary notification or questions and bulletins for formal notification. The forms for these latter are not reproduced. They are on lightweight paper of standard letter size, green being used for inter-office communication and buff for bulletins. Deviations from plans and specifications as based on contract are formally ordered on official order blanks. These, together with contracts, give the accounting department all necessary information.

It could safely be assumed from the magnitude of work of consistently good character that this office produces, that its working plant would exhibit marks of orderly business arrangement. The brief description noted here, together with the reproductions of office forms in use, prove this thought not to be unfounded. Mr. Kahn's office is particularly successful in combining two ideals that must characterize any successful office. The dignity and art aspect of the architectural profession are fully represented, and to no less a degree is the business structure upon which harmonious professional relations depend recognized.

Interior View of Consultation Room
Offices of Albert Kahn, Architect, Detroit, Michigan

Housing Development for the United States Naval Ordnance Plant Near Charleston, West Virginia

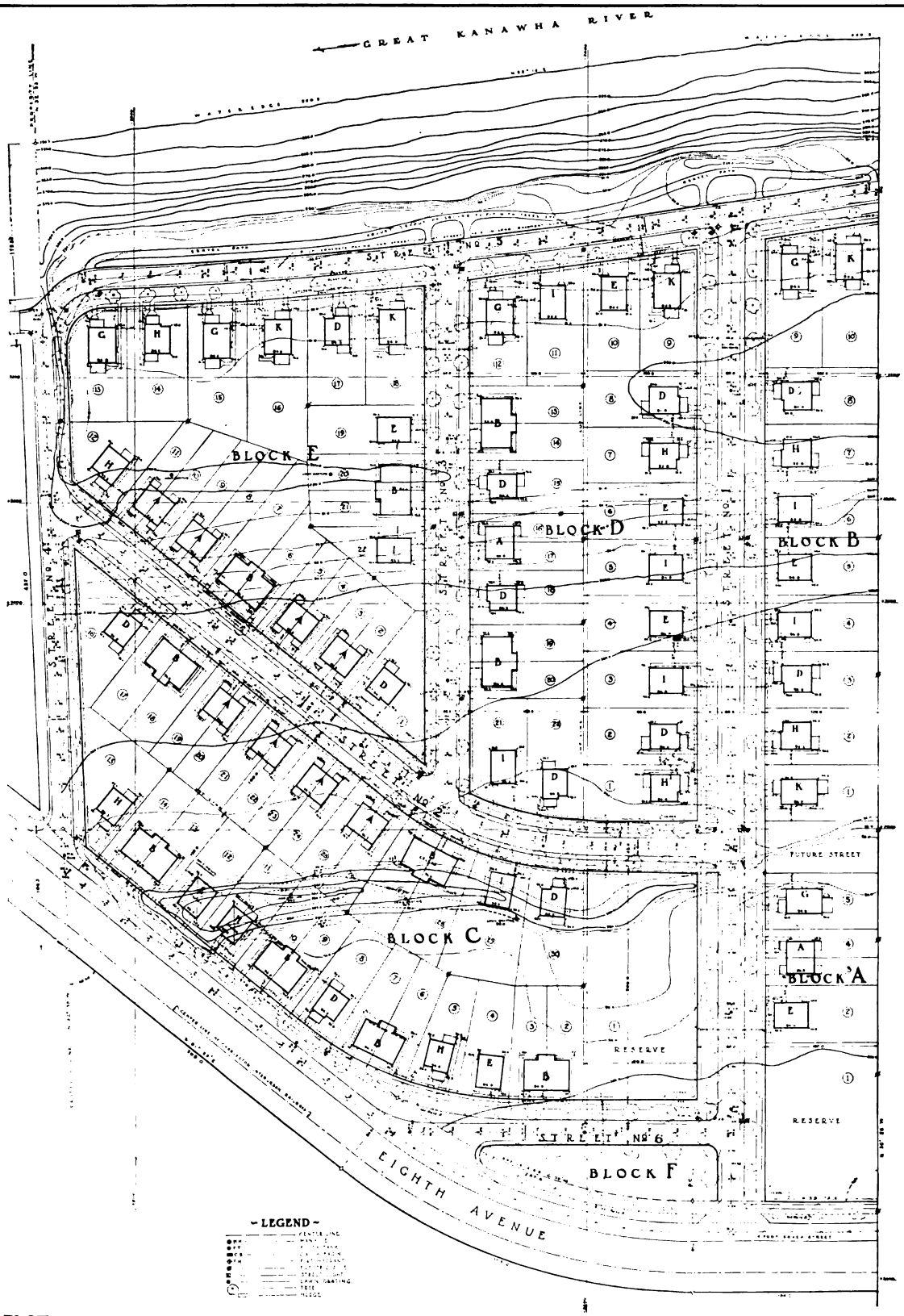
GODLEY, HASKELL & SEDGWICK, ARCHITECTS

By CHARLES C. MAY

NOT long hence it will become possible for the earliest of the housing developments sponsored by the United States Government, to be set up for comparison alongside the best of those previously built under private initiative. When that time comes, it is inevitable that not every comment will be favorable; some parallels will be drawn with results that seem adverse to the government projects. It is not impossible, of course, that some such comparisons may be grounded in fact; on the other hand, it is far more probable that an adverse judgment may be rendered superficially, through losing sight of the fundamentals in the situation.

Under private enterprise, there have been numbers of developments undertaken where the financial balance sheet could not be considered economically sound. In some cases the companies have frankly classed their provision of houses, clubs, hospitals, libraries and other community features, as a philanthropy — as bread cast upon the waters near at hand, in hope that favoring winds might keep it from being scattered. Others have accepted an absence of return or a deficit on their housing investment, as a loss only in appearance, maintaining that their returns, while difficult to present in figures, were just as certainly to be found in other columns of the balance sheet — in a bettered efficiency of the individual workman, in a bettered morale of the workshop — in a host of other details all contributing to the single all-inclusive item, a diminishing charge for labor turnover. In other cases, in order to fight rising costs of construction and to minimize first investments, owners have consented to construction of doubtful solidity, gambling on the future maintenance costs as against initial outlay.

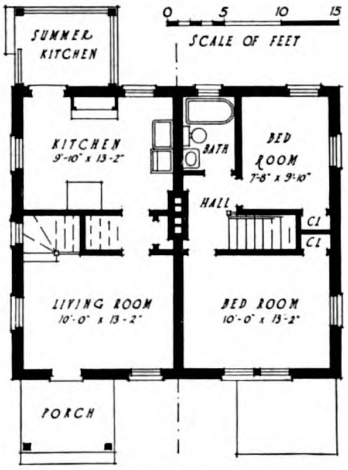
It is the aim of the United States Housing Corporation, in so far as such a thing is possible, to avoid both these conditions — and it thereby multiplies in manifold ways the difficulties of the problems it has taken upon itself. Leaving out of account for the moment the whole class of developments where construction is purely temporary, the Housing Corporation proposes to regard all its housing commitments from the point of view of long-term investments. The increased costs resulting from the adoption of this standard of building for permanency form a handicap which the government has at the outset volunteered to carry. The next element of difficulty arises from the fact that the Housing Corporation is operating on a tremendous scale, in a market from which private interests had long since been driven by war prices and war restrictions. It needs no elaboration to prove that, notwithstanding priorities, differentials and every sort of departmental aid, the difficulties incident to every building operation have multiplied unbelievably during our eighteen months of war. Considering these elements one would say that the authorities must necessarily expect and accept large losses on every one of their building programs. It is doubtless true that at the return to normal times, a certain proportion of the abnormal costs will have to be written off as war expense, but the policy of the Housing Corporation, toward which the organization is bending every effort, is to keep those items down to the lowest



PLOT PLAN, HOUSING DEVELOPMENT, NAVAL ORDNANCE PLANT, CHARLESTON, WEST VIRGINIA

GODLEY, HASKELL & SEDGWICK, ARCHITECTS JAMES L. GREENLEAF, LANDSCAPE ARCHITECT

that are humanly possible. To do this and still to maintain the high standards of accommodation and construction to which it is pledged, it has been necessary to cut off every extraneous feature, to omit every needless luxury, to reduce to their lowest terms every essential—everywhere to simplify, to standardize, to compact. A dozen feet of piping saved in a single house is an item, one would say, too minute to deserve notice in a time of world crisis. Yet, multiply that saving by five hundred or a thousand for the whole development, then apply the saving principle to a dozen or more similar projects, and you have a total which means something even in the sort of computations we are learning to juggle nowadays.

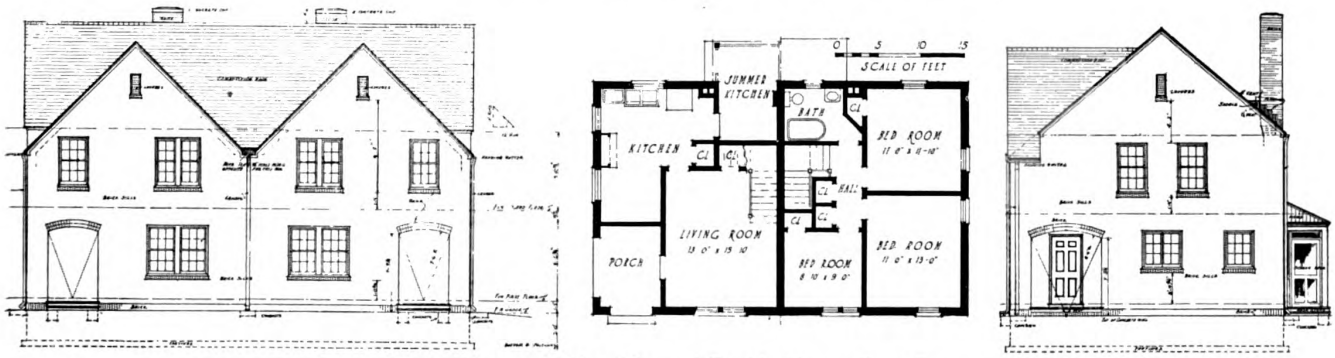


Elevations and Floor Plans of Double House Type A

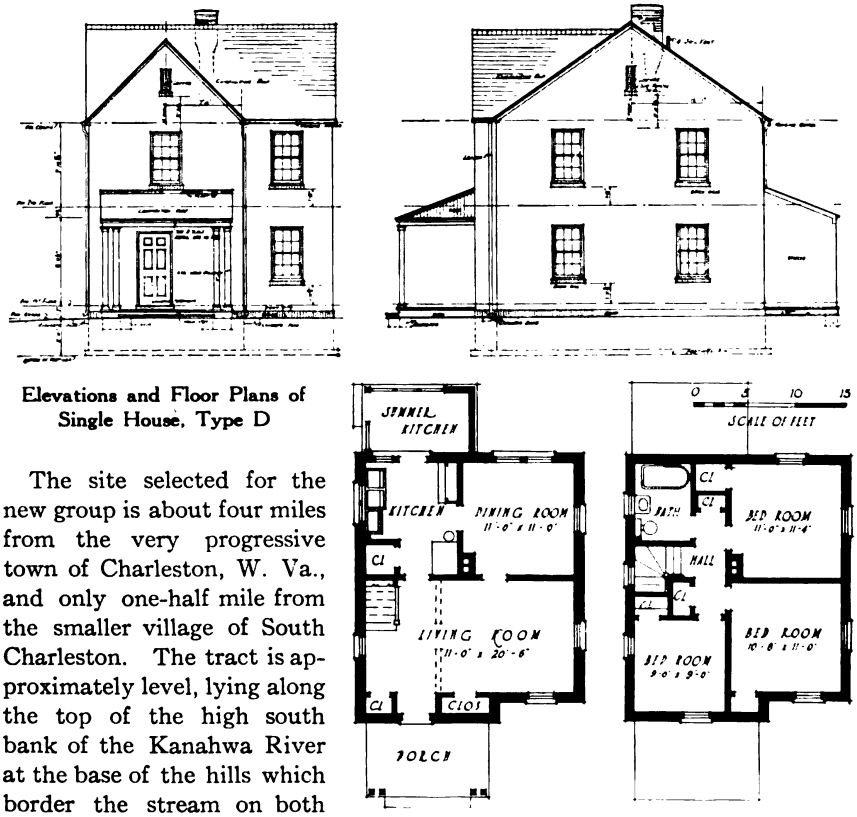
Such are a few of the considerations which enter into the wholesale building of towns by governmental authority, and which explain some of the disappointment that is likely to be felt by that portion of the public who are wont to feel that a town built by the United States of America must perforce contain everything that is to be found anywhere else, together with quite a number of little things besides. The same considerations show us why the architect must study his problem in industrial housing primarily from the economic and sociological standpoint, with the architectural and æsthetic relegated to a position in the middle distance. If a project cannot stand before the test of economics, it has failed, though all the beauty in the world be gathered into the ground plan and its structure.

These points should be kept in mind in discussing any of these new activities of the United States Housing Corporation and they apply specifically to the one illustrated in these pages. This is a housing development in connection with the United States Naval Ordnance Plant near Charleston, W. Va. For this project the Housing Corporation selected Messrs. Godley, Haskell & Sedgwick of New York as architects, acting with Mr. James L. Greenleaf, town planner and engineer, as the other member of the committee of designers. It may perhaps still need to be said that such a committee (usually made up of three) is appointed to act in the case of every project under the United States Housing Corporation.

The project is not one of the largest of the governmental undertakings — the present program involves an area of only about twelve acres; it is not, perhaps, the most complex — it must provide for only the higher grade of employee; nor has it, for the present, the necessity for providing for the community features of a self-contained village. It has, nevertheless, received the most careful study and adjustment, that it might, on the one hand, conform to local preferences and habits of living, and, on the other, show the local habit the better way of a combined utility and architectural quality and distinction.



Elevations and Floor Plans of Double House, Type B



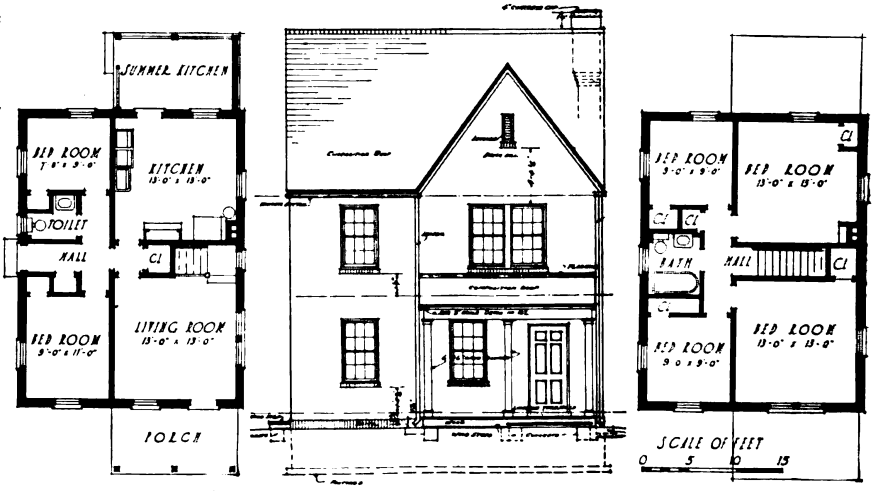
Elevations and Floor Plans of Single House, Type D

The site selected for the new group is about four miles from the very progressive town of Charleston, W. Va., and only one-half mile from the smaller village of South Charleston. The tract is approximately level, lying along the top of the high south bank of the Kanahwa River at the base of the hills which border the stream on both sides. So far as topography is concerned, the land is well adapted to economical development, the only natural feature of determining importance being the gully which cuts at an irregular diagonal through the tract. This gully is to be partially filled and made available for use, but the natural beauty of its wooded upper bank is to be carefully preserved and developed.

The town plan has been arranged to fit the somewhat irregular shape of the area, the intermediate street eased into correspondence with the curve of Eighth Avenue, the main thoroughfare toward Charleston, and the bounding line of the development on the side farthest from the river. These curved roads give sufficient relief from the gridiron, and will help to produce the village street aspect which should obtain in a group of this sort. The lots are well shaped, the majority of them true rectangles, and therefore easy to treat and simple to describe in a deed of sale. Accepted practice has been followed in the planning of street widths and sections; that is, the main thoroughfare is made sixty feet wide with twenty-four foot roadway, the minor, residential street not more than forty feet wide with roadway twenty feet wide. In both cases, provision is made for street planting and parking at the roadside.

The original plan for this development contemplated the community features which go to make up a self-contained village. When it was found necessary, because of the limited appropriation, to constrict the program, these public and semi-public buildings were the ones which had to go. Provision is made at two points for the future extension of streets, and within the present development, reservations have been made which will afford good sites for several of the community buildings when circumstances make them possible. Park provision has been made on the south side of Eighth Avenue, where there will also be general playground space, and an athletic field.

When the matter of public utilities was studied, it was found necessary to provide everything for this development complete and new; this includes, besides the usual water supply, electric lights and sanitary sewers, piping for natural gas and storm water drainage. This last is forced by the character of the soil — a rather heavy clay with waterholding pockets. This same consideration, combined with the local custom, decided against the use of cellars, of which there are only two in the whole group. The ravine mentioned above made it possible to drain these two sites, but in



Front Elevation and Floor Plan of Single House Type G, with provisions for boarders

every other case, a water pressure would have resulted at certain periods of the year, and the cost of waterproofing and reinforcement against it were regarded as prohibitive. The presence of natural gas, which is used for cooking, should prove a boon to housekeepers. To the easterner the idea of a month's bill for the gas range, amounting to sixteen cents, would be delightful if it brought no distressing visions by way of contrast.

As already noted, none but building for permanence enters into the development. Fire risk is at the same time reduced to that within the individual house. Construction of floors, partitions and roofs is of wood, but exterior walls are of stucco on terra-cotta block, roofs are finished with gray-green slate-surfaced shingles. Even in the semi-detached type of house, with its party wall of masonry carried up right to the roof, the danger of general conflagration is so reduced as to be virtually non-existent.

We have noted that the development is intended to house the higher grades of the mechanical and clerical forces; the common labor, it was found, could be drawn from the supplies of the surrounding areas. The development is, likewise, for the married workmen rather than the single man, though some of the houses do make provision for him in their plan. This is in accord with the universal experience that the married worker is more reliable, more productive, more valuable to his concern than the man without the stabilizing influence of a home. This group is, therefore, confined to housekeeping units in single family dwellings of detached and semi-detached types.

The houses themselves are of five different types, ranging from four rooms and bath to eight rooms and bath. The smallest of these, type "A," semi-detached, gives a very compact plan of two rooms on the living floor, either one of which, or both perhaps, being used as dining-room, according to the occasion. The second floor has one double bedroom, as large as the living-room below, with a single bedroom and a bath at the rear. This is all contained in a main house size of 14 feet 3 inches x 25 feet 6 inches, exclusive of porches. It is interesting to note that in every type there appears a summer kitchen — this in conformity to local custom, and this, in turn, derived from requirements of climate. Living porches are of course provided in addition, and these, in the semi-detached types are kept well apart instead of adjoining, out of respect for the desire of each family to live somewhat unto itself even though in a semi-detached house. The larger of this class (the semi-detached) occupying 21 feet 10 inches x 27 feet 0 inches, has a third bedroom on the second floor, and a dining alcove off the kitchen instead of a separate dining-room. In this case the living-porch is inset; in the type "A" it is a lean-to against the main building.

Of the detached houses, the most striking in plan is the eight-room, type "G," which is designed to allow the presence of boarders without loss of privacy to the household. It shows two bedrooms and a toilet on the first floor, occupying one whole side of the building, with separate entrance, and connected only through a lobby, with the main part of the house. It is most interesting in arrangement; as to its functioning, question might be raised as to the amount of living and dining space provided in a house having six good-sized bedrooms.

In most of the houses, heat is to be provided by stoves; in the two having cellars, however, a hot-water heating plant will be installed. Other accommodations, such as a complete plumbing installation, electric light, hardly need to be mentioned; in these days they go without saying. So far as design is concerned, Messrs. Godley, Haskell & Sedgwick have produced a series of houses which will possess individual and collective interest, through unity in material and color, which will satisfy requirements of utility, and which express those requirements in simple, straightforward and economical terms.

Elevations and Floor Plans of Single House, Type E

A COMMUNICATION

Editors The Architectural Forum:

THE writer has read with interest the articles by Mr. Beach on certain "problems" confronting the members of our profession, published in recent issues of THE FORUM. I quite agree with him that we are not as a unit equipping ourselves to cope with these as we should. But it seems to me that Mr. Beach has not placed enough stress on the greater problem with which we have all been wrestling through many years — our relations with the building mechanic. He says it must be dealt with, but we *are* dealing with it every day.

Personally, I believe in unions, associations and any other combinations of individuals organized for the purpose of improving certain conditions, reducing operating expenses or combating any common evil. I am satisfied that the old-fashioned employer who beat down wages and, at the same time, used the methods of the slave-driver with his employees needed the lessons the unions have taught him. I can conceive that some employers of that ilk are still in existence, merely held in check by the union whip.

Also, I believe that there are trades unions (like those of railway conductors and engineers) which teach that it is right for a man to try to excel in his chosen calling, that personal ambition is commendable and that faithfulness to one's employer is not a bad thing.

But my quarrel is with the teachings of those leaders who will not allow a man to do his best on a job, who make life unlivable for apprentices and who are always seeking the most trivial excuse for "pulling a job." Such a one drills into his followers the gospel that the interest of the union is the greatest thing in life, that no allegiance is due an employer and that it is scab doctrine to believe otherwise.

May I be permitted to cite an instance or two?

I was having a garage built under a cost-plus agreement by a contractor in a small city. Time and economy were the two major essentials of the operation, but no appreciation of either was to be had from the union men on the work. They simply took their own time and their own methods and some of the latter were most peculiar. At times, such as when joists were being laid, we needed but one mason on the job. At such a time, I noticed two puttering about and asked the contractor why one would not suffice.

"Union rules," he explained.

"But why pay one of the men foreman's wages when you are here to act as your own foreman? Aren't you a brick mason?"

"Yes, but being a general contractor, I can't be a union foreman. And when two or more men are employed on a job, one must be a foreman according to their ruling."

"But why two in this case?"

"There must always be two when there is work to be done, except in the case of repairs, piers and chimneys, otherwise a mason might have to use a helper for work that only a mason is supposed to do."

"Do you call that fair to the man who foots the bills?"

"You don't suppose union rules are made for his benefit or for you and me, do you? You ought to know who they're made for."

On another occasion on the same work, I noticed two masons tending a third who was standing on a plank on horses above the scaffold in order to finish a wall story high without building another full height of scaffold, quite a customary procedure, as you know. One mason was handing up brick, another mortar. I demurred.

"Here," I said to several helpers who were standing round, "Get up on that scaffold and tend those men, so all three can lay brick and get that wall ready for the carpenters."

"Nothing doing, boss," said one. "They don't allow helpers up on the scaffold, just masons."

These are fair specimens of what one continually encounters. And, with the growing scarcity of building trades labor and its consequent increasing independence, conditions are steadily getting worse. Relief must be had, but how?

I am not prepared to agree with your writer that we can only hope for betterment through a development of the trade schools, fathered by an influential committee of the A. I. A. I rather think that the way out is through the unions themselves. They are still human, with no more viciousness in their make-up, no more selfishness than the rest of us.

If their worst side has been most prominent, it is only because their battles for industrial freedom have made it so. Belligerent trades unionism has produced the blackmailer, the bribe-taker and other despicable characters, some more forceful and vociferous than their industrious fellows, whose only mistake has been in allowing such men to be leaders.

But why should we always work through the contractors; why not deal with the men direct?

We are told by a union carpenter writing in *Pearson's Magazine* for April, 1917, that "Not only have the building trades organized the employees, they have also organized the employers and trained them to work in something closer to harmony than a continuous riot with the employees. In most cities agreements are now mutually exclusive. The employers' association agrees to employ only union men and the unionists work only for organized contractors."

As one such contractor said, "Why should we worry? We now have stabilized wages on which to base our estimates and also the comforting assurance that no

outsider can come in and upset the applecart."

Ideal, perhaps, from his viewpoint, but how about the owner who foots the bills? And how about the architect who is ethically obligated to get his client's money's worth? The time may come (perhaps it has already arrived) when the owner will quit building until he can get a semblance of his money's worth.

Now, if our organization, being highly ethical and altruistic in character, will set itself to seek out the best that is in trades unionism and will demonstrate to those leaders, who are broad-minded enough to see, that the next move for their betterment is not again striking for higher wages, there being not enough building planned to pay present wages, but, by encouraging building labor to more economic effort and the ultimate good of the owner, stimulate that owner to attempt investments that are now indefinitely postponed, Why cannot your journal, having drawn attention to the matter, encourage a symposium on the subject. I would like to hear from others. — A. B. C.

PLATE DESCRIPTION

ENGLEWOOD NEIGHBORHOOD HOUSE. PLATES 65-67. This neighborhood house, the gift of Mr. William Morris Imbrie, is located in a congested portion of the city of Englewood, N. J., and intended to serve the needs of a large colony of Italians. Religious services are held in Italian and English every Sunday, but the building serves in a wider sense as a community center. A basketball court and shuttle board are in the basement, where there are also shower baths and locker rooms for boys and girls, and a kitchen. The main floor contains a large assembly room with alcoves, formed by movable partitions, grouped around it. One of the large rooms in front is used for a men's reading and smoking room, and the other as a meeting room for the women of the neighborhood. The second floor which extends over only the front portion of the building, contains an apartment occupied by two women who are in charge of welfare work. The building is built of rough, red brick laid in natural color cement mortar and has a red tile roof. It is trimmed with limestone, and inlaid with various colored pieces of marble and tile. The graffito work over the entrance was contributed by an Italian artist.

UNITED STATES POST OFFICE, ORANGE, N. J. PLATES 68–70. This building was erected from a design that received first award in a competition conducted by the United States Treasury. The exterior is carried out in buff-colored brick with a similarly toned terra cotta for the detail, and yellow granite columns on the principal façade. The feature of most interest in the building is the logical simplicity of its plan. The public lobby extends across the front of the building with an entrance at each end. The working space occupies the center of the building and is carried up high enough to be lighted and ventilated by clerestory windows on all sides, avoiding the usual skylight which is intolerable in hot weather.

TOWN OFFICE BUILDING AND PUBLIC LIBRARY, READING, MASS. PLATES 71–73. This town building is somewhat different in general layout from the usual type, inasmuch as no attempt was made to incorporate in it a town hall. The problem primarily consisted of grouping under one roof offices of the various town officials and departments. The hearing room on the second floor is large enough to accommodate all ordinary municipal gatherings, and also serves as headquarters for the town finance committee. The exterior walls are of waterstruck brick with wood trimmings. The interior finish is oak. The building was completed this year and cost about $40,000.

The preliminary plan of the library was evolved by Dr. Horace S. Wadlin, former librarian of the Boston Public Library. It consists of one undivided room, thus making possible administration by one attendant; a certain amount of privacy for the librarian and separation of the adults' and children's departments being accomplished by the arrangement of counters and bookcases, the latter being carried about 8 feet above the floor. In the basement is a small hall or lecture room seating about 200, together with toilets and heating apparatus. The finish of the main story is white and mahogany, the walls being tinted a warm gray. The building cost about $19,000 including the furniture.

HOUSE IN EAST 75TH STREET, NEW YORK. PLATES 75–77. This house presents a very dignified and simple façade in the Georgian style, carried out in red brick with marble string courses, entrance and keystones. The interior is characterized by a sturdy Georgian treatment throughout in complete accord with the exterior. The house was designed by F. Burrall Hoffman, Jr., but because of his absence with the army, the execution of the work was carried out by his associate, Harry Creighton Ingalls.

HOUSE OF JAMES M. LEOPOLD, ESQ., EAST 80TH STREET, NEW YORK. PLATES 78-80. This house has been kept in the English style throughout. The plan of the house is most unique and the architect is probably the originator of the idea of a large lofty room in a small house, through eliminating the middle foyer containing the staircase, which nearly always is dark and wasteful. The large living room on the second floor thereby gained is probably the largest room in any house on a lot of this size in New York City. The difference in floor levels is due to the fact that the basis of the work was an old house, the levels of which were maintained in the rear section of the building for the sake of economy.

EDITORIAL COMMENT

THE architectural profession perhaps more than any other can look with great satisfaction on the signing of the armistice which brought hostilities stretching over a period of more than four years, accompanied by inestimable loss, to a close. The whole period of the war has been one of depression to architecture; with the opening of it came the era of high prices and demand for capital in manufacturing pursuits with promise of large return, that greatly curtailed building; with the entry of our own country into the conflict, the complete wreckage of private building was accomplished. These occurrences were of course inevitable in the emergency which developed. On the other hand, what private interests failed to do in building, the Government more than made up in an era of construction, the scope of which the world had never before seen. Fate, however, intervened and active participation in this work was denied the architectural profession. It is true that when we reached the housing problem architects were considered necessary, but this constituted only a fractional part of the total work undertaken by the Government, and if a true knowledge of the profession had been in the possession of those in authority, the necessity of architects in other phases of war building would have been as clearly seen.

The chapter is now closed, however, and while the opportunity was lost to the profession, we are certain that a far greater opportunity was lost to the Government and people. Our participation in the war was fortunately not as long as we expected and there was not sufficient time in which to prove definitely that many of the contentions architects held concerning the character of Government work were well founded. There is, however, the satisfaction of knowing that in the few instances where architects were retained, the results speak for themselves. A few of the naval camps had the benefit of architectural advice in their ground layout and development of buildings; they stand out conspicuously for their efficient arrangement and the high morale of the men who were trained in them. Further satisfaction may be had from the fact that the great proportion of the work is temporary; it will not continue to stand as an influence on future work.

If architecture was not permitted to don the uniform and serve with the colors, it has nevertheless a big field to fill. It is the basic art of the people; no one is so lowly that it does not touch his life, unconsciously to him, perhaps, but it is, notwithstanding, constantly exerting that uplifting influence which is necessary for our development as a people.

We are now at the threshold of the period of reconstruction, and the opportunity of the architect lies before him. It will most likely be a gradual readjustment; we cannot expect normal activities to resume at once. The action of the Government in removing all restrictions on non-war building on November 21 indicates, however, a favorable outlook; this action was not taken hastily, but after careful analysis of the supply of materials, fuel and transportation facilities in the different states.

AT the Convention of the American Institute of Architects held last April it will be recalled the article in the Canon of Ethics relating to advertising was repealed, the consensus of opinion among the delegates being that advertising was a matter of taste, and as such could not successfully be controlled through legislation. We had expected the first evidence of the removal of this restraint would be in the form of educational work undertaken through the popular medium of the daily press by associated bodies of architects, but the first instance to come to our attention is an advertisement of an individual firm of architects.

In *The Bankers Magazine* for October, 1918, Messrs. Mann & MacNeille, architects, of New York, are represented by a half-page announcement which in a dignified and straightforward manner indicates the type of service they are prepared to render. It is generally conceded that advertising professional services is an extremely difficult thing to accomplish successfully. Without any existing precedent to guide them, however, these architects we feel have adopted a type of announcement eminently in character with the high standards of the profession and one that will create an impression of confidence and respect, not alone for the firm making the announcement, but for the whole profession. After a brief description of their organization and the duties they assume in protecting the client's interests, they list the types of architectural work on which they are able to give expert service and, opposite, the names of the chief executives and designers.

Advertising has grown in a comparatively short space of time to envelop many desirable forms of publicity. It has proved a valuable factor in the building up of American business and has exerted, probably, as great an influence as any other in raising the standards of general business to the high levels which we know today. It was inevitable that it would eventually merit consideration by the profession. Architects are entirely dependent upon their professional reputation in securing commissions, and some form of publicity that will aid in making them known becomes essential today. A general use of constructive publicity should be extremely valuable in acquainting the public with the duties of an architect and it will not endanger the respect in which the profession is now held, if guided by the dictates of good taste inherent in its members.

THE EDITORS FORUM

THE things we most admire in old examples of architecture are the texture and beauty the walls have acquired through the weathering action of many years, and the human quality such works of art possess, because of the individual character built into them by the craftsmen employed upon the work. These qualities that are so essential to any building that is to look a part of the surroundings in which it is placed are the most difficult to obtain of all the distinctive marks every architect wishes his work to have. In the first place, it demands on the part of the architect an exceptionally keen knowledge of the physical characteristics of materials, and the artistic capacity of visualizing them when combined in the structure, and secondly, and where the greatest difficulty is most often met, securing the necessary co-operation and understanding on the part of building mechanics to translate into terms of actual building, the conception of the designer.

Approach to house of George Marshall Allen, Esq. Morristown, New Jersey
Charles I. Berg, Architect

WE present in the plates of this issue, illustrations of the house of George Marshall Allen, Esq., at Morristown, N. J., whose architect, Mr. Charles I. Berg, has been especially fortunate in securing these qualities for his work. He further enjoyed the advantage of working with a client who fully appreciated the character of the style in which the house is designed and who offered a spirit of co-operation and understanding with which architects are rarely favored.

The remaining plates are selected to indicate the adaptation of other periods of English domestic architecture to modern American needs. They are equally, with the larger Tudor house, particularly interesting in illustrating the charm which may be given to any building through a knowledge of materials and their proper combinations in the structure to utilize the salient characteristics of color and texture.

WE present in the description of the offices of Starrett & Van Vleck, Architects, the last of a series of articles explaining the business systems in use in representative offices that have been singularly successful. A greater appreciation of the value of efficient office organization as an aid to good architecture is daily growing more apparent and may be said to be one of the desirable effects the war has had on the profession. Much is heard today of the varied and manifold changes the war will bring about in the character of the profession's work, and if all the prophecies expressed were to come about, there would be little of the old that would be recognized in the new. While there is not much question that fundamentally the profession's character will be but little changed, there is a strong indication that more and greater responsibility for results must be assumed by the architect, not only in securing a well constructed building, but in securing it at a cost that is fair to both owner and contractor, and through operations at all times governed by good business practice.

We aim to interpret this thought in measure with our ability, and present, in as tangible and definite form as possible, the conclusions that architects and others giving thought to the subject have reached. In the January issue we will publish the first of a series of carefully constructed papers considering the modern position of the architect in relation to the various duties he is called upon to fulfil. These articles are the result of much thought and investigation and they will deserve a careful reading.

THE signing of the armistice naturally brought to an end the excursions of the Government into the field of housing for workingmen employed in war industries. The work, while extensive, had not been under way long enough to enable definite plans to be adopted for the operation and final disposition of the communities so quickly established. Although no new work is being undertaken, interest in the Government's program is not in the least abated. There are many important points to be settled in the way of management and future ownership that will have a special interest for architects and we will record the development of policy as information is available.

THE ARCHITECTURAL FORUM

VOLUME XXIX NUMBER 6

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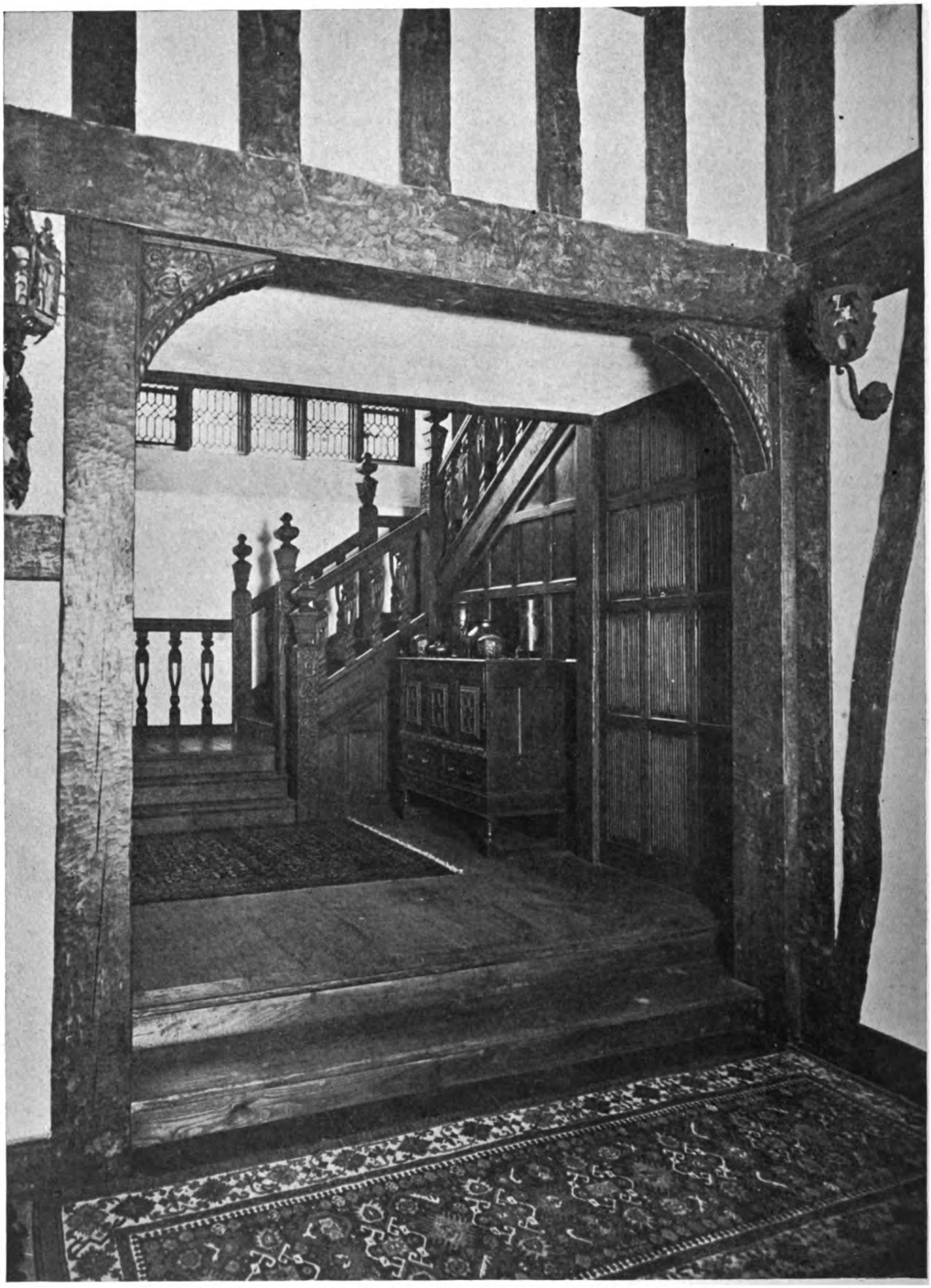
LETTERPRESS

Published Monthly by
ROGERS AND MANSON COMPANY
85 Water Street, Boston, Mass.
Advertising Department, 42 West 39th Street, New York
Yearly Subscription, payable in advance, U.S.A., Insular Possessions and Cuba $5.00
Canada ..... $5.50 Foreign Countries in the Postal Union 6.00
Single Copies ..... 50 cents All Copies Mailed Flat
Trade Supplied by American News Company and its Branches. Entered as Second Class Matter, March 12, 1892, at the Post Office at Boston, Mass.



VIEW OF STAIR HALL FROM GREAT HALL

HOUSE OF GEORGE MARSHALL ALLEN, ESQ., MORRISTOWN, N. J.

CHARLES I. BERG, ARCHITECT

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THE ARCHITECTURAL FORUM
FOR QUARTER CENTURY THE BRICKBUILDER

VOLUME XXIX DECEMBER 1918 NUMBER 6

Notes on the Seventh National Housing Conference

COPLEY PLAZA HOTEL, BOSTON, MASS., NOVEMBER 25 TO 27

IN the flush of enthusiasm and excitement which pervades such a gathering as the annual conference held under the auspices of the National Housing Association, the participants are pretty sure to tell each other at the close that "this was the most successful conference we ever held." From the point of view of attendance this can safely be said of the Boston conference, for it was held in a large city and one whose deep interest in the subject assured a large attendance of its own citizens who swelled the meetings to hitherto unprecedented numbers. Enthusiasm there was in plenty and idealism had unrestricted sway, but an unprejudiced observer might have missed a certain excitement and the direct talking to the point which characterized the Philadelphia conference last winter when the huge impending ventures of the Government into the housing field overshadowed all subsidiary issues. The sudden apparition of Peace, which "broke out" almost as did the war, is still so recent as to pervade all walks of life with a feeling of uncertainty, almost of dread, as to what will happen next. The sudden cancellation of the Government's housing program had only just occurred, and private enterprise had not had time to adjust itself to the coming order of things. All this had the effect of rendering the tone of much of the discussion, and even some of the papers, vague and uncertain, even while useful, earnest and enthusiastic.

The conference was the seventh annual one of its series. Mr. Veiller and his associates, to whom the greatest credit is due for the masterly manner in which this series of interesting events has been conducted, have therefore had time to gain a ripened experience. In view of the increasing success of the affairs, praise rather than criticism is certainly due; nevertheless, certain suggestions which are intended to be of a purely constructive nature have occurred to us, which if followed might still further conduce to the success of future conferences.

First of all, the events seem to be crowded. From morn to dewy eve the continuous round of discourses which invades even the lunch hour goes ceaselessly on. The three-minute public discussions, which ought to be of the greatest value, are too often either cut short on account of lack of time or appropriated by verbose personalities who, unable to express their ideas in terse, crisp sentences, are often obliged to sit down at the expiration of the time limit without having come to the point. The forming of mutual acquaintances and intimate discussion of interesting points by keen intellects in personal contact, which would be one of the pleasantest and most useful features, is prevented by the practice of filling every moment in advance. If the "Round Table Luncheon" feature were omitted and time allowed for a short walk and a breath of fresh air the afternoon sessions would be more worth while. The time for speeches thus lost would never be missed if the program were confined to topics of the hour.

It is the habit of the Association to adjourn without taking definite action or obtaining a consensus of opinion on the topics discussed, and this habit sometimes evokes surprised comment from the local press. In Boston, for example — an expression of opinion might have been obtained on any of the questions which came up — Government ownership of the war towns, self-ownership of the same, the adoption of standards, the furtherance of State or municipal housing schemes — all these were taken up and laid down without coming to any definite conclusion, although it is true the meeting of Monday afternoon passed the following unofficial resolution as only the sense of the people assembled at that meeting: "Resolved, that the meeting here assembled express its belief that the agencies of the Federal Government which are now engaged in building and managing housing developments should continue those developments already begun or planned wherever there is prospect of a demand for these houses under peace conditions, and should retain control of them until such a time as the Federal Government has determined upon its reconstruction program."

Housing science is admittedly one of the great questions of the day and its study henceforth will have to be conducted along clearly defined lines which look to the future instead of to the past. For example, the depressing pictures which were shown of scenes in the North End of Boston are "old stuff," and material of this sort should never be reintro-

duced in a meeting devoted to the new housing, for, as Mr. Logue clearly demonstrated, the conditions they illustrated were created years ago, before the adoption of the modern laws which now in Boston, as in most other cities, render future construction of this sort impossible. Thousands of unsanitary buildings have actually been removed by the City of Boston in the last few years, as Mayor Peters demonstrated, and the cleaning up and betterment of the existing slum is a matter for the attention of the health officials of a city, and should not distract the attention of the real students of housing from the great question of how to avoid the possibility of the recurrence of the evil.

Let the Association in its study of the problem insist on a critical review of the progress of the past year, architectural and legal, and try to draw definite conclusions therefrom. Let it concern itself with the study of ever improving standards of construction and design. Let the great question of community ownership receive the most careful attention, but above all, let it get down to the bed-rock question of what is really going to conduce most to the happiness and well-being of labor. Too many towns are planned on the theory of "what those people ought to have," developed by persons who in the nature of things cannot feel as does a workman or his wife. Labor leaders, who ought to take a leading part in these matters, have not studied the situation, and, strange as the statement may seem, stand tongue-tied when asked for their opinions — rarely getting beyond the statement that a workman wants "a five or six room detached house, oh, yes, with a bath, and a garden patch, yes, a porch, for a rent of, oh, $15 per month." Well, after all, who wouldn't like such a house? This sort of thing is not constructive and the results of the conference suffer from the absence of representation of the actual tenants, or their wives. A tenant's wife who can express her opinions clearly on the houses provided by the Government would be hard indeed to locate, but Mr. Veiller has unearthed some mighty good material in the past and we believe he is equal to finding such a speaker for the next conference.

The principal subjects which attracted the attention of the conference, aside from "Boston Day," which was unfortunately devoted to showing up the unsavory sections of the city rather than the many beautiful and instructive sections which would have been far more worth while, were the comprehensive reviews of the Government's housing activities during the past year by Mr. Leland, the interesting and frequently even thrilling idealism of Messrs. Ackerman, Adams and Purdy in connection with the future ownership and administration of the war emergency towns, the good natured and extremely valuable criticisms and suggestions of Dr. Vincent and Dr. Hutchinson, whose Salic wit was interjected into the meetings like a crisp salad course at dinner, and the fascinating humanism of Miss Marguerite Walker Jordan's talk on the last day, which held her hearers spellbound and won for her the only encore of the entire proceedings, bringing her back to the rostrum, to say in a charming accent, that "here in Boston you all are not so different from us down South!"

The other main line of thought was that introduced by the various architects who described certain completed projects and discussed types of plans for the future, an important feature of the conference in which much interest was shown and which might have profitably been opened up for public discussion.

On Monday morning after the preliminary addresses the question of "Rent Profiteering" was treated by Mr. James Ford of the United States Department of Labor, who described the work of the local committees which have been formed in fifty-nine cities to handle the questions at issue between the landlords and their tenants.

The reports from delegates at the Monday Round Table Luncheon brought out information as to recent legislation in the Province of Ontario which permits municipalities having housing shortages to loan funds totaling two millions annually at the rate of five per cent for the erection of workingmen's houses which will cost, including land, not more than $3000 per house, the return on the investment being guaranteed by the State; and from Philadelphia Mr. Ihlder disclosed the fact that there was a great discrepancy between police survey of houses suitable for living quarters and a survey carried on by an organization which would discriminate between bad and good conditions; thus, in Philadelphia, at the beginning of the war emergency, a police survey of the city indicated five thousand houses vacant — a survey by the Philadelphia Housing Association showed, however, that only four hundred and fifty of these were actually fit to live in. He also pointed out that unsanitary conditions were on the increase in Philadelphia, evidenced by the fact that during 1918 there were sixteen thousand violations of the building law against a total of ten thousand in 1917; and from New York it appeared that the outstanding feature for the year is the passage of a law permitting former single-family houses to be made over into three-family tenements. The passage of this law was brought about by the general stoppage of building and the absolute necessity, under the circumstances, of utilizing these vacant residences, and also, from the viewpoint of the tax commissioner, it enabled more taxes to be levied on such property.

The afternoon session, which closely followed the luncheon, was devoted to a lucid statement by Mr. Joseph D. Leland, 3rd, Vice-President of the United States Housing Corporation, of "What the

Government has done and is doing to house the industrial army." This paper is a complete documentary account of the Government's work in this line and was most useful in informing many of his hearers as to the exact status of the great work which has been carried out during the year.

Mr. Leland was followed by Mr. F. L. Ackerman, Supervisor of Design for the Emergency Fleet Corporation, in a scholarly paper, " Government Housing, Federal, State, Municipal — is it Desirable? " Mr. Ackerman's conclusion was favorable and he backed it with some unanswerable arguments, for example, when he said, " And why should we not make government the focus of our rational aims rather than a policeman to arrest or a court to punish? There is no reason. With the function of government constantly expanding, why should we draw the line of its activities relating to the provision of adequate living conditions hard and fast at the property line along our highways and our streets? By allowing only police power to cross the property lines in our cities, by so doing, we foster the slum and the tenement, and we create the conditions which breed the diseases for which we call upon government in the guise of collective provision to erect and maintain the hospital, the insane asylum, the poorhouse and the jail." Mr. Ackerman drew a constructive conclusion as follows: " In the Federal executive should be lodged the authority to create an independent cabinet portfolio to organize knowledge and experience in a field broadly covered by the terms ' town planning,' ' housing ' and ' public works,' — this knowledge and experience to be made available through such activities as are now carried on by the Department of Agriculture in its own field. Similar executive bodies should be created in the states and in municipalities in order to stimulate co-ordinated action in matters related to municipal, state and nation planning and the distribution of population. Whether or not Federal credit should be used for the purpose of stimulating housing is open to question, but the credit of states and of municipalities must be used for this purpose. The use and direction of this credit should be controlled by executive rather than legislative authority and it should be limited to the use of municipalities or to properly constituted non-dividend corporations. If we wish to achieve a truly national minimum with respect to the conditions under which all men live, we must stimulate as well as restrict action; and the stimulation of action can be achieved most certainly through the direction of credit to this end.

Mr. Thomas Adams' address on Monday evening on " Housing and Reconstruction " was fully up to the standard of this brilliant reformer — whose convincing idealism is so well sustained by his practical common sense. His entire address was full of terse, epigrammatic statements, of which we give a few.

" The home connotes the family; and the family, and not the individual, is the unit of the civic structure. A true housing policy must go further than improving or providing dwellings; it must be part of a comprehensive policy of town and country development. We must apply more thought to the theories and practical tendencies of urban and rural growth, and fit in our housing policies as part of a comprehensive scheme of urban and rural organization.

" Housing in connection with reconstruction is a different thing than housing connected with war industries — and requires a broader social vision and more courage to deal with it. It is beset with both practical and constitutional difficulties.

" The provision of houses, as part of a policy of reconstruction, has still to be begun in this country, as in Canada. Yet what were among the reasons why you inaugurated a war housing policy? Why did your Government vote hundreds of millions to house war workers? Read the evidence before committees of Congress and you will find that some of the most important reasons were that it would increase output in the shipbuilding yards and munition plants by increasing the efficiency and contentment of the workers and that it would help you to win the war by stabilizing labor conditions. Are these reasons without application to peace industries? *If it is true that you needed good housing to win the war, is it not equally true that you need good housing to win and maintain the victory of peace?* "

" In every country where housing standards are low, wages are low. The German people are amongst the lowest paid and the worst housed. About sixty-five per cent of the people of Berlin live in two rooms or less, as against twenty-five per cent in London. Two-thirds of the Berlin people live in tenements of five stories or over. That is the chief reason for the high tuberculosis death rate, and the excessive illegitimacy of Berlin, and for the fact that only nineteen per cent of the sons of Berlin-born parents were fit for military service. Wages keep in proportion to these low standards, and the contrary is also true where standards are higher."

Mr. Adams was followed by Dr. George E. Vincent, president of the Rockefeller Foundation, who described in detail the emergency village of Gretna in Scotland with its many carefully and attractively worked out features and drew from his visit the wish " that Gretna had been created by its people rather than for them," or, in other words, that even the shadow of paternalism, whether governmental or proprietary, is distasteful. " People who have been exposed to democracy dislike seeming philanthropy, they prefer to do things themselves, even if they do it rather badly." He foresaw a new spirit of unity, comradeship and democracy which will do for the industrial army in peace what was done for the fighting

army in war. His address was pungent with wit and good-natured satire of the reformers who " wreak their philanthropy " on the defenceless workers, but he evidently favored the idea of self-ownership of towns and did not remonstrate when President Eliot, the chairman, gently hinted that perhaps the Rockefeller Foundation was going to " do something " about it.

Tuesday morning saw two section meetings, in one of which Mr. Ralph Adams Cram, chairman of the Boston City Planning Board, in his talk on " Scrapping the Slum " laid stress on the bad effect that raising street car rates would have in increasing present congestion by keeping people in the slums who otherwise would migrate to the outskirts. The other meeting considered a paper by Mr. C. B. Ball, chief sanitary inspector of the Chicago Health Department, on the question " Can a Health Department Cope Adequately with the Housing Problem? " His conclusion was that the design and construction of tenements should be passed upon by the Health Department as well as the Building Department. Mr. Ball was followed by Mr. John Nolen, city planner of Cambridge, who restated the now generally familiar " Housing Standards of the Federal Government."

The afternoon was devoted to an automobile trip.

The evening session was supposedly to be devoted to aiding the City of Boston in the solution of its housing problems — though it cannot be said that very much progress was made in that direction. Mayer Peters simply and earnestly pledged his cooperation towards such an end, and all those who heard him must have hoped that he will be able to obtain wise counsel and all needed support.

Mr. Edward T. Hartman, secretary of the Massachusetts Civic Society, followed with lantern slides showing slum conditions in the North End which did not vary from well known pictures showing similar conditions in other cities, and finished with an argument for the single tax. Mr. Charles Logue, chairman of the Mayor's Housing Committee, explained that the conditions illustrated by Mr. Hartman were mainly due to the influx of alien races before the present building laws were in effect and maintained that they were not the fault of the individual owners, who in many cases had bought the property as it stands, and that the city, having allowed the slums to be created, should assume the expense of reclaiming them. To the great delight of some " real-estaters " in the audience he said that the three-decker was an ideal house.

Mr. Ihlder and Mr. Ball, speaking as outsiders, implied that Boston was not abolishing slums as fast as it should, but they failed to name any other city which was doing so any faster. Mr. Ball rightly insisted that newly constructed houses which must serve five or six generations deserve close attention rather than the old slum dwellings which must in any case soon give way to progress.

Dr. Woods Hutchinson, called to the platform by the chairman, said Boston should have an excess condemnation law. On being told by Ex-Mayor Fitzgerald from the floor that it already existed, he retorted, " Why don't you apply it, then? "

The proceedings, which were held in the Palm Room of the hotel, were so disturbed by attempts to remedy the bad ventilation and the racket of a near-by dish-washing machine that Mr. Veiller made arrangements to adjourn to the ballroom, but the audience voted that they preferred to remain where they were. This decision caused the presiding officer, the Rev. Paul Revere Frothingham of Boston, to wittily remark that this was a perfect illustration of the difficulties attending housing reform. " Here you are," said he, " suffering from bad air and all the discomforts of bad housing, and when the greatest housing expert in the country offers to better your conditions you say you prefer to stay where you are! "

The section meetings on Wednesday morning were devoted respectively to illustrating Government housing and to problems of management. At the first Mr. Walter H. Kilham of Kilham & Hopkins, architects, of Boston, Mr. Emile G. Perrot of Ballinger & Perrot, Philadelphia, and Mr. Electus D. Litchfield of New York described in the above order by means of lantern slides the Emergency Fleet Corporation's new towns, Atlantic Heights at Portsmouth, N. H., Union Park Gardens at Wilmington, Del., and Yorkship Village at Camden, N. J. They were followed by Mr. R. H. Dana, Jr., of Murphy & Dana, New York, in an exposition of the advantages and possibilities of the group house. Mr. Dana argued that the cheapness of the group system of construction would enable the tenant to get better accommodation for his money than he would in a single house, that the compactness of a town built on the group system would shorten distances so that walking would supplant riding in the bad air of crowded street cars and finally and chiefly the æsthetic effect of the entire project would be improved by the longer horizontal lines of the buildings. Rents, he said, were in general at present $5 per month per room, plus $5 for modern conveniences, such as bathroom, furnace and electric lighting; *i.e.*, a rental of $25 per month would mean four rooms at $5, plus conveniences at $5. Above $35 the problem is different and does not concern us, while below $25 tenants must not expect a new model house, but must be content with old ones.

This latter statement, it seems to us, while perfectly true in practice indicates an abandonment of the attempt to provide homes for the class which needs them the most, and it is to be hoped that the implied suggestion will not prevail. The speaker devoted some time to an argument that the side

yards between single or semi-detached houses were useless, full of ice in winter and bare of grass in summer, while at the same time draughty and not required for paths to the back doors. He also claimed that windows on side yards were objectionable, as they looked directly into those of the next house and that it would be preferable to concentrate windows in the rear and side walls. Possibly there may be some foundation of truth in these remarks, but we fancy that Mr. Dana will have difficulty in obtaining many adherents to his theory. The Government has insisted on a minimum space of sixteen feet between houses — which is ample for two good paths and for not only air but sun to penetrate, particularly when the houses are at the most, only two stories high, while the benefit of immediate access to one's backyard without going around the block to it is so great as to need no argument. Mr. Dana recommended groups of four units as giving the best proportion and cited the possibility of using the same chimney and lines of plumbing stacks for two adjacent houses. The Emergency Fleet Corporation, however, ruled last summer that each house must have separate utilities, including separate connection to the sewer, to avoid any difficulties that might arise in connection with their sale, and there is certainly a growing number of people who prefer to sacrifice the impressive facade of the group house for the cottage type, with its abundance of sun and air and feeling of independence.

Unquestionably the problems of management of the new towns are a topic of the greatest moment at present and the views of Mr. Fred C. Feld, rental-manager of Yorkship Village, as he set them forth in the second section meeting were well worthy of attention. Some of his suggestions were that in rental operations overcrowding be controlled by a statement in the lease of the maximum number each house might accommodate. Weekly rentals he considered best, because all business transactions of the workman are on a weekly basis. The workmen generally desire to have their rent deducted from their pay, a system which is easy for them but bad for their habits of responsibility. He emphasized the desirability of sufficient rear yard space for playing, so that mothers could keep close watch on their children, which is not possible when the child goes to a playground.

Mr. Harold G. Aron, Chief of the Property Bureau of the Emergency Fleet Corporation, Housing Department, paid a deserved tribute to the good work of the architects and strongly advocated a no-sales policy for the present by the Government. The new housing enterprises should not be considered as exploded shells, worth only what salvage could be obtained from them, but should be conducted as important experiments. There is the present danger that the workmen will not be willing to pay the rentals required by the standards built into the Government houses even on the normal investment, after the excess cost due to war conditions has been written off. If it appears that the workman has not caught up with our ideals, the whole program will be threatened and Government housing forever cited as a horrible example of ideals put into practice.

Miss Marguerite Walker Jordan, Director of the Industrial Relations Bureau of Altoona, Pa., followed with an entertaining and earnest discourse, entitled "What the Tenant Really Wants." Miss Jordan, who has studied this question at close range, presented the matter in a thoroughly human and practical way. Her argument was strongly for humanizing labor, for ameliorating the unbelievably unsocial atmosphere of the industrial villages, and for turning the worker, not into an industrial machine, but into an understanding, directing partner in the business. Problems of management begin with the tenant, who nails up his window, sews up Johnny into his winter flannels, feeds him on "fat buck and co'n bread," and dislikes interference; witness the Southern mountaineer, who addressed the medical experts of the Rockefeller Foundation, thus; "What air you furriners pesterin' us for? I reckon this here is *our* hook worm!" To approach such a problem, infinite patience and understanding of past opportunity and environment are necessary, for laboring people are intensely jealous and given to much gossip. The next essential problem is the owner who must take a really personal interest until the tenant shall stop thinking of him as a favored being whose heaviest duty is to be whirled back and forth to his business in a six-cylinder, but shall recognize in him a fellow workman. Then there is the sociological factor, and the avoidance of thrusting forward the manager's point of view, as, for example, was done by a worker who almost broke up the community meetings because she didn't believe in kissing games. All this, Miss Jordan claimed, "Looks easy to the outsider, but so does tight-rope walking." A study of the community's real wants is most important, but a line from the speaker's concluding paragraph may well be quoted intact, for the idea has seldom been so well expressed: "The organization that redeems industry first; that uses the wealth that has come from its combined creative spirit to liberate that same creative spirit in others, will be looked upon as the real redeemer of wealth. This creative spirit is ethical. It means that beautiful things are not only to be placed around the laboring man, but they are to be put in his heart and there made free and allowed to work out through his hands. It means that the soul needs a crumb to feed on."

The paper by Mr. Lawson Purdy of New York, Chairman of the Committee on Industrial Towns, entitled "Own Your Own Town" evoked much

interest. Mr. Purdy described the ideal town and developed his suggestion for community ownership by saying that the land and buildings should be owned by a corporation without capital stock directed by trustees of ability and public spirit. After a community spirit was formed the tenants should elect some of the trustees and perhaps ultimately all of them. The capital for such an enterprise should be supplied, profitably to itself, by an industrial corporation which desires a stable supply of workers, by the United States, as it has already, or by states or cities. Such a community should be able to buy itself free in from twenty-five to fifty years and be well off in the meantime. If five per cent interest is paid on capital and two per cent to a sinking fund, the principal would be paid in about twenty-seven years. A sinking fund should be maintained for replacement of buildings. Under a single control with efficient management the buildings would have a much longer life than under ordinary conditions. When the property shall be paid for in full the entire net earnings would be available for community welfare and can be so maintained forever for all subsequent tenants.

The remainder of the conference was devoted to the discussion of " Good Housing as a Reducer of Labor Turnover," by Capt. Boyd Fisher of the Employment Management Division, War Industries Board, and " What Labor Wants," by Mr. Mathew Woll of the Sub-Committee on Labor, Advisory Commission, Council of National Defence. The inference was that labor is in favor of governmental action to secure workingmen's houses.

It would seem to us desirable that in the Government properties a definite rental policy based on the income of the tenant should be arranged. High war costs of the present housing will have to be written off as part of the cost of unpreparedness, but it is an elementary principle of political economy that rentals must bear a definite relation to the wage scale, for labor is the largest item in the cost of the house itself.

The common laborer and the slum dweller and their families who need the uplift most still, as ever, get the bad end of the deal in the new towns. The high cost of building, due to high wages paid labor, makes it impossible to provide them with new and clean abodes. The attempt has been made over and again, to end only in failure. The only visible possibility of solution is the self-ownership principle applied to towns, combined with such a degree of unselfishness as would render these self-governing and self-supporting towns willing to devote a portion of their revenues to providing such abodes, welcoming the laborer to the community, and letting him live in them, charging off the loss to offset the advantages of a well rounded community life which would include all classes, and of immunity from slums and the misfortunes that always come in their train.

The discussion of the greater questions of ownership and operation of industrial towns left little or no time to bring up matters of community organization, which is apt to be limited to the clinic, the cinema and the kindergarten, but it would seem as if this was the accepted time to install at least a bakery in each village so that instead of four hundred stoves being heated to the baking point with a vast waste of fuel and effort, one big fire at the village bakery would bake the bread (and the beans) for the whole community. This is the French system, but it is also the system which prevailed in New England towns during the writer's boyhood, when all the bean pots in town, neatly wrapped in blue and white cloths, were taken to the bakehouse for the Saturday baking. And by the same token the idea of the French *lavoir* where all the women of the village wash the clothes together, avoiding loneliness and enjoying delicious gossip, might be a cure for some of the unsociability of the American industrial villages.

While it had to be expected that some of the discussions would be pointless, the proceedings were enlivened by a good many flashes of wit and some epigrams were uttered which will wear well enough for future use. Just as an example there was Mayor Peters' line encouraging idealism in housing, " Draw a Plimsoll line on the ship of state and sooner or later public opinion will rise to that line." Mr. Adams was, as usual, prolific in pithy sayings, one of the best of which, a version of Edmund Burke's remark anent the American Revolution, was, " Don't be limited by what the lawyer says we may do, but do what we feel we ought to do," while Miss Jordan stated that " Interest in the human machinery must become a part of the business; it must permeate the organization like yeast in bread, not wrapped in tinfoil either, but loosened." Some speaker — was it Dr. Hutchinson? — advised his hearers " not to be frightened when they shake the Constitution at you." And perhaps the advice that next year's speakers had best take to heart was Miss Jordan's closing remark — " It is time that I remembered the advice of my dear old black Mammy: ' Honey, de pusson dat tells all da knows and stops dar, ain't so bad as de one dat keeps on goin'.' "

Much water has gone over the dam since the first housing conference and much progress has undoubtedly been made toward standardization of house plans and a better understanding of fundamental town planning principles; but it still must be remembered that most of the new housing so far constructed can benefit only the skilled mechanic, and that the housing movement in America has seemingly so far failed in the solution of the real problem, that of providing Garden City conditions for the family of the common laborer, the real victim of the slums.

An English Tudor Country House

THE RESIDENCE OF GEORGE MARSHALL ALLEN, ESQ., MORRISTOWN, N. J.

CHARLES I. BERG, ARCHITECT

By ADRIAN BENTLEY

HENRY VIII brought many and great changes to England. During the early part of his reign, wealth and beauty of architecture were lavished on cathedrals and monasteries, and Henry had imported many Italian workmen to England to work on his Palace of Nonesuch. After his break with the Church, he dissolved the monasteries, and ecclesiastical work ceased to be a potent factor; the English, always a home-loving and a country-loving people, turned, with this change, toward the building of private houses, some quite palatial.

If, as has been said, Louis XIV's work was for show, and not for use and comfort, it can as justly be said that the Tudor or Elizabethan work was done entirely with a view to comfort, to which was added the charm of careful study for artistic harmony of surroundings.

A delightful picturesqueness characterized the pre-Elizabethan houses; plan and details were designed with regard to the comforts of life rather than with an aim for exact balance or symmetry.

The word Tudor in architecture brings to mind simple and substantial brick or stone houses, with such comforts as the period afforded, and placed in charming surroundings, with terraces, gardens and trees. In much of the work, the Italian influence exerted by the early workmen was still strong, even when unsuited to the English climate. The wood carvings were far cruder work than the Italians ever did; the same is true of the plaster ceilings, but they, like the carvings, had a certain virility of their own.

The charm is often difficult to understand. Modeling in stone and wood and plaster has been done with such perfection of detail in Italy, that the English work would seem most amateurish did not some unknown quality seem to give it a character and strength all its own.

Above all, the English love their gardens. The law of primogeniture assured the entailing of the estates, and generations of families living in the same spot insured the perfection of house and grounds.

English climate called for substantial building, with light on the south, and shelter on the north. The great land owners were not only the heads of the families, but they had innumerable retainers, and have always been a hospitable race, so they needed spacious homes as well.

Mr. George Marshall Allen was desirous of building a Tudor house in America, and examined many in England. Compton Wynyates in Warwickshire appealed most to him. To his architect, Mr. Charles I. Berg, the problem was a greater one, for Compton Wynyates, while externally a great and gracious pile charmingly situated and picturesque to the last degree, is, in the interior, much that a modern home should *not* be. This baronial hall is dignified and sumptuous, but the plans of both the first and second floors are badly arranged, and unlivable; so much so, that the present owner, the Marquis of Northampton, seldom lives there, as there are only three or four bedrooms, and no accommodation for guests.

While additions and alterations were constantly being made, old materials from Fulbrooke Castle

were available, so the bricks throughout (except those in the additions made during Queen Anne's time) are of the same quality and color.

Great care was evidently lavished on the house and its surroundings. The architecture was of varying periods, but all harmonious, and the softening effects of four hundred years make the ensemble a difficult one to transplant to American soil.

The land for the Allen house was well chosen, as it much resembles the old English rolling country. The location of the house once being determined, the general topography of the plot of twenty acres was carefully considered to obtain the proper setting with its relation to the outlying dependent buildings.

To Messrs. Brinley & Holbrook was intrusted the development of the ground, and as soon as the scheme as a whole was decided upon, work was started on all the dependent buildings, and carried to completion before the main house had advanced much above the foundation walls. The semi-detached lodges for the keeper and gardener were temporarily thrown into one, and became for the time the home of the family during the several years of the construction of the main building.

The house stands on the edge of an angle of a broad plateau, affording a long-distance view from its front approach. It faces north and northwest. Immediately to the west, south and southeast, the ground slopes sharply into a ravine, the opposite boundary of which rises suddenly with an embankment heavily wooded with tall oaks, chestnuts and maples, forming a background of ever changing color.

To the west of the grassy lawn and moat, on the axis of the west porch, a rough native field stone stairway conducts one to the sunken rock garden with its miniature canal banked with iris, in which gold fish ply in and out, through the thick lily pads. Farther on, the winding paths, banked on all sides with hardy herbaceous plants and rose gardens, conduct one to the quaint little dependent cottages, greenhouse, stable and garage, already mentioned. In fact, the location of the house recalls the setting of Compton Wynyates.

A glance at the plan will at once show the careful consideration of the disposition of the principal rooms, such as the living-room, morning-room, dining-room and the sleeping-rooms and terraces as well. In a word, every thought has been given to take advantage of the orientation of the house.

To obtain the softening quality or proper atmosphere in the new house was really the first problem to be considered by the architect, and therefore a few words in regard to the materials used on the exterior may be of interest. It was evident from the outset that to obtain a weathered appearance a clean-cut, hard and even colored brick must be avoided. A rough, hand-made brick, somewhat irregular and uneven in shape, was therefore adopted. A selection of colors was made, running on the warm grays, yellows, and browns, with a small percentage of reds of uneven burnings. After the percentage of these colors was decided upon, the bricks were well mixed and thrown into one pile, from which the masons picked them up at random. No course was permitted to be laid to a line. Mortar joints were not struck. The various illustrations will show that in many instances, not only were headers introduced at random, but a sparkling and irregular effect was obtained by the laying of some of the brick on edge showing the flat face to the weather (note especially the illustration of the main entrance).

To harmonize with this picturesque blending of brickwork, the stone to be used in the window jambs, facings and muntins had of necessity to follow a like pliable character. Limestone was therefore decided upon, one of pitted and stained quality, uneven of texture, and seamy. In fact, what would in trade be known as the top of the quarry, and which, until recent demand developed, would have been set aside by the owner of quarries in the " discard " pile.

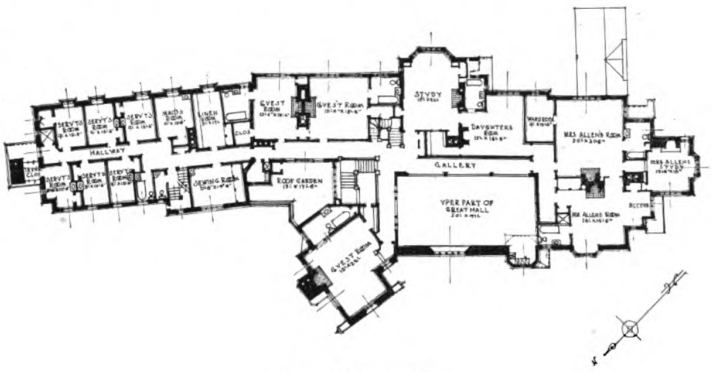
In detailing cusping, muntins, etc., all sharp arrises were carefully avoided; accidental chipping off did not necessitate condemnation on the part of the architect, for, with the proper treatment of the sand blast, the desired surface was obtained.

The rough timber work, and the rough slate, were studied from the same point of view. As to the former, Mr. Allen was most fortunate in finding some old ship timbers that had been abandoned and stacked to the weather for years; also some old skids, forty to fifty feet long, which were originally used in moving houses. These were all carefully measured up and utilized throughout to the best advantage, avoiding wherever possible the marring of the weathered surface either with chisel or plane. Even the warping of the long timber carrying the overhang on the kitchen wing on the northeast of the main front was taken advantage of to produce the sag effect, which is the charm of the real old rural architecture of England, caused, of course, by the want of knowledge or care on the part of the original builders in not providing for the incumbent loads and strains. But why find fault, if the result of time is so pleasing?

In selecting the slate for the roof, again the top of the quarry, in fact of many quarries, was taken advantage of. The unevenness of the split strata, the irregularity of shape and thickness, also the unevenness of color which was the result of surface flows from rain and snow through the æons of time, gave the character wanted. Here, too, must the artisan be congratulated for the pains taken in producing the proper result, though one of the roof setters was heard to remark, " If I had turned out work like this in the days of my apprenticeship, I would have lost my job in a week." He had, without doubt,

been educated in the straight and inartistic path of mechanical precision which is deadening to art.

Each group of chimneys was specially studied, and the bricks used were the same as those employed on the walls of the house. There were no moulded bricks introduced, the forms being obtained by offsetting, twisting and changing at times the start of the pattern, at each course. Examples of this work are found in early French architecture, and others brought to a greater perfection in England during the Tudor and Elizabethan periods when brick was considered a greater luxury.



Second Floor Plan

Having brought out in detail more or less specifically, the kind, quality and manner of bringing the component materials together, it is only fitting to say a few words as to the building, viewed as a whole from the exterior.

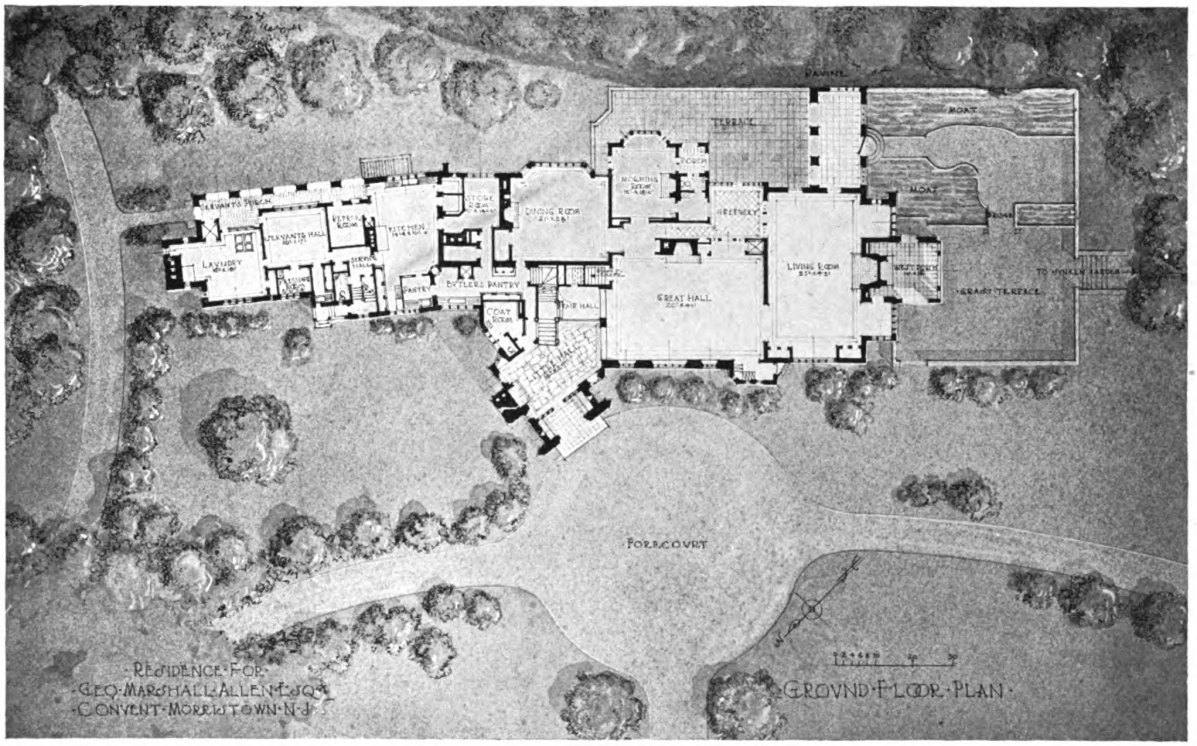
The atmosphere is one of entire repose, restful in color and form, and if a new and unexpected feature is introduced at almost every turn, it is "the doing of the unexpected pleasantly" that gives gratification.

The fact that the lawns, the sunken gardens, the rock gardens, etc., were schemed, planted and cultivated during the five years of the construction of the house, gives the feeling that the house and its surroundings have always been on intimate terms.

With this feeling of pleasure in studying the exterior, it is with trepidation that one enters the house, fearing that the interior will be disappointing. It is, therefore, with extreme gratification that one finds immediately on entering the quaint Little Hall, the sense of comfort and the beckoning hand of hospitality. One sees at once the reason for placing the entrance at an angle, for like an outstretched arm it seems to say, "Come, you are thrice welcome."

That the level here is lower than the Great Hall serves to limit, in a subtle way, the bounds of the casual visitor as he enters.

For entertainment purposes, the arrangement of the stairs is most happily conceived, as a moment's study of the ground plan will show. From the little,

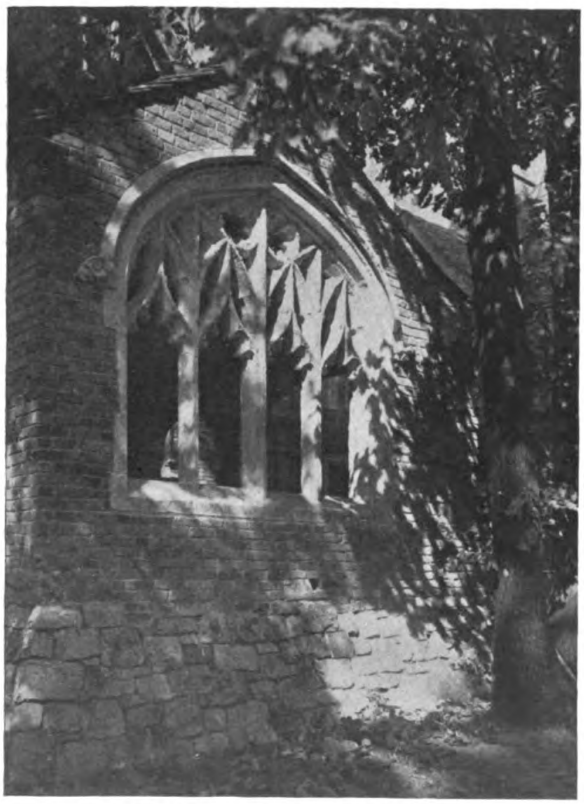


Ground Floor and Landscape Plan

low-ceiling entrance or Little Hall, two steps lead up to the Great Hall, with its lofty timbered and whitewashed ceilings opening through two stories and a half, where one gets a view from the gallery on the second floor level, joining the guests' quarters with the family living quarters, and opposing this view is the brick faced north wall, in the center of which is seen the dignity of the Compton Wynyates windows already alluded to. These windows, in their original "habitat," were only agreeable when viewed externally, but the introduction of this motif in this portion of the house was the happy suggestion of the client. To the left of these windows, and in the oriel bay which carries the tower, is the very quaint stairway leading up to the organ loft. This stairway is particularly worthy of note, for to ascend it one has to start with right foot. As each tread is cut diagonally across so that two risers occupy the space of one tread much space is saved. The precedent for this arrangement can be found in the early French work during and even prior to the Tudor period.

From the Great Hall, one gets a vista through to the morning-room, the greenery and the living-room, all with their sunny exposures, and each of these rooms opening on to the terrace, which has just the proper arrangement of shelter from the direct rays in the cloisters at the west end of the south terrace,

Unique Stairway to the Organ Gallery



Detail of Gothic Tracery in Cloister

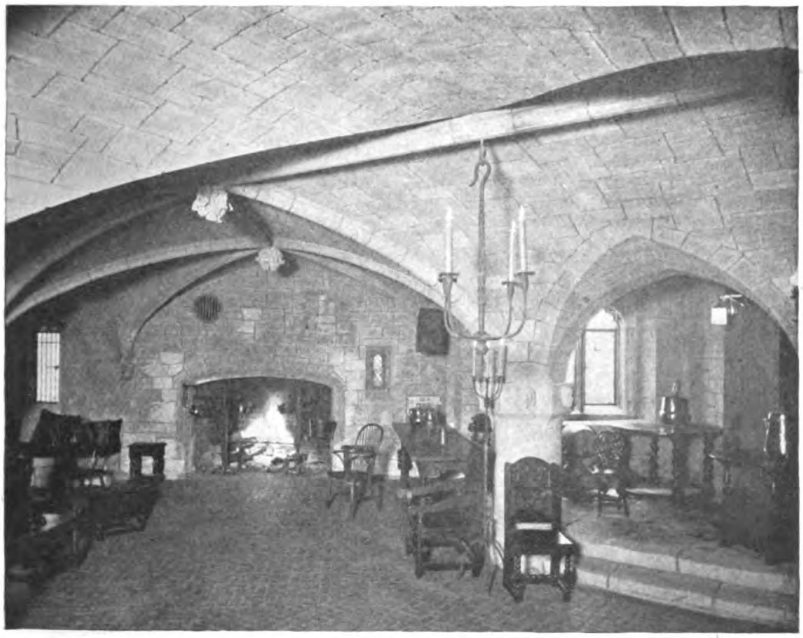
and the covered west porch with its outdoor fireplace, where the great logs can keep up the crackling camp-fire in the early autumnal evenings. Further to the south of the terrace is the ravine, with its wealth of shade trees.

We are informed that there was no scientific or mechanical scheme of ventilation provided for the house, reliance being placed on the arrangement of the rooms to secure the proper drafts through natural laws. In this regard, the living-room is particularly well placed, opening, as it does, to three cardinal points of the compass.

It is also well to remark the peculiar isolation of the kitchen, yet in every way entirely contiguous to the serving-room and the dining-room.

Through the whole of this floor the Tudor style has been maintained, with the exception of the dining-room. The general plan, however, has been adapted to the advanced comforts of the American home, and this applies as well to the layout of the second floor.

The main stairway, tucked in its own spacious offset, has an exclusive atmosphere. From the broad platform, at the head of the first landing, rises the muntined windows, through which a flood of mellowed light pours through the leaded glass, the field of which sustains repliquas of portions of the great windows in Compton Wynyates, and here, too, the



Crypt under the Little Hall

artisan has so ably carried out his work that it takes indeed an expert to find that the glass was not done in mediæval times.

On reaching the second floor it will be noted that the three principal guest rooms are confined to this portion of the house, and though adjacent to the servants' wing, are entirely shut off by a heavy brick wall and fireproof doors, which serve both as sound and fire barriers.

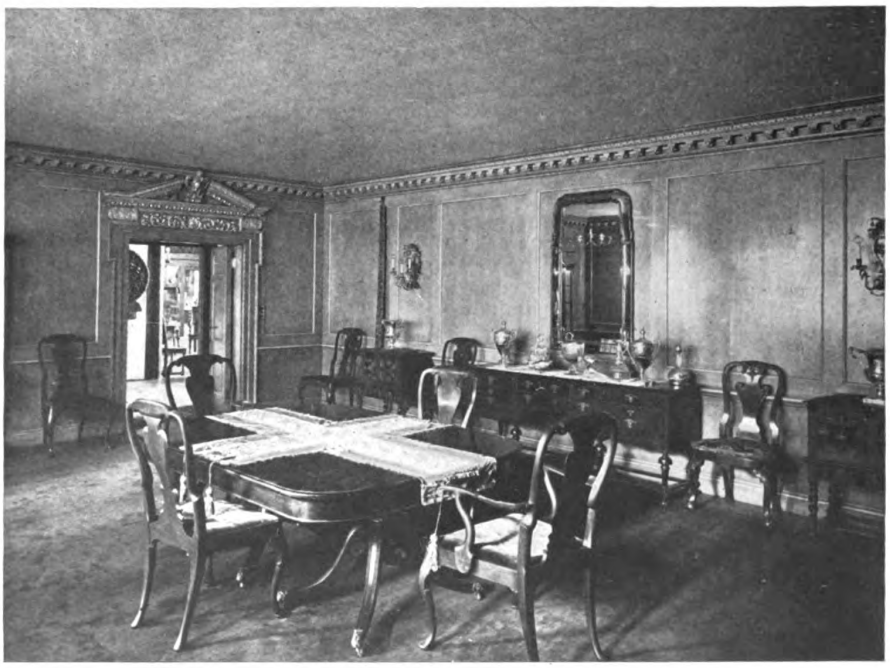
At the farther end of this gallery, from which a most interesting view of the Great Hall is obtained, the family suites are exclusively situated.

The upper or attic floor is arranged for the week-end parties of bachelor friends, and a large photographic studio is equipped with every modern improvement, light and ventilation, where Mr. Allen indulges for hours at a time in his favorite hobby, that of color photography.

Still another little surprise, and though mentioned last, is by no means the least. Leading off the Great Hall under the gallery on the first floor, and just to the right of the main stairway, there is a secret door formed in one of the panels of the high wainscoting. After touching a hidden spring, which releases this door, and after the eye is accustomed to the dungeon-like darkness, one finds a circular well worn stairway leading to the crypt below. This is indeed a veritable crypt, and its stone walls and vaulted early Gothic arches support the superstructure above, which in this case is the Little Hall. The floor is of stone and misshapen tile. The feeling of dampness, which one had on entering, soon is dispelled, for on turning a corner and descending a few steps to another level, the roar of a fire greets you, burning in a fireplace broad enough to take, at one time, many logs over six feet long.

The illusion at night is most fanciful, and at the same time realistic, for in the areas which admit the light through the obscured Gothic windows, electric lights are so placed as to send forth a glow to give the feeling of moonlight.

Shortly after the completion of this stone crypt, and further to convince Mr. Allen that with extreme care, even the wood carvings on the barge boards of the gables could have all the tempered feeling of age, Mr. Berg relates a pleasant little piece of deception he played on his client. It appears that Mr. Allen had fortunately come into possession of a



Dining Room Looking Toward Great Hall

carved wood lintel that had at some early period of one of the restorations of Compton Wynyates, found its way into the lumber pile. Desiring to copy this, Mr. Berg obtained permission and had his client initial and date this old (?) fragment on the back. Several months after, two carved lintels were shown, and to Mr. Allen's surprise he found that formerly he had initialed the copy, and not the original as he had previously supposed.

This experiment, though successful, was doubtless a costly one for the architect, the standard being set so high, it became at times, difficult to live up to.

Many details from Compton Wynyates have been followed as closely as possible from measured drawings, many of which were made by Mr. Berg when in Europe just prior to and at the time the war broke out in the early days of August, 1914. He spent many weeks in Worcestershire, Warwickshire and Gloucestershire, for the special study of the refinements of the Tudor domestic architecture of the Renaissance.

The principal portions, Mr. Berg states, which are copies from Compton Wynyates, are the main entrance, the group of five windows or central feature to the right of the entrance, and which give on to the Great Hall on the north elevation, and also the large second-story bay on the south elevation leading off the morning room on the first floor.

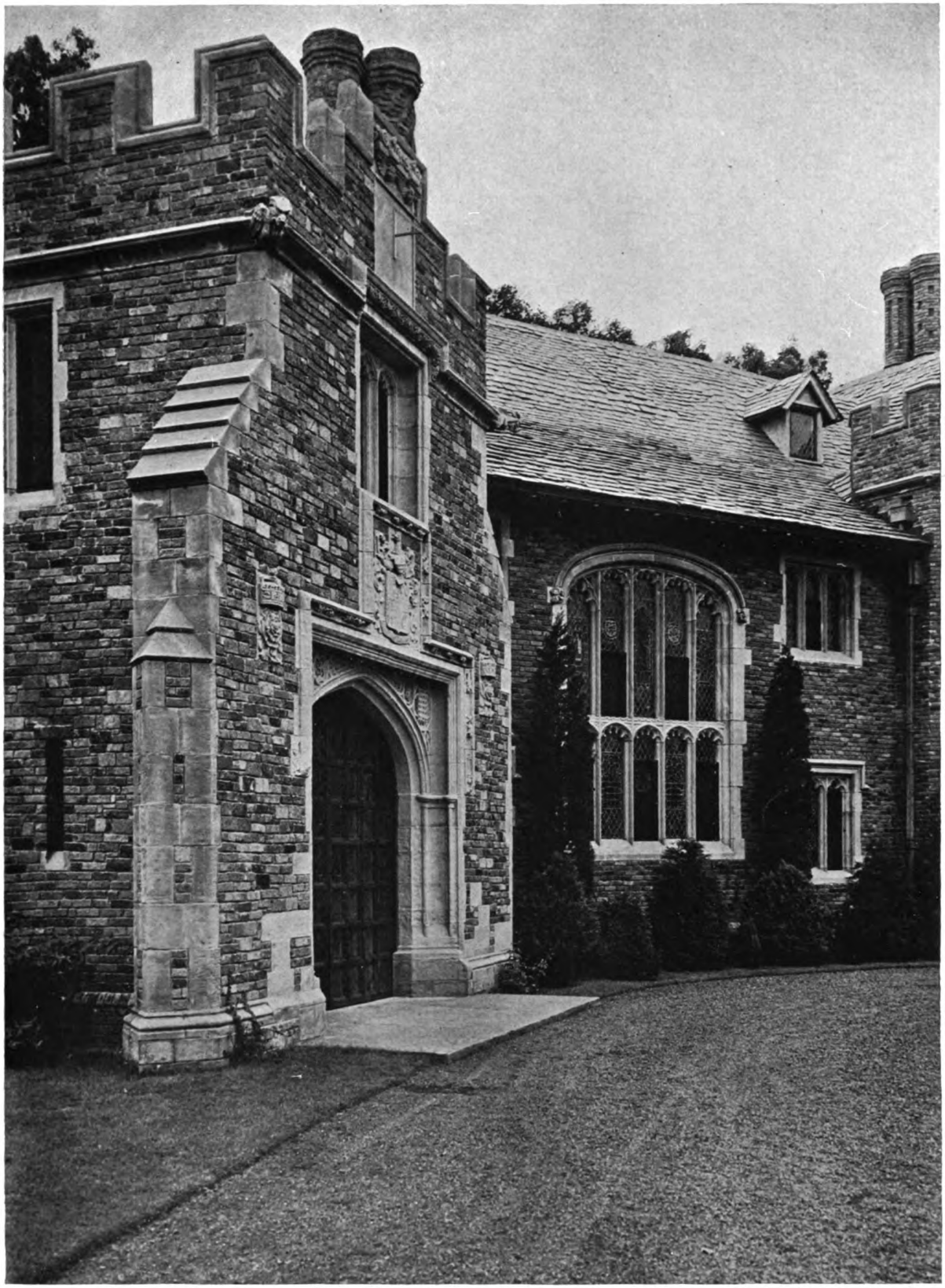
Copies of these features were made by special request of the owner, but they do not in any way find their relative location in their new home.

The main entrance is an exact copy in all details as nearly as possible, except that the family coat of arms replaces the arms of England. Below, among the carvings, can be seen the rose of England and the pomegranate of Granada, interlaced, so history tells us, as an international satire on the union of Henry and the unfortunate Queen Catherine. On each side of the stone lintel to the entrance door, are the Tudor roses with crowns. In the spandrels are, on one side of the portcullis, a badge of Henry VIII, and on the other a badge of Catherine of Aragon, composed of the Castle of Castile, the pomegranate, and the sheath of arrows, the badge of her mother, Isabella.

In the accomplishment of the Allen house, with its copied features, its new features, and the many varied and modified features, and in adapting all to the requirements and the necessities of the present-day home, there was required the most hearty co-operation, not only between the architect and his client, but of each and every artisan and mechanic employed in its construction, with the result that we can quote from the present Lord of Compton Wynyates, William, Marquis of Northampton on his ancestral manor:

" Infinite care was taken, much time was spent on the family home. The fancy of a man of taste was gradually carried out, and thus we have irregular, but quite harmonious architecture; a lovely contour, every detail in the best style; the whole in a wonderful setting combining to make a picture which all must admire, and which the happy possessor may be pardoned for calling a vision of beauty."

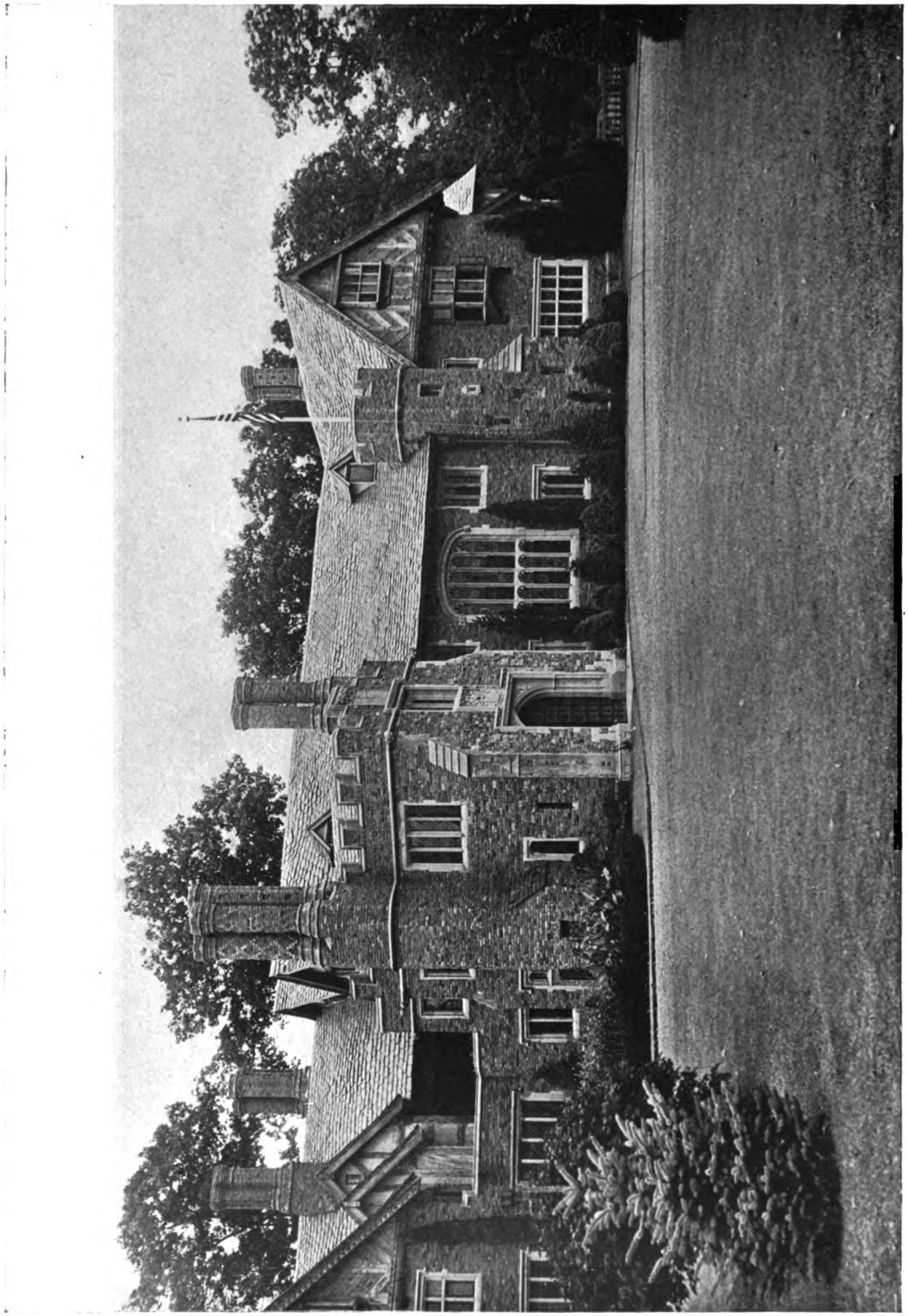
Fountain and Pool in the Sunken Garden



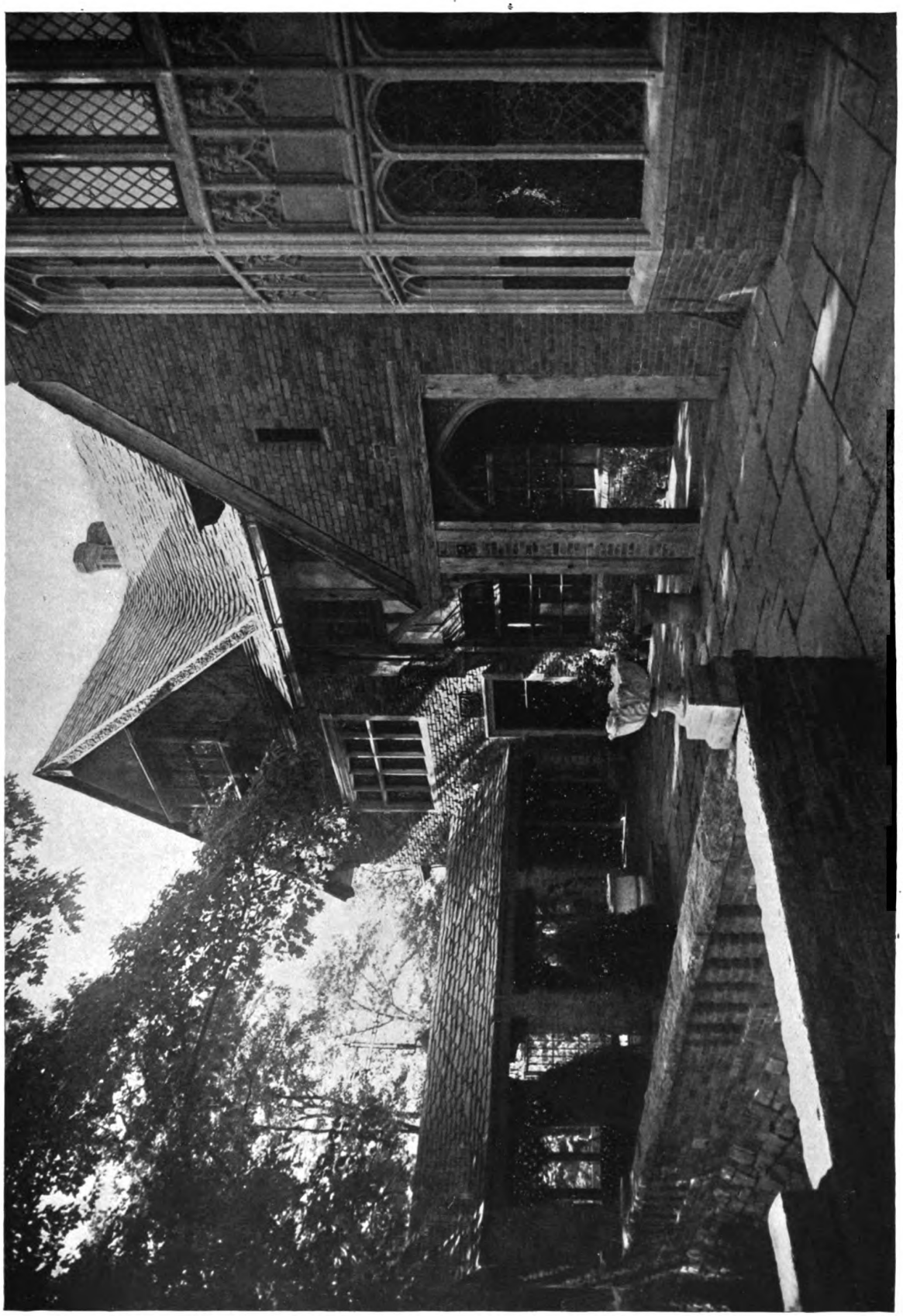
DETAIL OF MAIN ENTRANCE

HOUSE OF GEORGE MARSHALL ALLEN, ESQ., MORRISTOWN, N. J.

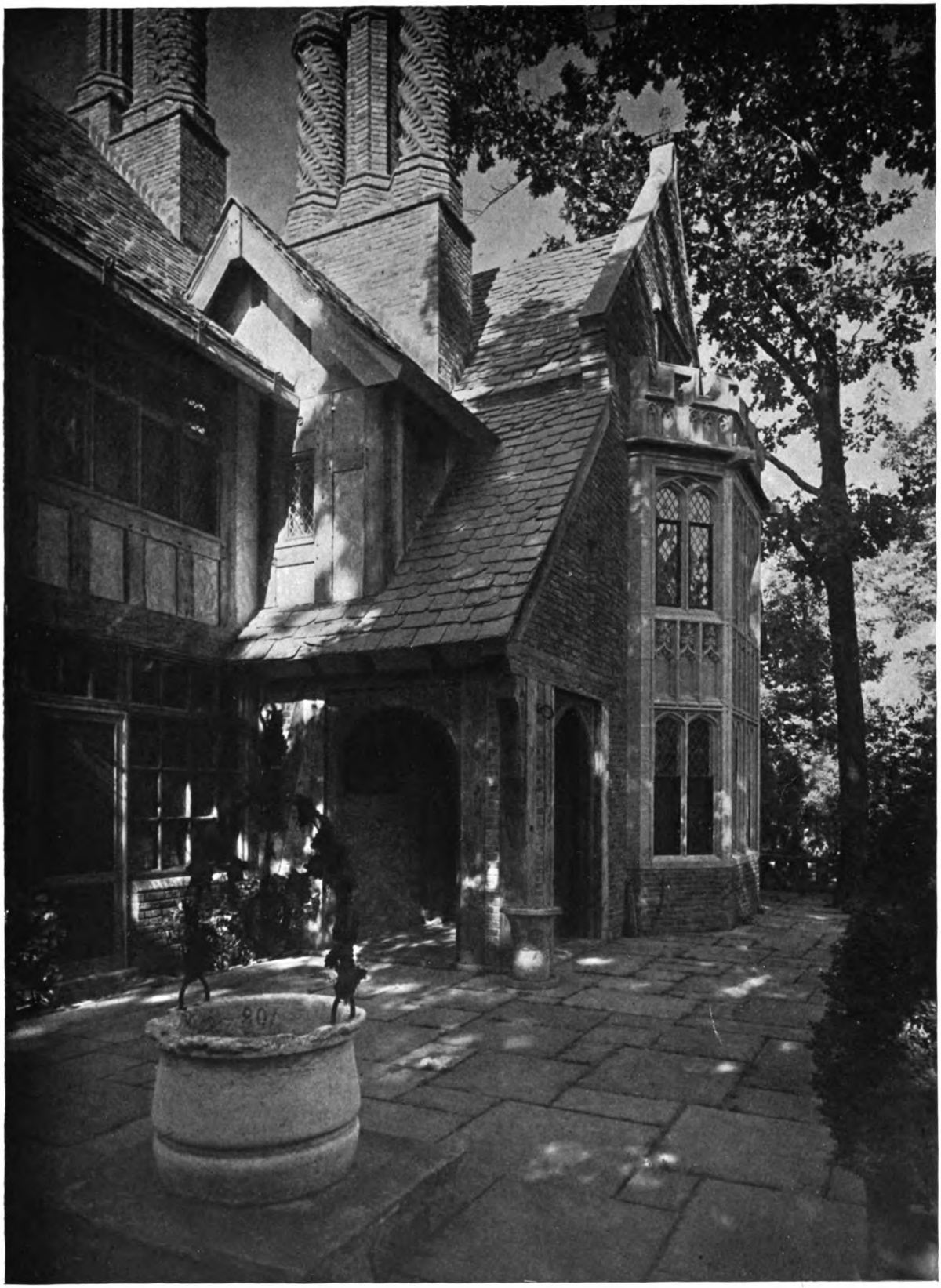
CHARLES I. BERG, ARCHITECT



VIEW OF MAIN PORTION OF ENTRANCE FRONT
HOUSE OF GEORGE MARSHALL ALLEN, ESQ., MORRISTOWN, N. J.
CHARLES I. BERG, ARCHITECT



DETAIL OF TERRACE SIDE, LOOKING TOWARD CLOISTER PORCH
HOUSE OF GEORGE MARSHALL ALLEN, ESQ., MORRISTOWN, N. J.
CHARLES I. BERG, ARCHITECT

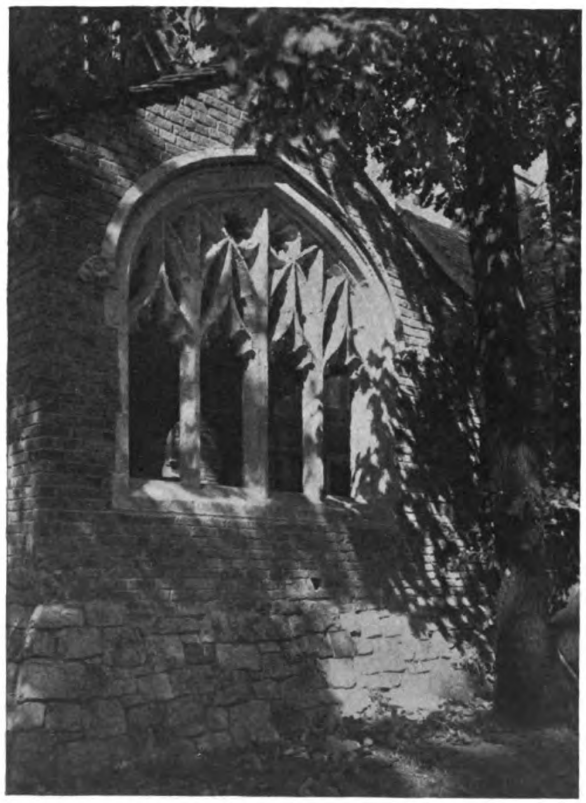


DETAIL OF TERRACE SIDE, SHOWING MORNING ROOM BAY
HOUSE OF GEORGE MARSHALL ALLEN, ESQ., MORRISTOWN, N. J.
CHARLES I. BERG, ARCHITECT

low-ceiling entrance or Little Hall, two steps lead up to the Great Hall, with its lofty timbered and whitewashed ceilings opening through two stories and a half, where one gets a view from the gallery on the second floor level, joining the guests' quarters with the family living quarters, and opposing this view is the brick faced north wall, in the center of which is seen the dignity of the Compton Wynyates windows already alluded to. These windows, in their original "habitat," were only agreeable when viewed externally, but the introduction of this motif in this portion of the house was the happy suggestion of the client. To the left of these windows, and in the oriel bay which carries the tower, is the very quaint stairway leading up to the organ loft. This stairway is particularly worthy of note, for to ascend it one has to start with right foot. As each tread is cut diagonally across so that two risers occupy the space of one tread much space is saved. The precedent for this arrangement can be found in the early French work during and even prior to the Tudor period.

From the Great Hall, one gets a vista through to the morning-room, the greenery and the living-room, all with their sunny exposures, and each of these rooms opening on to the terrace, which has just the proper arrangement of shelter from the direct rays in the cloisters at the west end of the south terrace,

Unique Stairway to the Organ Gallery



Detail of Gothic Tracery in Cloister

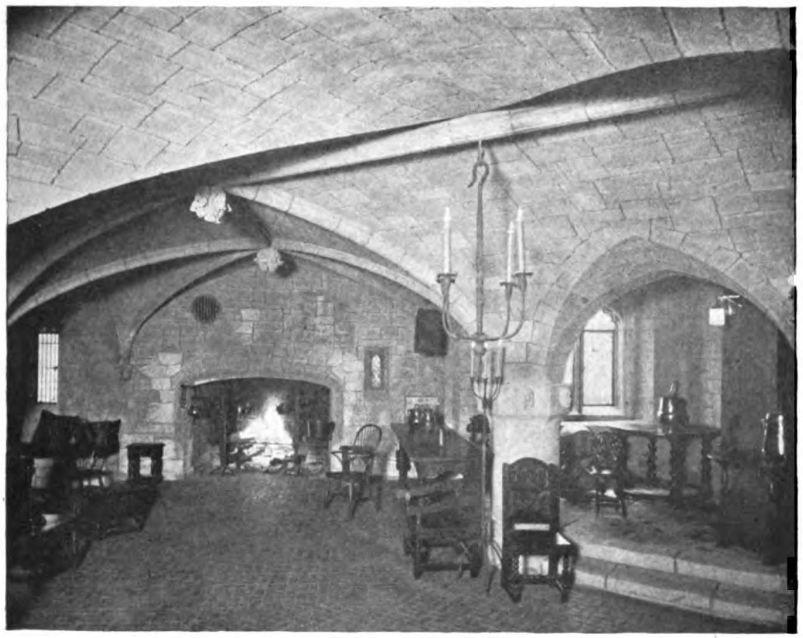
and the covered west porch with its outdoor fireplace, where the great logs can keep up the crackling camp-fire in the early autumnal evenings. Further to the south of the terrace is the ravine, with its wealth of shade trees.

We are informed that there was no scientific or mechanical scheme of ventilation provided for the house, reliance being placed on the arrangement of the rooms to secure the proper drafts through natural laws. In this regard, the living-room is particularly well placed, opening, as it does, to three cardinal points of the compass.

It is also well to remark the peculiar isolation of the kitchen, yet in every way entirely contiguous to the serving-room and the dining-room.

Through the whole of this floor the Tudor style has been maintained, with the exception of the dining-room. The general plan, however, has been adapted to the advanced comforts of the American home, and this applies as well to the layout of the second floor.

The main stairway, tucked in its own spacious offset, has an exclusive atmosphere. From the broad platform, at the head of the first landing, rises the muntined windows, through which a flood of mellowed light pours through the leaded glass, the field of which sustains repliquas of portions of the great windows in Compton Wynyates, and here, too, the



Crypt under the Little Hall

artisan has so ably carried out his work that it takes indeed an expert to find that the glass was not done in mediæval times.

On reaching the second floor it will be noted that the three principal guest rooms are confined to this portion of the house, and though adjacent to the servants' wing, are entirely shut off by a heavy brick wall and fireproof doors, which serve both as sound and fire barriers.

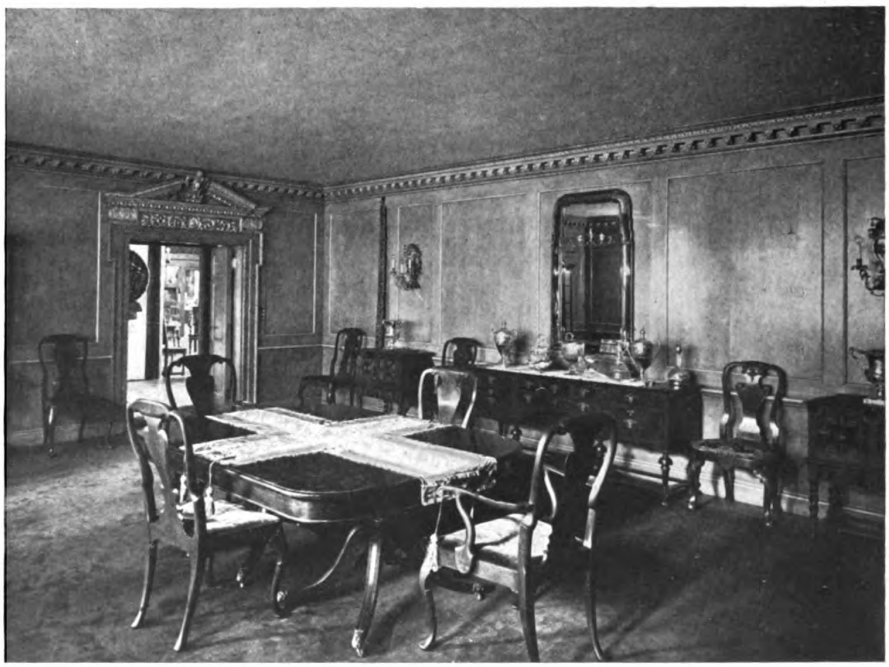
At the farther end of this gallery, from which a most interesting view of the Great Hall is obtained, the family suites are exclusively situated.

The upper or attic floor is arranged for the week-end parties of bachelor friends, and a large photographic studio is equipped with every modern improvement, light and ventilation, where Mr. Allen indulges for hours at a time in his favorite hobby, that of color photography.

Still another little surprise, and though mentioned last, is by no means the least. Leading off the Great Hall under the gallery on the first floor, and just to the right of the main stairway, there is a secret door formed in one of the panels of the high wainscoting. After touching a hidden spring, which releases this door, and after the eye is accustomed to the dungeon-like darkness, one finds a circular well worn stairway leading to the crypt below. This is indeed a veritable crypt, and its stone walls and vaulted early Gothic arches support the superstructure above, which in this case is the Little Hall. The floor is of stone and misshapen tile. The feeling of dampness, which one had on entering, soon is dispelled, for on turning a corner and descending a few steps to another level, the roar of a fire greets you, burning in a fireplace broad enough to take, at one time, many logs over six feet long.

The illusion at night is most fanciful, and at the same time realistic, for in the areas which admit the light through the obscured Gothic windows, electric lights are so placed as to send forth a glow to give the feeling of moonlight.

Shortly after the completion of this stone crypt, and further to convince Mr. Allen that with extreme care, even the wood carvings on the barge boards of the gables could have all the tempered feeling of age, Mr. Berg relates a pleasant little piece of deception he played on his client. It appears that Mr. Allen had fortunately come into possession of a



Dining Room Looking Toward Great Hall

carved wood lintel that had at some early period of one of the restorations of Compton Wynyates, found its way into the lumber pile. Desiring to copy this, Mr. Berg obtained permission and had his client initial and date this old (?) fragment on the back. Several months after, two carved lintels were shown, and to Mr. Allen's surprise he found that formerly he had initialed the copy, and not the original as he had previously supposed.

This experiment, though successful, was doubtless a costly one for the architect, the standard being set so high, it became at times, difficult to live up to.

Many details from Compton Wynyates have been followed as closely as possible from measured drawings, many of which were made by Mr. Berg when in Europe just prior to and at the time the war broke out in the early days of August, 1914. He spent many weeks in Worcestershire, Warwickshire and Gloucestershire, for the special study of the refinements of the Tudor domestic architecture of the Renaissance.

The principal portions, Mr. Berg states, which are copies from Compton Wynyates, are the main entrance, the group of five windows or central feature to the right of the entrance, and which give on to the Great Hall on the north elevation, and also the large second-story bay on the south elevation leading off the morning room on the first floor.

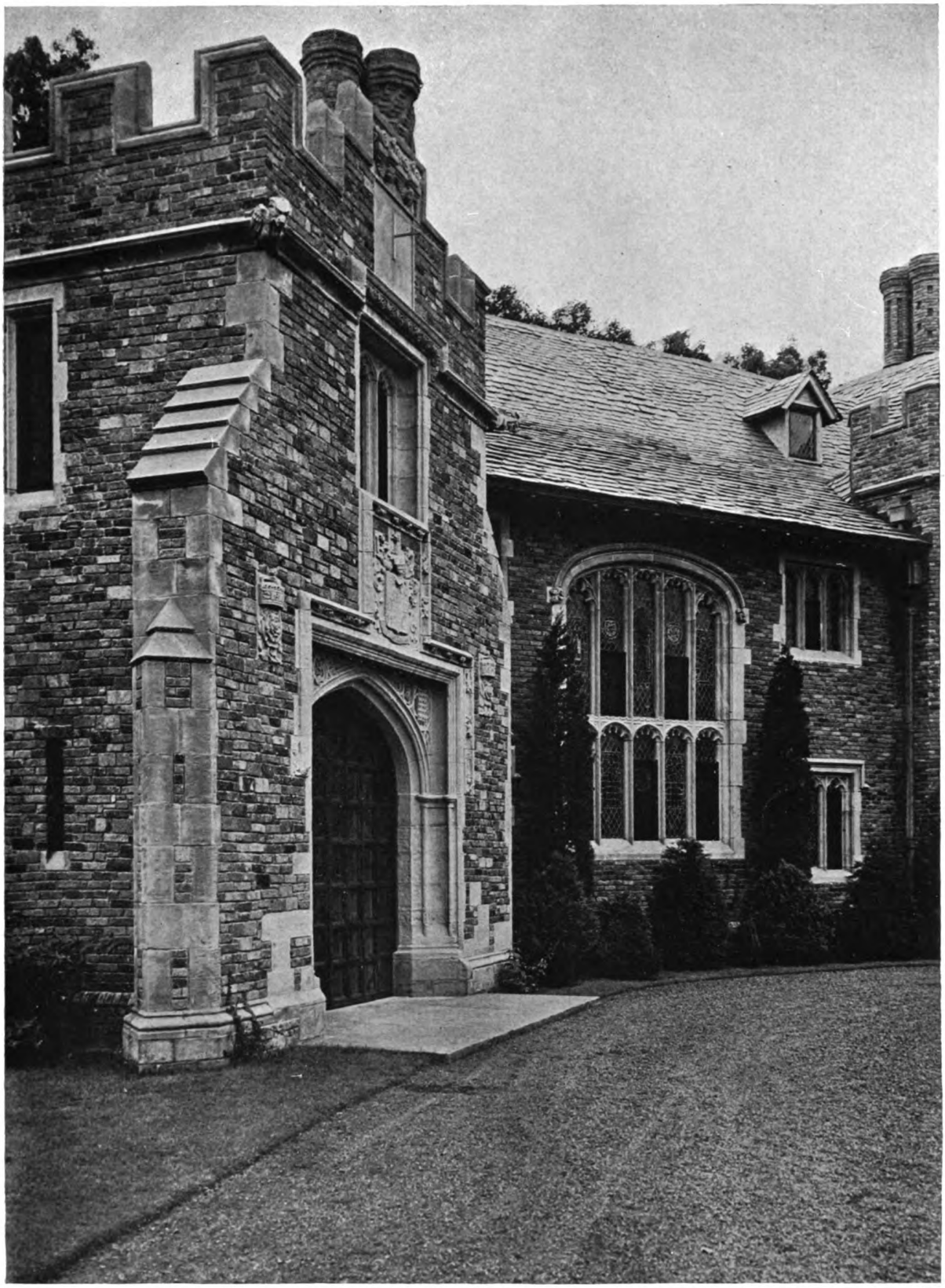
Copies of these features were made by special request of the owner, but they do not in any way find their relative location in their new home.

The main entrance is an exact copy in all details as nearly as possible, except that the family coat of arms replaces the arms of England. Below, among the carvings, can be seen the rose of England and the pomegranate of Granada, interlaced, so history tells us, as an international satire on the union of Henry and the unfortunate Queen Catherine. On each side of the stone lintel to the entrance door, are the Tudor roses with crowns. In the spandrels are, on one side of the portcullis, a badge of Henry VIII, and on the other a badge of Catherine of Aragon, composed of the Castle of Castile, the pomegranate, and the sheath of arrows, the badge of her mother, Isabella.

In the accomplishment of the Allen house, with its copied features, its new features, and the many varied and modified features, and in adapting all to the requirements and the necessities of the present-day home, there was required the most hearty co-operation, not only between the architect and his client, but of each and every artisan and mechanic employed in its construction, with the result that we can quote from the present Lord of Compton Wynyates, William, Marquis of Northampton on his ancestral manor:

" Infinite care was taken, much time was spent on the family home. The fancy of a man of taste was gradually carried out, and thus we have irregular, but quite harmonious architecture; a lovely contour, every detail in the best style; the whole in a wonderful setting combining to make a picture which all must admire, and which the happy possessor may be pardoned for calling a vision of beauty."

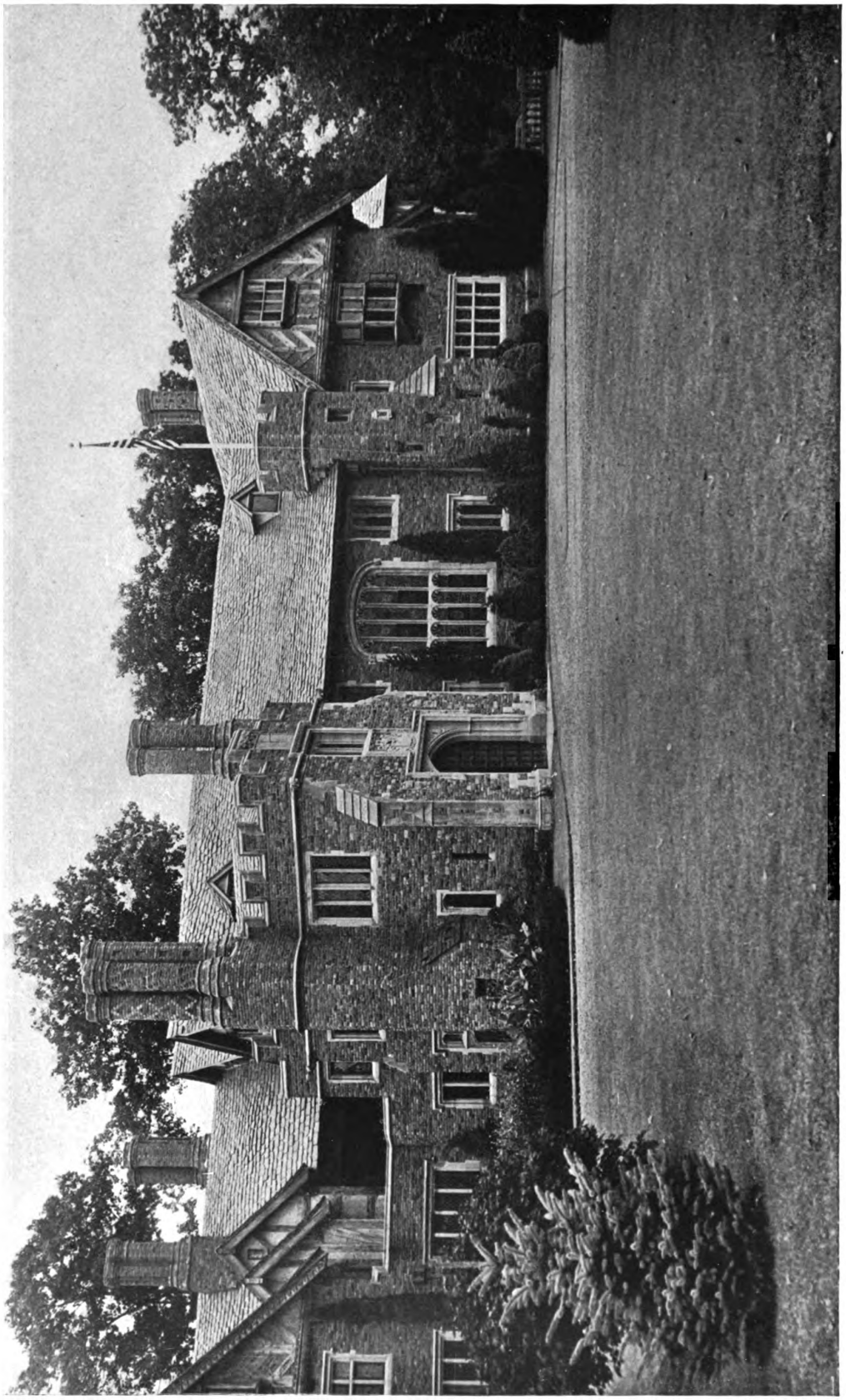
Fountain and Pool in the Sunken Garden



DETAIL OF MAIN ENTRANCE

HOUSE OF GEORGE MARSHALL ALLEN, ESQ., MORRISTOWN, N. J.

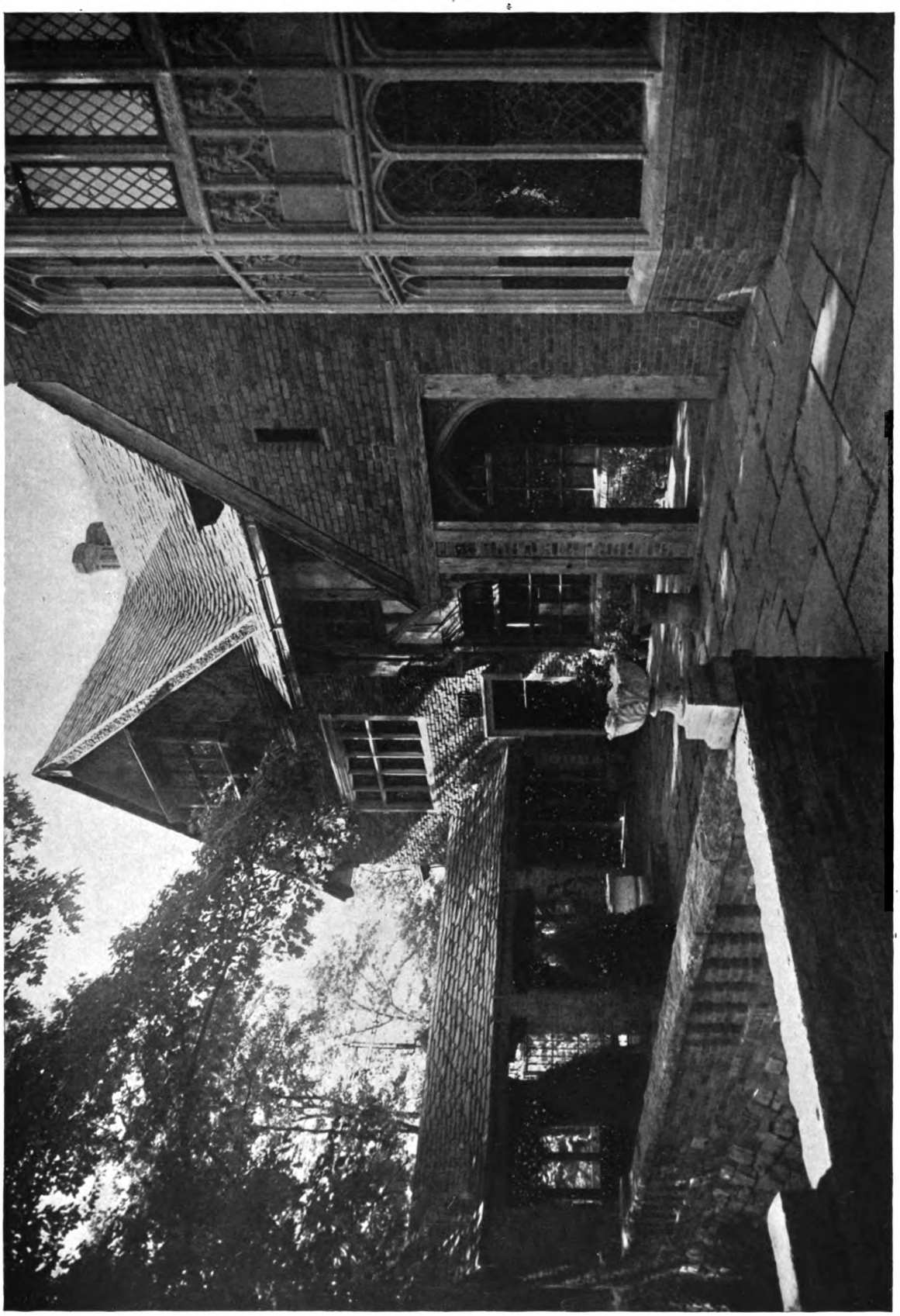
CHARLES I. BERG, ARCHITECT



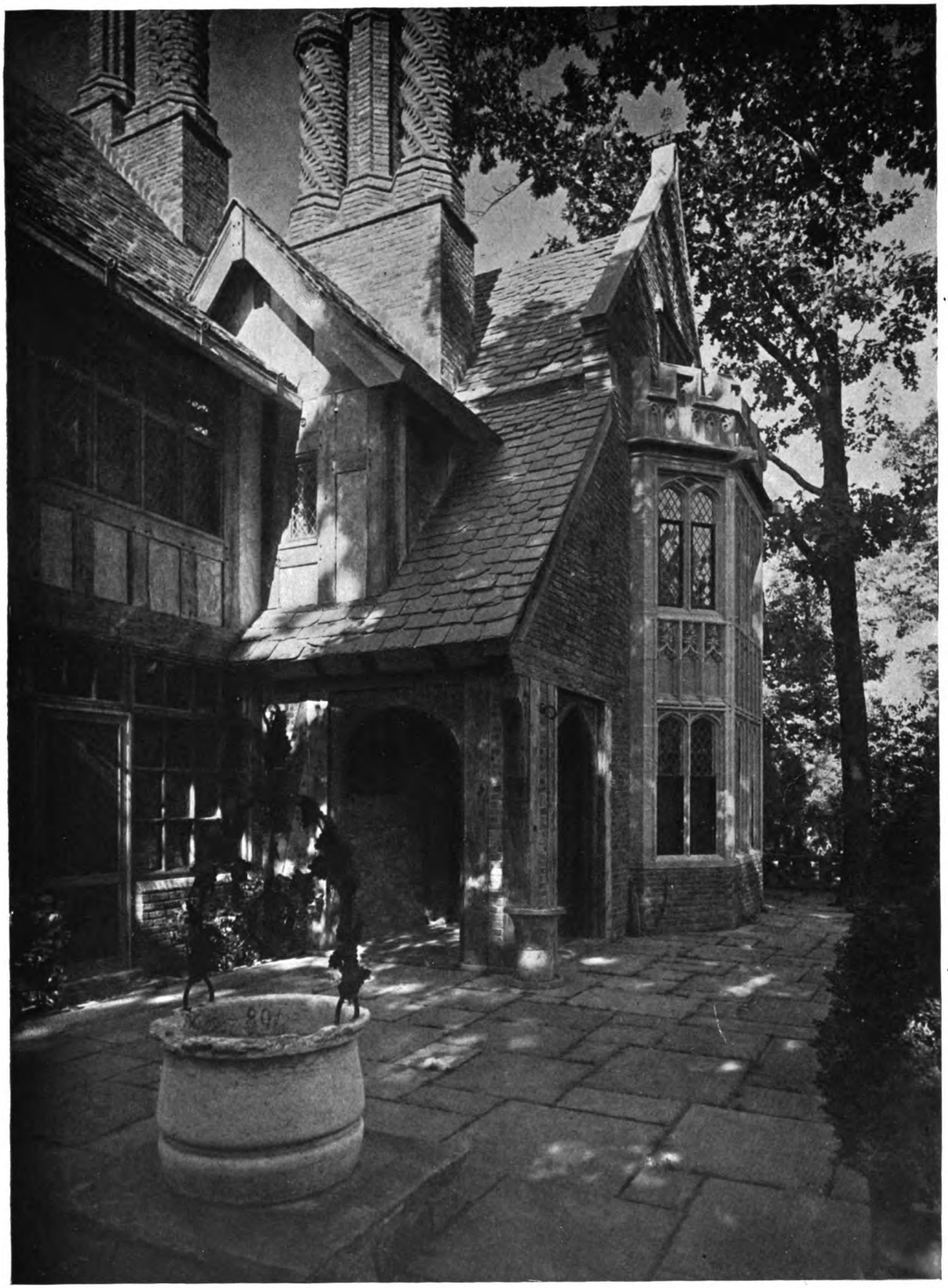
VIEW OF MAIN PORTION OF ENTRANCE FRONT

HOUSE OF GEORGE MARSHALL ALLEN, ESQ., MORRISTOWN, N. J.

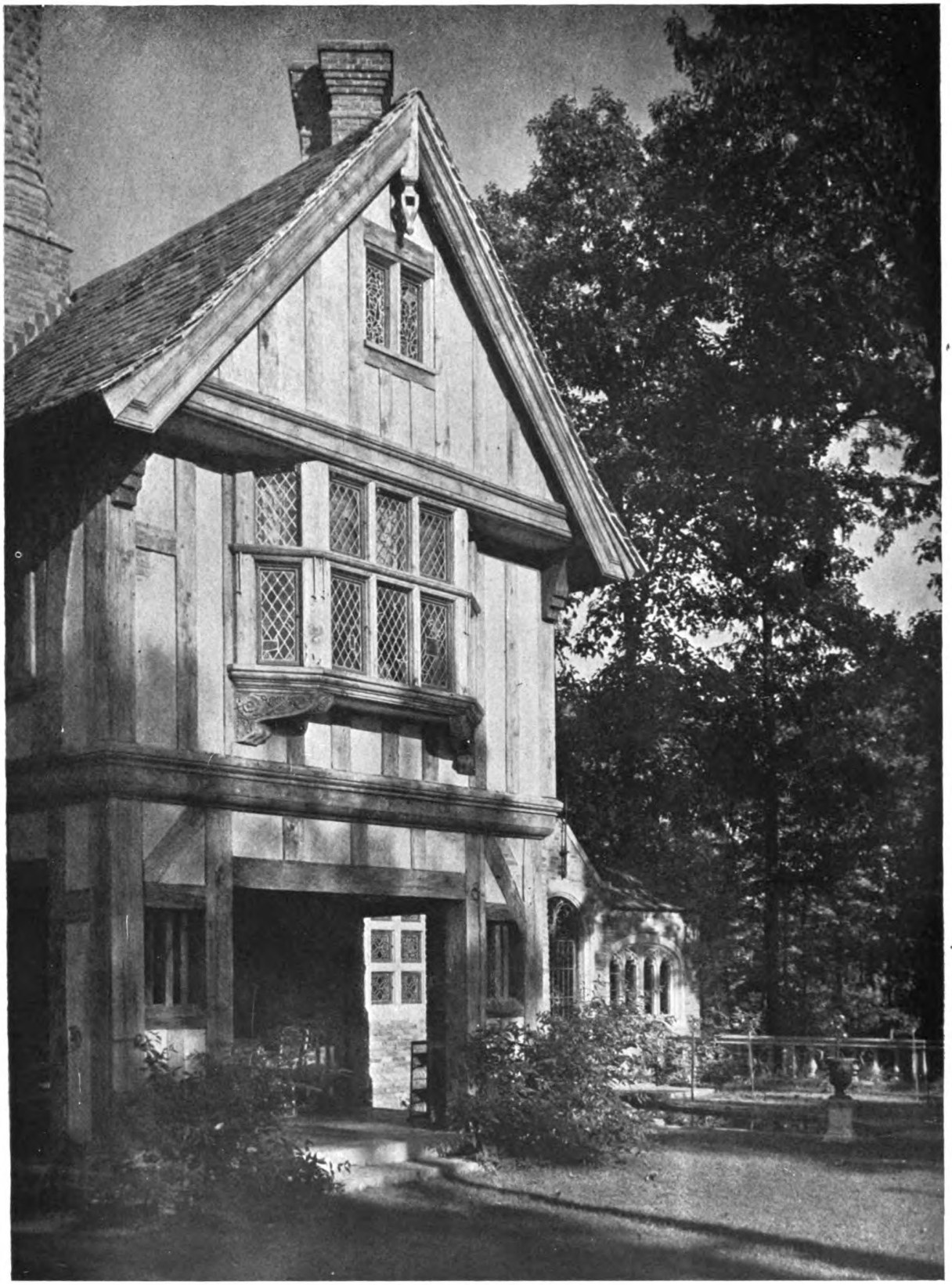
CHARLES I. BERG, ARCHITECT



DETAIL OF TERRACE SIDE, LOOKING TOWARD CLOISTER PORCH
HOUSE OF GEORGE MARSHALL ALLEN, ESQ., MORRISTOWN, N. J.
CHARLES I. BERG, ARCHITECT



DETAIL OF TERRACE SIDE, SHOWING MORNING ROOM BAY
HOUSE OF GEORGE MARSHALL ALLEN, ESQ., MORRISTOWN, N. J.
CHARLES I. BERG, ARCHITECT



DETAIL OF WEST PORCH GABLE

HOUSE OF GEORGE MARSHALL ALLEN, ESQ., MORRISTOWN, N. J.

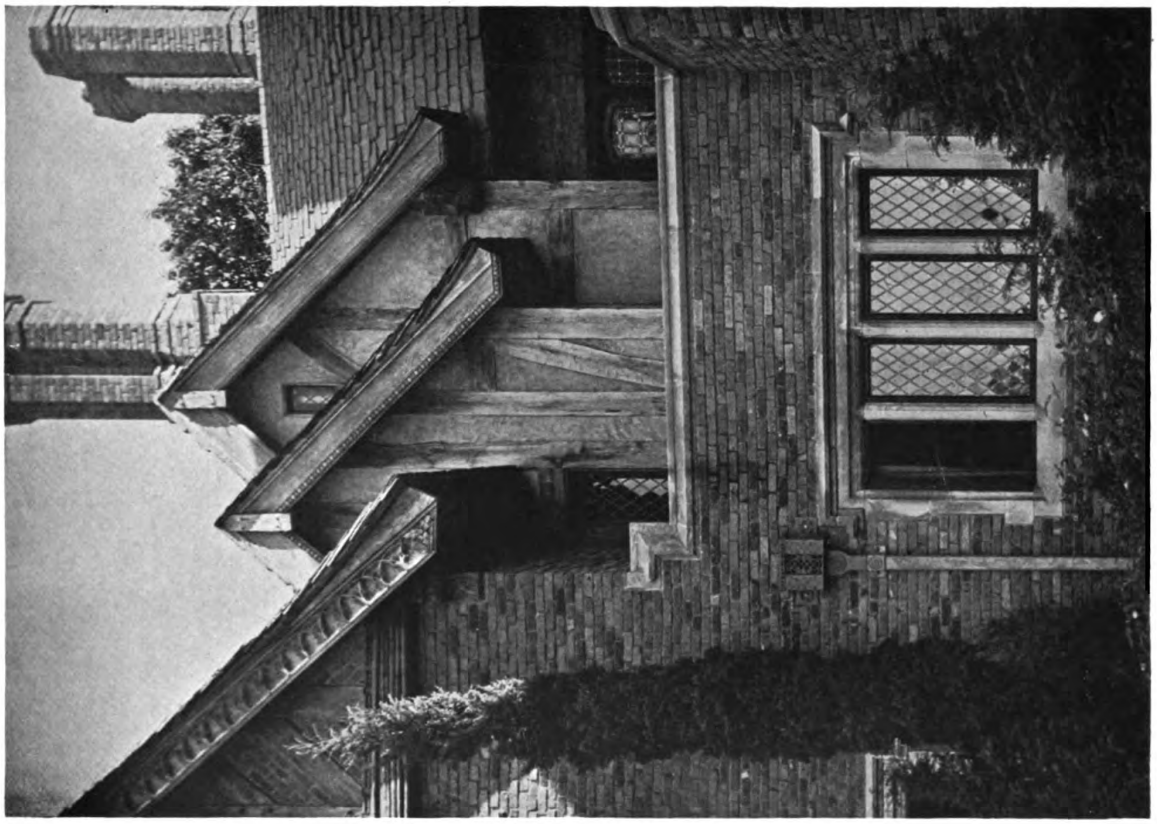
CHARLES I. BERG, ARCHITECT

DETAIL OF LIVING-ROOM GABLE, TERRACE SIDE

VIEW OF SERVICE WING

HOUSE OF GEORGE MARSHALL ALLEN, ESQ., MORRISTOWN, N. J.
CHARLES I. BERG, ARCHITECT

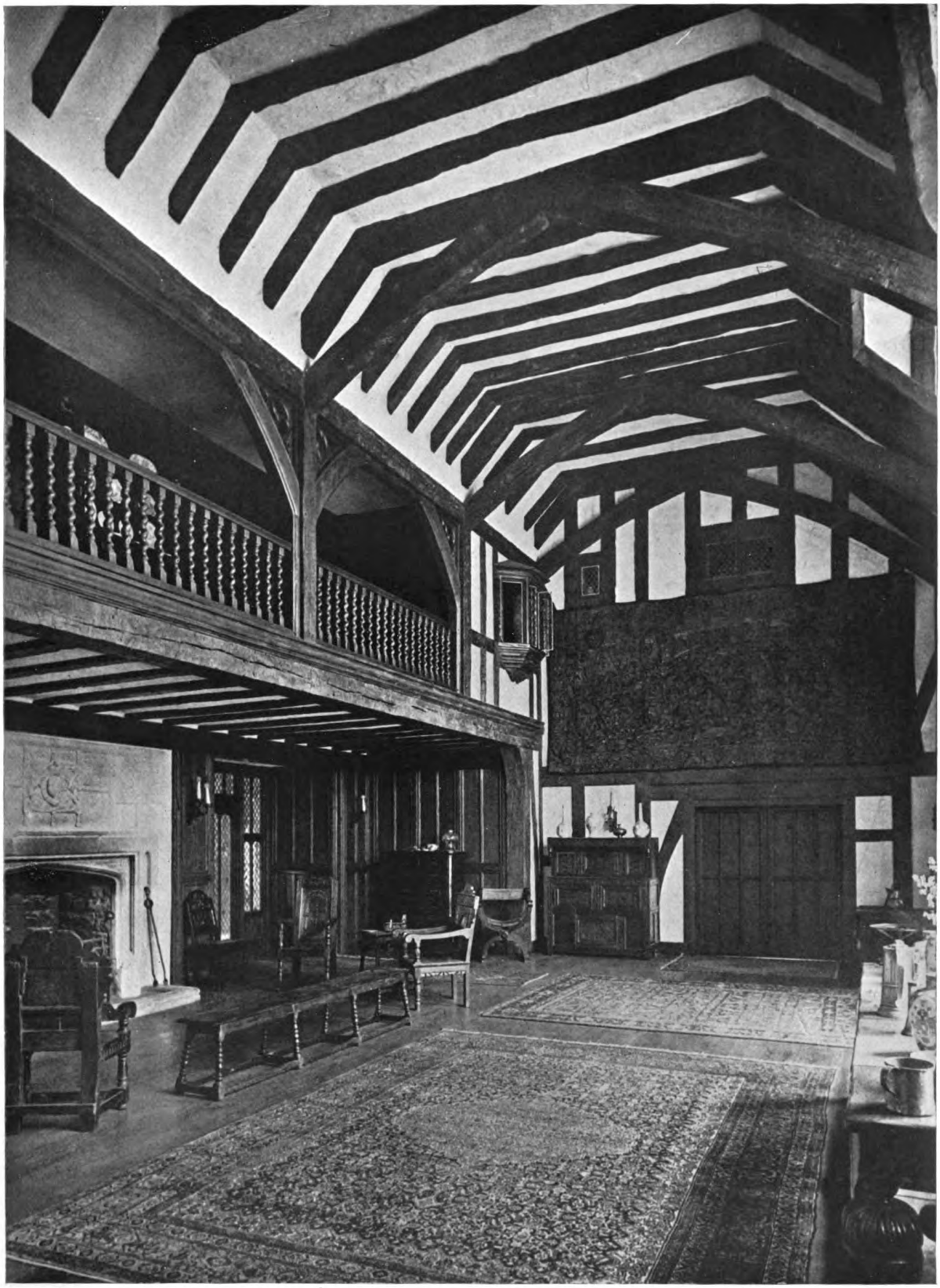
PORCH ON SERVICE WING



GABLE GROUP ON ENTRANCE FRONT

HOUSE OF GEORGE MARSHALL ALLEN, ESQ., MORRISTOWN, N. J.

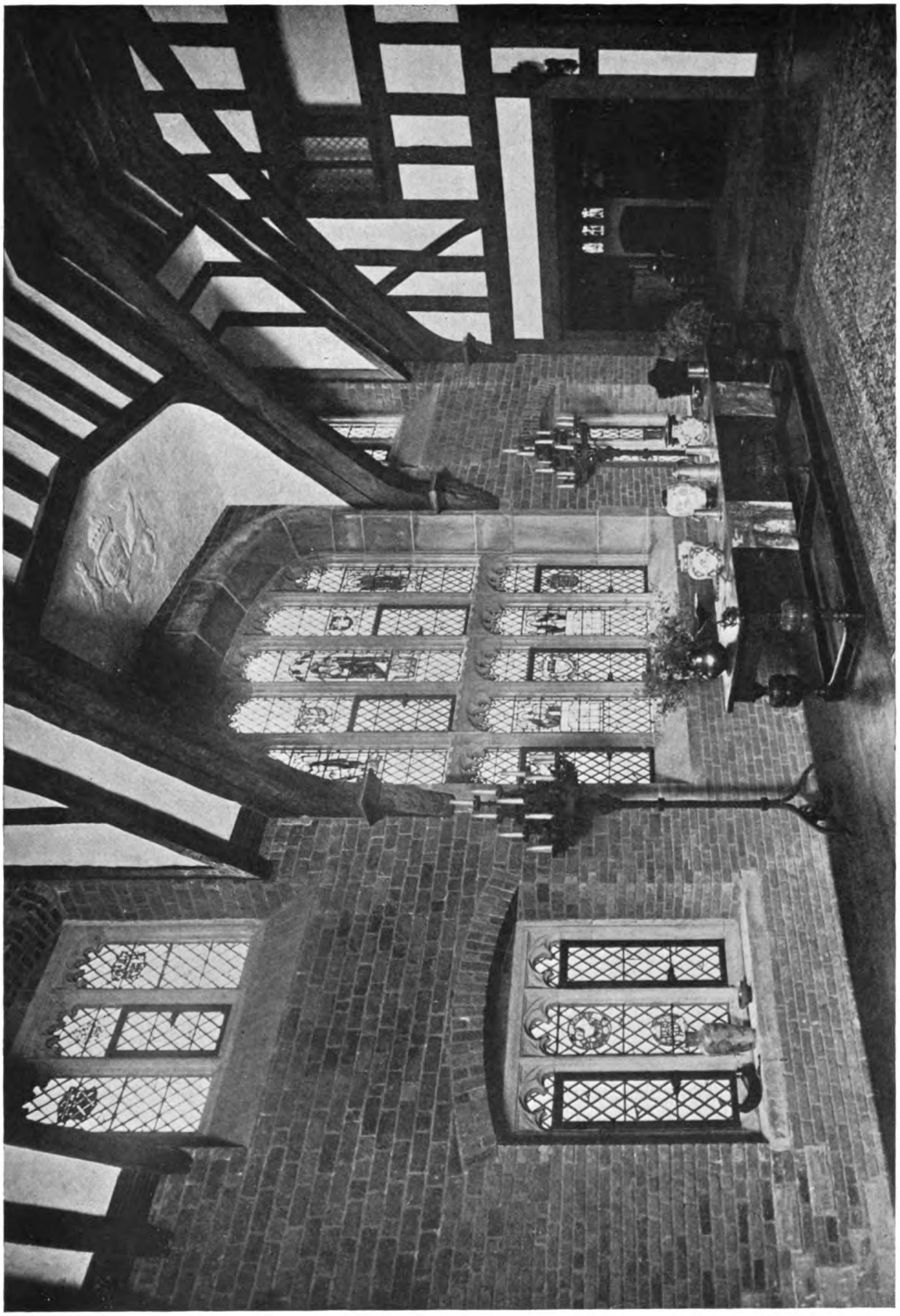
CHARLES I. BERG, ARCHITECT



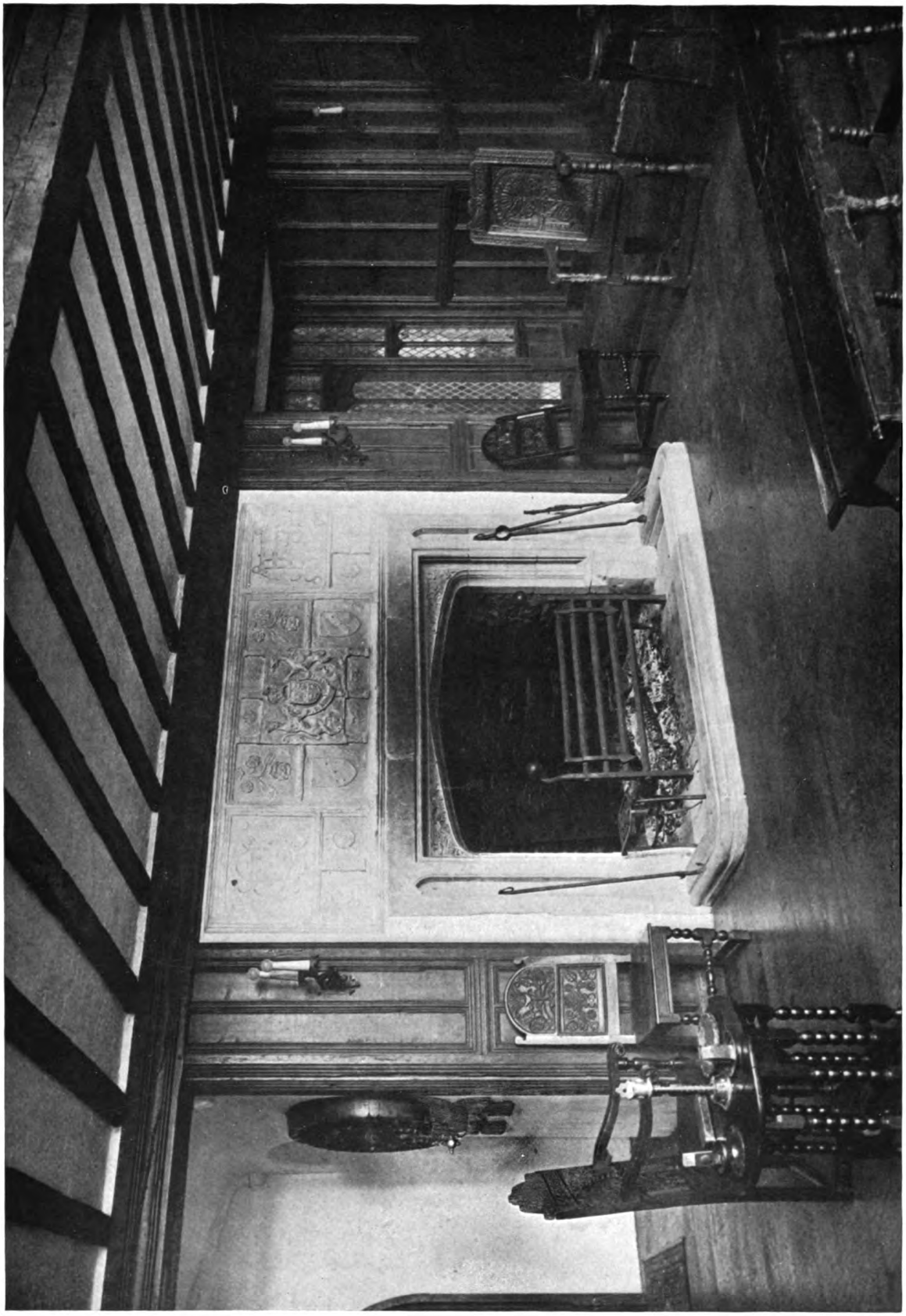
INTERIOR OF GREAT HALL

HOUSE OF GEORGE MARSHALL ALLEN, ESQ., MORRISTOWN, N. J.

CHARLES I. BERG, ARCHITECT

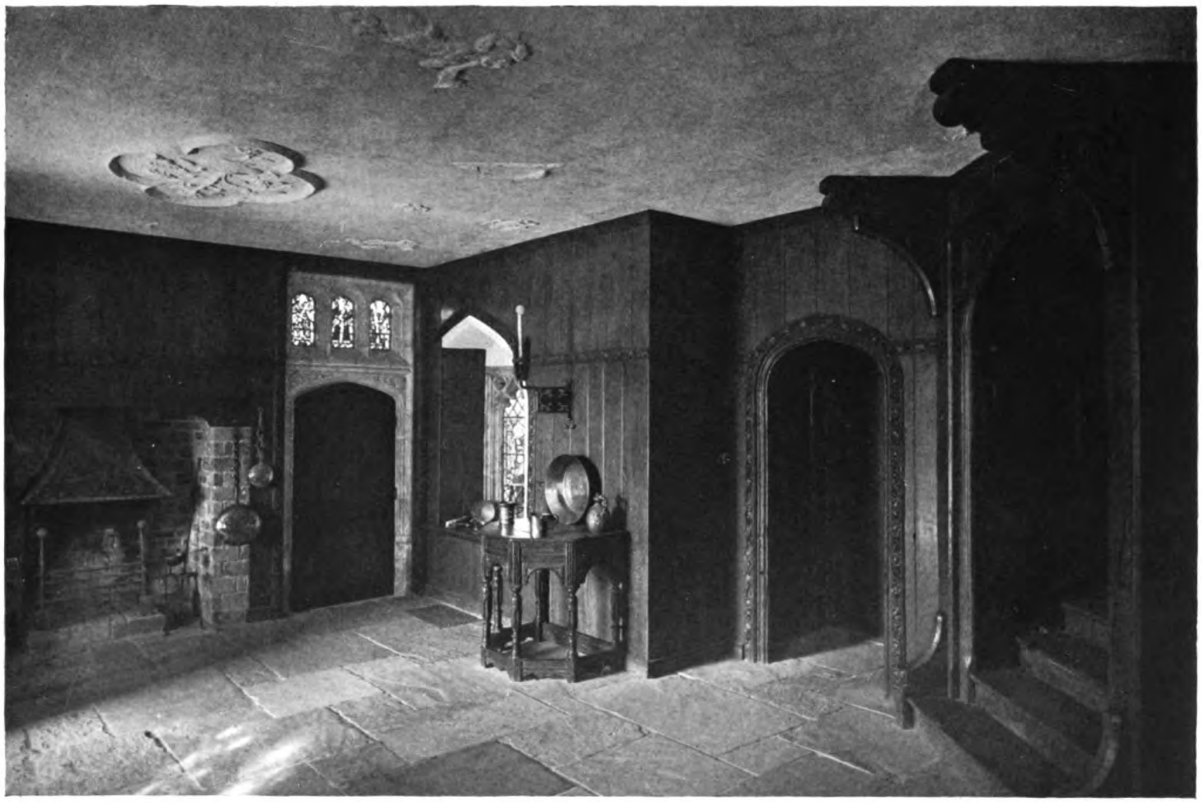


NORTH WALL OF GREAT HALL
HOUSE OF GEORGE MARSHALL ALLEN, ESQ., MORRISTOWN, N. J.
CHARLES I. BERG, ARCHITECT



DETAIL OF FIREPLACE UNDER GALLERY IN GREAT HALL
HOUSE OF GEORGE MARSHALL ALLEN, ESQ., MORRISTOWN, N. J.
CHARLES I. BERG, ARCHITECT

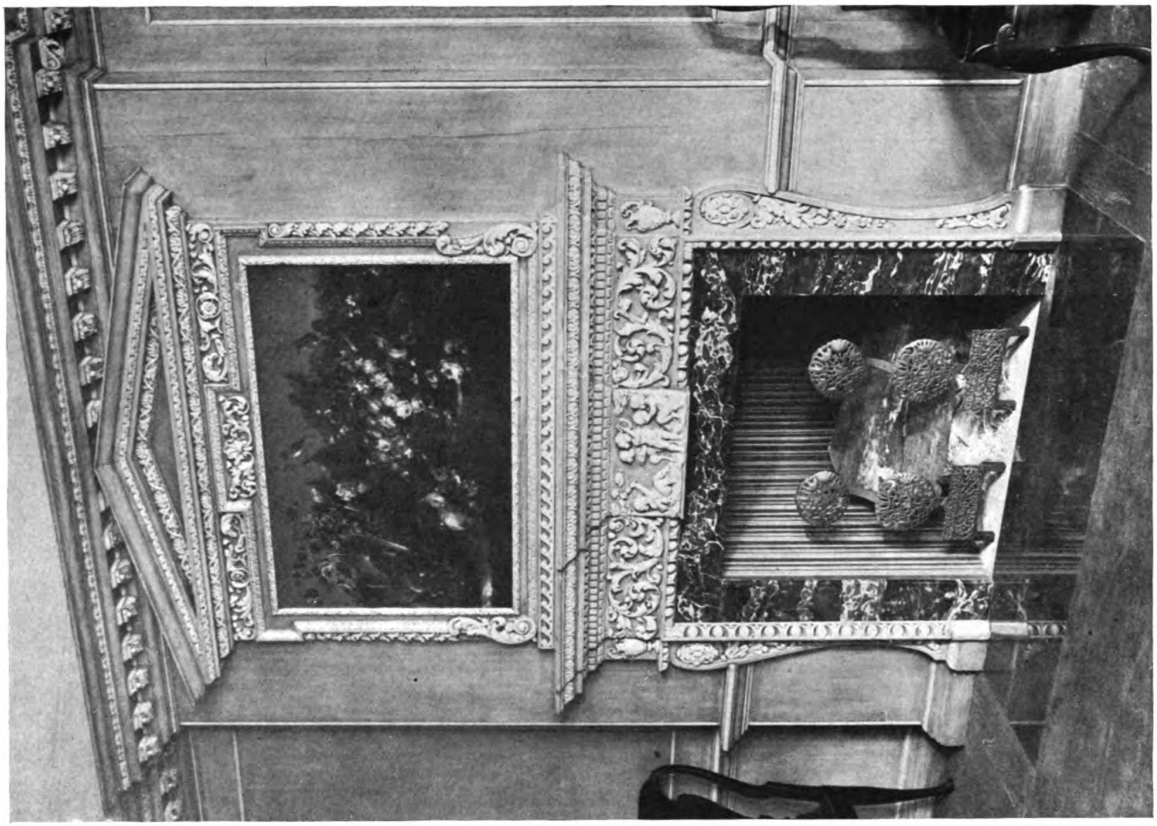
VIEW OF LITTLE HALL LOOKING TOWARD GREAT HALL



LITTLE HALL SHOWING FIREPLACE AND STAIRCASE

HOUSE OF GEORGE MARSHALL ALLEN, ESQ., MORRISTOWN, N. J.

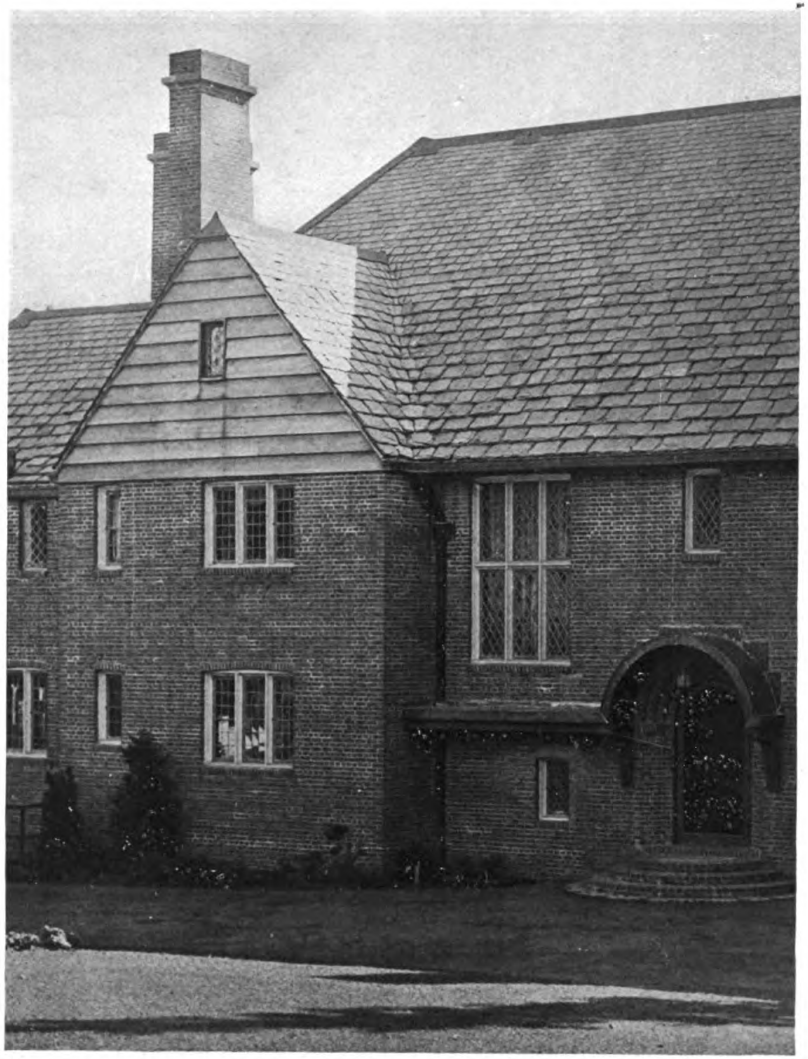
CHARLES I. BERG, ARCHITECT



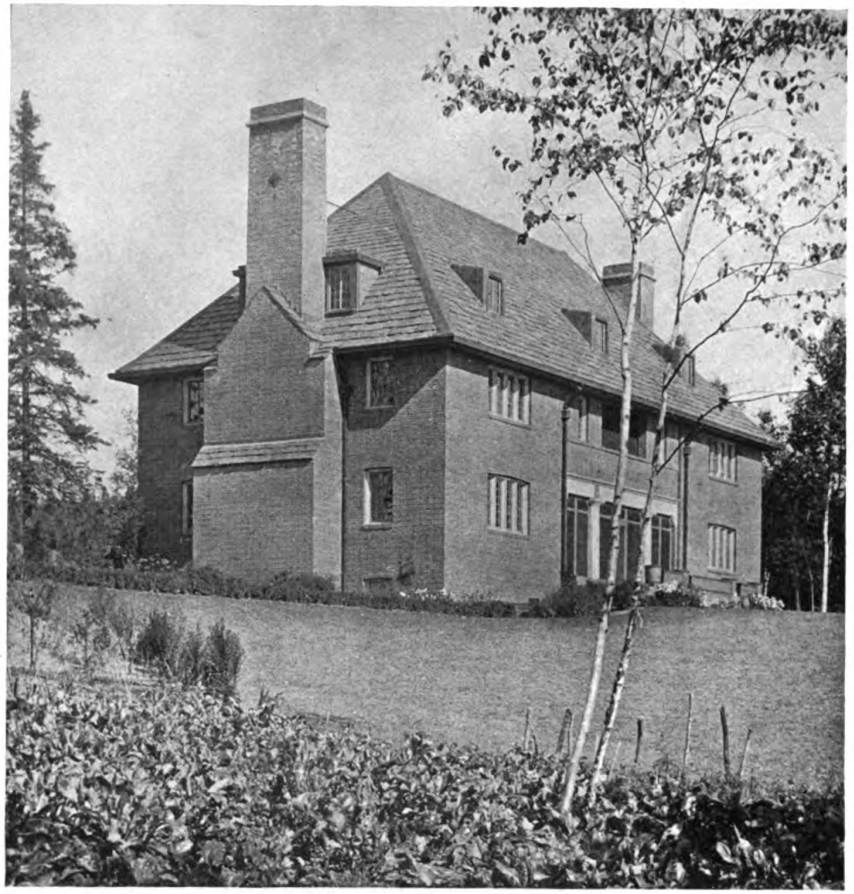
MANTEL IN DINING-ROOM

MANTEL IN LIVING-ROOM

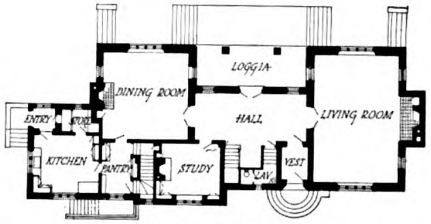
HOUSE OF GEORGE MARSHALL ALLEN, ESQ., MORRISTOWN, N. J.
CHARLES I. BERG, ARCHITECT



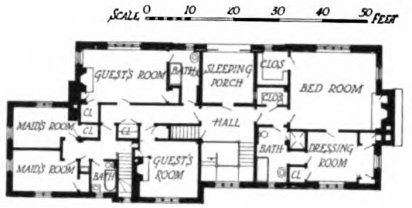
DETAIL OF ENTRANCE FRONT



GENERAL VIEW FROM SOUTHWEST

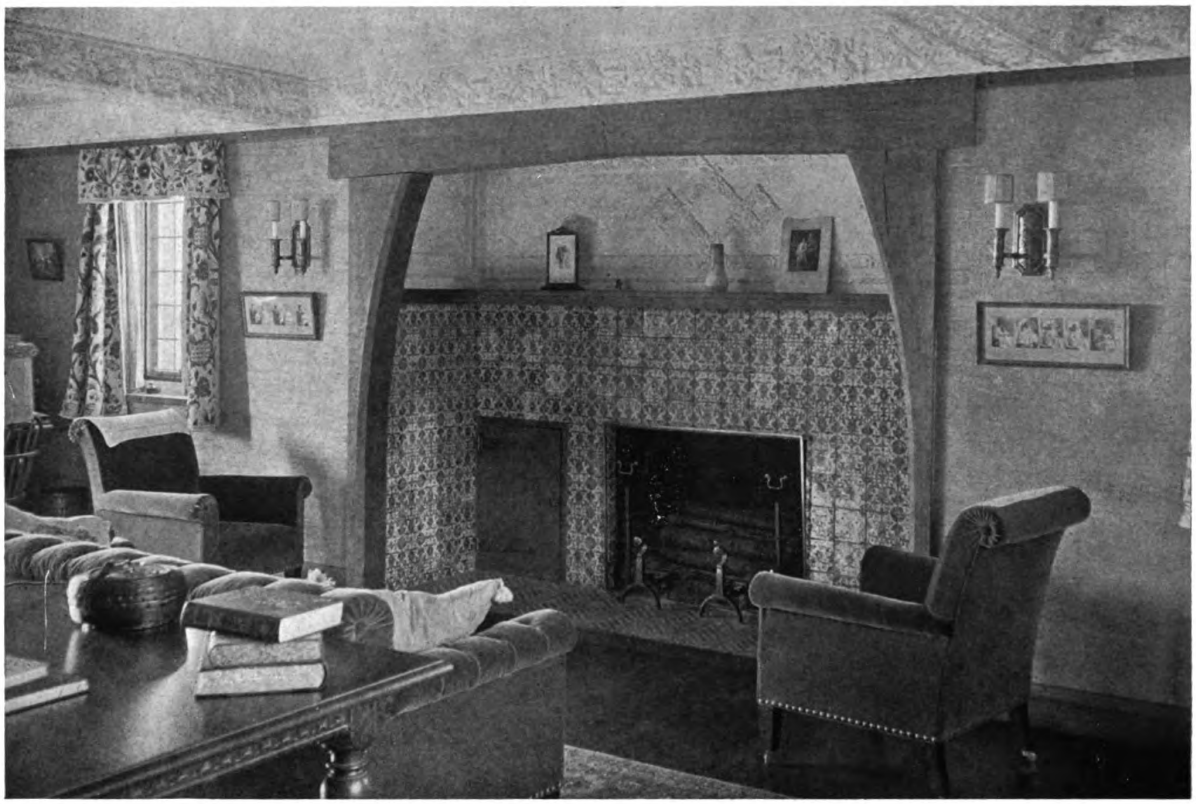


FIRST FLOOR PLAN

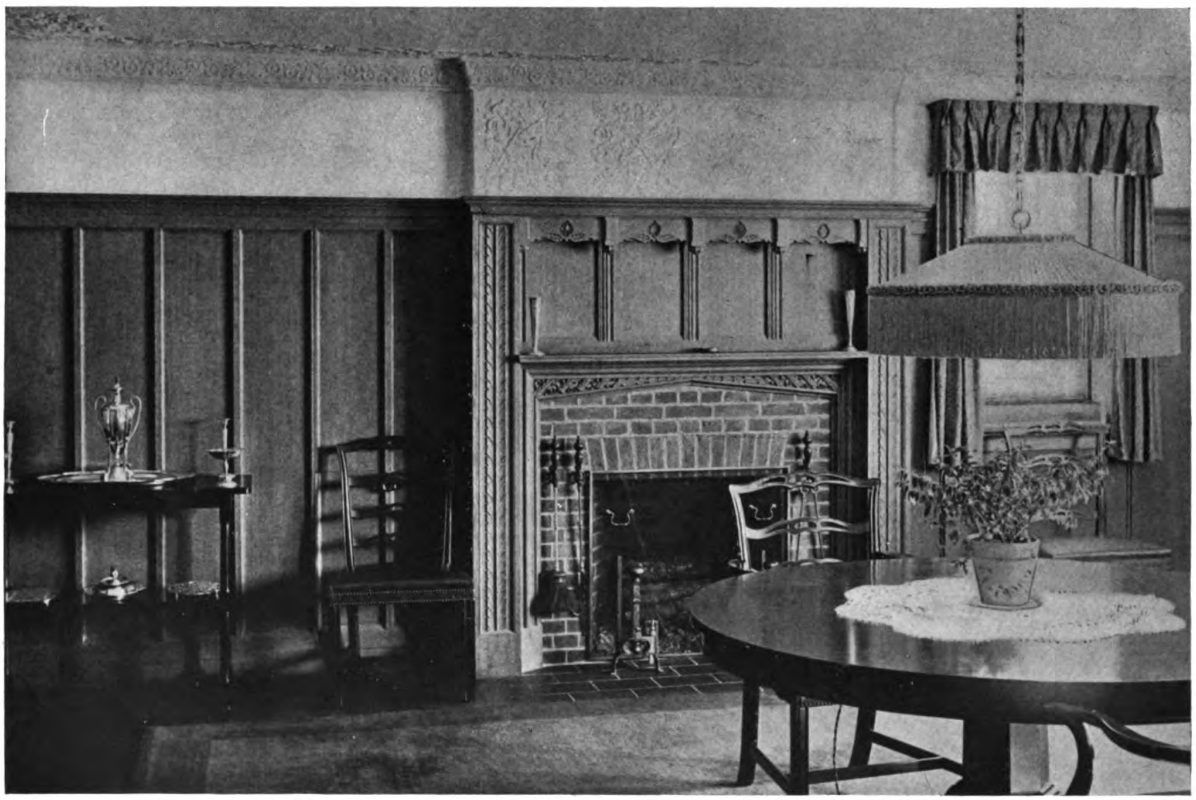


SECOND FLOOR PLAN

HOUSE OF CAVOUR HARTLEY, ESQ., DULUTH, MINN
BERTRAM GROSVENOR GOODHUE, ARCHITECT



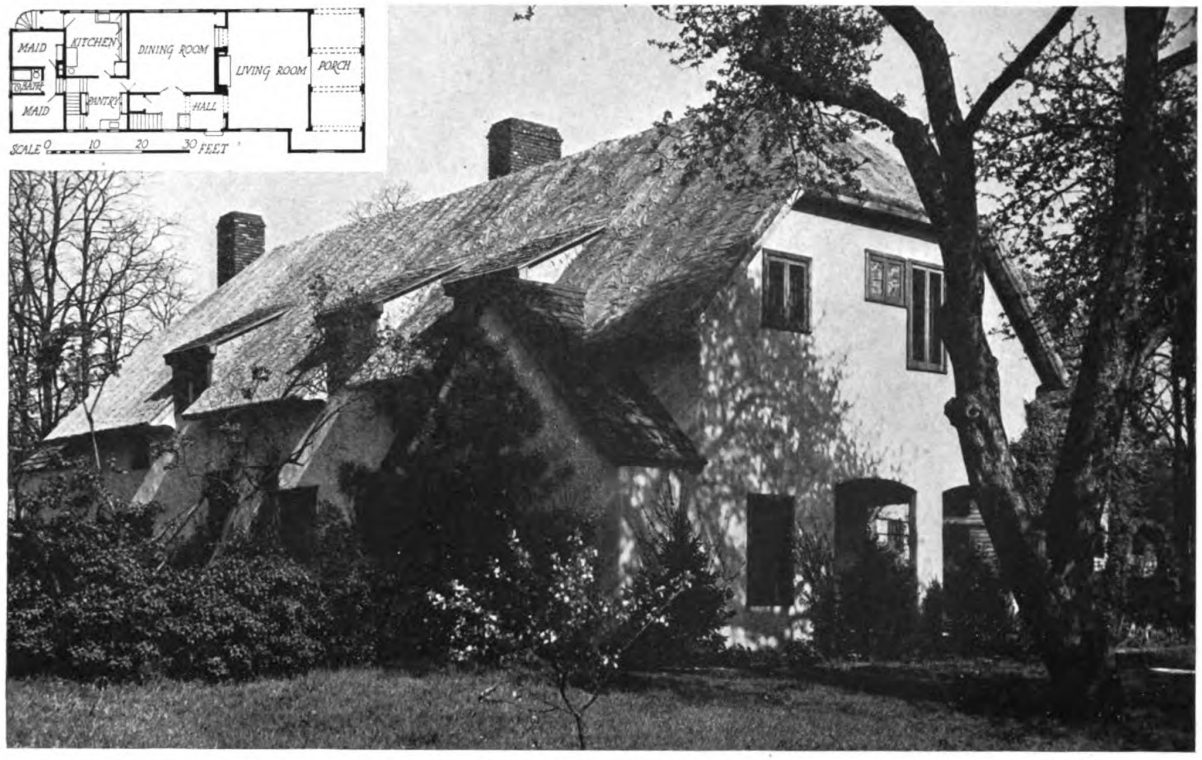
FIREPLACE IN LIVING-ROOM



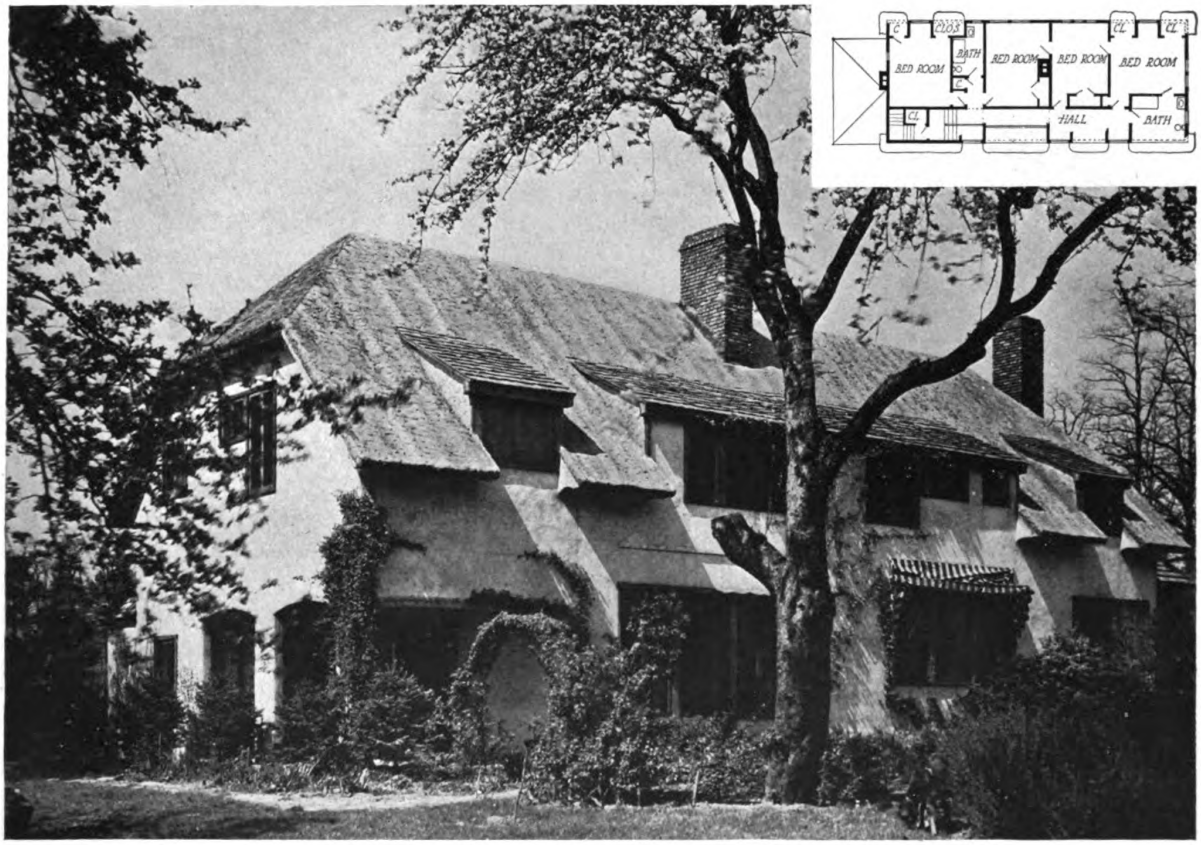
VIEW OF DINING-ROOM

HOUSE OF CAVOUR HARTLEY, ESQ., DULUTH, MINN.

BERTRAM GROSVENOR GOODHUE, ARCHITECT

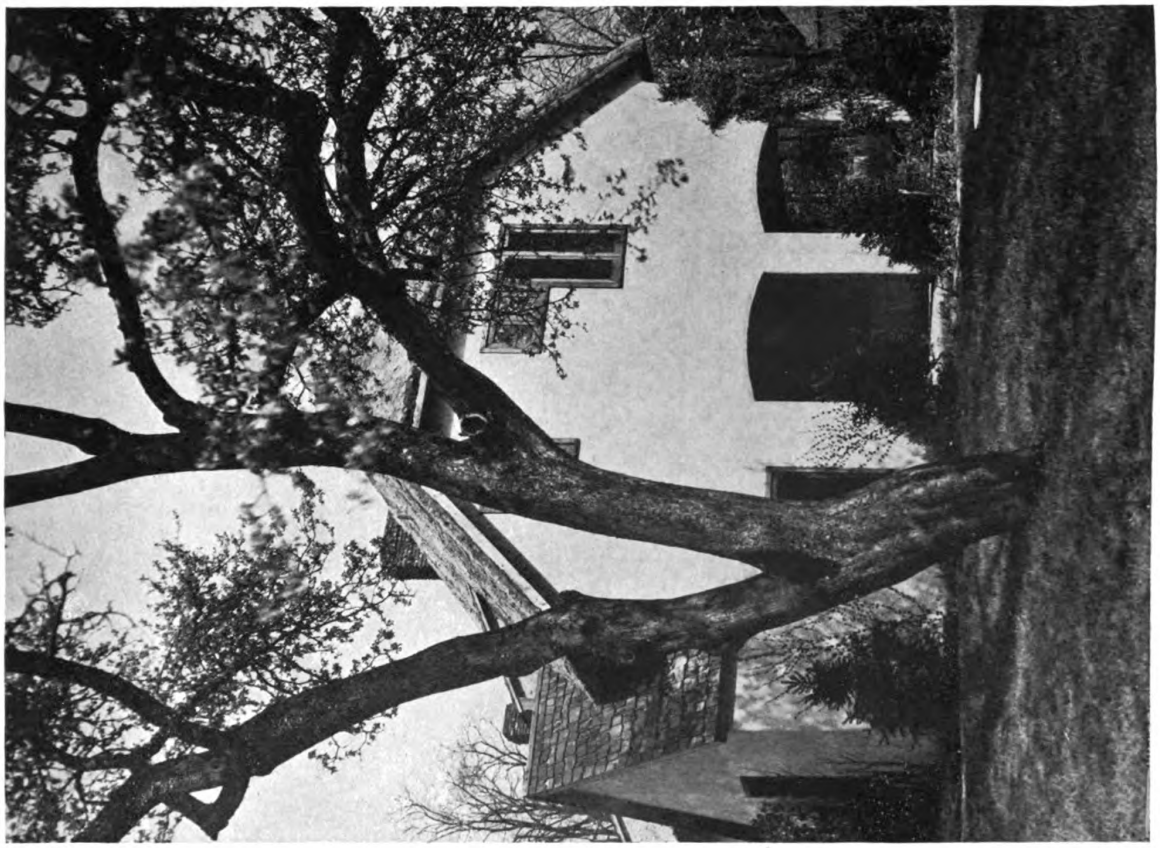


VIEW OF ENTRANCE SIDE



VIEW OF GARDEN SIDE

COTTAGE OF MRS. W. K. VANDERBILT, JR., HICKSVILLE, LONG ISLAND, N. Y.
WARREN & CLARK, ARCHITECTS



DETAIL OF PORCH AND GABLE

DETAIL OF ENTRANCE SIDE

COTTAGE OF MRS. W. K. VANDERBILT, JR., HICKSVILLE, LONG ISLAND, N. Y.

WARREN & CLARK, ARCHITECTS

Recent Distinctive Schoolhouses in California

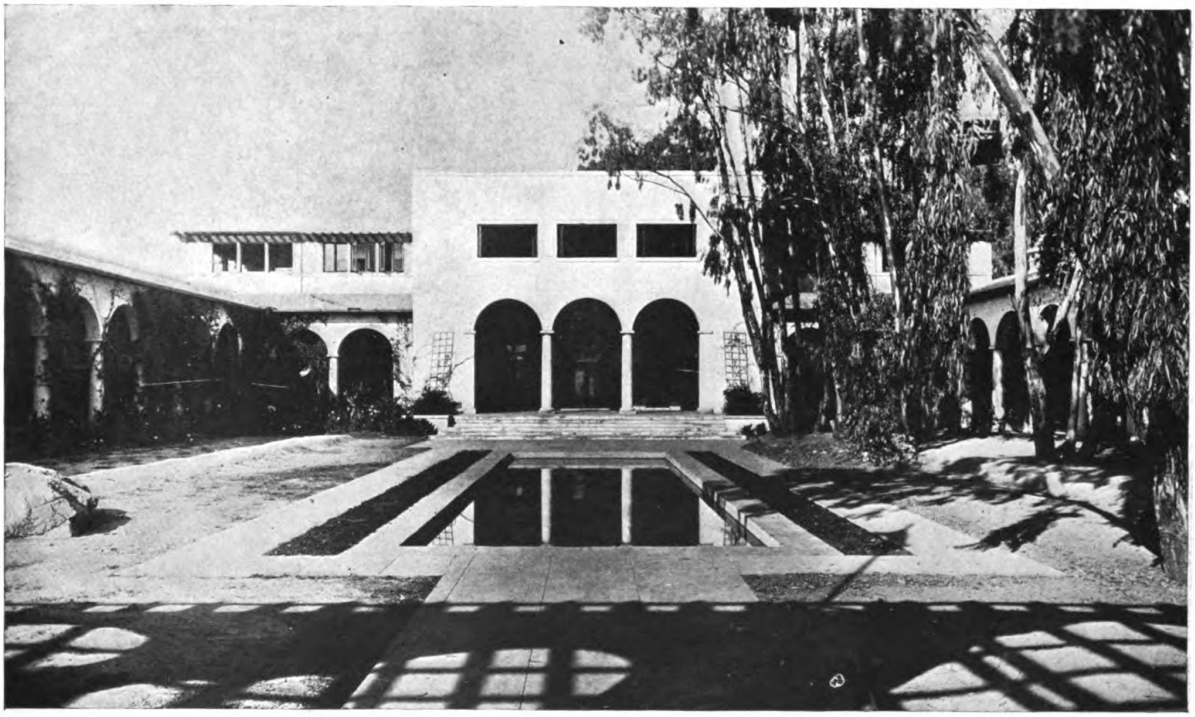
Part II

By WILLIAM C. HAYS

IT is not the common belief that Californians are reticent of the claims of their home towns. It may be wondered at, then, that three articles,* written by a San Francisco architect and treating of California schools have made so little mention of local examples. But there is good reason for the omission of San Francisco public schools in illustrating "progressive" school buildings. It must be frankly admitted that the dearth is one of necessity, not of choice. Most of the schools in San Francisco would be equally suitable in almost any city in the land — outside of California — for they are almost without exception of the conventional type found in localities of cold climate, granting which type, the newer buildings are well done. Some light may perhaps be thrown on the situation by quoting from a dedicatory speech at one of the schools, when, the orator, a well meaning member of the Board of Education is reported to have said "We have now came to the beginning of the nineteenth century." If some of the powers-that-be seem not to know, or understand, the work done by those who have thought seriously of the subject of school building; if the type of architect formerly engaged has been the political appointee; and if the commission to design schoolhouses used sometimes to be one of the "plums of patronage" — San Francisco, of American cities, has not been alone. And fortunately the designing of the city schools is now in the best of hands.

But aside from all other considerations, there are topographical problems in many parts of San Francisco which would limit the newer, "open" type of schoolhouse, even if more appreciative authorities stood ready to *build* such a scheme. San Francisco occupies a site which, in at least one respect, is far from ideal for a great city: the proportion of steep hills in relation to the level lands is too great. Already the total flat areas, as well as the districts of slight slope, are too meager to meet the needs of industries, business, and those other features of civic life which must be closely co-related. For this reason, among others, many of the residence sections clamber up steep slopes and hillsides. To be sure, this condition gives unexcelled outlooks for the many families so fortunate as to have commanding sites for their homes, but it has the corresponding drawback that such places are not easily accessible. The conformation

**The Architectural Forum*, July and September, 1917 and November, 1918.



View of Patio, State Normal School, Santa Barbara, California
Designed by California State Bureau of Architecture

of San Francisco is such as, by comparison, flattens the famous "seven hills of Rome" into insignificance. But in Rome the streets are, to some extent, laid out to follow the contours. In San Francisco, on the other hand, back in a period of not remote antiquity, some inspired idiot, with T square and triangle, laid down a checkerboard plan, superimposed regardlessly over the natural slopes. Such a plan gives rise to almost impossible street gradients, while it makes building plots which have the extreme of warped and twisted surfaces. Naturally, a small building can be placed on such lots more readily than can one larger. And in the residence districts only is found the "school population." It is obvious that in many quarters where there is school population, suitable sites for school buildings are rare, and these at the best are so restricted that extended plan forms are not economical, even if possible.

There is one other reason for the scarcity of "open air" schools in San Francisco: (damaging admission!) the climatic conditions are against them. California is a country of delightful surprises: a land masculine in convictions; feminine, quite, in contradictions. Lying in the temperate zone, the climate is that of the "wet-and-dry" seasons really belonging in the tropics. Spring, summer, autumn, winter — for the *coast* of California — these are of the almanac only and not of human experience. But the "wet season" — unmentioned in propaganda — is in experience very real indeed, and very wet. Then there come the fogs from sea and "tule," which, though they do not last long, come during several of the school months. The open air type of school building, ideal for two-thirds of the time, would prove impracticable in bad weather.

But it must not be assumed that no thought is given to what *may* be done. There are other conceptions of the modern school problem in addition to that of "fresh air": as, for example, the form, finish, color and equipment of rooms in buildings that in plan are not unusual. One such new school designed with this other thought is the Lux School of Industrial Training, one of a group of three endowed vocational institutions for whose buildings the writer is the architect. Of the affiliated schools the California ("Lick") School of Mechanical Arts is an endowed manual training high school for boys, the Wilmerding School of Industrial Arts is virtually a building trades school for boys, and the Lux is a vocational school for girls. Although there was, originally, no interrelation of these institutions, a similarity of aim has drawn them together, so that now their affairs are administered by interlocking Boards of Directors, and the three institutions have their directing head in common. The "Lick" and Wilmerding schools antedate the Lux, and had grown so closely related that their Boards bought land in common when new buildings were proposed. The Lux funds later becoming available, that Board entered, and took over one-third of the land for their building. The architect's problem, therefore, was the planning of a group of buildings to house the schools independently (keeping the Lux building on its own land) and to provide a unit for administration, auditorium and library in common. Of the group, only the first building for the Lux school is yet up, although plans have been under way for the administration building and one other unit in addition, of course, to the general plan. The unconventional elements in the Lux School are *not* in the architectural scheme, which is, indeed, conventional, barely escaping being commonplace.

Lux School of Industrial Training, San Francisco, California
William C. Hays, Architect

It was the thought of the authorities that, while vocational training should be a distinctive feature,

Laundry School

Cooking Laboratory

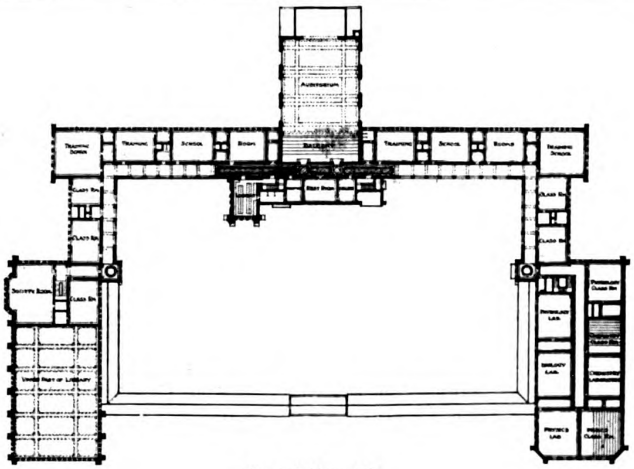
the school's functions included, as well, high cultural development: that this latter result might best be accomplished through the medium of surroundings: and that to this end the interior of the building should be considered particularly as to the esthetic side. With this idea uppermost, home conditions have been approximated in the rooms intended for some of the courses. So the teacher's rest room, for example, has been designed as a model bedroom with its private bath; the teacher's dining room approximates the dining room of a private house suited to people of limited means—and it is part of the training that every girl shall take responsible care of these rooms, as though in her own home. The room devoted to household art is designed and furnished as a living room, and there is in it no visible suggestion of classroom. Instead, there is a domestic-looking fireplace, made for use, *and used*. Committee meetings are held in this room and there are social functions, at which small groups of pupils entertain the teachers, trustees and interested persons, after having made in the cooking room the things which they are to serve. One part of their organization administers a cafeteria, in which all take turns both as manager and in the various grades of assistant. While this is no unique point of view, there have been few school boards courageous enough to show their faith by their works; and it

Household Art Classroom

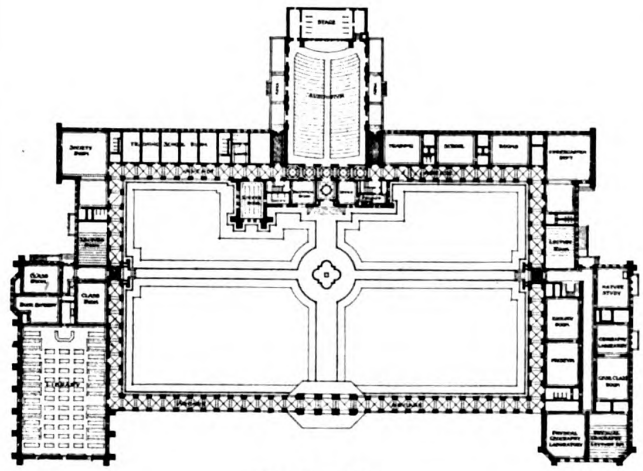
Teachers' Dining Room

Teachers' Rest Room

Interiors of Lux School of Industrial Training, San Francisco, California
Showing Fittings for Practical Instruction in Household Arts



Second Floor Plan

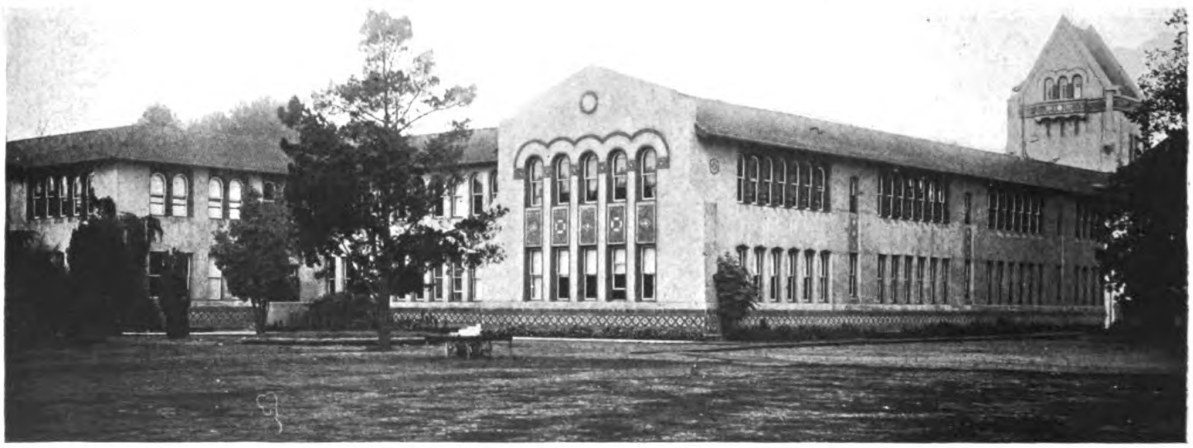


First Floor Plan

State Normal School, San José, California

may be said, with force, that this Board has more than justified the faith that was in them. One need only compare the entrant and graduation classes to sense the subtle influence which has inhered in environment, personal and physical, during the training period of these girls, notwithstanding that much of their time has been spent in activities commonly called "menial," or "household drudgery."

In general scheme the layout of the building is simple. The first floor contains administrative offices, chemistry and physics department, coat rooms and teachers' rest room; the second floor is given up to household arts, including drawing, home furnishing, dressmaking and millinery; a third floor deals with the physical side, — and here are the cooking school and cafeteria, the rooms for physiology and hygiene and a large locker and shower room. On each floor there is a general lecture room, as well as a central assembly hall, long corridors being eliminated from the scheme. From the central hall of this third floor a stairway leads to the sheltered roof garden and here, in the open, practically all the games, dancing and physical training take place. Part of the space is roofed over, for rainy weather. Much importance is given to this open air feature, and, a large part of the school life having had its setting here, it is the natural place for holding commencements and other ceremonies. The entire area



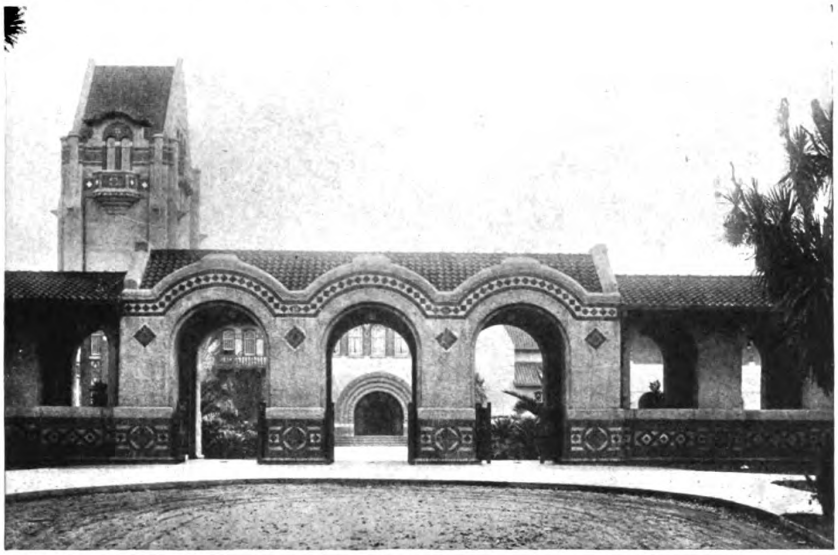
View of External Angle Between Auditorium and Laboratory Wings

State Normal School, San José, California

Designed by California State Bureau of Architecture

is encircled by a pergola having an outer wall, while the inner side is a colonnade of stoutly proportioned Doric columns, with beams over. Cast cement flower pots at intervals hold soil for the rooting of vines that climb over the latticed top.

California has recently built three excellent state normal school buildings. Of these, that at Los Angeles, the work of Allison & Allison, is already well known and has been fully published.* It is not out of place to note here, however, that in a recent competition instituted by the members of the Southern California Chapter of the A. I. A. this normal school group was awarded the medal as the most distinguished building (in classes other than residences) constructed in the territory of the chapter within five years.



Entrance to Court of San José State Normal School

The other two normal schools are situated, one at San José and the other at Santa Barbara. Both have been carried out under the direction of the Bureau of Architecture of the State Department of Engineering. While this relationship is an abnormal one and has the elements of a most unsatisfactory, if not impossible, state of things, here the successive heads of the State Department of Engineering have had the good judgment to leave the Bureau of Architecture to itself.

The land set aside for the San José building is extensive, flat, contains a nunber of old trees and has a handsome shaded avenue of approach. The prolongation of this avenue is the main axis of the composition. The buildings, with their cloister, enclose a spacious courtyard on three sides, the fourth side being screened by an arcade and an entrance motive of tall arches. The plan has three main divisions, that on the central axis being the conventionally placed administrative offices, adjoining the entrance, with the auditorium behind them. The forward portions of the two wings are, on one side the library, and on the other, the science departments. Placed between the central element and the projecting wings are the usual training school and classrooms. The building is two stories in height, with outdoor circulation, but its distinction consists less in arrangement than in its charming architectural quality. Although the group is in plan composition — except for the tower — symmetrical, it has yet great variety and picturesqueness. It is so beautiful in color and detail, and is so wholly satisfying, that one cannot let the credit for so " personal " a work rest with the impersonal machine — a Bureau of a Department of a State government. That Valere de Mari's was the mind in which this charming composition took form, and his the hand under which it unfolded, reflects credit on the Chief of the Bureau, whose wisdom gave Mr. de Mari's fine inspiration this outlet, to the durable gain of the State.

In the main outline of its plan composition the Santa Barbara Normal School bears a little resemblance to San José; that is to say, it has a cloistered patio with buildings upon three sides. The fourth side is only partly enclosed, but has a well designed arcade which extends all the way across the ends of the wings, as well as through the width of the patio. Unlike the plan of the San José school, the patio at Santa Barbara is entered on its short side, and the sense of length is thus enhanced, but neither the courtyard nor the building is so large and impressive. The idea here was to put emphasis on the value of intimacy and informality, even though the composition is itself purely formal and symmetrical. The existence of several tall eucalyptus trees helped much in bringing about this result. The trees, as well as a big boulder, were left as they were, and the buildings, with the central pool, were skilfully composed around and between them. Into this quiet, sheltered place is surely embodied much of what we deem " of the spirit."

The central part of the building, opposite the entrance, extends through a second story and, on the patio side, has a loggia overlooking the attractive foreground. The two wings are one story in height.

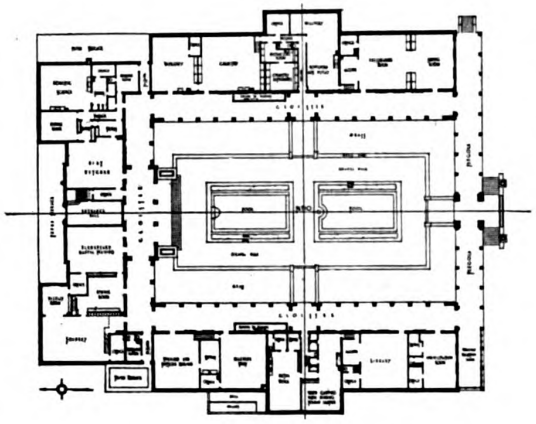
It will be noticed that all three of these normal schools are designed on the principle of open courtyards, with open air circulation. As pointed out

*See *The Architectural Forum*, April, 1917.

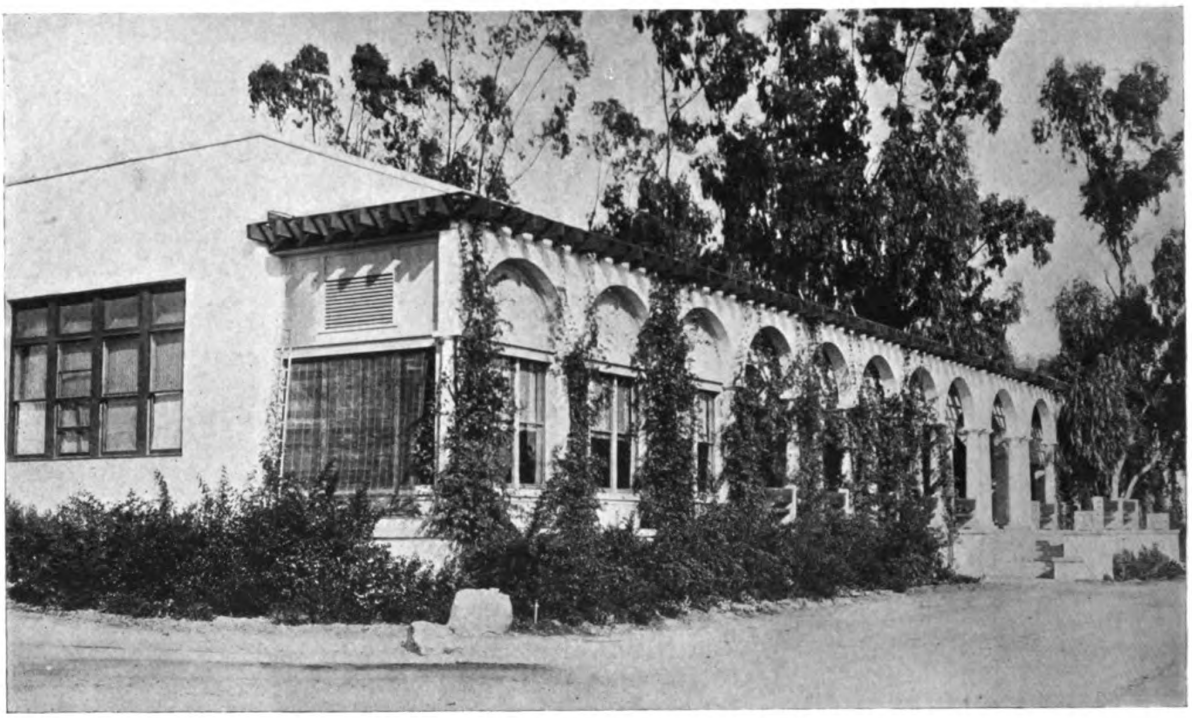
in the previously published articles on elementary schools, this idea of building was favored by the early Californians. Among their buildings, the examples of this sort are many; as at Old Monterey in the Convent, the Pacific House, and the Washington Hotel, as well as elsewhere, in all of the early Missions. Adherence to a cloistered type of building for schoolhouses in California is both logical and based upon sound tradition.

But how much weight shall we give to "tradition"? What of the evolution of an idea? These examples of new schoolhouses we study, expressing as they do, though ineffectually, the ideals of our own day. What the near future may hold, who may say?

For no living question can be studied at any given time excepting within the limitations of present knowledge and experience. If one would consider in its entirety any problem into which the element of time enters, one must give equal value to the three essential divisions of time, for time itself is complete only when there has been included time passed, time to come, and the present moment. We may, therefore, neither honestly nor wisely place emphasis on either tradition or prophecy, but must recognize that time's movement ever demands flexibility in the meeting of those problems that, moving on, keep step with the years. In our own day having dared to question the works, and thereby the wisdom, of our forebears and having brushed aside their judgments — as generations did before us — shall *we* presume to set up our own little theories as authoritative over the posterity of ages to come, who doubtless, in their turn, will be far wiser than we?



Floor Plan of Santa Barbara Normal School



View of Entrance Side of Patio
State Normal School, Santa Barbara, California
Designed by California State Bureau of Architecture

The Offices of Starrett and Van Vleck, Architects, New York

By H. A. MAYNE

SYSTEM is just as essential in the office of the architect as it is in any business office where the paramount aim is to give satisfactory service. The kind of service which the owner is to receive from his architect is governed in a large measure by the policy established by the architect for the general conduct of his business; and his policy is generally reflected in his organization and in his methods of handling the work intrusted to him.

This article is intended to give a brief description of the manner in which work is handled in the office of Starrett and Van Vleck. An idea of the layout of their offices should also be given, inasmuch as the layout is virtually a part of the system.

Starrett and Van Vleck occupy the two upper floors (twenty-first and twenty-first mezzanine floors) in the building at 8 West 40th Street, just west of Fifth Avenue, designed by them about five years ago. Free on all sides from adjoining structures, their offices are ideally light.

On the twenty-first floor are the main drafting room, business offices, library, reception room, conference room for general use, and private offices of the members of the firm — the general business offices being at one end and the private offices at the other. On the twenty-first mezzanine floor are an additional drafting room, water-color room, specification writing room, engineering room, conference room for large meetings, plan storage rooms for the transfer of finished work, coatroom and toilet rooms. Two stairways connect the two floors — one from the business offices, the other from the library on the private office side.

The main drafting room occupies the entire westerly side of the twenty-first floor, extending the depth of the building (75 feet, 6 inches), and one-half of the width (28 feet). There are twenty-seven full-size drawing boards in this room, with ample space between boards and comfortable aisle space. Steel trays are attached to each board for the use of the draftsman in the handling of his work. Telephones are placed in a convenient location at the sides of the boards, and over each board is a special light, adjustable to any desired position. The boards are supported on steel pipe standards attached to the floor, insuring rigid working surfaces. The room is exceptionally well lighted, having in addition to daylight on three sides, a series of sloping skylights with adjustable shades, that provide an even distribution of light in all parts of the room. Vertical and horizontal measurements are clearly marked off at convenient places for the use of draftsmen in judging distances. Desks are provided at the sides of the room, fully equipped, for the use of the draftsmen in taking care of their mail. The additional drafting room on the mezzanine floor accommodates six boards.

Building at 8 West 40th Street, Upper Floors of which contain the Offices of Starrett and Van Vleck

All current plans and specifications are kept flat in steel plan files in the main drafting room, each drawer being labeled as to the contents. The plan clerk and assistant have built-in desks in this room.

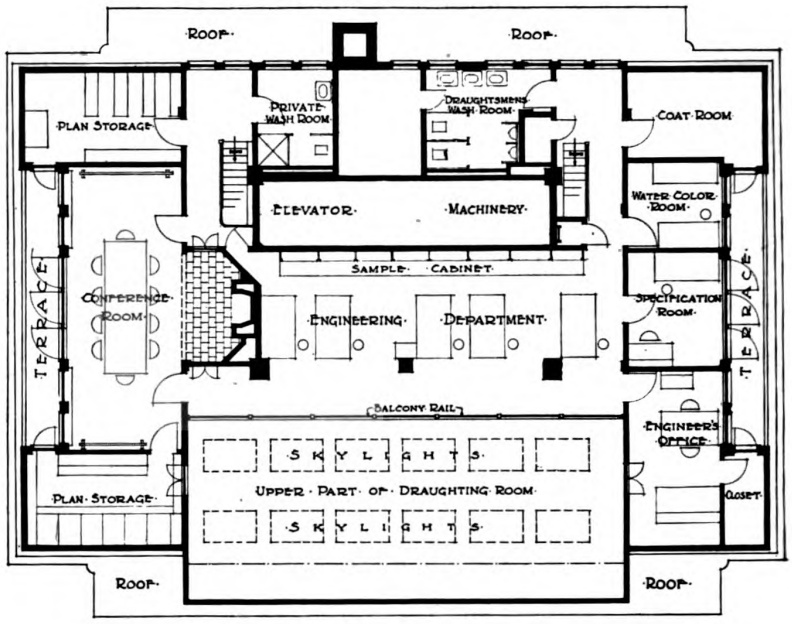
Special sample cabinets are erected on the mezzanine floor, in which are kept the approved samples on each job — the samples being labeled or tagged to show the name of the job, date of approval of sample and by whom approved.

The procedure followed in carrying out a commission is briefly: The new job is first given a number, a drawer in the plan file is assigned for it, inside of which are separate pouches for one-eight or one-fourth inch scale plans, scale details, mechanical plans and surveys or blue prints; and the job

is card indexed. As the various details are made, they are recorded in a special book for that purpose, with the names of the contractors to whom blue prints of them are sent, and with dates. Similar records of all mechanical plans, steel plans and shop drawings are kept, there being a system of numbering which identifies the architect's drawings, mechanical plans, steel plans and shop drawings.

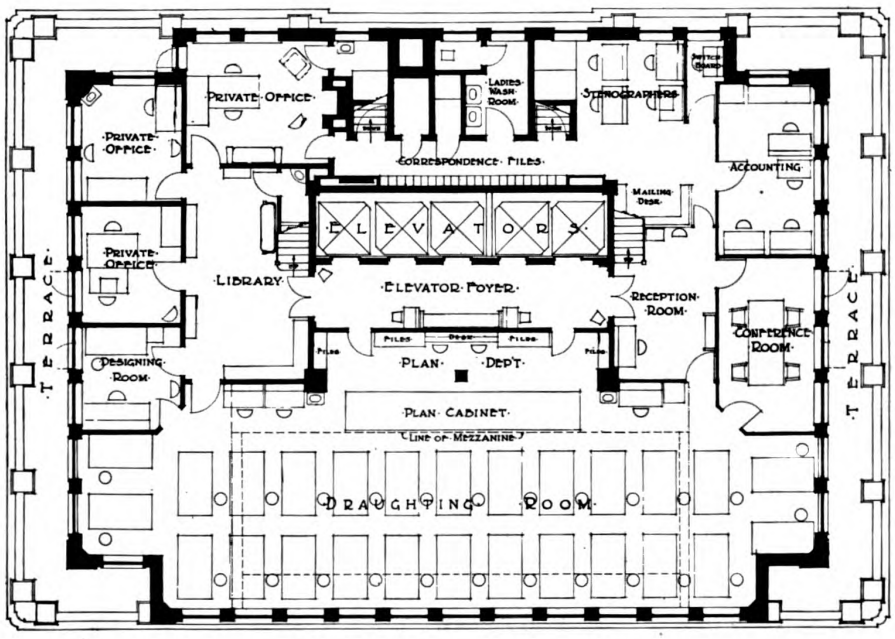
All incoming plans, specifications, shop drawings and photographs are handled first by the plan clerk, who places the time stamp on them, makes due record of the receipt, and turns them over to the draftsman in charge of the work. All outgoing plans, specifications, shop drawings and photographs are turned over to the plan clerk for recording and attaching of receipt. Upon return of the receipt (illustrated herewith), it is filed alphabetically under the job name in a file for that purpose. In the meantime, the second or carbon copy of the receipt is filed, and, when the signed original is returned, it is filed and the copy destroyed.

Shop drawings (which are always in duplicate), after being checked by the draftsman, are turned over to the plan clerk, who returns one copy to the contractor, and retains the other, which is folded, numbered, titled, and placed in a vertical file assigned for the shop drawings on that particular operation.



Plan of Twenty-first Mezzanine Floor

A set of the contract drawings and specifications, signed by the contracting parties, on each job, is kept in the office — a regular place being assigned for them. A signed copy of each contract is also kept. Just as soon as the contract has been signed, it is turned over to the checking clerk for notes as to any special stipulations that must be followed up; it is passed on then to the bookkeeping department for entry, then indexed and filed in a steel document file reserved for that use.

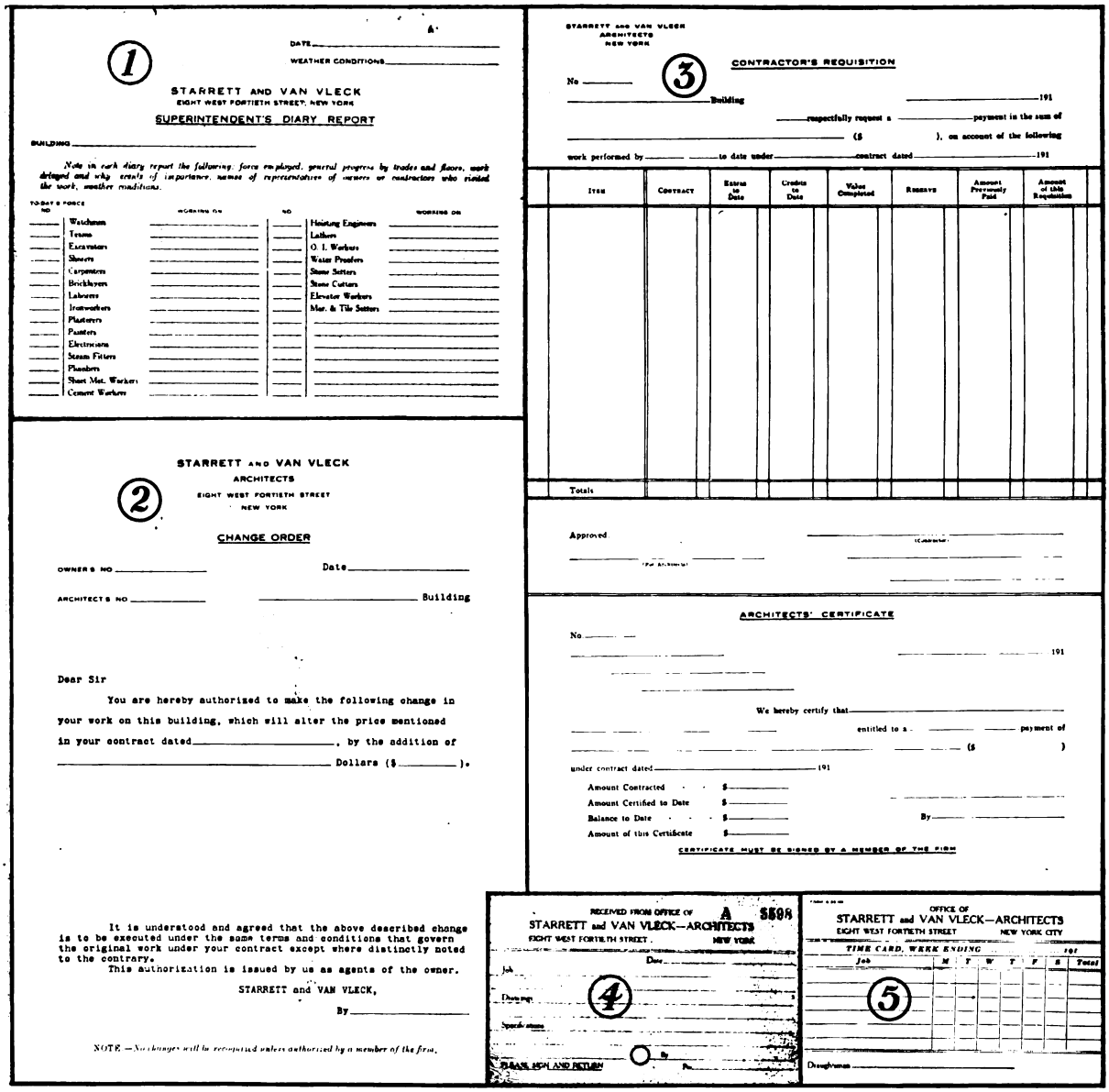


Main Office Plan, Twenty-first Floor

The sub-contractors on each job are indexed as to the branch taken care of by each, so that the name of the sub-contractor doing any particular work on a building can be ascertained readily at any time by reference to this index.

Reports of every inspection of the job are made to the owner on the "Superintendent's Diary Report," the form for which is shown herewith.

All changes representing additional work, or work omitted, are issued on the "Change Order" form reproduced, black printing identifying order for additional work, red printing that for credit for



1. Superintendent's Diary Report
2. Change Order for Additions (Printed in Black)
   (Similar Order for Deductions Printed in Red)
3. Contractor's Requisition and Certificate for Payments
4. Receipt Card
5. Draftsmen's Time Card

Reproductions of Forms in Use in the Offices of Starrett and Van Vleck

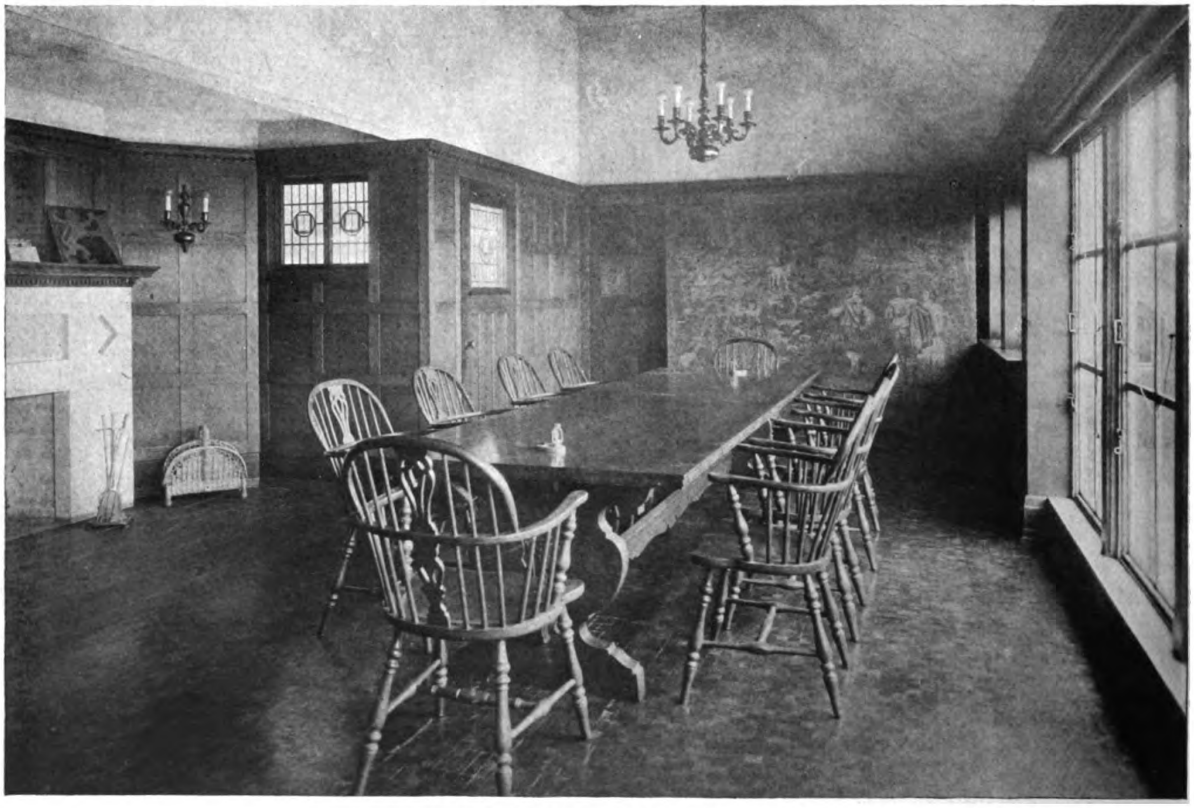
work omitted. These orders must be signed by a member of the firm and approved by the owner before issuance to the contractor.

Requisition for payment is made by the contractor on the "Contractor's Requisition" form. The requisition is turned over to the checking clerk for the checking of the amount of the contract, the amount certified, the additions, and for any other special notes that may have to be attached to it for the draftsman's information. It is then passed on to the draftsman in charge of the work, and, when it comes back to the clerk, approved, the certificate is issued, using the form at the bottom of the requisition. All certificates must be signed by a member of the firm before being sent out.

Upon the completion of the job, the drawings (with exception of the cloth tracings) are removed from the current files in the main drafting room, and are folded, numbered, titled and put in special box files in the plan storage room. The specifications are placed in pouches, numbered and marked distinctly as to contents, and are filed vertically on shelves in the same room. The cloth tracings are bound together and transferred flat to a storage

VIEW OF LOBBY TOWARD LIBRARY

VIEW OF LIBRARY TOWARD PRIVATE OFFICE



CONSULTATION ROOM ON MEZZANINE FLOOR

THE OFFICES OF STARRETT AND VAN VLECK, ARCHITECTS

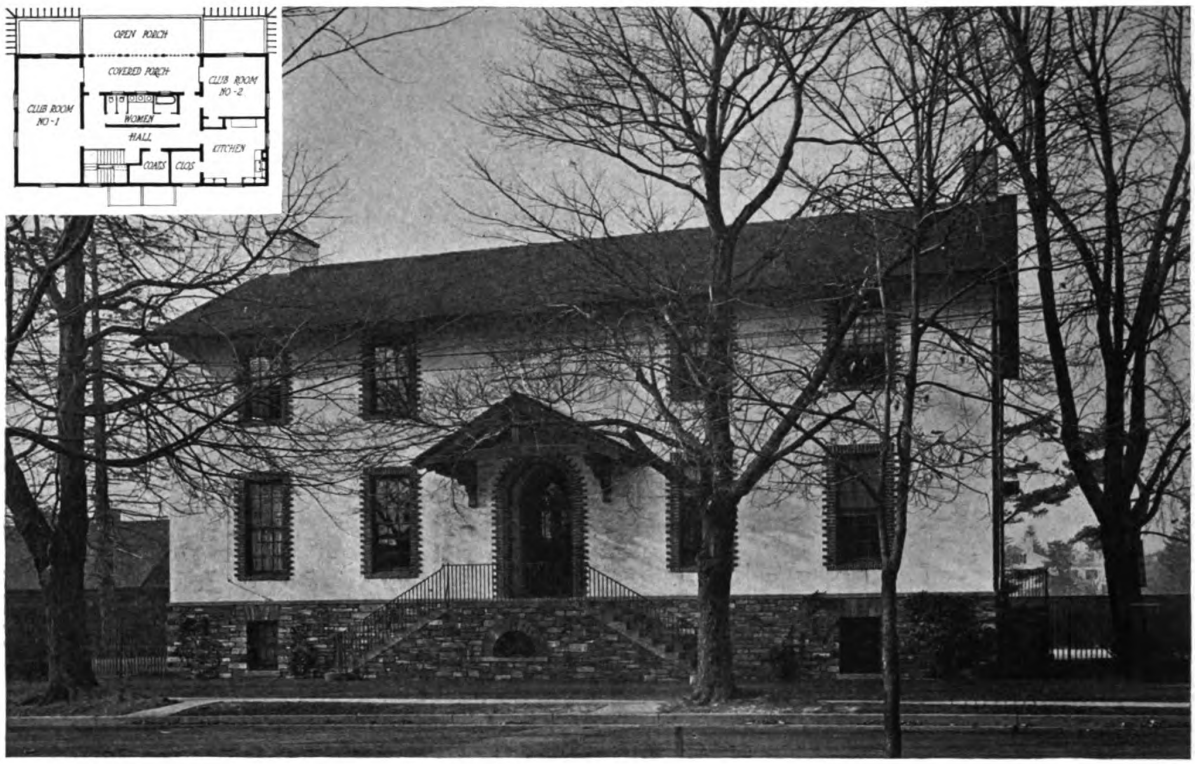
file. An index is made of all transferred work, through which any set of drawings or specifications can be had immediately.

A few words in reference to the handling of work in the drafting room may be of interest. The principle of "Head Draftsman" is not followed; each job is assigned to a man specially qualified to meet its requirements and he is held responsible for his own work. There is, however, one draftsman who has a thorough knowledge of all work in process and he acts as consultant on matters relating to the division of work and its assignment. The drafting room is further under the direct supervision of one member of the firm.

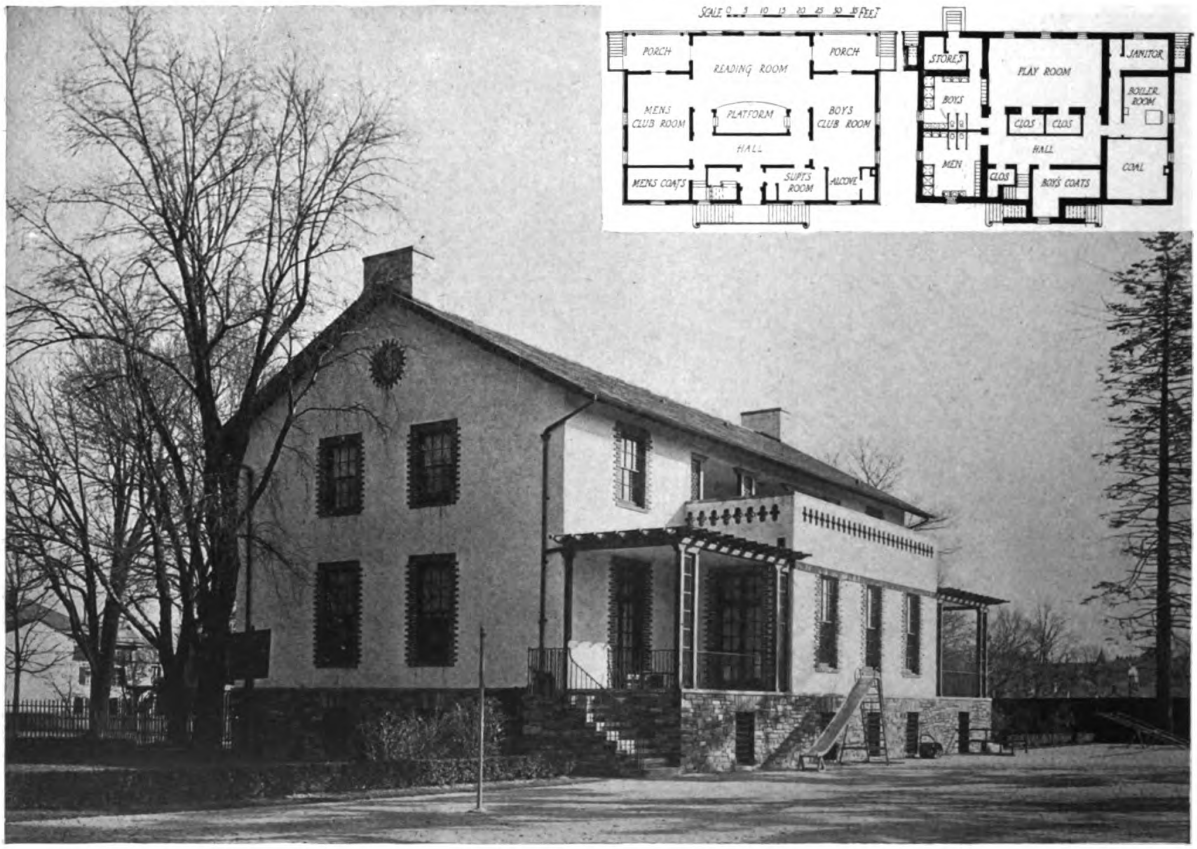
The draftsmen's time records are very carefully kept. The cards, a reproduction of which is shown, provide space for a week's record but must be made up daily. They are collected each evening and distributed again in the morning in order to prevent the men deferring until the end of the week the compilation of their time with consequent inaccuracies creeping in. Friday is appointed pay day, and the time cards are consequently turned over to the accounting department for entry and making up the payroll after collection on Thursday evening, new cards being issued Friday morning.

The draftsman being held responsible for his own work, it is obvious that all incoming and outgoing correspondence pertaining to it is referred to him. A careful system governing the distribution of mail prevents any error in determining to whom the matter should be referred and further insures its receiving proper attention. All incoming correspondence is stamped, indicating the exact time it is received, and is then marked for reference to the person or persons by whom it should be seen in the judgment of the clerk opening the mail. It is then passed on to a member of the firm, who examines all mail before it is distributed, for the appending of any notes or instructions, before sending it on to the draftsmen or others for whose attention it is marked. No incoming communications are filed until initialed by the person for whom they are intended, indicating that the matter has received the proper attention. Similarly no copies are filed until they have been seen by a member of the firm.

View of Main Drafting Room
The Offices of Starrett and Van Vleck, Architects



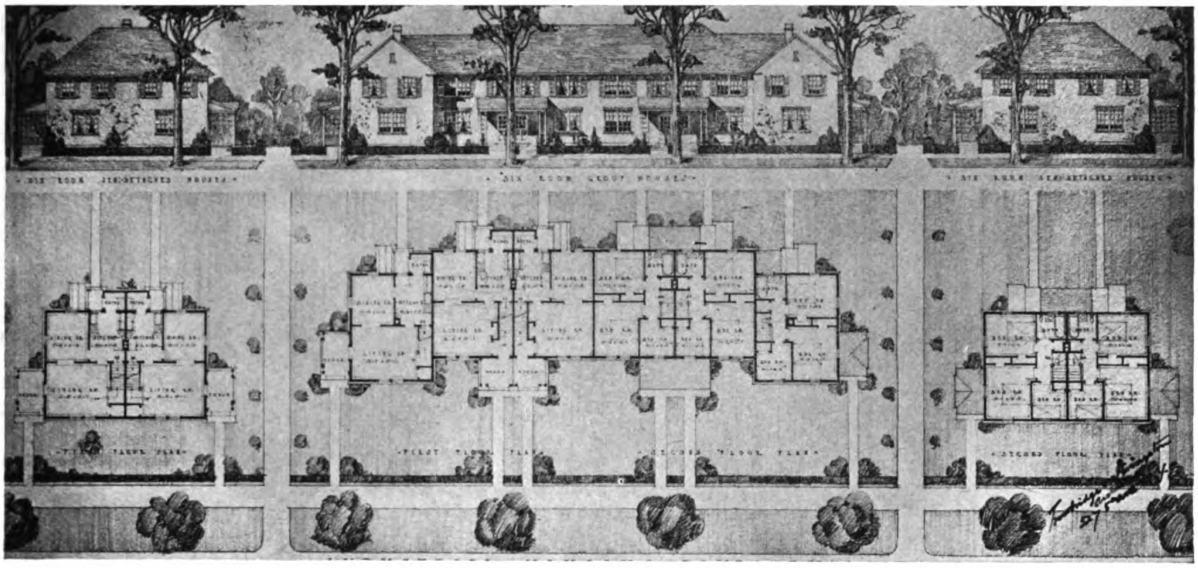
VIEW OF STREET FRONT



REAR VIEW FROM PLAYGROUND

DOROTHEA'S HOUSE, PRINCETON, N. J

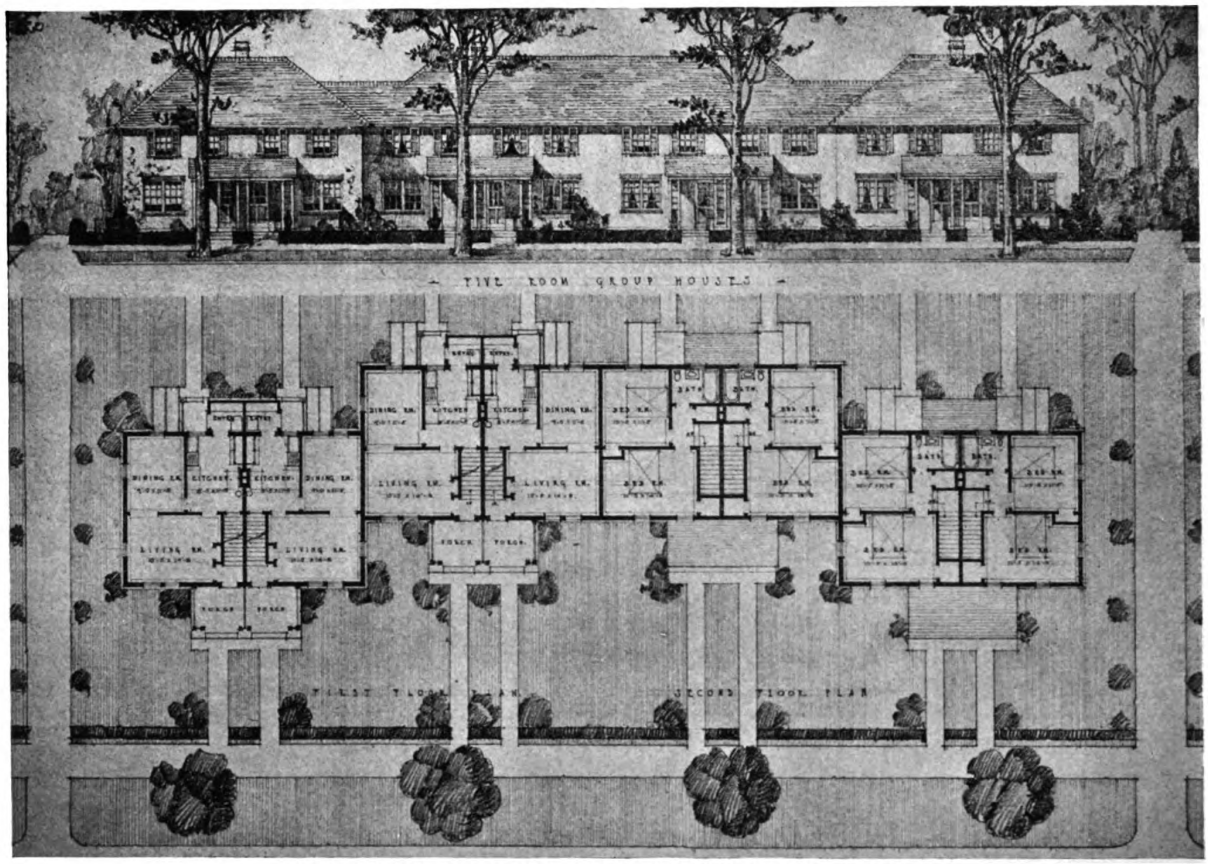
DELANO & ALDRICH, ARCHITECTS



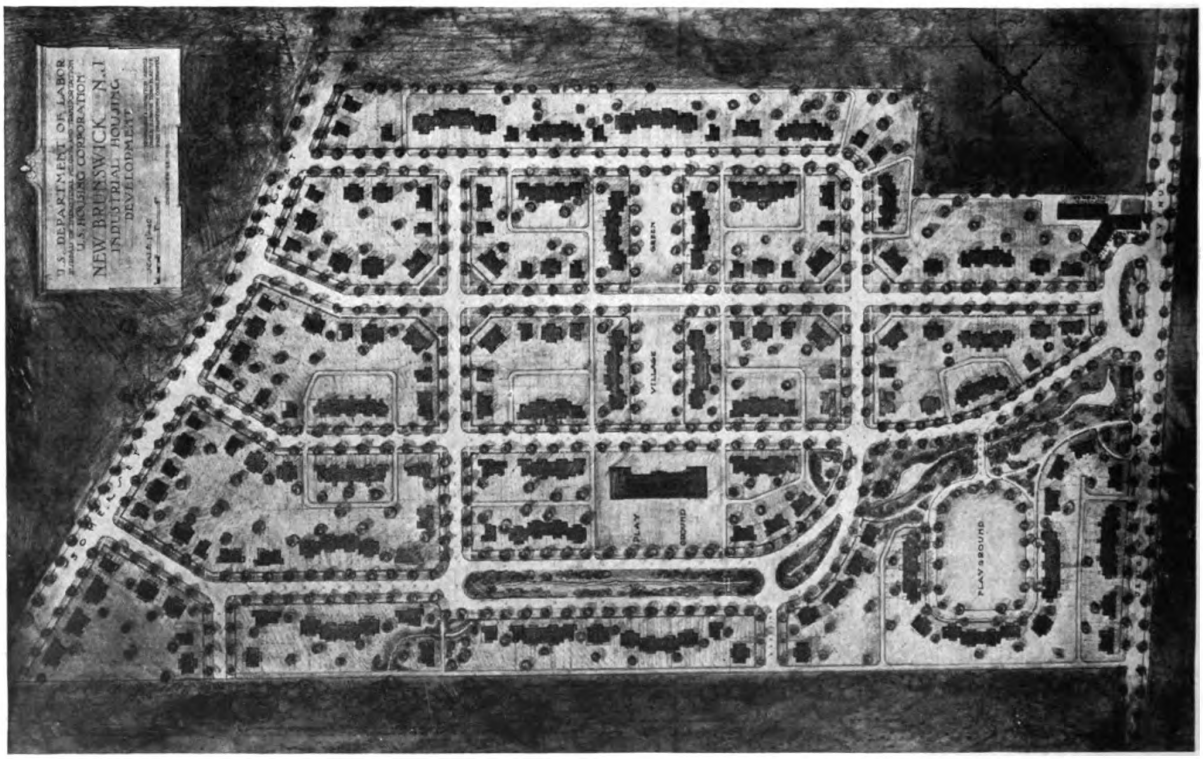
Housing Development at New Brunswick, New Jersey for the United States Housing Corporation

AT New Brunswick, N. J., a most important manufacturing center, housing conditions were found to be entirely inadequate, after a careful survey made under the direction of the United States Housing Corporation. It may be said in passing that, contrary to what its name might indicate, the duties of the corporation are not solely the building of houses for workingmen employed in war industries. Its activities begin upon a direct request from the War or Navy Departments. They comprise, first a careful survey of existing accommodations, a study of transportation facilities to enable surrounding territories to be utilized if they contain housing accommodations, and finally a study of plant production with a view to a decrease of output to accord with available facilities where such decrease will not place the output below the necessary requirement. All of these failing, the construction of houses is undertaken.

Such a condition prevailing in New Brunswick, Messrs. Trowbridge and Livingston were appointed as architects, working in conjunction with Charles N. Lowrie, town planner, and the Ward Engineering Company. The property selected for this development is within the city limits lying in the westerly section of New Brunswick, between Jersey Avenue and Somerset Street (Lincoln Highway). This proved an almost ideal location. The natural surfaces of the ground are gently rolling, with a general inclination toward the south, except for a well defined valley through which a small stream runs westward from Jersey Avenue, forming a natural watershed. The lower portion of this valley is heavily wooded, and quite steep for a distance of about one thousand feet on the southerly bank of the stream, after which it widens out to a broad swale. This valley effect with its interesting woodland scenery has been recognized in the arrangement of roadways and paths. In laying out the streets, the natural grades have been taken into account, but perhaps the governing consideration has been a recognition of the chief lines of travel to and from New Brunswick, and the plant of the Wright-Martin Aircraft Corporation, which the houses serve and which lies immediately to the east of the development. These lines of communication are by means of Somerset Street and Jersey Avenue in an easterly direction from the tract. The northerly frontage opposite this tract is partially subdivided for residential purposes, but only sparsely occupied. The easterly boundary overlooks a cemetery, which is to a large extent undeveloped, except for the planting of trees in a parklike manner. The southerly frontage is low ground with the Pennsylvania Railroad a few hundred feet distant. The western boundary consists of open fields. The general shape being oblong and the natural means of access being from the north and south, it has seemed logical to carry the principal circulation of interior streets parallel with the longer sides and convenient to these means of access, namely Somerset Street and Jersey Avenue. Furthermore, inasmuch as the workers will chiefly use the Jersey Avenue approach, it has seemed wise to make a distinct entrance at the nearest point to the works on Jersey Avenue, from which point the lines of roadways and sidewalks diverge to all parts of the development. An axial street runs from here across to Somerset Street. Along this axial street the grouping of houses has been studied with reference to the possibility of interesting effects, more



FLOOR PLANS AND ELEVATIONS OF FIVE-ROOM GROUP HOUSES

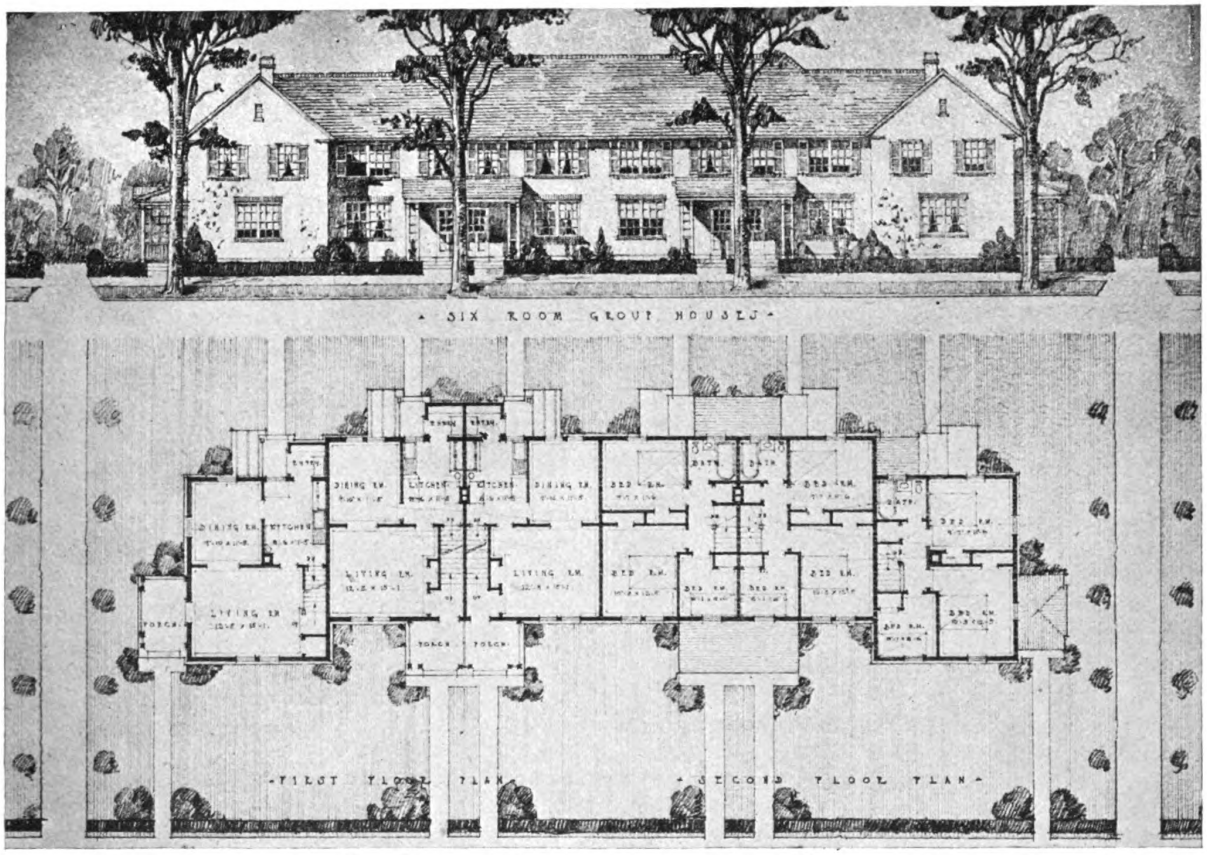


GROUND LAYOUT OF HOUSING DEVELOPMENT AT NEW BRUNSWICK, N. J.

particularly at the intersection of cross streets and where the so-called Village Green has been introduced. Open vistas have also been introduced along the lines of the stream, where the ground, being rough and irregular, is scarcely suited to residential purposes, especially near the southerly corner of the tract, facing the wooded ravine, which is left open for breadth of effect and playground opportunities for small children.

Ample space has been allowed for a grade school, and stores, small apartments and a moving picture theatre with other recreation facilities are provided for at the Jersey Avenue approach. Of the forty acres at present being developed, less than an acre has been appropriated for other than residential purposes. The density is about ten families per acre, which is comparatively high, but is relieved by the numerous open spaces above mentioned. It is planned to secure an abundance of shade along tree-lined streets and roads and a sense of relative privacy for all houses, by means of low boundary hedges around all blocks, while the layout in general is so disposed as to emphasize all open areas. The roadways and paths are sufficiently broken in length, and curves introduced at intervals where topography gives reason, so as to obviate a stiff and formal treatment.

Careful consideration was given to the types of houses distributed on the site and the materials employed. The houses, while most economically planned, are of a high standard of construction. The majority are six-room dwellings, some five-room and a small number of four-room dwellings. They are built and grouped in a variety of ways; some detached, others semi-detached, and a large number of row houses. All are of semi-fireproof construction, the exterior walls being of hollow tile, finished with stucco and the roofs of slate. As a number of terra cotta plants are to be found in the vicinity, this material proved to be quite as economical as wood. All houses are of two stories and have cellars which contain hot air furnaces and, in most cases, laundries. The bathrooms, kitchens, in fact, all rooms, have been studied so that the fixtures and furniture will fit into spaces of minimum size compatible with comfort and convenience. The exterior design is extremely simple, the general effect being largely dependent upon a number of combinations derived from a few unit types, and the distribution of these with reference to each other and to the town plan. The only purely decorative elements are brick lintels and sills at the first-story windows. Blinds are used at the second-story windows, but these are distinctly useful as well as decorative elements. An interesting color scheme for the exteriors has been developed to lend further variety and charm to the architectural treatment.



Floor Plans and Elevation of Six-Room Group Houses

EDITORIAL COMMENT

THE situation to which architects have been looking forward with much expectancy has arrived. The war is now over, save for the actual signing of peace treaties and the determination of those safeguards we hope will prevent a recurrence of such a terrific waste of life and property as the last four years have witnessed. Are we, however, to find ourselves shortly in the same circumstances as existed before the war? Are the momentous changes in national and individual viewpoints brought about during the war to have no effect on the conditions of life and business in the days of peace that will follow? The present progress of events and the deductions of those authorities who are qualified to judge do not so indicate.

The war has brought a clarity of vision and a development of thought which could not have been accomplished short of a whole generation of normal activities. A general re-estimation of values and a quickening of public conscience have taken place; we have juggled with the terms "essential" and "non-essential" and though there was much confusion in our haste to eliminate everything which showed no direct bearing on the war, we unconsciously acquired a faculty of looking for the truth in every situation and apportioning to things their relative values. There is likewise a sorting and sifting process taking place today in purely peace-time activities. The useless man, institution, custom or whatsoever is marked for extinction. We have fought a war for the principles of democracy and won it. That fact does not mean, however, the triumph of democracy; it only establishes the birth of democracy. We have yet to bring it to perfection. A long step toward that goal has been taken in proving the failure of autocracy — that is the type of autocracy founded on the power and influence of a few. We need not, however, abandon all thought of recognition of special qualifications in our democracy of the future, we may have even an autocracy — but an autocracy as Charles M. Schwab has expressed it, "of men who serve, who do things for their country and their fellow men."

In the democracy of the future where will the profession of architecture stand? Are its members fitted to serve their country and their fellow men? The Government, whether rightly or wrongly, has decreed through its official acts that architecture has no place in war. Will this serve as a precedent to be carried over into peace times? Has architecture been only a servant to autocracy? Does it provide only a means of displaying wealth, perhaps accumulated through methods now condemned? Is the fact that architects have only the desire to add beauty to a structure, which in every other point an engineer may claim to produce equally well, sufficient cause to consider architecture essential, and grant to it the dominating position in the building world? There is no one so base as to deny beauty its value, but similarly there will be no one so brave as to explain away obvious defects of plan and construction, excessive cost and superfluous enrichment, by pointing to the beauty of the structure as greater in value than all else.

The lessened activities of private building and the general non-recognition of architects on Government work have afforded much time for thought on these and other questions. This has not been unproductive of some result; we have had equally strong criticisms and commendations of the architect's course. Surely there has been much thought, but only a measure of it has displayed the qualities of enduring worth. Enough has been said, however, to indicate a serious demand for a study of conditions and some changes in professional relations if such study makes that course advisable.

Architecture as an art must be preserved. If the present methods of practicing it are not such as to command the fullest respect and confidence of the public, those methods must be changed. It is not possible to force the opinions of any body of men for any prolonged time against a natural tendency in another direction. We have today unmistakable evidence of a desire on the part of all people to share in the development of our nation and the advantages such development will bring. If the profession of architecture is not sympathetic with this laudable aim and is not so constructed that it can serve to further this movement, its high position is endangered. These questions must be determined. Sufficient signs are abroad to make a study of the architectural profession with relation to post-war conditions a matter of immediate concern to all vitally interested in its continued welfare. The American Institute of Architects, as the national organization representing the collective interests of all American architects, should lead in this study and lend to it its entire resources. If conditions are found to warrant any changes in practice, the reform should come from within the professional body itself. If not, it will be forced from without by the refusal of the people to endorse any movement not in accord with its aim to abolish autocratic and wasteful tendencies.

Men and affairs are today being weighed in the balance. The day of reconstruction is at its dawn and methods of procedure will in this period be established that will serve as precedents for the next generation to come. Architecture as a servant to all the people has a future open to it that will outshine in glory the greatest period of its past, but it must be made truly to serve the people, and that obligation rests upon this day and generation of architects.