

# *The* ARCHITECTURAL RECORD

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## *The* CORNELL CRESCENT

✧ GAVIN HADDEN, DESIGNER ✧

*By*  
*Gavin Hadden*

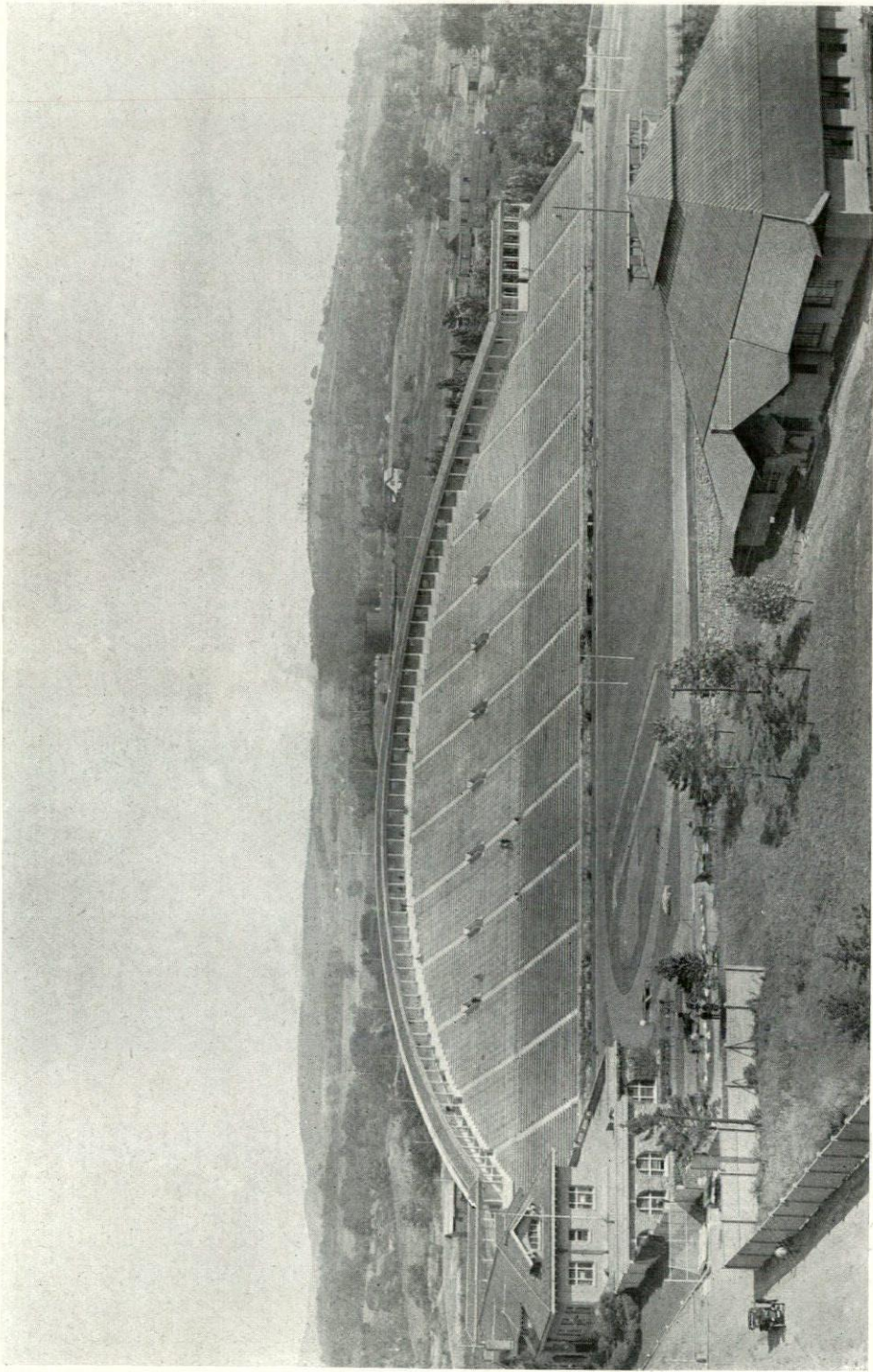
ON ACCOUNT of its departure from customary forms in the arrangements of its seats, and on account of its unusual general composition, the new athletic stadium recently erected at Cornell University, Ithaca, New York, has excited some interest among administrators of athletics, and also among architects and engineers. It is hoped that the brief description and exposition of the governing principles of the design, herein presented, will be an aid to discussion. The same general principles are applicable to other seating structures of this kind and are in fact being followed by the writer in other designs now being executed and in contemplation for future needs.

The field at which the structure has been erected is known as Schoellkopf Field, in memory of a former student at the University. Although the new structure was first called the Schoellkopf Field Stadium, appreciation of the advantage of a simple, but euphonious and distinctive designation has led to the general adoption by tacit agreement of the name "The Cornell Crescent."

The first permanent concrete seating

stand at Schoellkopf Field was constructed in 1915. At that time its seating capacity, about 9,000, was more than ample for the needs of the University and it was believed that a great many years would pass before additional seats would be required. The increasing accessibility of the city of Ithaca, however, largely on account of the automobile, and the increasing popularity of the game of football in general and of Cornell's games in particular, soon began to fill and overflow the old structure, and it became apparent that additional facilities for football were necessary.

When the writer was first called upon to tackle the problem, the point of saturation of the existing facilities had been reached. After making a study of the possibilities of the Schoellkopf Field site and of other totally different sites, with particular reference to probable future demands for seats, it was determined that the most advantageous and economical solution would involve the retention of the arena and running track substantially as before and the incorporation of the old stand in the new seating structure. Scenic



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General View from the West  
THE CORNELL CRESCENT  
Gavin Hadden, Designer

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and topographical considerations and the location of existing buildings necessarily restricted the major part of any new development to the one side of the field only. Perhaps it would be of interest to quote here in part from a statement of the problem as set forth by the writer two years ago:

" . . . the problem under consideration resolves itself into the determination of the most feasible, practical and economical design of a permanent new Stadium on Schoellkopf Field, to be used for football and track games, with an immediate capacity of 20,000 to 25,000 football seats and an ultimate future capacity up to the practical limits of the site.

"It is imperative that the proposed Stadium be constructed of permanent fireproof materials and that every required provision shall be made for the safety and comfort of spectators.

"It is desired that the proposed structure shall be of pleasing appearance, and shall in its architecture enhance rather than detract from the beauties of its surroundings.

"It is desired further that the beautiful and inspiring feature of the existing stand, which provides a far reaching view of the scenic effects of the surrounding country from most of the seats, shall be retained in so far as may be possible; and further, that if the existing parking spaces must be eliminated, a limited number of private boxes, suitably located, shall be substituted therefor."

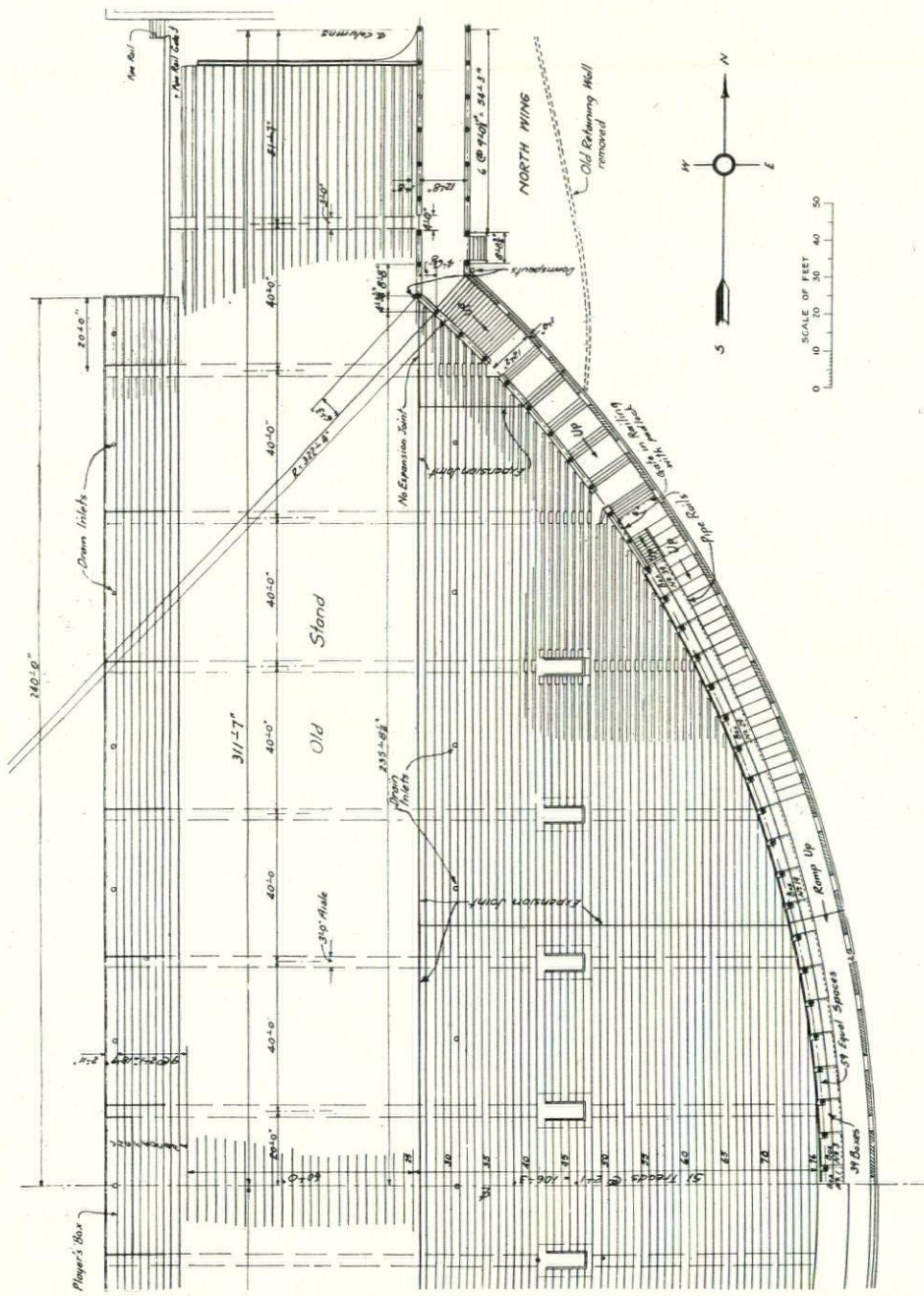
The low rectangular deck of the old stand has been retained and provided with new seats of different design, and a new deck has been extended upward, above and behind the central portion, until cut off in plan at the rear and sides by a circular curve centered on the center of the football field. The old automobile parking spaces, which were located on the hill above the retaining walls back of the seats, and the old entrance passage, have necessarily been discarded, thereby utilizing the large amount of space they occupied to far greater purpose. As a substitute for the parking spaces a number of private boxes have been provided in a covered colonnade at the outer peri-

phery of the seat deck. This colonnade descends on each side from the highest point on the center line of the structure and terminates at each end in a colonnaded wing built over the end of the old entrance passage. The portion of the colonnade which is not occupied by the private boxes is used for circulation of spectators to the seating sections and to the boxes. Entrance to the eight central seating sections is obtained through short ramps and portals from the high ground at the rear of the structure and to the other sections through the wings of the colonnade. The boxholders are also provided with two short private stairways which lead to the colonnade passage, one at each end of the boxes.

These general features can be seen in the accompanying plan and central cross-section. The drawings also show a front extension which has not yet been constructed but which has been designed to care for future expansion. Still further expansion, not shown on the drawings, will be provided for on the west side of the field.

The most distinctive feature of the general design is of course the rather unusual sky-line curve produced by the combination of the circular curve in plan with the logarithmic curve in cross-section. Geometrically, this curve may be approximately defined as the intersection of a logarithmic horizontal cylindrical surface with a circular vertical cylindrical surface. This sky-line curve is, however, merely incidental to the design, resulting from practical logic in its development. In fact, every detail of the design was arrived at through the logical process of adaptability to the best fulfillment of its purposes, with the belief that the proper development of this principle would in itself assure a suitable and satisfactory appearance. As W. R. Lethaby has stated, "The end of design is properly utility, fitness and delight. If a discovery, it should be a discovery of what seems inevitable, an inspiration arising out of the conditions."

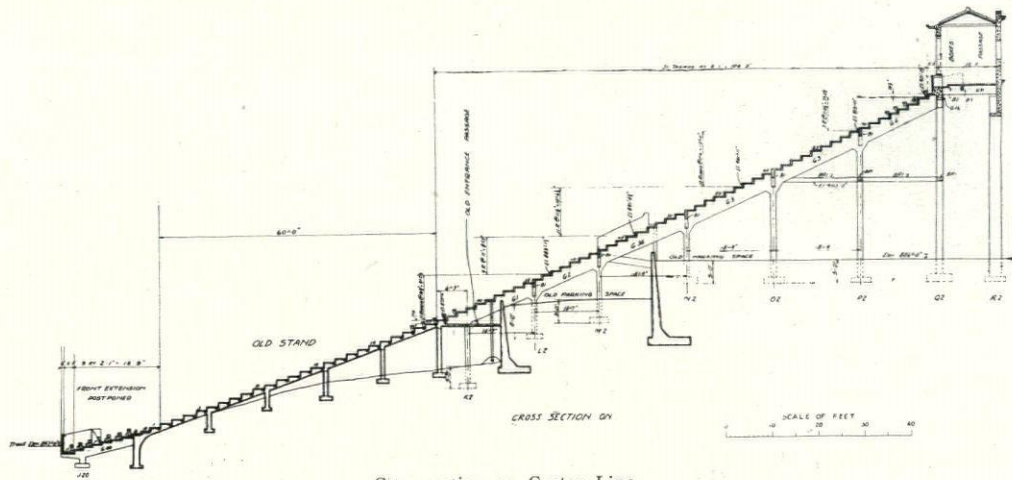
The vertical curve of the cross-section follows what is now generally accepted as the best practice in the design of impor-



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Half Deck Plan  
 THE CORNELL CRESCENT  
 Gavin Hadden, Designer

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Cross-section on Center Line  
THE CORNELL CRESCENT  
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tant structures of this kind. The principle of continuously increasing the slope of tiers of seats as they rise upward from the arena has been followed frequently since the day the Coliseum was designed in Rome, and even the design of that very early structure shows some indication of it. By so doing, the clearance of the lines of sight is maintained at a constant average, and the total height of the structure is restricted to the minimum. Whereas, however, in some of the early classical structures and also in some few modern structures of the twentieth century, this increase in slope was attained by varying the dimensions of *both* treads and risers, the best modern practice, for uniformity of comfort, in the usual case keeps the tread dimensions constant and confines the variations entirely to the riser dimensions.

The circular curve of the plan follows naturally and logically from efforts to develop the design so as to place all the new seats as advantageously as possible for viewing the football field. From the very beginning of the American game of football it has been the universal wish of practically all football spectators to sit as nearly as possible on a line with the center of the field. With the development, particularly during the last decade, of the more open style of play as influenced

by the revised rules of the game, and with the increased size and consequent increased height of seating structures all over the country, it has been found and definitely proved by experience that the modern spectator prefers a seat high up in the stands, provided it is near the center line and not too far away from the field of play, to one lower down but farther away from the center line. These facts, together with the fortunate topography of the hillside site, with the highest ground opposite the central part of the field, are the fundamental reasons for the general plan followed.

The circular plan was not definitely fixed, however, without first giving careful consideration to various alternate approximations, following the same general line of reasoning. Tentative plans were drawn up and approximate estimates were made of two alternates, termed for identification the "Rectangular Plan" and the "Semi-Octagonal Plan." The first of these consisted of simple rectangles giving the very roughest approximation to the circle. The second, formed by two long side diagonals, and a long rear wall parallel to the seats, approximated the circle reasonably closely. In both of these designs the colonnaded ramp was omitted, and the private boxes were located on the straight line at the topmost



Detail of Rear Wall with South Wing of  
Colonnade in Background  
THE CORNELL CRESCENT  
Gavin Hadden, Designer

rear of the structure. A small tower was located at each end of the boxes to enclose the stairways to the box passage and also to serve as suitable terminations to the long straight outside walls.

The results of this comparative study, influenced as they were by the particular conditions of the specific problem, indicated the undoubted superiority of the circular plan over the others. Under other influencing conditions one or the other of these alternates might have been indicated, and it may be noted that the plan of the new Brown University Amphitheatre, now under construction in Providence (to be erected in duplicate on both sides of the field) is quite similar in general features to the "Semi-Octag-

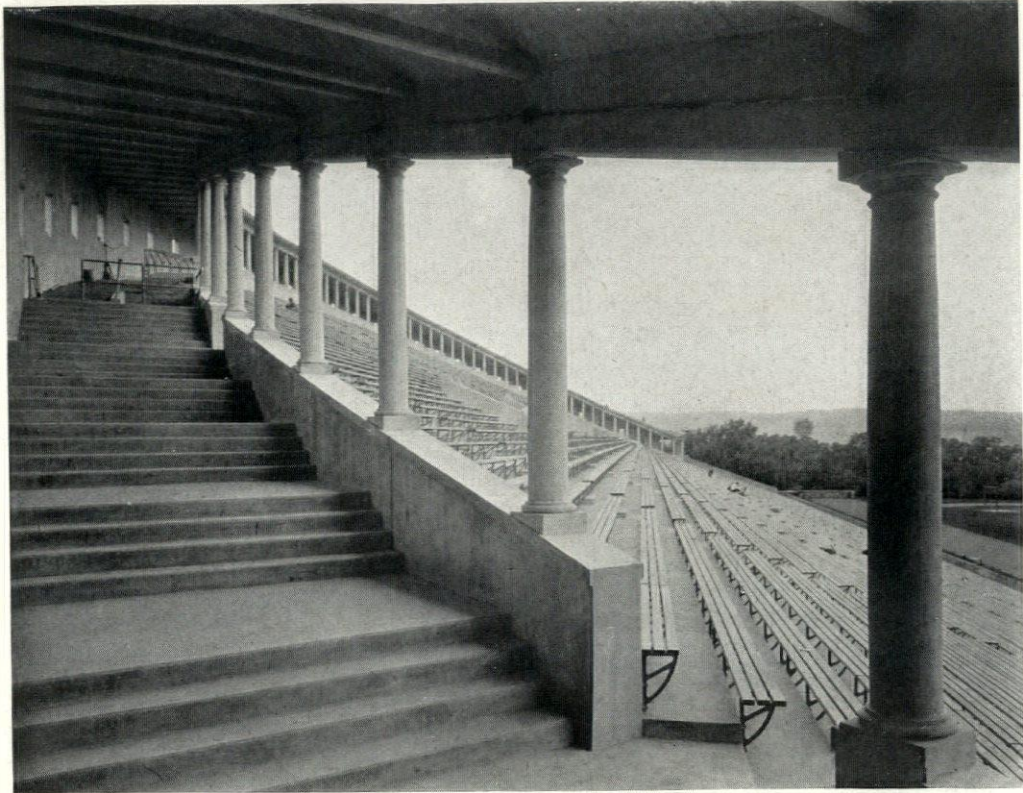
onal Plan" described above. This Brown University design was developed after that of the Cornell Crescent.

In treatment of the details of the design, it was realized that the greatest simplicity was desirable, not only in order to conform most suitably to the materials of construction, reinforced concrete, but also in order to accentuate the distinctive sky-line curve. The curved exterior wall is pierced by simple Roman arches for entrance and exit of spectators and for the admission of light and air to the large open spaces under the deck. Above each is a simple rectangular window in the exterior of the colonnade above the deck. These windows admit light and air to the boxes and passages, and through them may be obtained many glimpses of the surrounding landscape, each in a new direction. These arches and windows, which in their general relative combination follow frankly the noteworthy precedents of the upper stories of the Coliseum, the Amphitheatre at Pola, and the Harvard Stadium, follow the crowning curve in ascent and descent on either side of the center line. Thus, and also by their vertical lines, they serve to accentuate this curve on the exterior side of the structure. The colonnade columns serve in the same manner on the interior or field side.

The crowning curve is further accentuated on the field side by the touch of color introduced in the red Spanish tile roof of the colonnade, matching the roofs of Schoellkopf Hall and the baseball cage and serving by similarity of color combination to increase the homogeneity of this athletic group.

At night, by the diffused illumination of the entire colonnade, the salient features of the structure are again brought out. The colonnade and the column capitals are dimly outlined by indirect light which serves the useful purpose of guiding outgoing spectators after a late game on a dark day, or on occasions when the structure is used at night.

What may be termed the only purely ornamental features in the entire structure are the two circular cartouches, of quite simple yet pleasing design,



Detail of Colonnade and Seat Deck  
THE CORNELL CRESCENT  
Gavin Hadden, Designer

placed in the exterior wall on either side of the central arch and the line of flag poles surmounting the wall. The former, carrying the seal of the University, reinforces the unity of the structure by indicating anew the transverse centerline as a focal point for the eye, and the latter, as inconspicuous as possible, carry gaily colored flags and banners, adding in this way further life to the structure when filled with spectators.

The accompanying photographs show some of the more interesting views of the structure, but it is a noteworthy fact that on account of its composition each different angle of view shows it in a different aspect.

In the design of the structural details the column, girder, riser beam and tread slab method has been mainly followed, according with what may now be considered

the generally accepted practice for reinforced concrete structures of this kind. Sliding instead of butt joints, however, are introduced to take care of expansion and contraction in the seating deck, thus preserving almost complete uniformity in the longitudinal spacing of columns and girders. The design of the old deck, the method of connection with the old structure, and the curved exterior wall also had important effect upon the determination of the column and girder spacings. It is not possible to enter here into any detailed description of the structural design, but it may be of interest to enumerate some of the more interesting features and those which are perhaps somewhat unusual.

First among these features should perhaps be mentioned the design of the piers between the exterior arches. These piers

ch a considerable unsupported height at the center of the structure and their "U" section not only is efficient in economy and stability but also serves, by the counterforts which form the legs of the "U," to increase in depth the reveal of the arches. The result is an appearance of great strength and solidity in the exterior wall, and thus in the entire structure, which is usually difficult to obtain economically with reinforced concrete.

Another feature is the seat design, a further development of the design first carried out after long study and experiment in the Franklin Field Stadium in Philadelphia. Slat seats of cypress are raised above the concrete treads, supported on special castiron brackets fastened to the risers. By allowing foot-room under the preceding seats and room under their own seats for spectators' feet and legs, double use is made of the horizontal area occupied, and the design is believed to be the best possible compromise between comfort and economy for seats of this type.

Other interesting features are the expansion joints between the old structure and the new, the expansion joints between the different parts of the new structure, the method of framing under the colonnade, the concrete slab and tie-beam design of the colonnade roof, the portal framing, the method of fastening the seat brackets to the old part of the deck, the design of the ornamental colonnade columns to provide for the maximum variation in height entirely below the entasis, and the arrangement of the interior bracing to provide large areas with ample headroom for practice of outdoor sports under cover when necessary.

The expansion joints in the deck itself, where there are no heavy concentrations of load, are sliding joints as noted above, but in the colonnade, with its comparatively heavy concentrated loads, through butt joints with split columns and girders have been introduced. For simplicity and appearance these through joints are located radially. The motion in expansion and contraction is therefore not perpendicular to the joints and some rather interesting slight variations in elevation and

alignment of the adjacent curving surfaces have occurred after contraction. This led to the design of a special type of cover for the joints in the sloping floor of the colonnade ramp, consisting of cast-iron pieces similar to a standard type of door sill, with fins projecting beneath set in the joints loosely, thus allowing them automatically to adjust their position to the movement of the concrete.

No appreciable new loads have anywhere been added to the old part of the structure, except at the two wings. The north wing rests directly on solid wall foundations, and the south wing has been underpinned with new columns to take the additional loads of the colonnade walls, columns and roof.

The contract for the construction of the Crescent was signed in December, 1923. The work through the winter was confined principally to preparation, the erection of plant, the excavation for the footings, the cutting of old concrete, the hauling of materials, and the construction of forms. As the weather allowed, with proper cold weather precautions, the footings were poured, and in April, 1924, the construction of the superstructure went forward smoothly and efficiently, following almost exactly the tentative progress schedule set by the contractors.

On account of the difficulty which had previously been experienced in Ithaca in obtaining satisfactory results with concrete made of local materials, even more than the usual care was exercised by the contractors in the selection and proportioning of the materials for the aggregate. In reinforced concrete structures of this kind, with comparatively thin sections of large area completely exposed to the weather, nothing but the most careful standards should be allowed in the quality of materials and workmanship. The responsibility of the owners, designers, supervisors and builders to the general public which uses the structure in all seasons cannot be disregarded.

Although the curves of the exterior wall and colonnade added some complications to the detailed design and to the survey work in laying out lines and grades, it did not present difficulties in

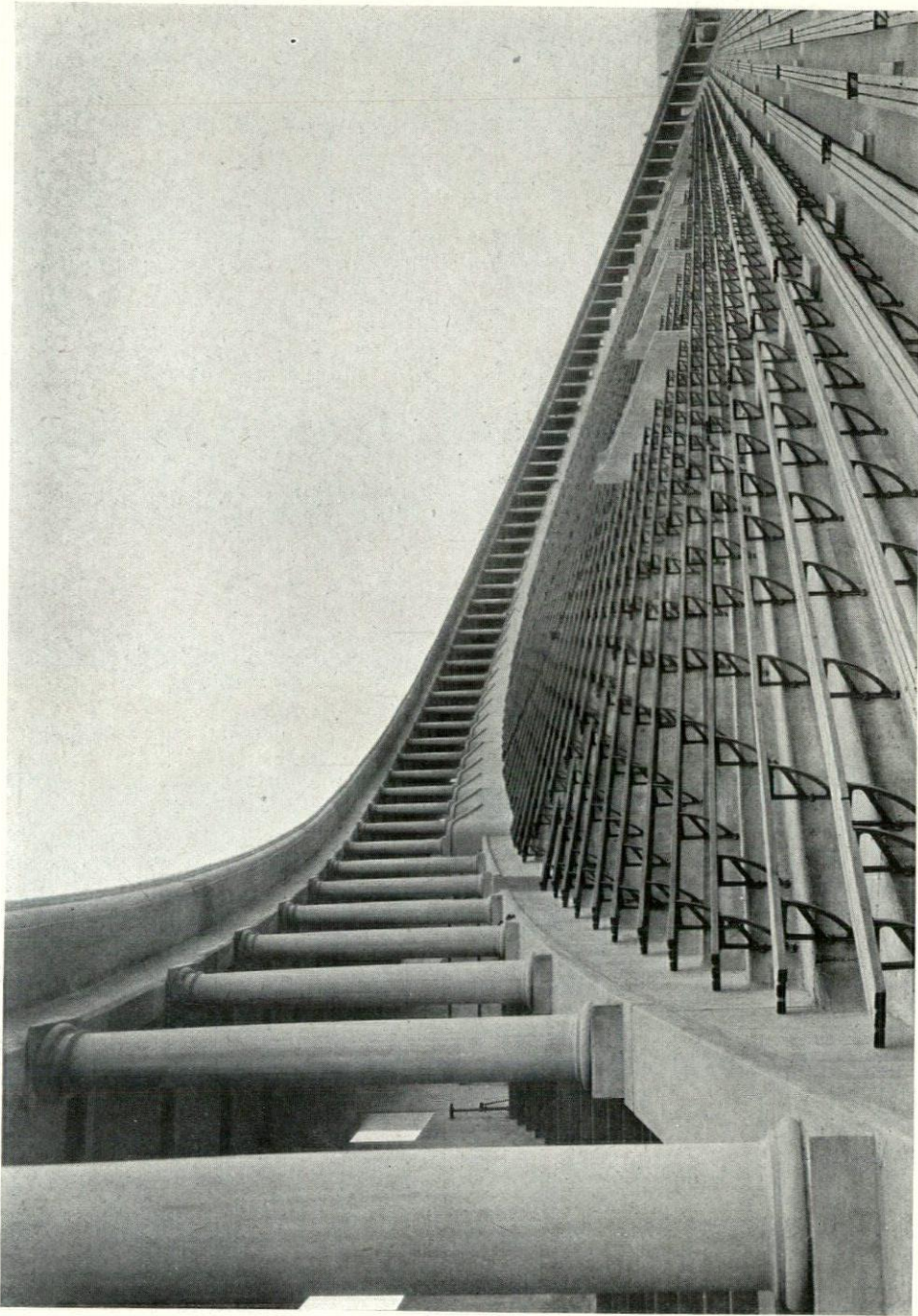




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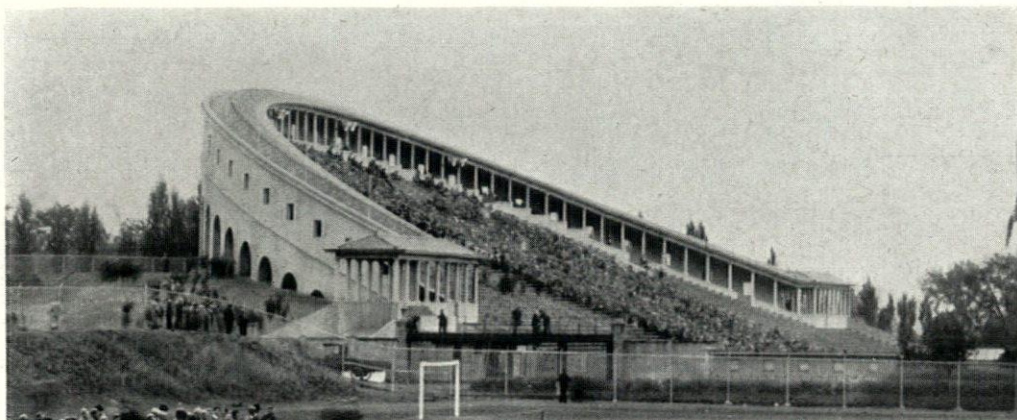
Detail of Rear Wall at Center Line  
THE CORNELL CRESCENT  
Gavin Hadden, Designer



*The Architectural Record*

Detail of Colonnade and Upper Part of Seat Deck  
THE CORNELL CRESCENT  
Gavin Hadden, Designer

March, 1935



General View from the North  
THE CORNELL CRESCENT  
Gavin Hadden, Designer

the form construction which could not be readily overcome by skillful work. The curves are confined entirely to the outer perimeter of the structure, and as they are of long radius it was not a difficult matter to bend the form boards and cut the wales to the proper surfaces. Every member in the entire structure was cast in place, with the exception of the tie-beams of the colonnade roof, which were pre-cast. The faithful accuracy of the results reflect great credit upon the skill of the contractors and the efficiency of their organization.

The introduction of any longitudinal construction joints in the new deck was definitely prohibited. The general procedure in construction therefore was to pour the deck in comparatively narrow sections, each in a single day's work from bottom to top. The first sections poured were those at and adjacent to the transverse center line of the structure and, with two complete sets of deck forms, each two bays in width, the work progressed at either side from the center to the ends. This procedure allowed the excess forms at the top to be cut off progressively as the structure decreased in height, and had the further advantage of reducing to a minimum the amount of form construction necessary during the progress of the work. The erection of the exterior wall with its arches and piers,

and the colonnade walls, floors, columns and roof proceeded independently, following in successive steps after the deck sections, the wall and pier forms being similarly cut off progressively at the bottom. The last concrete was poured in the structure on August 27, 1924, and the entire project, including the seats, the temporary toilets (which will be eventually replaced by permanent facilities included in the original plans), the tile roof, the pipe railings, and the installation of the drainage, plumbing and lighting systems was completed in ample time for the use of the structure for the first football game of the season on September 27, 1924.

It should be noted that whatever utility, distinctiveness and beauty may be ascribed to the Cornell Crescent are due to the broadmindedness and courage of the official representatives of Cornell University and of the Athletic Association who took the responsibility of carrying out the project. The construction was carried out by the Turner Construction Company, with Mr. R. F. Egelhoff as General Superintendent and Mr. J. E. Pearson as Superintendent, and the design and supervision of construction were carried out by the writer with Mr. C. A. Holden in charge of the detailed design, and Mr. G. F. Baker in charge of the resident supervision.



*The Architectural Record*

March, 1925

Entrance Detail  
HOUSING DEVELOPMENT OF THE BAYONNE HOUSING CORPORATION AT BAYONNE, N. J.  
Andrew J. Thomas, Architect

## A STEP TOWARDS SLUM CLEARANCE

*The Garden Tenement of the  
Empire Mortgage Company on  
the East Side of New York*

*By John Taylor Boyd, Jr.*

THIS HOUSING venture of the Empire Mortgage Company, designed by Andrew J. Thomas, although not large in scale, nevertheless has a place in housing progress. Historically, it signals the introduction of the garden tenement into Manhattan's Island, where land is expensive, and it brings housing nearer that long-sought goal—clearing the slums.

Slum clearance is no new idea, nor is it revolutionary. In Europe, the largest cities have undertaken slum clearances on a large scale, and London particularly has been methodically scrapping its slums for a generation, in a series of colossal operations, providing as many as thirty thousand homes in a single project. The latest London slum clearances involve the building of whole new cities, including not only housing, but public engineering works and the necessary schools, hospitals, and other public buildings as well—all designed and constructed according to the finest architectural standards.

Recently, the supervising architect of the London County Council, which administers this work, visited New York and described it to audiences of architects and civic bodies. American architects are somewhat chagrined at these striking evidences of British achievement, beside which our own best efforts seem small. Mr. Forrest, however, pronounced our housing standards, as seen in the garden tenements of the Metropolitan Life Insurance Company and of the Bayonne Housing Corporation, as superior technically to the more recent British projects. One would think therefore, that, if American architecture has created a tenement house design which is technically superior to English practice, American business initiative should produce this architecture on a big scale. This is but another illustration of the truth that the difficulty in providing wage earner's hous-

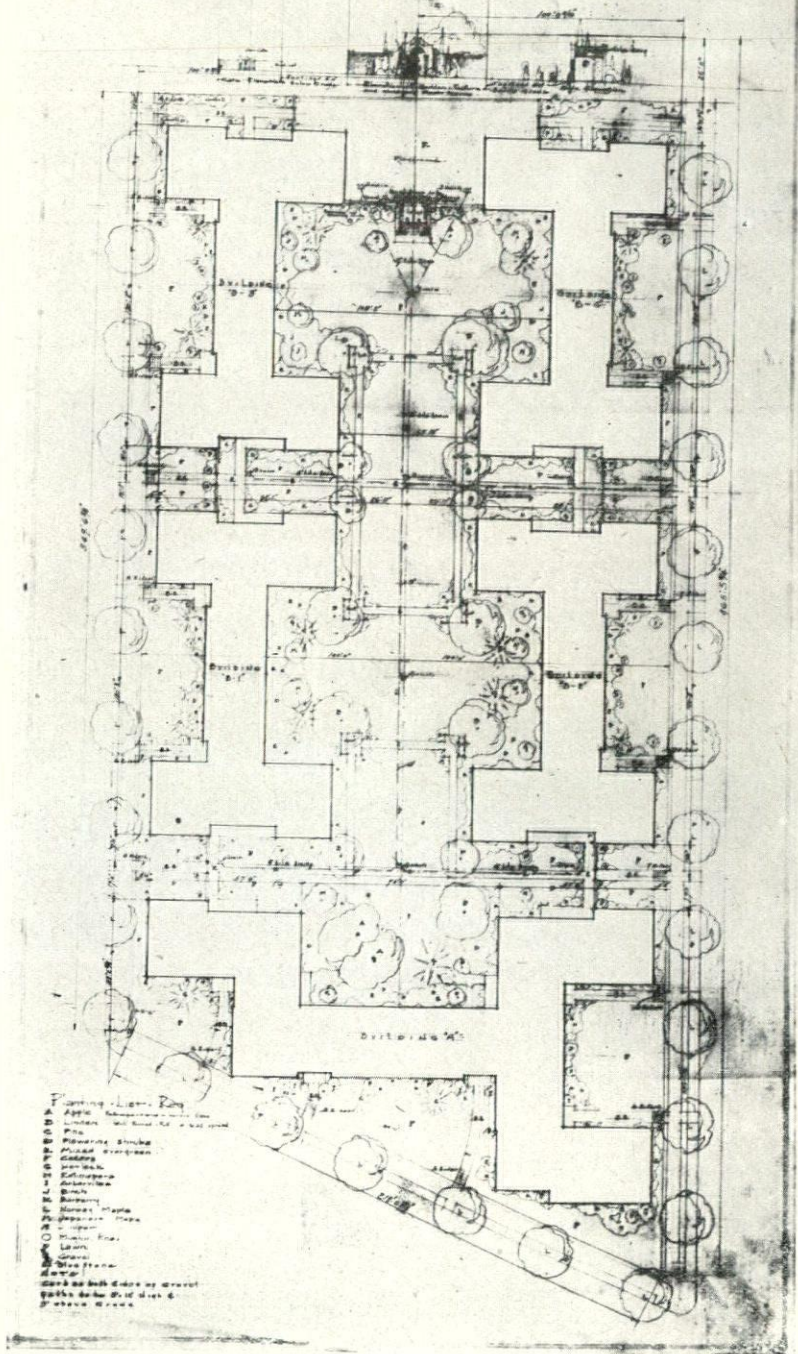
ing is no longer architectural, but social and financial.

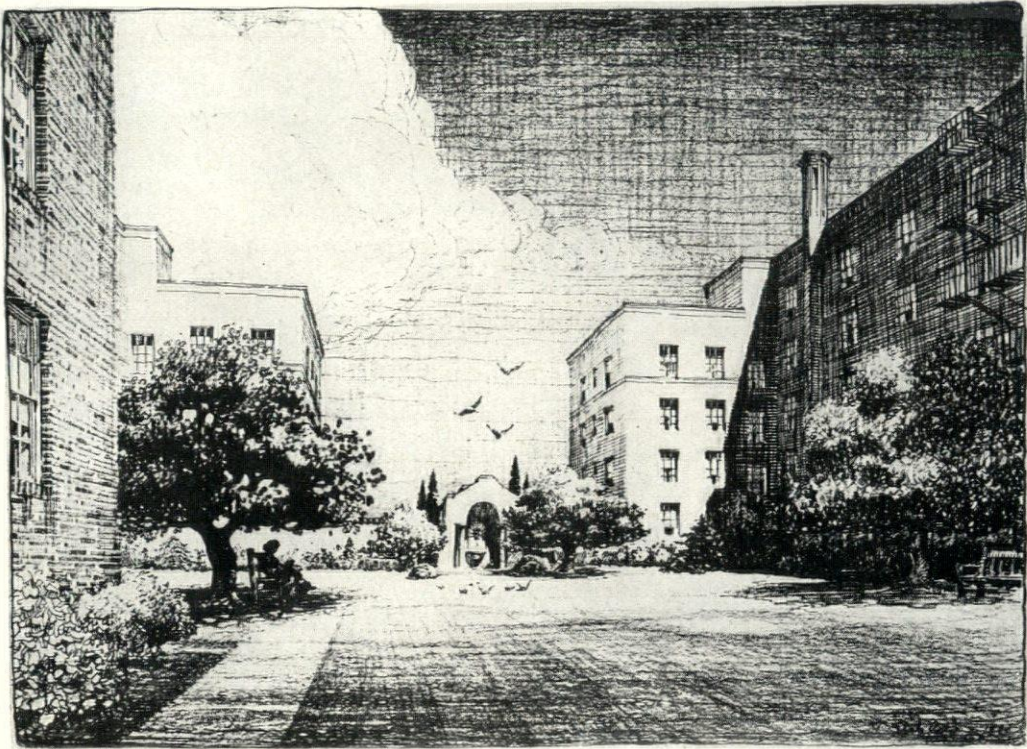
Financially the new British housing of the London County Council is significant. Much has been printed lately by housing experts about the financial disasters of all post-war British housing, but Mr. Forrest had a different story to tell in this one instance at least. At a gathering of the Architectural League, Mr. Forrest, in reply to questions asked by Mr. Cass Gilbert and others, said that the London housing was not "economic"—that is, it was rented at a loss, which was borne by the tax-payers—but that the loss, which a few years ago equalled about fifty pounds for each family housed, had been brought down to only five pounds a family.

In this simple statement of a five pound loss in London's slum clearance, per family housed, there lies a big truth. Ten thousand of the vilest slum homes replaced by the government at a loss of less than \$250,000! Here is a proposal which might be justified as a sanitary measure on the grounds of a necessary public improvement, no more revolutionary nor "socialistic" than the construction of a new sewer or subway would be!

Such an achievement will make the advocates of government action take heart. They could easily show that the initial loss of a quarter of a million dollars in the case illustrated would soon be made up by the increased taxes derived from the new improvement, to say nothing of the social and sanitary gain which would result from the removal of a breeding-place of disease and discontent. Clearly, Mr. Forrest's efficiency has brought a new factor into city housing. He has strengthened the case for government interference in the most effective way, namely, on the side of the dollar. And we may well ask whether he has not in a measure put the burden of better

PLANTING PLAN - *Scale*  
 BAYONNE HOUSING CORPORATION  
 Andrew J. Thomas Architects  
 SHEET 5  
 Scale 1/4" = 1'





View of Center Garden

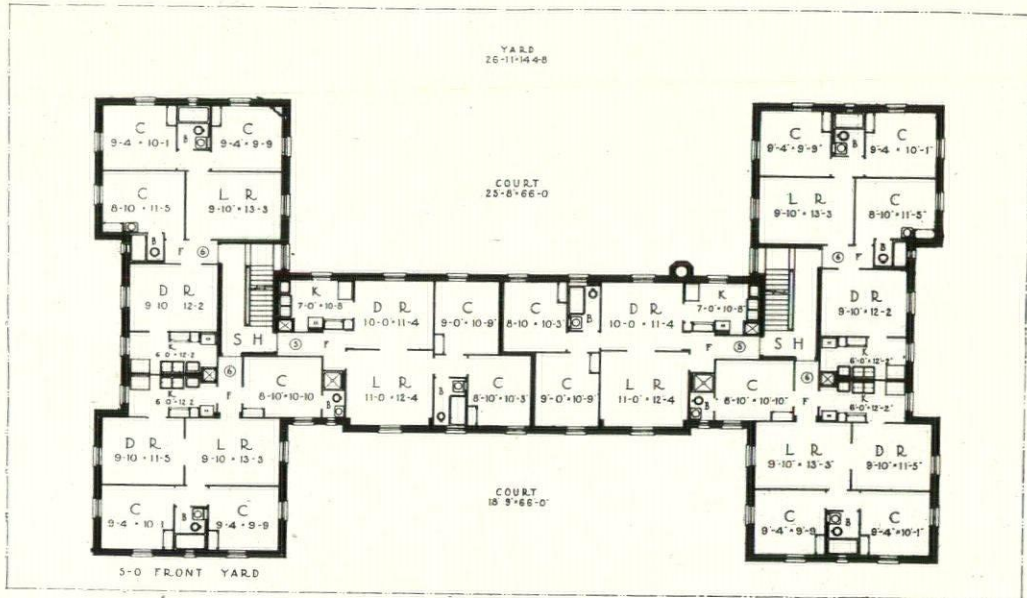
HOUSING DEVELOPMENT OF THE BAYONNE HOUSING CORPORATION AT BAYONNE, N. J.

Andrew J. Thomas, Architect

housing squarely up to private initiative. Too many people conceive of "private initiative" as meaning principally "privacy," whereas it really means "initiative." It is the failure of private initiative which has led publicists like Mr. Herbert Croly to advocate government action, as he very ably did in an editorial published in the Record last year. Nor can the problem of wage-earner's housing be ignored by claiming that there is no longer a housing shortage. Here again, general claims cannot be proved. Whatever the conditions are in the higher-priced real estate markets the fact is that, in northeastern United States new housing of the speculator's types cannot be produced at the present time at a cost of much less than \$1100 a room, and that this housing cannot be rented at less than \$10 a room a month, which means at least \$12 to \$13 for the individual and two-family types

where the tenant furnishes his own heat and hot water. Not only is this true, but, in the last two years, rents in many of the old pre-war houses have risen well to the point of rents in new construction, even of the garden tenement type. In 1923, an investigation made by the *Evening World* disclosed this situation in the East Side of Manhattan, where rentals in slums of the worst and slightly less worse types ranged from \$8 to \$10 or more, usually without heat or hot water. This evidence is borne out by other sources. There are still localities in Greater New York where "cold water" flats may be had for \$5 or \$6, but along with such reports go stories of factories leaving the district because their workers cannot live there under decent conditions.

In other words, the poorest homes in old houses are now being rented at prices not much lower than the new \$9.00 a



PLAN OF 2<sup>ND</sup>, 3<sup>RD</sup>, & 4<sup>TH</sup> FLOORS

KEY  
 SH - STAIR HALL  
 L.R. - LIVING ROOM  
 D.R. - DINING ROOM  
 C - CHAMBER  
 K - KITCHEN  
 B - BATH  
 F - FOYER

ANDREW J. THOMAS  
 ARCHITECT  
 15 EAST 47<sup>TH</sup> STREET  
 NEW YORK CITY

Typical Floor Plan of Typical Unit  
 HOUSING DEVELOPMENT OF THE BAYONNE HOUSING CORPORATION AT BAYONNE, N. J.  
 Andrew J. Thomas, Architect

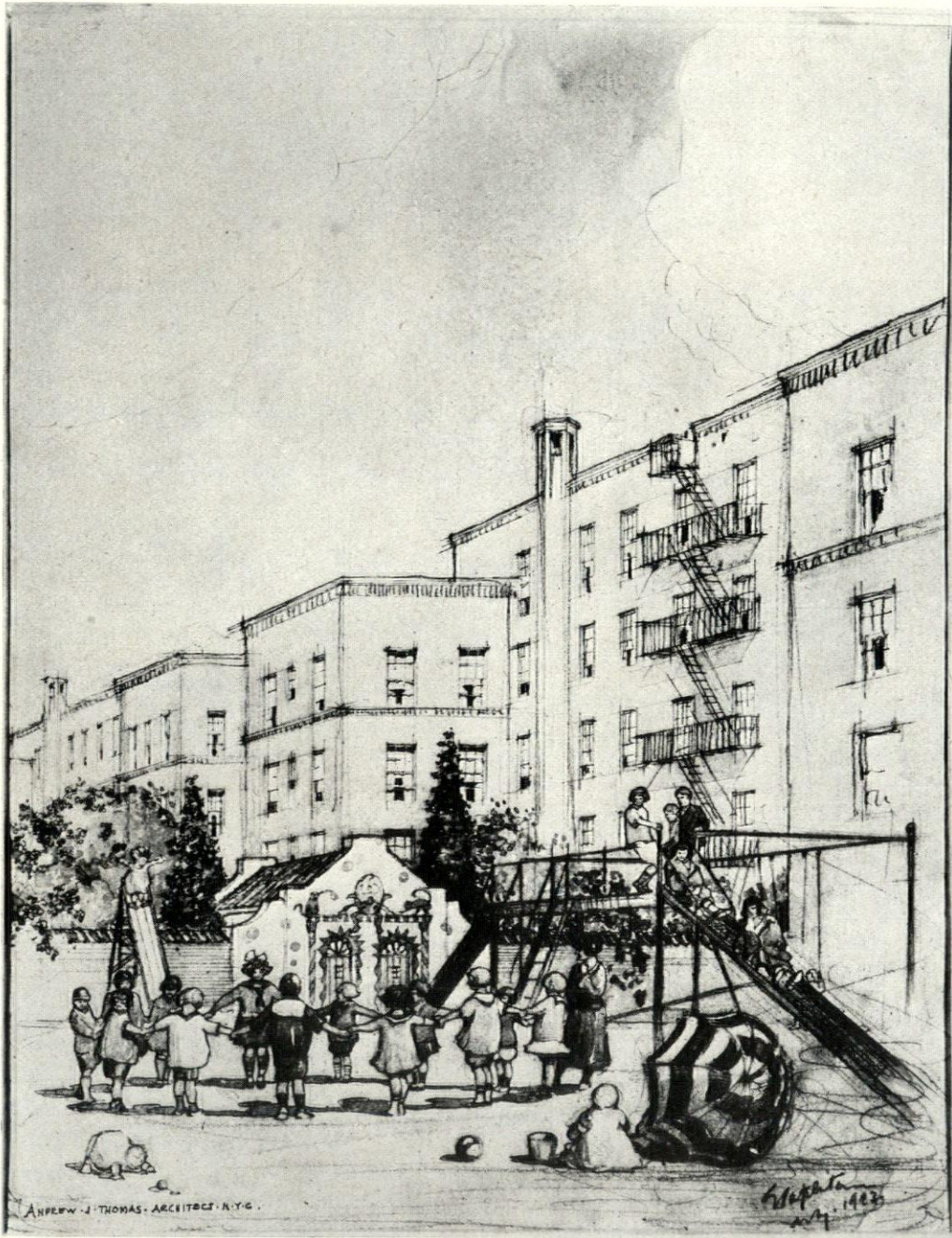
room a month tax-exempt garden tenements of the Metropolitan Life Insurance Company or the \$10 average of the Bayonne Housing. This rise in rents in old construction to the level of those in new construction is a familiar situation in economics, but, since it is a gradual process, it has enabled society to dodge the housing issue. The issue is, that American industry was able to house its average thrifty wage-earner in decent homes before the war, and it must continue to do so if the nation is to prosper. Specifically this means that housing must be provided in quantity to rent for not more than \$10 a room a month, and that this figure must be reduced as rapidly as possible to \$9, then to \$8, and perhaps even lower.

This is the duty of American business leaders, and fortunately they are awakening to it. Within the last two years they have made striking contributions to the cause of better housing, and there are indications that the success of these ex-

periments will beget many others. The enterprise of the Metropolitan Life Insurance Company has inspired other examples. The advance made over previous projects in this huge project of 2125 homes, was treated at length when construction was started in THE ARCHITECTURAL RECORD (Aug., 1922, "A New Departure in Housing Finance"). The Metropolitan housing has proved successful beyond the expectations of its promoters. It has been in operation nearly a year, has acquired a waiting list of over 27,000 names, and according to the official statement of the life insurance company, is earning 8% at least on the outlay—a satisfactory return for a conservative mortgage institution. When the Metropolitan scheme was proposed, many prominent housing, real estate, and construction experts, after examining the plans and specifications, declared that "it couldn't be done."

Before the Metropolitan Life Insur-

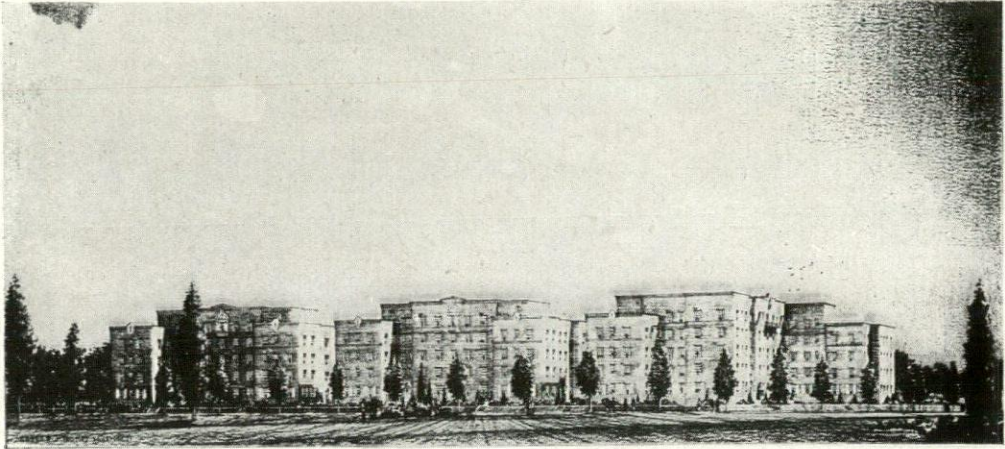




*The Architectural Record*

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Playground for the Smaller Children  
HOUSING DEVELOPMENT OF THE BAYONNE HOUSING CORPORATION AT BAYONNE, N. J.  
Andrew J. Thomas, Architect



Exterior of Group

HOUSING DEVELOPMENT OF THE BAYONNE HOUSING CORPORATION AT BAYONNE, N. J.

Andrew J. Thomas, Architect

ance Company had completed its housing, the Bayonne Housing Corporation, of Bayonne, N. J., undertook to produce a demonstration of ideal wage-earner's housing. This Bayonne housing indicates the re-awakening of big business to the housing situation, which had interested it all over the country at the time of the war, when some three-score semi-public housing corporations were founded in various cities, usually under the auspices of the local chambers of commerce, for the purpose of providing better housing. I treated at length of this activity in *THE ARCHITECTURAL RECORD* for November and December, 1920—"Some Principles of Housing Finance." Although the movement had great promise, the sharp rise in construction costs after the war discouraged most of the projects. A few, however, succeeded, generally providing housing of the individual and row types.

The Bayonne Corporation, after a long study, went ahead last year with a large group of garden apartments, designed by Andrew J. Thomas. The stockholders of the Bayonne Housing Corporation include some of the strongest interests in America—the big oil refineries, Standard, Tidewater and Vacuum, the American Radiator Company, the Pacific Coast Borax, and the International Nickel, acting under the auspices of the Bayonne

Chamber of Commerce. The president of the company, Mr. George E. Keenan, deserves a place in housing history for his persistence in the face of many obstacles. In his efforts he received the support of the corporations who were stockholders, in particular the officers of the Standard Oil and Mr. and Mrs. John D. Rockefeller, Jr.

The Bayonne housing sets the standard for wage-earners housing higher than the Metropolitan Life's garden tenements. It covers only 36% of the area of the site (the land value being not very different) as compared with 51%, and, although not enjoying exemption from municipal taxes over a period of 9 years as does the Metropolitan, it rents for an average of about \$10 a room a month. Equally great is its advance on the social side, since it is a joint enterprise of capital and labor and public-spirited citizens and city officials, working out a solution of the local housing problem, and setting an ideal standard. What a different method is this from the old "company housing" where the capital-labor strife is superimposed on the landlord-tenant relation, a brew which has been responsible for some of the most unsavory episodes in American industrial history!

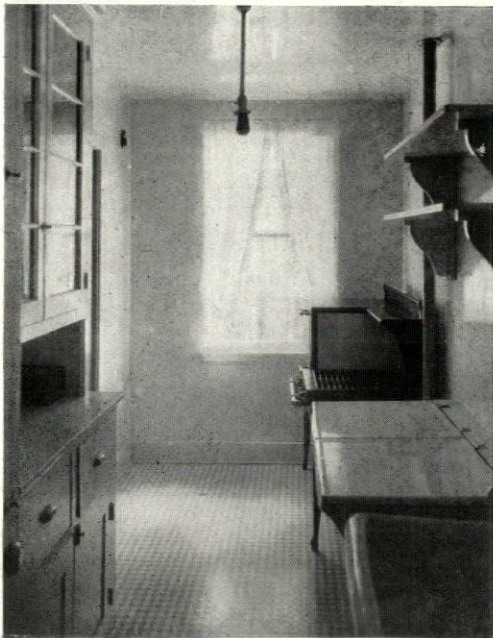
Another interesting development has been the founding of the City Housing

Corporation in New York last year, by a group of citizens under the presidency of Mr. Alexander A. Bing, one of the ablest real estate operators in New York. It is a limited-dividend corporation, resembling the City and Suburban Homes Company. The company has acquired a huge tract of land in Queens, and its first group has been completed, consisting of single-family, two-family and cooperative apartments, covering 28% of the site area. It is selling the homes on a first payment as low as 6% on the purchase price, with a "carrying" charge of \$10 a room a month which covers not only interest and amortization, but also taxes, water and insurance, these last being items usually left to the tenant-owner in individual and two-family types. In this financing, the housing enjoys exemption from municipal taxes for a period of eight years.

Considered from the point of view of slum clearance, all these latest housing projects are alike in one respect: they are

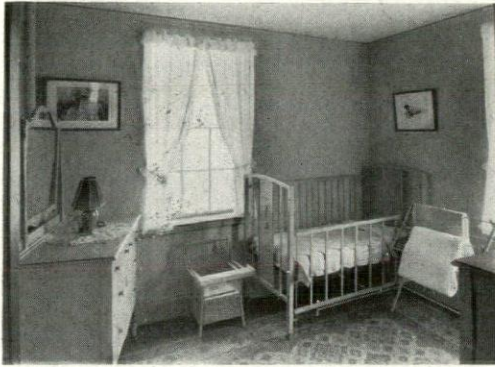


Typical Living Room  
HOUSING DEVELOPMENT OF THE BAYONNE  
HOUSING CORPORATION AT BAYONNE, N. J.  
Andrew J. Thomas, Architect



Typical Kitchen  
HOUSING DEVELOPMENT OF THE BAYONNE  
HOUSING CORPORATION AT BAYONNE, N. J.  
Andrew J. Thomas, Architect

built on low-priced land. This fact has led many experts to argue that the garden tenement cannot be produced in the congested districts where land value runs from \$10,000 to even \$50,000 for a 25 by 100 foot lot. They did not believe Mr. Thomas' demonstration of the solution of this problem which he published in *THE ARCHITECTURAL RECORD* in November, 1920, "Is it Desirable to Remodel the Slums?" This article, with the ideas there set forth, has proved to be the basis of nearly all subsequent progress in tenement housing, particularly the development of American technique in slum clearance. Briefly, Mr. Thomas' thesis is that high land and property values can be written off in slum clearance in just the same way that they are written off in other types of buildings—office buildings, hotels, clubs—by the higher rental to be gained from using the business sites in the cleared area, principally in the form of stores. There is nothing revolutionary in this proposal.



Typical Bedroom

HOUSING DEVELOPMENT OF THE BAYONNE HOUSING CORPORATION AT BAYONNE, N. J.

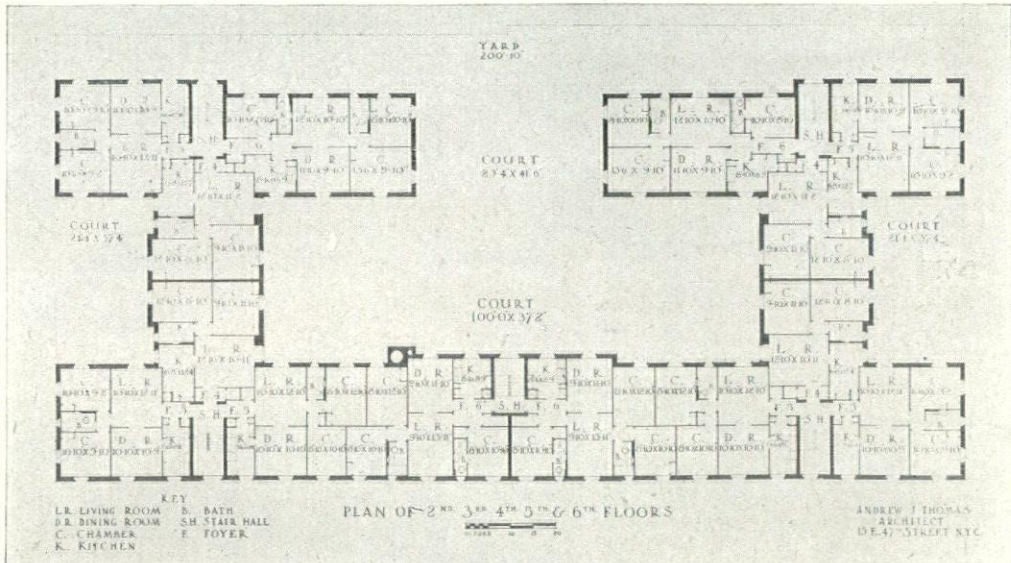
Andrew J. Thomas, Architect

It is being adopted in the more luxurious apartment houses in New York, it has long been known in some speculative housing, and, nearly fifty years ago, Mr. Alfred T. White, the promoter of the first model tenements in America, in building one of his groups in Brooklyn, took advantage of his business sites to plan stores on the ground floor of the tenement, which have helped to make the

project prosperous to this very day. "High property values in slum districts are due to business possibilities, not to tenement rentals," declares Mr. Thomas.

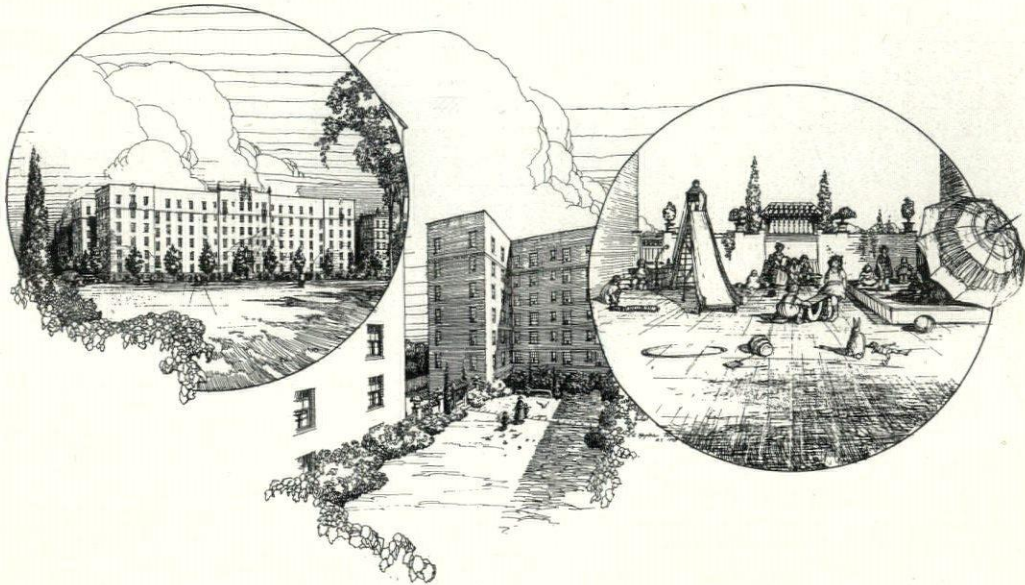
Last year Mr. Thomas produced another demonstration of the financial side of slum clearance, thereby bringing up-to-date, in a detailed study of a specific problem, his original thesis which he made on that subject for THE ARCHITECTURAL RECORD four years ago.

To prove that new garden apartments could be built to rent for \$10 a room on \$50,000 land value—this was the task that the Editor of the New York *Evening World* put up to Mr. Thomas. The editor picked out for this experiment what are probably the four worst and most expensive contiguous slum blocks in New York, those contained within Grand, De Lancey, Christie and Eldridge Streets, on the lower East Side of Manhattan. He obtained for Mr. Thomas the approximate market price of every real estate holding in the four blocks. The existing tenements occupy 81% of the site area and house 1,003 families in 3,399 rooms. Working with this actual condition, Mr. Thomas showed how the old tenements



Typical Floor Plan  
GARDEN TENEMENT OF THE EMPIRE MORTGAGE COMPANY ON THE EAST SIDE OF MANHATTAN ISLAND

Andrew J. Thomas, Architect



View of Exterior, Interior Garden, and a Playground for the Smaller Children  
GARDEN TENEMENT OF THE EMPIRE MORTGAGE COMPANY ON THE  
EAST SIDE OF MANHATTAN ISLAND

Andrew J. Thomas, Architect

in these four blocks could be replaced by twenty six-story apartment buildings of the Metropolitan type, containing 4,230 rooms and housing 1,012 families, and having 112 stores, built at a cost of \$45 a cu. ft., and covering only 52% of the site area, and rented for \$10 a room a month with a 7% investment return.

Obviously, this new demonstration of the economic possibilities of clearing the slums in the very heart of the most congested tenement districts of Manhattan Island is a big advance towards slum clearance. Indeed, it is entirely possible that action might be forthcoming to clear the slums on a huge scale, were there not still one more obstacle in the way.

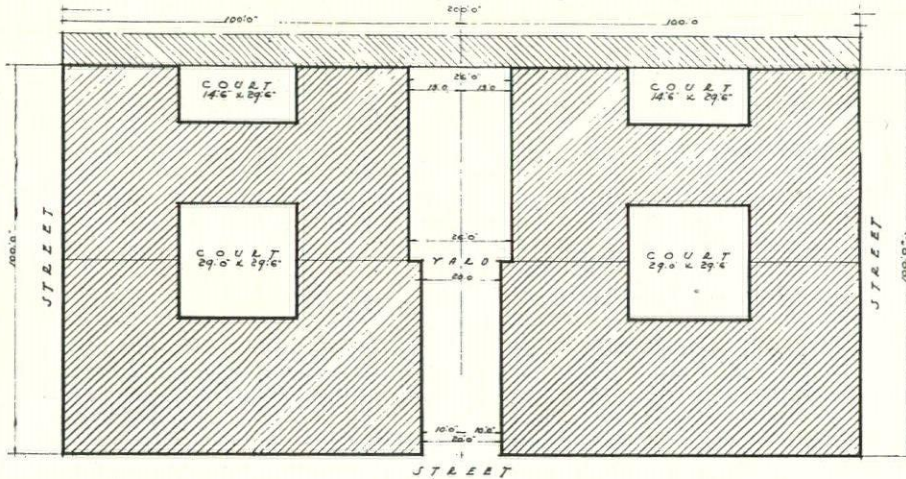
The only obstacle to slum clearance remaining is the legal one. There is no legal machinery for condemning insanitary, depreciated tenement houses and turning the areas over to a semi-public agency like the Bayonne Housing Corporation to be re-built with garden tenements. Without such legal powers of condemnation, it is not practicable, as any real estate man knows, to assemble whole city blocks. No housing corporation could

afford to tie up its capital in acquiring large areas piecemeal, and even then it might not succeed, because individual owners could hold out the best business sites, which are necessary both to the financial side of slum clearance, and to the architectural design of the garden apartment. Here, again is but another instance of the important truth that the old custom of real estate ownership in small parcels is made obsolete technically in cities by the progress of architecture and city planning. Nearly all types of modern buildings are unsuited to the small land sub-division, and sooner or later this fact must be realized and changes made accordingly.

Meanwhile, notwithstanding the legal difficulty, the advocates of slum clearances are not idle. This new project on Avenue "A" is evidence of their faith. It is undertaken by the Empire Mortgage Company, but the New York press has ascribed the project to Mr. John D. Rockefeller, Jr., who has not denied the report.

The new project will serve admirably to focus public attention on slum clearance, although in itself it is not a large

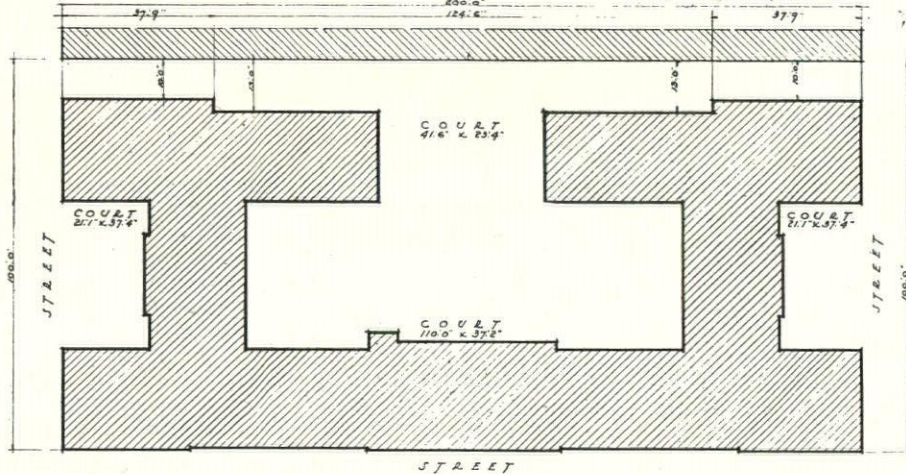
COMPARISON OF EMPIRE MORTGAGE COMPANY'S  
NEW PLAN WITH PLAN OF THE SPECULATIVE BUILDER



THE SPECULATIVE TYPE

AREA OF LOT 20000 SQ. FT.  
AREA OF BLDG 13000 SQ. FT.

PER. OF LOT OCCUPIED 75%  
NO. OF ROOMS PER FLOOR 74.



AREA OF LOT 20000 SQ. FT.  
AREA OF BLDG 11000 SQ. FT.  
PER. OF LOT OCCUPIED 55%  
NO. OF ROOMS PER FLOOR 70

EMPIRE MORTGAGE COMPANY

ANDREW J. THOMAS  
ARCHITECT  
15 E. 97<sup>th</sup> ST. NYC  
Dec. 12 1929.

The Architectural Record

March, 1925

Comparative Plans  
GARDEN TENEMENT OF THE EMPIRE MORTGAGE COMPANY ON THE  
EAST SIDE OF MANHATTAN ISLAND

Andrew J. Thomas, Architect

scale enterprise, and it suffers certain handicaps which can hardly be avoided in view of the extremely limited choice of large available sites in the heart of New York. The chief drawback is that the land is valuable, because it is a site for a large institutional building rather than stores. The store sites in the block on which the new project is situated are found at the other end, on First Avenue, which is a thriving avenue of trade and transportation, having good possibilities for commercial rentals. The project, therefore, cannot benefit from stores. This is another proof of the principle that the unit of housing is the city block, financially as well as architecturally.

For these reasons, a \$10 rental in the new project will hardly be possible. But even at a \$12 rental, it will reach a small percentage of wage-earners who are paying more for inferior homes, and it will be a bargain as compared with the two-family houses of shoddy construction in the outlying districts of Greater New York, which are being sold by speculators to wage-earners.

Architecturally, the building requires little explanation. Its economy of design is illustrated by the diagram of comparison of floor plan with the floor plan of the speculative type. A monumental feature of the design is the big garden court, which runs across the block, instead of longitudinally, as it would if the project included the whole block. The recessed courts on the side streets give openness and architectural interest to the street front. Perhaps the most novel point of the design is the small playground, in the form of a sunken garden, located in the rear yard, on a lower level than the garden. This playground feature Mr. Thomas introduced into the Bayonne housing. It is intended for the little children, taking them out of the streets from under the wheels of the automobiles.

This description of the Empire Mortgage Company's garden tenement brings the story of the efforts toward slum clearance in New York City up to the present time. One should not suppose, however, that slum clearance is the sole object in housing progress. There is a

strong body of opinion that the best method is to push the construction of garden housing in outlying sections of cities, where cheap land may be had within the limits of the 5-cent fare. Mr. Clarence Stein, who is Chairman of the N. Y. State Commission of Housing and Regional Planning, as well as architect of the City Housing Corporation, inclines to this view. Mr. Stein and the architects who agree with him, do not, be it understood clearly, share the unthinking views of some that the slums, having always existed, are a sort of necessity. He feels that the slums are a disgrace, not only the old ones, but also many of the newer housing which is still legal in New York, and which eventually would degenerate into slums. Mr. Stein's view is simply that the housing problem is so huge and so complicated, that there is room for more than one attack; that the method of building on outlying sections has been proved a success; and that this method is the easiest point of attack. Lastly, Mr. Stein points to European experience in slum clearance which has lately been turning towards this policy, the London schemes being largely suburban.

Here we have the clash of two schools, one which would directly attack the slums, and the other which would overcome them by a long flanking manoeuvre. It is not necessary to side with either school, since both are indispensable to housing. This paper deals with the clearance side, since the other side, which leans towards the garden city ideal, has been fully placed before the architectural profession in other articles.

Although interested in slum clearance, I greatly admire the garden city ideal. It has inspired the whole outlook on housing, and its theme of decentralization is an excellent policy, to be pursued wherever possible. But I do not believe that the garden city ideal should be taken too literally, because I doubt how far it rests on a fundamental analysis of the city. What is a city? What makes a city grow? What causes a city to arise in a given spot on the earth's surface?

Here are questions which need to be satisfactorily answered. It is understood

that the City Plan of New York, now being prepared by the Sage Foundation, will deal with these questions in exhaustive reports, and it is to be hoped that these researches and the resulting analysis will throw a clearer light on the character of a modern city.

Meanwhile, in default of such an analysis, the critic may point to certain significant facts. New York City—and other centers—is big, probably because it is a strategic transportation centre, a point where meet the chief trade routes of sea and land of the Western Hemisphere. This focal point acts as an attraction to millions of men and their activities, and a large part of their activity prospers through personal contact, a fact which causes concentration. Since New York is primarily a fine natural site for a seaport, it is topographically handicapped as an architectural site, since the water avenues cut the city in all places. Because of these conditions, congestion must be reckoned with. Even if we admit that the housing areas can be dispersed to the outskirts, to garden cities, there will always remain a huge body of workers who should be housed within walking distance of their work. In any great city, there are hundreds of thousands of men and women who work long hours, or are part time workers, who cannot spare the time required for commuting. But, what-

ever is the true effect of these factors, the main point is, that it may be some time before big cities in their present form, like London and New York, can be placed in the discard.

This, in brief, is the view of those who are urging slum clearance as a parallel policy to that of building on the outskirts. They feel that certain large housing areas should be provided near the centers, and that those which are slums should be put in order and not be allowed to remain plague spots for generations ahead.

But, whatever school one believes in, there can be no doubt that housing for wage-earners—of whatever type it is, so long as it is a sound type—can only be produced successfully on a scale big enough to include within the housing operation, all the possibilities of business income which the buying power of the people housed creates. When the cream is skimmed from tenement housing, as at present, housing is in the same primitive economic state as the meat industry was before the packers developed their intricate system of utilizing the by-products of the steer, sheep and pig.

With such impetus, and with the strides made in architecture towards perfecting the garden tenement, as exemplified in Bayonne, the lesson of the Empire Mortgage project will not be lost. Slum Clearance must press on to the goal.



# PAST WRITINGS ON MEDIÆVAL ARCHITECTURE

By  
Charles H. Moore

THE LITERATURE of mediæval architecture now bulks large and is daily increasing in volume, but it calls urgently for critical examination and correction; for it abounds in mistaken affirmations and groundless conjectures, which not only bewilder the novitiate student, but greatly mislead him. In the early decades of last century, when this literature began to take form, there was naturally little competence on the part of writers to deal with the subject. For since the so-called Italian Renaissance, mediæval architecture had long been overshadowed in popular esteem by what was thought to be a revived classic art, and when at length some interest in the surviving monuments of the middle ages began to awaken, there was no knowledge of their origin, their history or their principles to guide in the study of them. The writers were like mariners at sea without chart or compass, and did not perceive that in order to gain right understanding of the manifold styles confronting them, their first task must be to examine and compare the buildings with a view primarily to their respective modes of structure. It is important to note, too, that these writers handicapped themselves by a patriotic bias, which precluded that impartial spirit which is an indispensable condition of right approach to any subject. This bias is particularly marked in English writings, most authors of that country starting with a claim for their own country of superior merit and priority of achievement, as a few typical examples will show.

Rickman, for instance, one of the foremost of English pioneers in the field, begins his *Attempt to Discriminate*

*the Styles of Architecture in England* (first published in the year 1817) by saying: "The Science of Architecture . . . may be said to treat of the planning and erection of edifices, which are composed and embellished after two principal modes: 1st, The antique, or Grecian and Roman: 2nd, The English or Gothic." The writer offers no evidence in support of an English origin of what he calls Gothic, but says (p. 37): "In a work like the present, there will be little propriety in a lengthened disquisition on the origin of this mode of building; we shall therefore proceed to the detail of those distinctions, which, being once laid down with precision, will enable persons of common observation to distinguish the difference of age and style in these buildings, as easily as the distinction of the Grecian and Roman orders. It may, however, be proper to offer a few remarks on the use of the term English, as applied to that mode of building usually called Gothic, and by some the pointed architecture. Although perhaps it might not be so difficult as it has been supposed to be, to show that the English architects were, in many instances, prior to their continental neighbors in those advances of the styles about which so much has been written, and so little concluded; it is not on that ground the term is now used, but because, as far as the author has been able to collect from plates, and many friends who have visited the continent, in the edifices there . . . the architecture is of a very different character from that pure simplicity and boldness of composition which marks the English buildings. In every instance which has come under the

author's notice, a mixture, more or less exact or remote, according to circumstances, of Italian (*sic*) composition . . . is present; and he has little doubt that a *very* attentive observation of continental buildings called Gothic, would enable an architect to lay down the regulations of the French, German, and Italian styles, which were in use at the time when the English flourished in England."

In these remarks we note (1) That, ignoring structure as the first formative principal of a style, the author looks to unessential details for distinctive characteristics; (2) that he virtually affirms English priority in the making of Gothic art; (3) that he grounds his conclusions on second-hand sources of information—such as plates, and what friends have told him; and (4) his looseness of description, as "pure simplicity and boldness," which words convey no indication of specific architectural character.

Rickman's affirmations will not bear examination in the light of facts. The leading historical facts, well known but strangely ignored in this connection, are: (1) that with the Norman Conquest, an abrupt end was put to such primitive native activities in architecture as had before been carried on in the country, and (2) that not before the close of the thirteenth century, at earliest, were conditions in England such as could conduce to the rise of a native art. Mr. Freeman, in his *Norman Conquest*, has truly said: "for two hundred years after the Conquest, the history of England is not English history at all, but French history on English soil."\* It is therefore futile to affirm native origin for any post-conquest architecture in England earlier in date than the fourteenth century. The so-called early English style is not English, but Norman-French.

The Normans on settling in England, promptly took over all important building operations and introduced their own foreign style. This Norman style naturally followed in England essentially the same changes that marked its course in

Normandy, notwithstanding local differences of planning and proportions due to prevailing monastic influences.

The structural facts are equally clear, but in order to grasp them, we must give attention to the monuments of a kind that has rarely yet been manifested in writings on the subject. A broad survey of the mediaeval architecture of Western Europe in its totality, presents what at first appears a bewildering variety of forms, that seem hard to classify with precision. But if we grasp the fact that structure is the primary formative principle of any distinctive style, we shall find that they fall into two categories, one of which is structurally consistent in character, under whatever variations of form, and the other not so: these may be called respectively, the genuine and the spurious; and it will be found, further, that the spurious art in all countries and all epochs, bulks larger than that which is genuine. This matter cannot be discussed here, but it may be said that neglect of it is the principal cause of the confusion of ideas in past writings on the architecture of the middle ages.

Impartial examination with an eye to consistent structure will show that the Normans were not creative builders. The architecture which they brought into England is irrational in structure, and clearly manifests a would-be emulation of models whose principles they did not understand. These models are found in that organic vaulted architecture which, in the eleventh century, had taken form in North Italy, in the hands of the Lombard builders. This was the first architecture to manifest that creative faculty of the northern genius which, in its peculiar development of logical ribbed vaulting, ultimately produced the Gothic style of the Ile-de-France. The principles of the Lombard art were never understood by the Normans, who copied some of its structural features without perceiving their proper adjustments. The Norman works, whether in Normandy or in England, were never vaulted, save in aisles and apses, until a late period, and then rarely; and such vaulting as they did produce retains the ancient Roman

\*I quote from memory, but the remark may be readily verified.

conformation, and is, as originally built, without ribs—as we see in the aisles of the transept of Winchester. Yet vaulting shafts are freely introduced, but in such a way that they could not function in vaulting over naves. Neither English nor continental writers have taken account of these facts.

Rickman was followed by Whewell and Willis, both of whom, like Rickman, make the distinctive characteristics of a style to consist in minor details. Nevertheless they both show some recognition of structure in parts of buildings. Whewell, for example, in his preface to the first edition of his *Notes on German Churches*, makes the important observation, that the use of the pointed arch had its origin in "The necessity of having arches of equal heights with different widths" in vaulting; and rightly concludes that from the vaulting "this form of arch was gradually diffused into every other part of the building." But he does not perceive that this can be said only of the Gothic of the Ile-de-France. Whewell makes other significant remarks about structure in the larger sense of the whole system of building. In a footnote on page 20, he says: "it is suggested by a friend, that the distinctive principle of construction . . . appears to be the admission of oblique pressures, and inclined lines of support . . . The eye recognizes this statical condition in the leading lines of the edifice, and requires the details to conform to it." But his comments on the French monuments show little recognition of the natural results of this principle on developed Gothic building. For instance, speaking of Amiens and Beauvais, he says: "I may make an observation or two on the consequences of the enormous height which the French architects were fond of giving to their cathedrals. The effect, under various circumstances, is no doubt very striking; as, for instance, where we view them from a favourable position in the interior, and find the eye carried by their leading members from the floor along the graceful lines of tracery (*sic*) to the figured and coloured lights of the clerestory, and *further still* (*italics mine*)

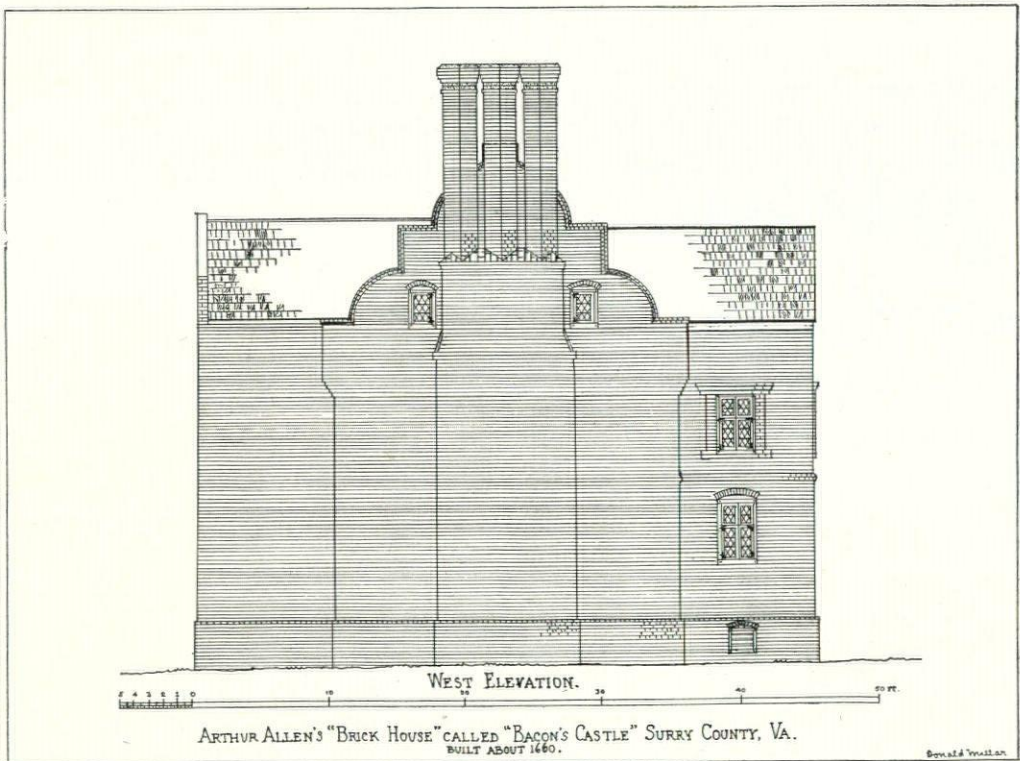
to the remote region of the vaulting lines—a region so distant, yet architecturally connected with the spot on which we stand; this configuration repeated by each of the compartments, under a varied perspectival aspect, produces an impression so different from that of smaller buildings, that it may be called magical." This description shows surprising ignorance as to the position of the vaulting in a Gothic building. It is of course impossible that the vaulting should be more remote than the clerestory, since it is of necessity *in* the clerestory and an integral part of it. But the remark that the higher parts of the fabric are architecturally connected with the spot on which we stand, is profoundly true because of the strictly logical character of the whole system, in which every part is organically connected with every other; but this can be said only of the Gothic of the Ile-de-France.

Again the writer says: "Externally also, when seen at a distance, rising over the tallest houses and trees of the city . . . the appearance of such a church is truly amazing. But when we come to look steadily . . . at this mass, we see that its height has extinguished all possibility of well proportioned dimensions and parts. Amiens, which is as long as some of our largest cathedrals, looks short, and Beauvais, having no nave, is absolutely shapeless. Moreover, the enormous height of the roof, which has no architectural character, is very fatal to grace, and the vertical and flying buttresses which rise around the building are so many and so large that they utterly obliterate its outline. At Beauvais, the buttresses . . . have at a distance, . . . the effect of, what they really are, an exterior scaffolding of stone." This takes no account of the fact that the buildings spoken of were never completed according to one original scheme. In the fragmentary state in which they stand, they cannot be judged as to proportions; for in any art, the proportions of every part are dependent on all other parts in the total composition. Then, too, it is incorrect to say that the buttress systems, which are erroneously likened to

scaffolding, obliterate the outline of the building. The abutments are not scaffolding, but integral parts of the structure, and contribute, as much as anything else, to the proper outlines of the building. Such criticism would be too shortsighted and amateurish to be worthy of notice, were it not so characteristic of past writ-

ings on the subject. The acuteness of Whewell's remark as to the origin of the use of the pointed arch as a means of meeting the structural exigencies of vaulting on the new principle, would naturally lead us to expect more discernment with regard to the Gothic system, taking it as a whole.

(To be continued)



See "Notes and Comments," page 285 of this issue

# The LIBRARY OF THE ARCHITECT



By  
*A Lawrence Kocher*

## PART VII

### SELECTED LIST OF STANDARD WORKS RELATING TO ARCHITECTURE AND INTENDED FOR OFFICES OF ARCHITECTS

This list of books on architecture was prepared with the advice of prominent architects of the United States and England and is intended to include such fundamental works as the practicing architect and the draftsman will find helpful. It is not a complete bibliography of the subject, but rather an approved list of the most useful standard publications.

#### ENGLAND, SCOTLAND, IRELAND

ADAM, R. AND J. Works in architecture. Containing plans (etc.) of the principal buildings erected in Great Britain in the reign of George III. London, 1773-1822. 3 v.

ADDY, S. O. The evolution of the English house. London, 1898.

ALLEN, GORDON. The cheap cottage and small house. London, 1919. \$3.75.

AMBLER, LOUIS. The old halls and manor houses of Yorkshire. London, 1913. \$18.00.

Illustrating houses built before the year 1700. Photogravures and measured drawings.

ARCHITECTURAL ASSOCIATION SKETCH BOOK. London, 1867-1917. 42 vols. to date.

BELCHER, JOHN, and MERVYN MAC-ARTNEY. Later Renaissance architecture in England. London, 1901. 2 v.

Examples of the domestic buildings erected subsequent to the Elizabethan period.

BLOMFIELD, SIR REGINALD THEODORE. A history of Renaissance architecture in England, 1500-1800. London, 1897.

BOLTON, ARTHUR T. The architecture of Robert and James Adam. 1758-1794. London, 1922. 2 v. \$60.

The most complete and authoritative work on the Adam brothers.

BOND, FRANCIS. An introduction to English church architecture from the 11th to the 17th century. Oxford, 1913. 2 v.

———— English cathedrals. London, 1899.

———— Gothic architecture in England. London, 1905.

———— Wood carving in English churches. London, 1910. 2 v.

BOWMAN, H., AND J. S. CROWTHER. The churches of the middle ages. London, 1857. 2 v.

BRANDON, R., AND J. A. BRANDON. Analysis of Gothic architecture. London, 1847.

———— Paris churches. London, 1858. 2 v.

———— The open timber roofs of the middle ages. London, 1849.

BRIGGS, R. A. Essentials of a country house. London, 1911.

BRITTON, J. Cathedral antiquities of England. London, 1814-35. 6 v.

———— The architectural antiquities of Great Britain. London, 1835. 5 v.

CAMPBELL, C. Vitruvius Britannicus, or the British architect. London, 1715-25. 3 v.

COLLING, JAMES K. Details of Gothic architecture. London, N.D. 2 v.

COX, J. C. English church fittings, furniture and accessories. London, 1923.

———— The English parish church. London, 1914. \$3.50.

An account of the chief building types and their materials during nine centuries.

CRAM, RALPH ADAMS. Ruined abbeys of Great Britain. N. Y., 1905.

CROSSLEY, FRED. H. English church monuments, A.D. 1150-1550. London, 1921.

A study of tombs and effigies of the medieval period.

DAWBER, E. GUY AND W. GALS-WORTHY DAVIE. Old cottages and farm houses in Kent and Sussex. London, 1900. \$30.00.

DAWBER, E. G. Old cottages, farm houses and other stone buildings in the Cotswold district. London, 1905.

DENING, C. F. The eighteenth century architecture of Bristol. Bristol, 1923. \$17.50.

Photographs and measured drawings; chiefly Georgian monuments.

DOLLMAN, F. T., AND J. R. JOBBINS. An analysis of ancient domestic architecture exhibiting the best existing examples in Great Britain. London, 1861. 2 v.

ENGLISH COUNTRY HOUSES. Boston, 1901.

FIELD, HORACE, AND M. BUNNEY. English domestic architecture of the 17th and 18th centuries. London, 1905.

GARNER, THOMAS, AND ARTHUR STRATTON. The domestic architecture of England during the Tudor period. London, 1911. 2 v.

A series of photographs and measured drawings of country mansions, manor houses and smaller buildings, with historical and descriptive text. \$25.00.

A selection of photographs and measured drawings from GARNER AND STRATTON'S work. Boston, 1923. \$10.00.

GIBBS, JAMES. A book of architecture, containing designs of buildings and ornaments. London, 1728.

A work widely followed by seventeenth century builders in America.

GOTCH, JOHN ALFRED. Architecture of the Renaissance in England. London, 1894. 2 v.

Early Renaissance architecture in England. London, 1901.

The growth of the English House. London, 1909.

HALL, SAMUEL CARTER. The baronial halls and ancient picturesque edifices of England. London, 1881. 2 v.

HARVEY, WILLIAM ALEXANDER. The model village and its cottages; Bournville. London, 1906.

HOLME, CHARLES. Old English Mansions. London, 1915.

A condensed compilation of the works of C. J. Richardson, J. D. Harding, Joseph Nash, H. Shaw and others.

HOPKINS, ALFRED. The English Village Church. N. Y., 1921.

HOWARD, F. E. AND FRED H. CROSSLEY. English church woodwork, 1250 to 1550. London, 1917.

INNOCENT, CHARLES FREDERICK. The development of English building construction. Cambridge, 1916.

JOURDAIN, M. English decoration and furniture of the later 18th century. (1760-1820) London, 1922. \$16.00.

English interiors in smaller houses. N. Y. and London, 1923. \$10.00.

LATHAM, CHARLES. In English homes; the internal character, furniture and adornment of some of the most notable houses of England . . . London, 1904-09, 3 v.

LOFTIE, WILLIAM JONES. Inigo Jones and Christopher Wren; or the rise and decline of modern architecture in England. London, 1893.

LONDON COUNTY COUNCIL; a comprehensive compendium of monuments in the London district. London, 1900-24. vols. 1-9. \$95.00.

MACARTNEY, MERVYN E. Recent English domestic architecture. Westminster, N.D. vols. 1-6.

The practical exemplar of architecture. London, N.D. Series of six portfolios.

Measured drawings and photographs of English architecture, largely of the seventeenth and eighteenth centuries.

MARRIOTT, CHARLES. Modern English architecture. London, 1924.

MOORE, CHARLES H. The medieval church architecture of England. N. Y., 1912.

NASH, J. The mansions of England in the olden time. London, 1839-49. 4 v.

PALEY, F. A. A manual of Gothic moldings. London, 1865.

PALLADIO, ANDREA. The four books of Andrea Palladio. With notes and

added illustrations by Isaac Ware. London, 1738.

PHILLIPS, RANDALL. Small family houses. London, 1924.

PRIOR, EDWARD S. A history of Gothic art in England. London, 1899.

———. The cathedral builders in England. London, 1905.

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# P O R T F O L I O

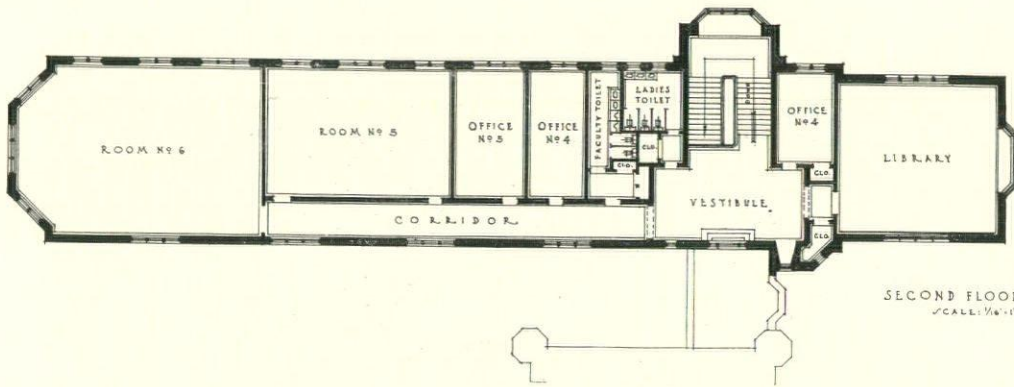
## C V R R E N T A R C H I T E C T V R E



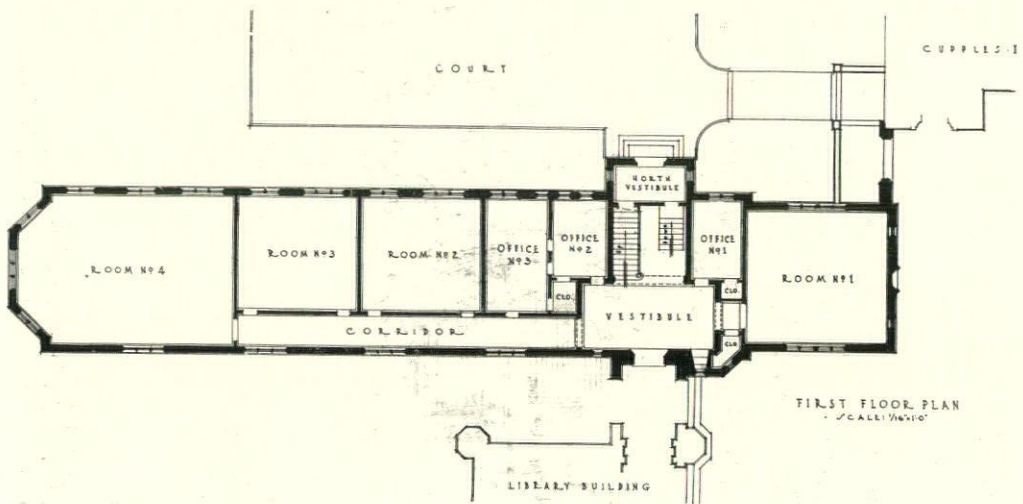
North Entrance

DUNCKER HALL OF COMMERCE AND FINANCE, WASHINGTON UNIVERSITY  
ST. LOUIS, MISSOURI

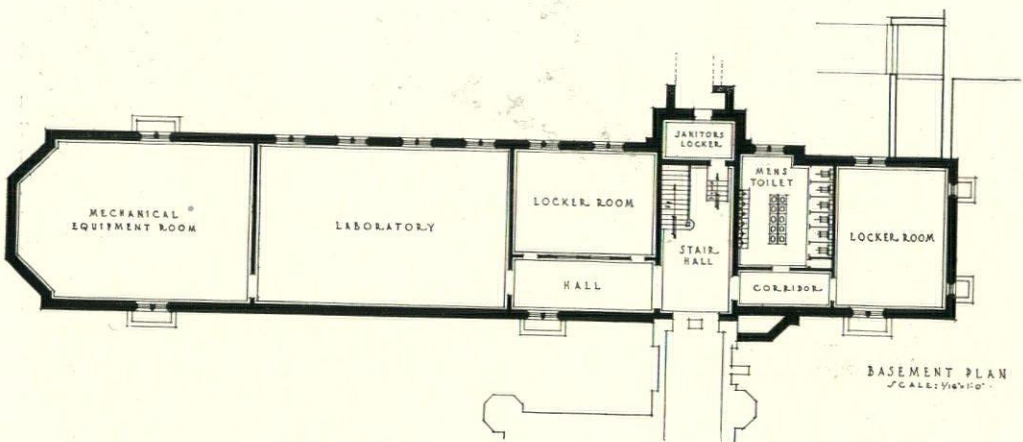
Frank Cann and Angelo Corrubia, Architects  
Jamieson and Spearl, Consulting Architects



SECOND FLOOR PLAN  
SCALE: 1/8" = 1'-0"



FIRST FLOOR PLAN  
SCALE: 1/8" = 1'-0"



BASEMENT PLAN  
SCALE: 1/8" = 1'-0"

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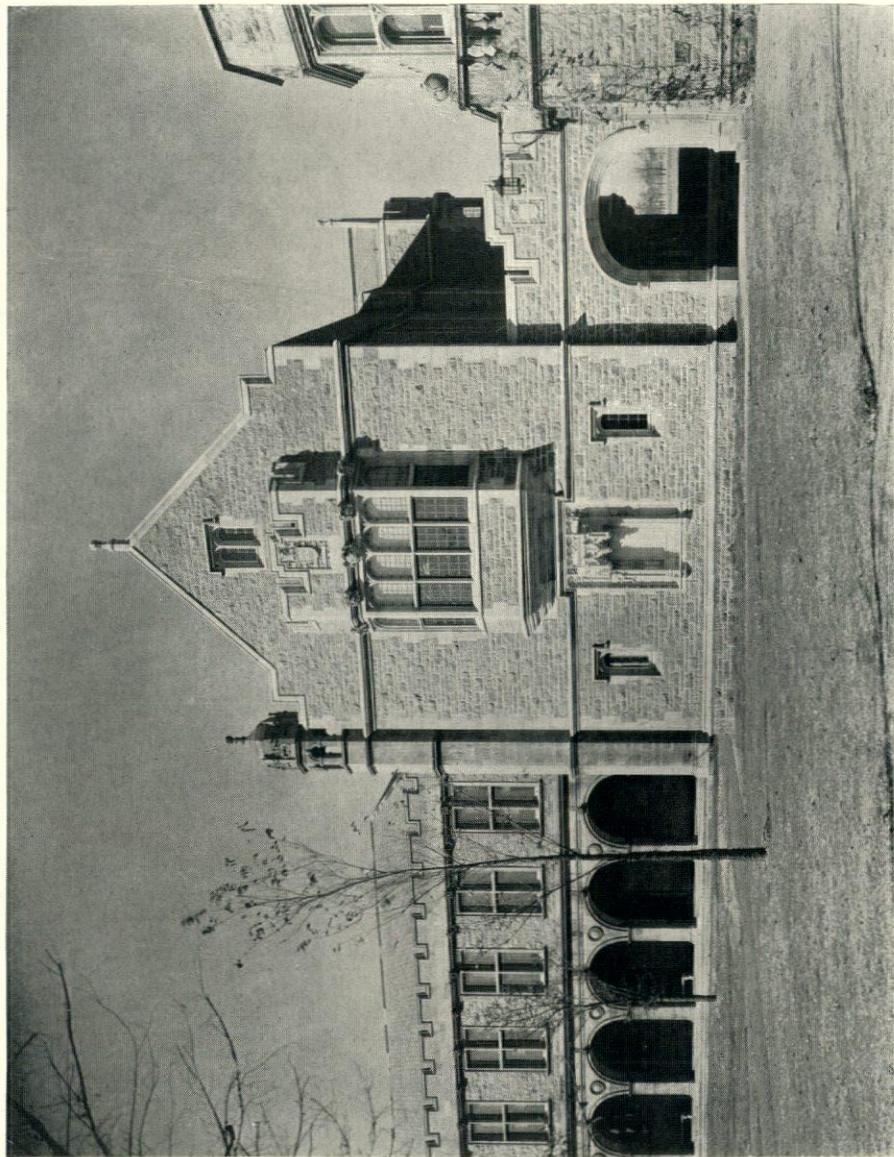
Frank Cann and Angelo Corrubia, Architects  
Jamieson and Spearl, Consulting Architects



Memorial Tablet  
DUNCKER HALL OF COMMERCE AND FINANCE, WASHINGTON UNIVERSITY  
ST. LOUIS, MISSOURI

Frank Cann and Angelo Corrubia, Architects  
Jamieson and Spearl, Consulting Architects

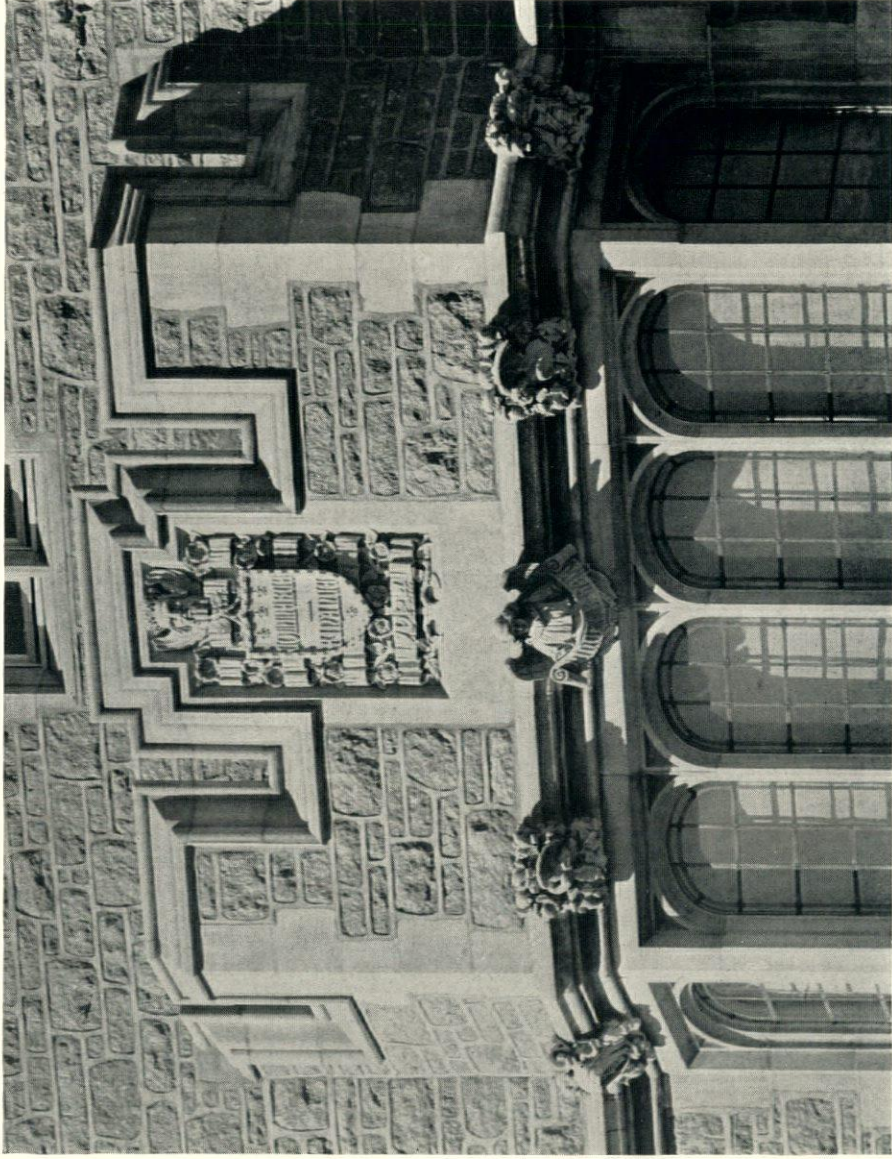




East Elevation [Facing Main Quadrangle]  
DUNCKER HALL OF COMMERCE AND FINANCE, WASHINGTON UNIVERSITY  
ST. LOUIS, MISSOURI

Frank Cann and Angelo Corrubia, Architects  
Jamieson and Spear, Consulting Architects





Upper Part of East Oriel  
DUNCKER HALL OF COMMERCE AND FINANCE, WASHINGTON UNIVERSITY  
ST. LOUIS, MISSOURI

Frank Cann and Angelo Corrubia, Architects  
Jamieson and Spearl, Consulting Architects







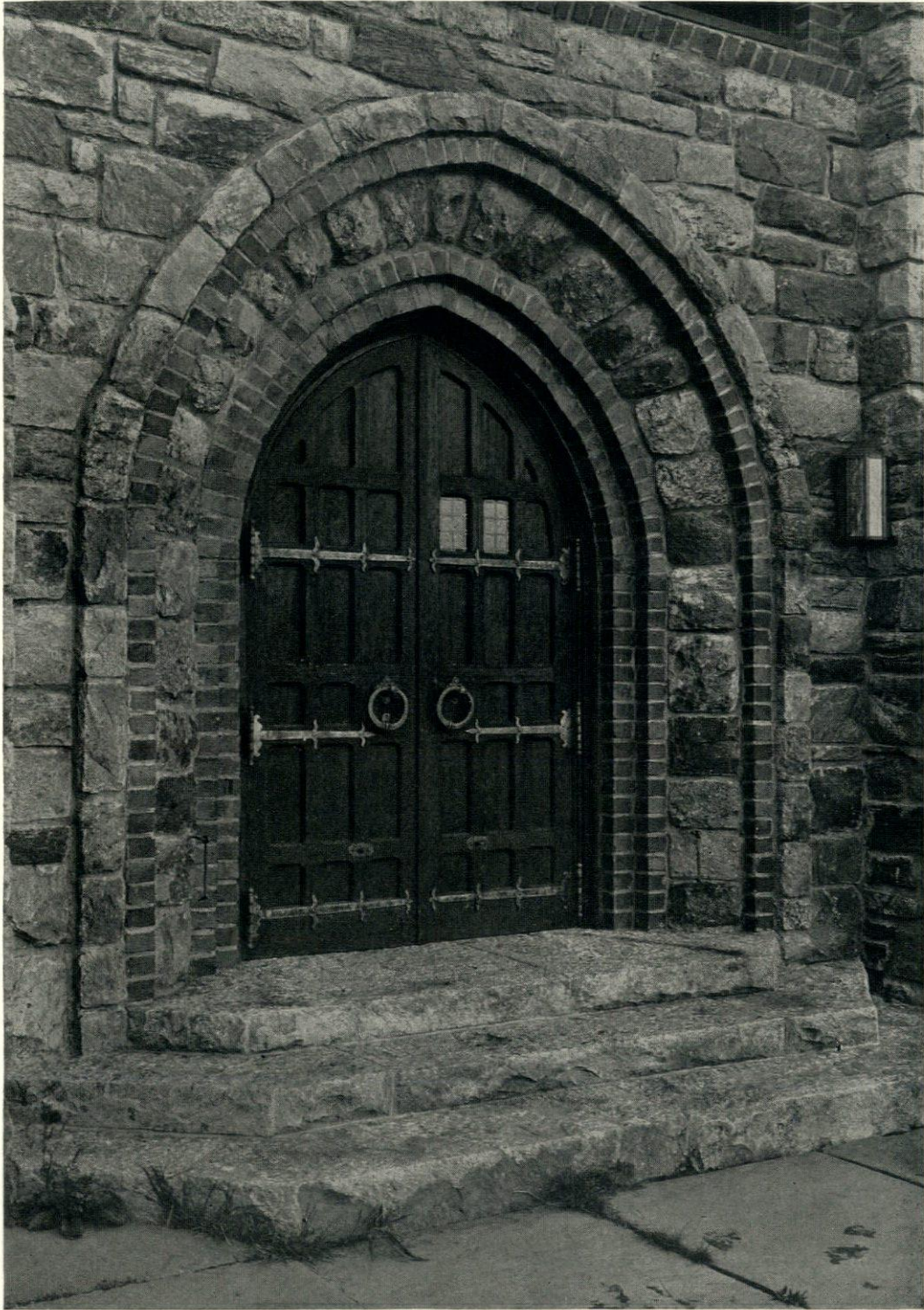
View from Summer House  
WORTHINGTON HOUSE, PITTSBURGH, PA.  
Louis Stevens, Architect





End of Library Through Murdoch Street Entrance Gate  
WORTHINGTON HOUSE, PITTSBURGH, PA.  
Louis Stevens, Architect





Entrance Detail  
CHURCH OF ST. JOHN AND ST. MARY, CHAPPAQUA NEW YORK  
Raphael Hume, Architect





Belfry and Side Entrance  
CHURCH OF ST. JOHN AND ST. MARY, CHAPPAQUA, NEW YORK  
Raphael Hume, Architect





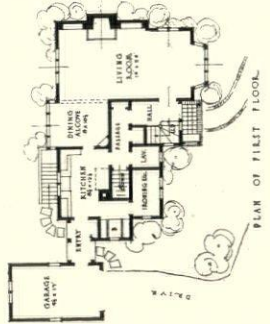
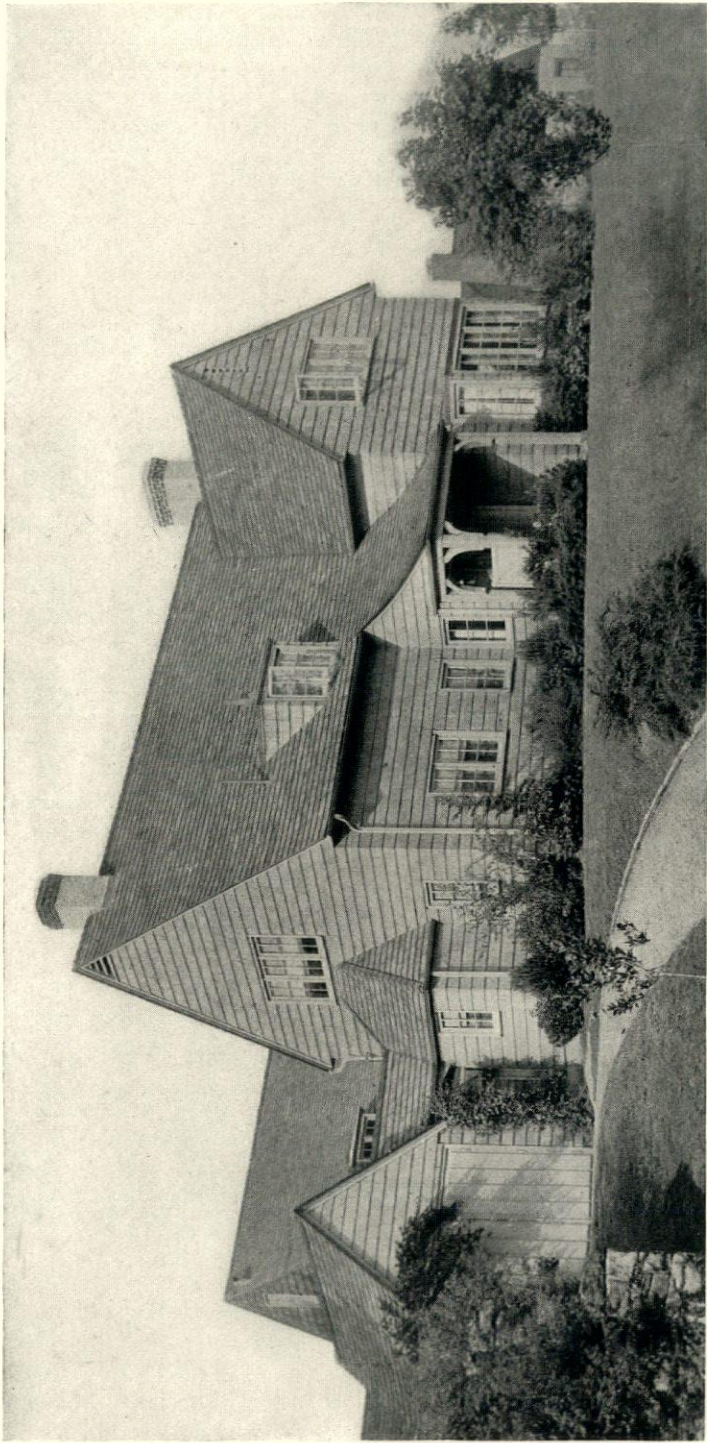


Interior

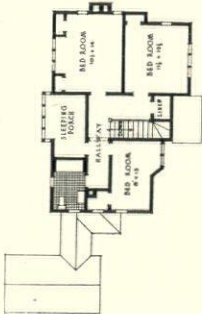
CHURCH OF ST. JOHN AND ST. MARY, CHAPPAQUA, NEW YORK

Raphael Hume, Architect





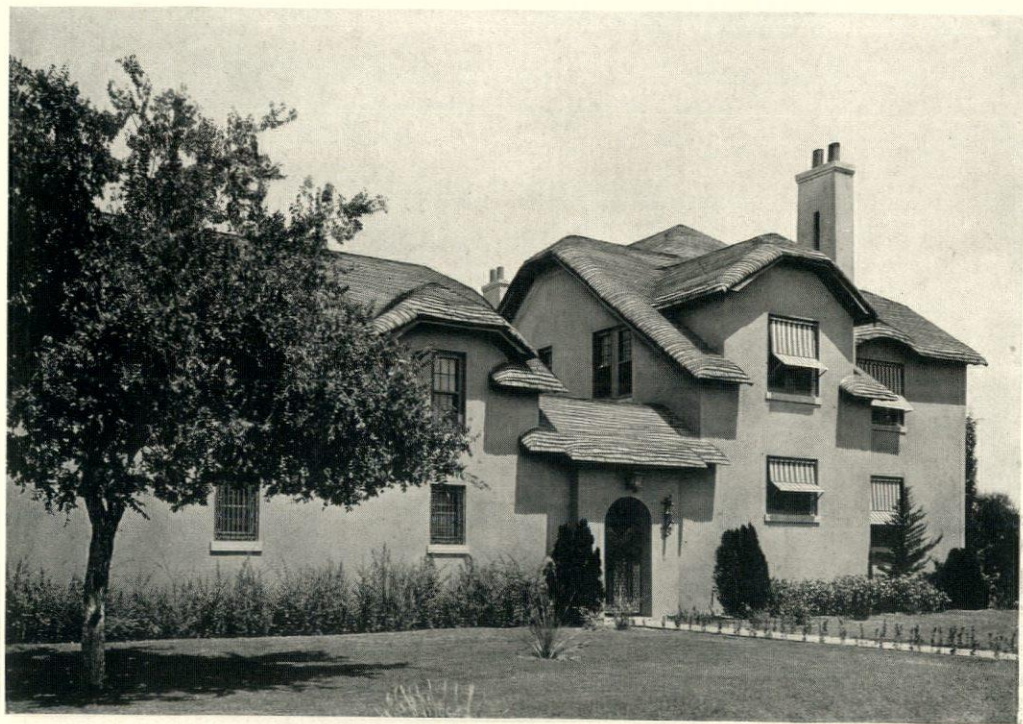
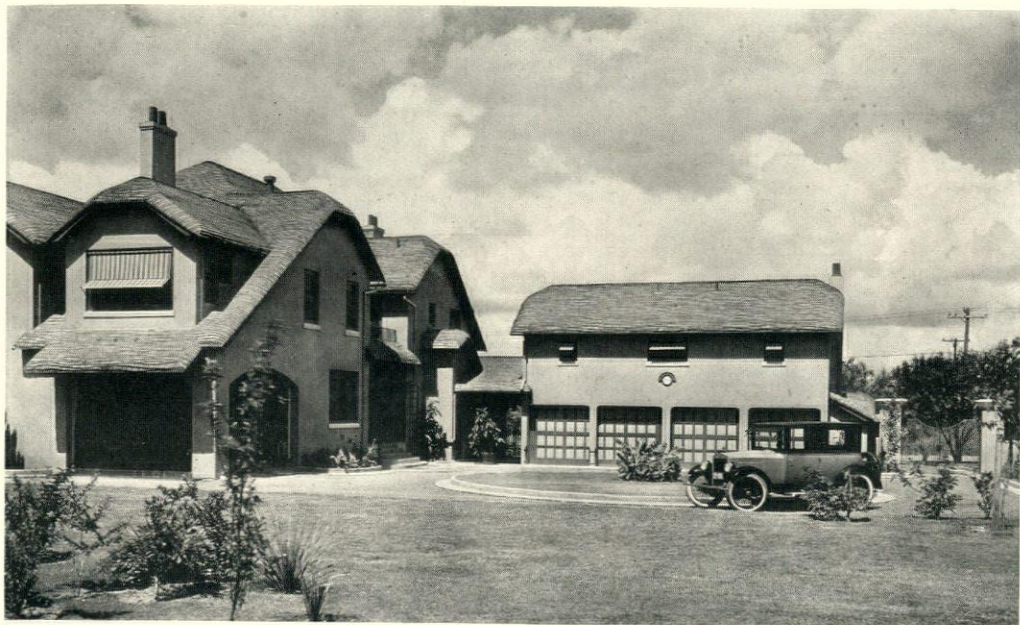
PLAN OF FIRST FLOOR.



PLAN OF SECOND FLOOR.

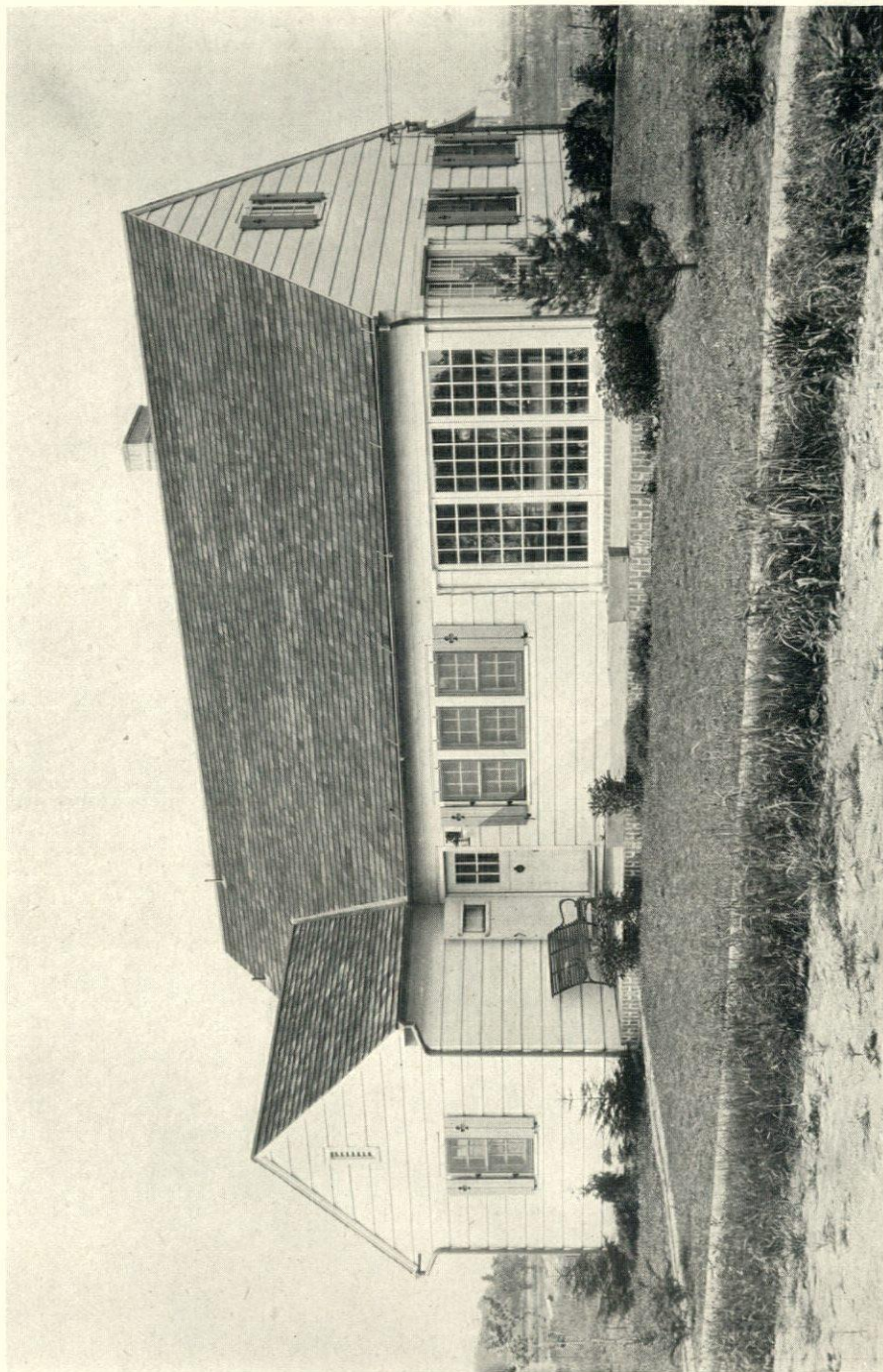
RESIDENCE OF ELMER E. YOUNG  
EASTMORELAND, PORTLAND, OREGON  
Harold W. Doty, Architect



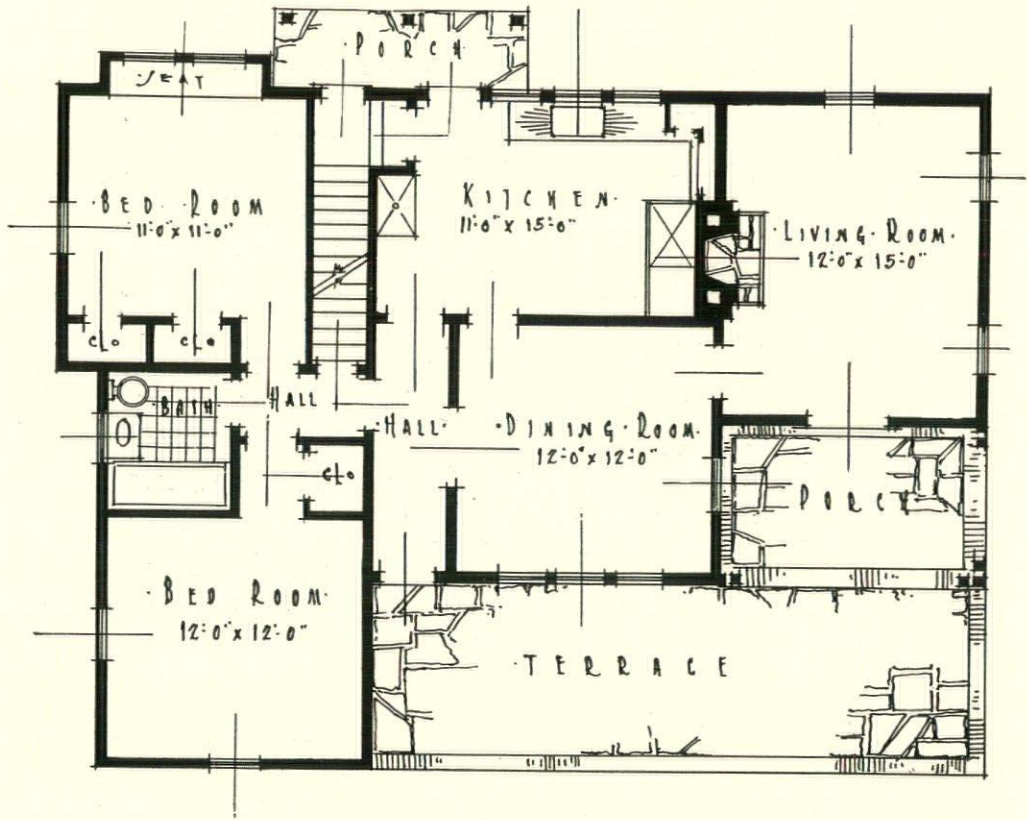


RESIDENCE OF COL. F. J. COMBE, SAN ANTONIO, TEXAS  
The Russell Brown Company, Architects





RESIDENCE OF FRANK CHLUMSKY, ESQ., HICKSVILLE, L. I.  
Otto Preis, Architect



Floor Plan  
 RESIDENCE OF FRANK CHLUMSKY, ESQ., HICKSVILLE, L. I.  
 Otto Preis, Architect





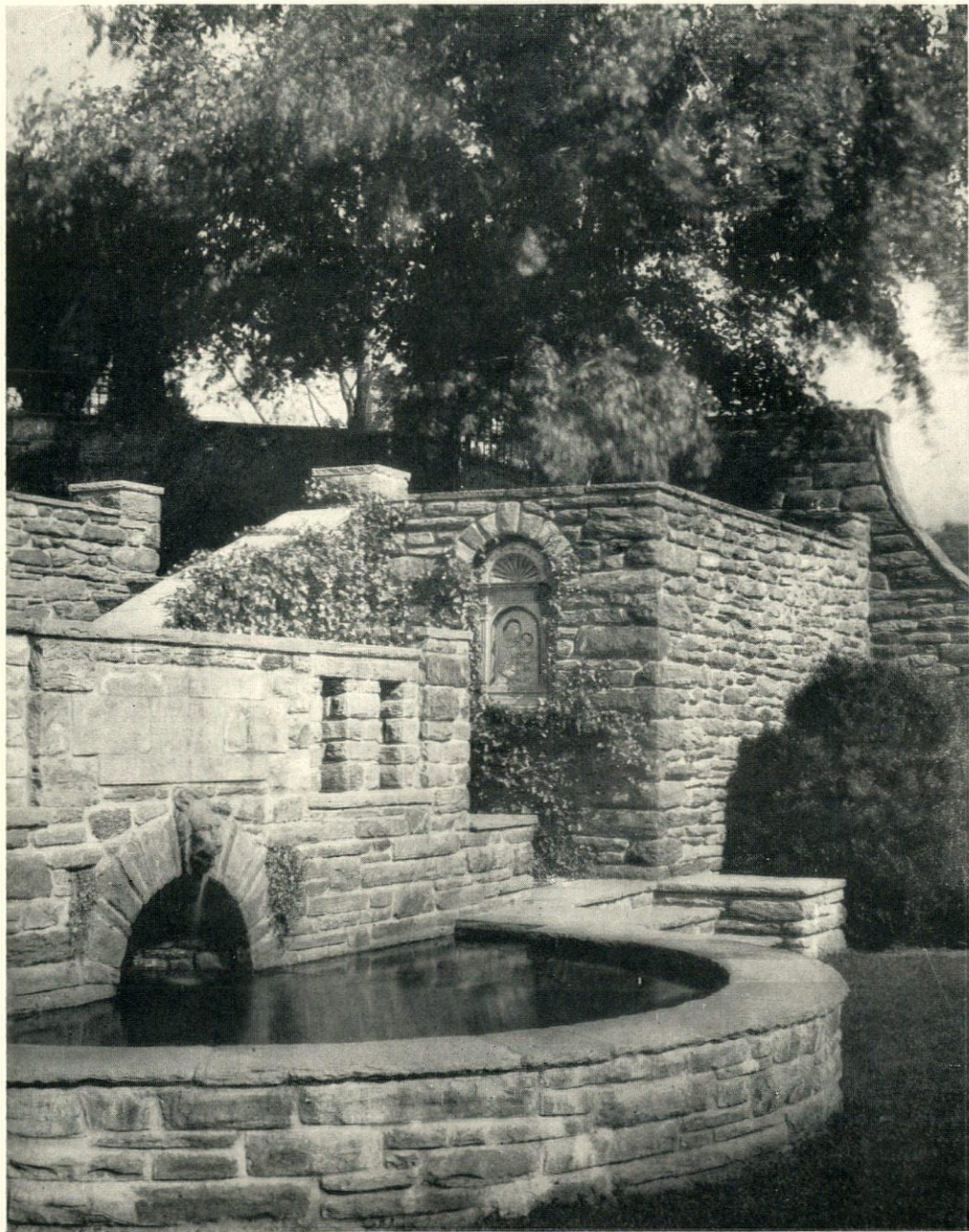
Green Garden and Pool  
ESTATE OF S. F. HOUSTON, ESQ., ST. MARTIN'S, PA.  
Robert R. McGoodwin, Architect





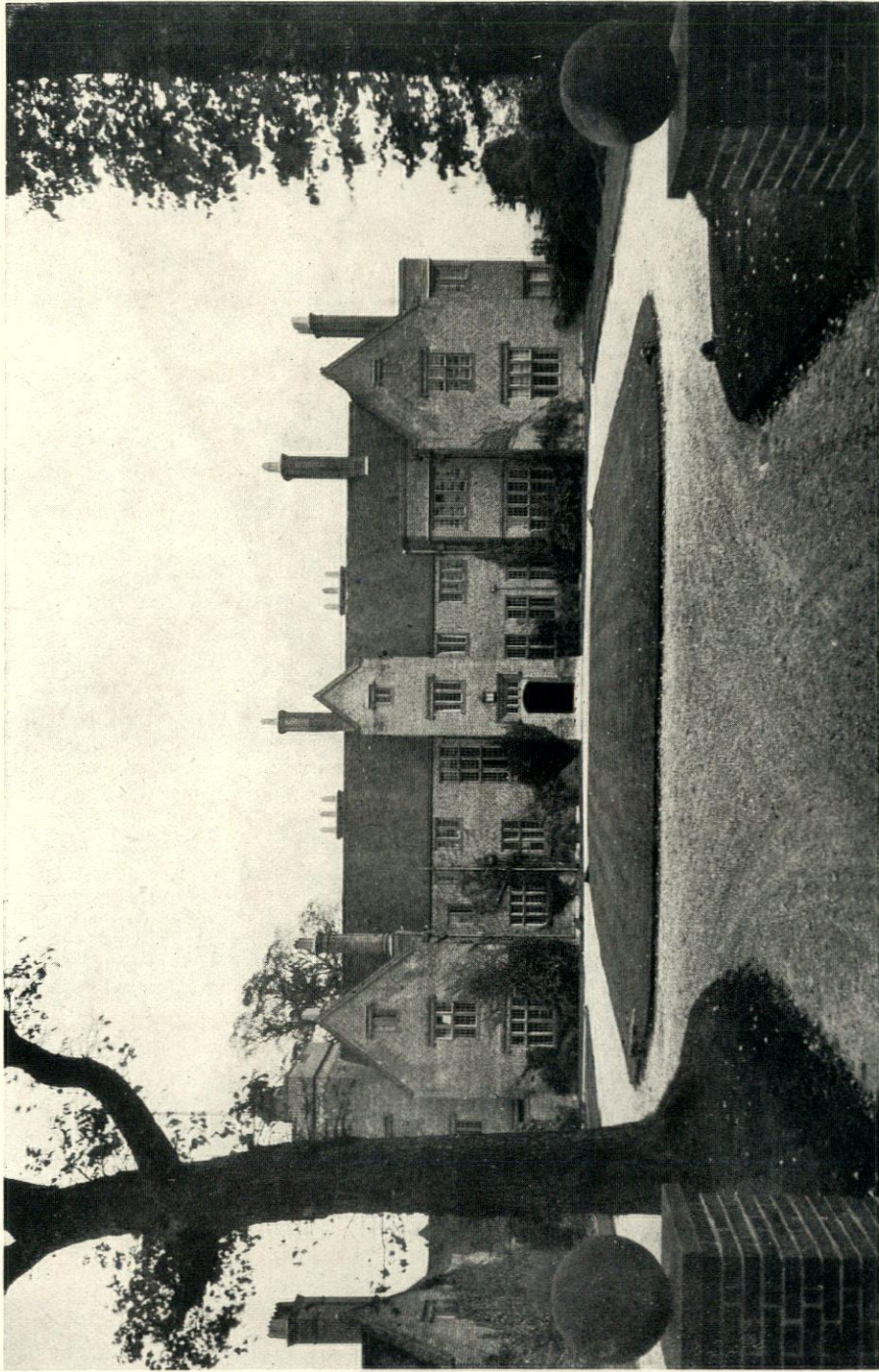
Steps from Upper Garden  
ESTATE OF S. F. HOUSTON, ESQ., ST. MARTIN'S, PA.  
Robert R. McGoodwin, Architect





Garden Steps and Semi-Circular Pool  
ESTATE OF S. F. HOUSTON, ESQ., ST. MARTIN'S, PA.  
Robert R. McGoodwin, Architect





Forecourt and West Front  
HONILEY HALL, KENILWORTH, WARWICKSHIRE  
C. E. Bateman, Architect





# The ATLANTA SCHOOL BUILDING PROGRAM

By *A Ten Eyck Brown*  
*Supervising Architect of the Board of Education*

REALIZING the deplorable condition of the school buildings in Atlanta, the Board of Education, together with the Superintendent of Schools and other department heads, agitated the question of means for the remodeling of certain old school buildings and the construction of new ones. This agitation resulted in the authorization of a bond issue for eight million dollars, four million of which was for building and enlarging existing schools.

The first action taken, after thorough investigation throughout the country, was the employment of school experts or educational engineers headed by Dr. George W. Strayer and Dr. N. L. Engelhardt, of the Teachers' College, Columbia University, whose years of experience and technical knowledge made them competent to handle the matter. This organization surveyed the situation covering location and density of the various classes of school population and developed the necessity for additions to certain buildings, for new buildings in some cases, demolition of existing ones in other cases, in order to accommodate the existing school population and provide for a definite increase for a certain number of years to come. The investigation also covered the remodeling of the system itself, not only the physical requirements, but the educational, as it was decided to change the system from grammar schools and senior high schools to grammar schools with kindergartens, or elementary schools, junior high schools and senior high schools.

The survey of the experts resulted in the recommendation of the adoption of the above system, and consisted of the enlargement of three elementary schools and the building of nine new ones; four junior high schools and two senior high schools, with suggestions as to their proper location in relation to school pop-

ulation, approximate present requirements and approximate ultimate size, in order that the program could proceed to a certain stage within the limits of the bond issue.

This recommendation accomplished the enlargement of the three schools, including all the requirements for class rooms and offices, auditoriums and gymnasiums; while in the case of the nine new elementary schools, eventually to contain thirty class-rooms, about 50 per cent. of the requirements were completed. The junior and senior high schools were also planned for their ultimate needs, but only the class room units were recommended at this time, leaving the auditoriums and gymnasiums to be built out of a future bond issue. To have completed all of these projects would have involved an expenditure of ten million dollars, while the net result of the recommendation showed an expenditure of approximately five million dollars for actual construction and lots for the first units.

The Bond Commission took up with the Georgia Chapter of the American Institute of Architects the question of an organization for the designing and construction of the schools and requested their careful investigation of the situation and recommendations as to how the matter could be handled to the best advantage of the program, and with the employment of local qualified members of the profession.

In order for the commission to follow out its ideas of operation and to conserve the interests of the profession as much as possible, the following scheme of operation was adopted:

A supervising architect was appointed, whose duties were to consist first of a plan for the rating and appointment of local architects for the different projects; second, the carrying out of the recommendations of the educational engineers

in consultation with them, as they were retained by the Commission to suggest requirements for the various buildings in detail, to criticise and make suggestions in reference to preliminary drawings for each project, and finally to go over the working drawings and specifications to see that they conformed to the technical requirements from their point of view as educational engineers—in other words, they were in constant touch with the work as technical advisers, and the supervising architect acted in the main as an owner would with technical knowledge, issuing instructions to the project architects in all details in order to forward the work along the most economical, rapid and systematic lines.

In order to properly rate the local architects, questionnaires were issued covering their education, experience and organization, especially along the lines of school work, the question as to organization being for the purpose of developing their ability to carry out certain projects promptly and efficiently, either with the force at their disposal or to develop their ability to increase this force to the desired dimensions. With this questionnaire there were also submitted plans, specifications and photographs of a school building the architect had designed, or of a building of a character as nearly as possible like a school, in order that the supervising architect and the Commission could judge the qualifications of the applicant from actual construction, or from the method and character of production of plans and specifications in a general way—as far as possible.

As there were twelve elementary buildings, four junior high buildings and two senior high buildings to be constructed, it was, of course, only possible to use this number of architects, but in the case of the two larger senior high schools, the leading firms of architects were given charge of them, with another firm whose experience was more along engineering lines, as associate.

After the appointment of architects and the selection of sites, surveys were turned over to them, together with a detailed program of the requirements for

their respective buildings. Preliminary sketches were then submitted to the supervising architect, and were gone over by him in consultation with the heads of the School Department and the educational engineers. Changes and alterations were necessary in some cases, and remodeled studies were re-submitted until a satisfactory solution of each problem was attained, when instructions were issued to proceed with the preparation of working drawings, specifications, details, and other necessary material.

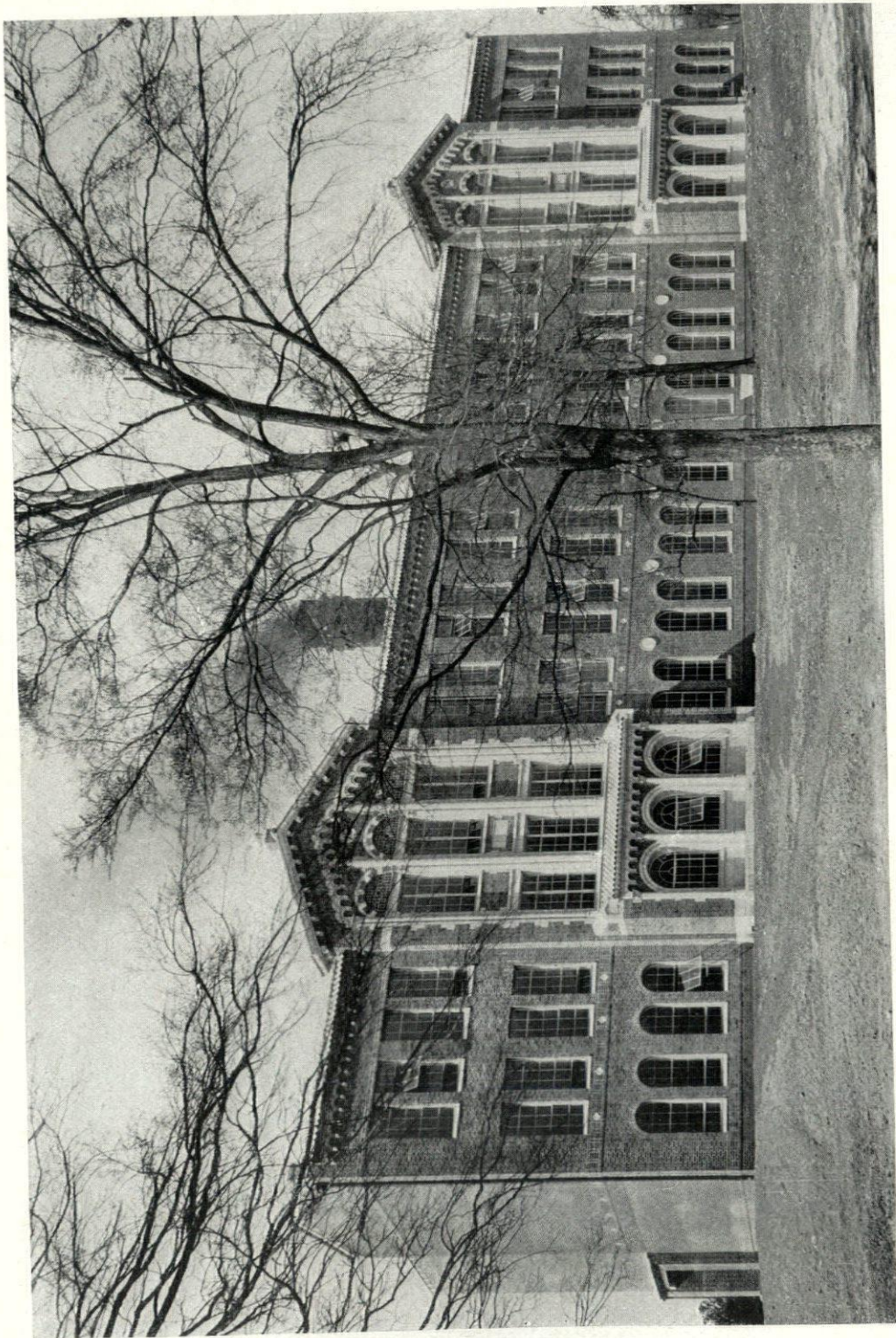
The question of standardization of methods and production of the general contract drawings was given a great deal of consideration, as was the method of designing and specifying the structural and mechanical engineering features.

In order that each project architect might work along logical lines the several structural engineers standardized their methods of construction, as did the mechanical engineers on the plumbing, heating and electrical work. The methods pursued for engineering services worked out so as to enable one engineer to cover three or four projects, except the two larger ones, which naturally had individual engineers.

Subsequent to the instructions to proceed with the working drawings, in order to systematize the entire operation on the same basis, a series of bulletins was issued by the supervising architect, copies of which went to each project architect, the educational engineers and the school authorities, so that everyone concerned was informed of every action before it took effect.

By this system of bulletins, standardization in detail was kept before everyone concerned from the inception of the program. This covered not only standardization of design, plans and material, but typical details of class room construction, corridor, stairway and toilet construction, and laboratory and special rooms construction throughout. In addition to this the methods to be followed after the letting of a contract were also clearly outlined in the bulletins.

Upon the completion of the working drawings and specifications for each proj-



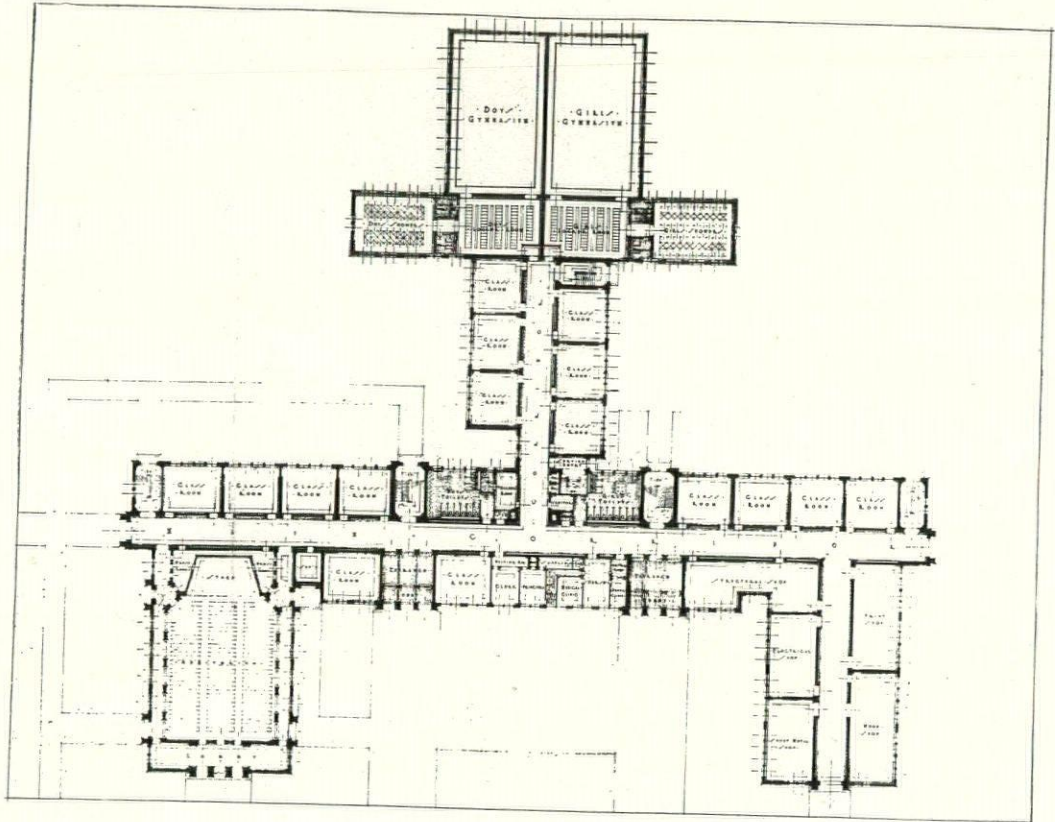
March, 1925

*The Architectural Record*

JOSEPH E. BROWN JUNIOR HIGH SCHOOL, ATLANTA, GA.

Warren C. Powell, Architect

A. Ten Eyck Brown, Supervising Architect



Floor Plan

JOSEPH E. BROWN JUNIOR HIGH SCHOOL, ATLANTA, GA.

A. Ten Eyck Brown, Supervising Architect.

Pringle and Smith, Architects

ect, before they were inked in, they were turned over to the supervising architect for a final check as to design, material, standardization of detail, etc., and when approved the project architect was given instructions to complete them and make a certain number of blue prints, which were turned over to the supervising architect's office.

After receipt of this material official advertisements were issued for estimates, and in this connection it might be interesting to note that three different kinds of bids were received on the formal bid blanks issued on each project, covering first, a lump sum contract, second, a cost plus percentage, third, cost plus a fixed fee. In the case of the cost plus percentage and cost plus a fixed fee, the ulti-

mate cost was to be guaranteed not to exceed the original lump sum figure, with the final result that all of the work was let on the cost plus a fixed fee basis, with the lump sum as a guaranteed upset figure, and any savings were to be divided 75% to the owner and 25% to the contractor. This method covered, however, only the general contract, as the mechanical work was all let separately on lump sum contracts.

The necessity for this form of contract was apparent from the beginning, as it would be in most structural problems, as it was seen that the desired results could not be attained without practice of the most rigid economy.

Each contractor submitted a complete itemized schedule of unit costs totaling

the full amount of his contract, at the time it was signed. Before any sub-contracts were let or orders were issued for material new estimates were secured, based sometimes on changed conditions, or a restudy of requirements, or the substitution of other material than that specified; the net results of which was a saving of from 5 to 10 per cent. on all projects on the general contract work, which enabled the Commission to carry the program to completion without securing additional funds other than those covered by the original bond issue, although the purchase of property over-ran the amount estimated in the original schedule covering the projects themselves in detail.

After the award of a contract, the preparation of contract documents, bond, etc., was performed in the office of the supervising architect, as were most of the administrative details of the work, except supervision of construction on the ground, which was done by each project architect, or his assistants.

As each sub-contract was let and each order for material was definitely decided upon, forms of purchase orders were supplied to the contractor in triplicate, one of which went to the successful bidder, one to the supervising architect, and one was retained by the general contractor and placed in his record files.

All credit and extra orders were made on similar forms and the same method was pursued, so that a constant account was kept in the Auditor's office and by this method of orders the files of all subjects were almost always complete.

In order to systematize the production of drawings, keeping of records, progress schedules, photographs, estimates, payments, etc., a scheme was drawn up covering these items in detail and each project architect was supplied with forms covering the daily and weekly reports, the submission of photographs every two weeks and submission of estimates for checking every two weeks to the supervising architect, whose duty it was to issue the certificates for payments on all projects that were under way.

In order to carry on the administrative part of the work it was necessary for the

supervising architect to have an organization of superintendents covering general contract work, and mechanical work, a general office for the keeping of records, issuance of orders, etc., and an auditing office for the keeping of a complete set of books on each project. the checking of sub-contracts, orders for material and payments upon same when due.

As a result, the supervising architect on the completion of the entire program was able to submit a complete report in detail to the Commission, showing expenditure of every penny from start to finish, together with the net cost of each project and the amount of saving.

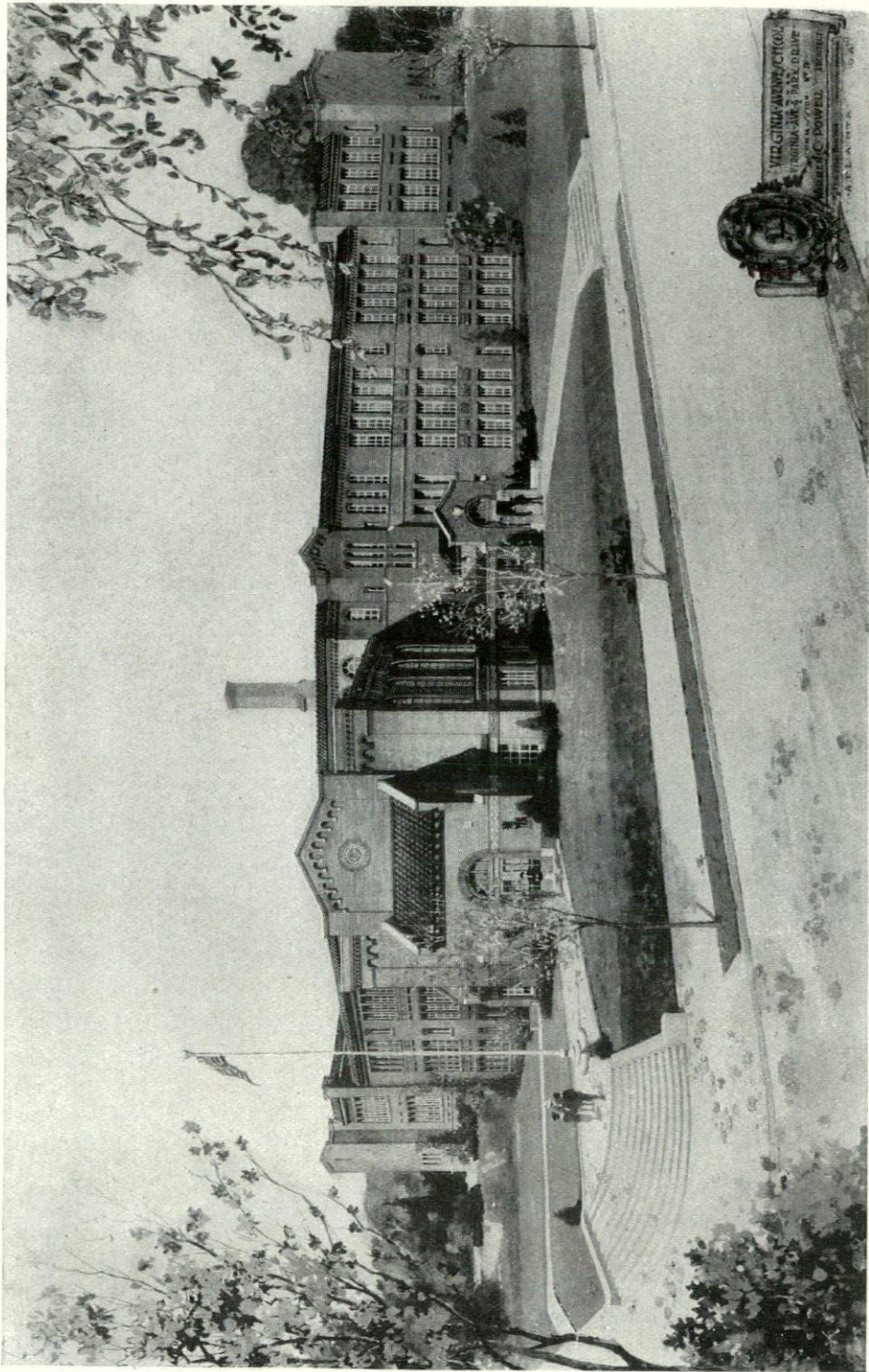
Not only was this useful in taking care of the matter on a businesslike basis, but when a saving was made on one project, and an additional expenditure necessary on another, it was quite possible to re-apportion these amounts in a logical manner, with a complete avoidance of the usual difficulties and delay in public work.

It is not intended to give the impression that any one person connected with this work controlled it entirely, or performed the entire service. Each architect was responsible for the production of his plans and specifications and for the construction of his project in accordance with them from start to finish, all of this work, however, going forward in close touch with the office of the supervising architect, in order that the final results might be as comprehensive and complete as it was possible to make them.

Although there is nothing particularly original about these methods, their practical results possibly justify touching on the detail pursued, especially in the standardization of the design and specifications covering general and mechanical work.

As to design, it was decided that a great deal of difficulty in the upkeep of existing buildings in this city and elsewhere was caused by inadequate and cheap construction and designs involving architectural features that required constant upkeep, painting, etc.

To overcome this situation in the new buildings, a design was adopted which might be called Lombardy Italian, the main features of which were that the ef-



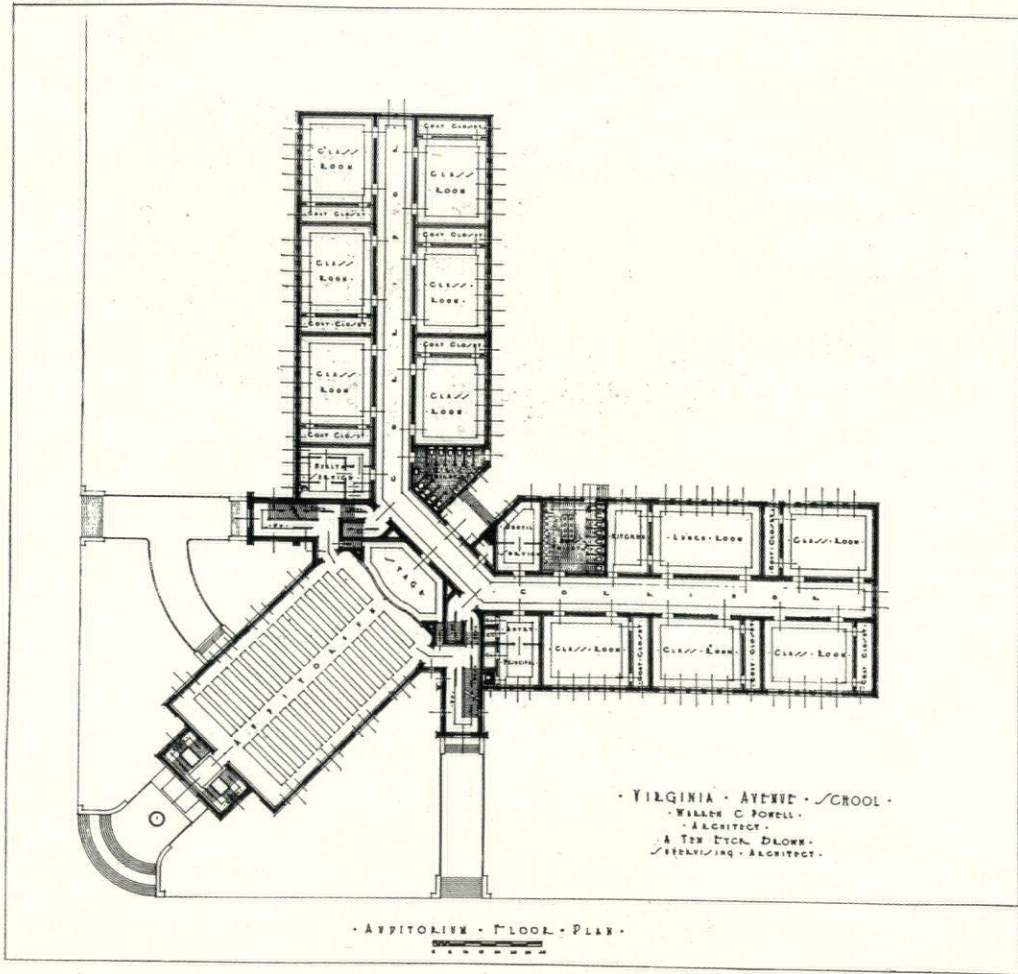
*The Architectural Record*

SAMUEL M. INMAN SCHOOL, ATLANTA, GA.

Warren C. Powell, Architect

A. Ten Eyck Brown, Supervising Architect

March, 1925



Auditorium Floor Plan  
 SAMUEL M. INMAN SCHOOL, ATLANTA, GA.  
 Warren C. Powell, Architect    A. Ten Eyck Brown, Supervising Architect

fect was gotten in the mass silhouette and openings, while the necessity for belts, panels, cornices, etc., to give interest, was accomplished in the various ways of laying the brick and offsetting same, thus eliminating such features as cornices, belts, pediments, columns, pilasters, etc., of the more or less durable material.

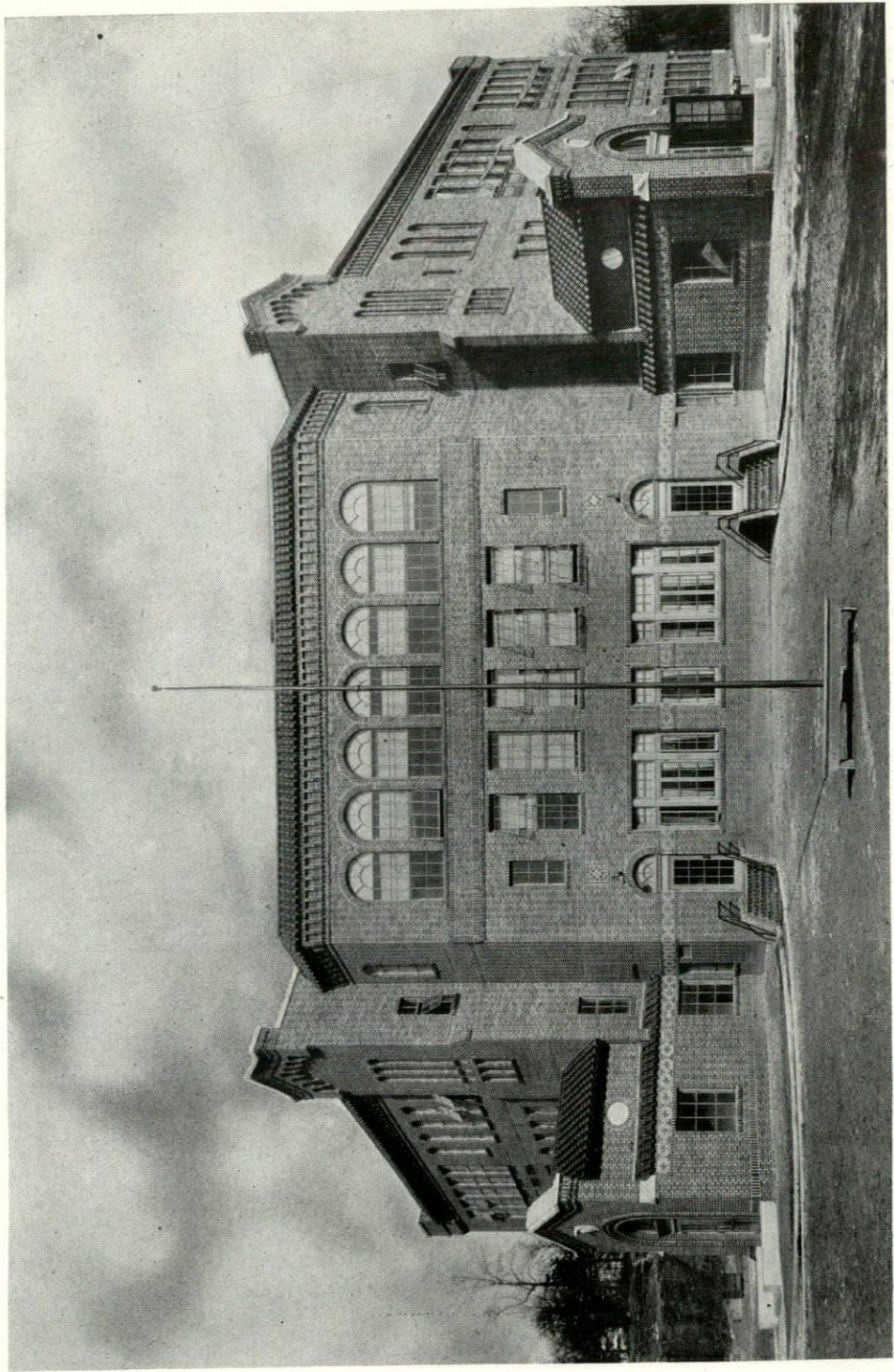
All of the buildings except some of those which were added to old buildings of ordinary construction, are as fireproof as they can be made, this number being fifteen out of the total of eighteen. The elementary schools consist of brick bearing walls, reinforced concrete floors and roofs, while the junior and senior high schools were constructed with concrete

frames and brick and tile enclosing walls.

The following features were adopted in all of the buildings in a larger or lesser degree as the size of each project dictated:

Steel sash, terrazzo corridors and stairs, elimination of wood trim in all the class rooms and windows, also all metal trim on all interior doors, terrazzo floors and marble wainscoting and stalls in all toilets. This also involved the standardization of plans in connection with corridors, staircases, entrances, etc., in order that all staircases should open on the ground and minimize panic and fire risks.

The class rooms in all the buildings were designed, as stated, without wood



*The Architectural Record*

SAMUEL M. INMAN SCHOOL, ATLANTA, GA.  
Warren C. Powell, Architect  
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March, 1925



trim, and with the use of wooden floors with sanitary bases, natural slate blackboards, with cork bulletin boards, proper lights and ventilation, cloak rooms without doors for elementary class rooms, or in a general way with the elimination of all unnecessary detail both inside and out, the construction used being durable and sanitary in every way.

In reference to the mechanical work, standardized methods were adopted as to heating, covering the character of piping, radiators, boilers, etc., and the system of ventilation covering the types of fans, motors, etc. Also in reference to plumbing, standardization of fixtures was agreed upon in order to secure the most durable and sanitary; and in regard to electrical work, a minimum of lighting fixtures and those of most durable material in connection with outlet boxes, panel boards, motors and other details were adopted in order in a general way to secure equipment of the most lasting type, needing the least repair, and standardized so that the School Department could make replacements that would fit practically all buildings in case of necessity, and avoid the delay and expense usual in cases where buildings have different specialties throughout the mechanical installations.

Another point of interest might be that on a great many of the projects complete working drawings were produced and bids were received on sections or units of the building; the first unit, of course, being that covering the class rooms and offices for a primary operating unit, while special class rooms, auditoriums, gymnasiums and shop units were separated, which resulted in most valuable information for completion of each project in every way at some future time when sufficient funds are secured for the purpose. This information also supplied data upon which the School Department can base estimates for future expenditures in buildings or betterments, whether constructed out of current funds or bond issues.

As evidence of the result of careful planning and standardization, 90 per cent of these buildings have been in operation for over a year, and the business office of the School Department having these buildings in charge has had practically no serious difficulty in connection with anything pertaining to them, especially in reference to mechanical plants, and their upkeep has been negligible, while it is anticipated that for years to come it will amount to very little in proportion to the amount invested in each project, and the methods pursued in accomplishing this result have been more than justified—not only as to the satisfaction of the buildings for educational purposes, but for continuous and economical operation.

It is also notable that this program involved the employment of twenty architects of different qualifications, character and temperament, and approximately 50 per cent. of that number of structural and mechanical engineers, who had never worked together before, but who in fact had been enthusiastic competitors. Nevertheless throughout the three years covered by the operations there has been no difference of opinion, difficulty or dissension of any nature between the project architects and supervising architects, or between them and the Commission, that has been important enough for submission to the Board of Education, which is evidence in itself of the smoothness of operation covered by this method of administration of a large public construction program, in a part of the country where it is, to say the least, a most unique instance.

While the reaction of the professional men who read this description, given in more or less detail, is going to be sometimes favorable and sometimes unfavorable, it is hoped that such a satisfactory accomplishment by a large number of practicing architects in association will appeal as a step forward in community work and civic service, and be of advantage to other groups of architects or cities contemplating a program of a like nature.

# PRODUCING SHAKESPEARE

As Illustrated by Walter Hampden's  
Production of *Othello*



By *Claude Bragdon*

SHAKESPEARE'S PLAYS were written to be performed in the Elizabethan theatre, the characteristic features of which were developed from the raised platform built out into an inn yard, the inn galleries and stairways being made use of by the performers. The spectator was required to create the scenes from his imagination, aided only by descriptions and scant suggestions of a highly conventional sort.

Modern plays are written to be performed in the proscenium or "picture frame" theatre, in which the illusion of reality as regards the scene is created for the eye without the aid of the imagination.

It is clear that when Shakespeare's plays are presented in the modern way, in the modern theatre—that is, under conditions alien to their origin—whatever they may gain in verisimilitude, their sweep and continuity must be broken up by frequent waits made necessary by scene and costume changes, during which the interest necessarily flags and the illusion fades—there is an inevitable slowing down of pace and lowering of temperature. The modern dramatist when he writes a play, usually provides against this by having few scenes, and by making the enforced waits conform to corresponding intervals in the action. One way out of the difficulty as regards the production of Shakespeare is to combine and re-arrange the scenes according to some such formula, but whenever this is attempted something of the clarity, the stir of life, the cosmic quality of Shakespeare leaks away.

This is so fully recognized that the other alternative is sometimes chosen—that of reproducing, in one form or another, the essential elements of the Elizabethan stage and therein giving the plays in their integrity, more or less after the

manner in which they were originally produced. The objection to this is that the imagination of the average theatre-goer, fed so long from the optic nerve, cannot comfortably dispense with the aids afforded by modern stage-craft, so he is apt to succumb to a disillusioned boredom, leaving the modernized Elizabethan theatre to a small band of Bardolaters.

There is a third alternative, which is really a compromise between the other two; that is, between the fixity of the Elizabethan stage, which presented at all times the same features, and the flexibility afforded by the modern theatre, wherein each scene can be made to appear entirely unlike every other. If the English language lent itself with any grace to the German polysyllabic form of expression, this third alternative might be described as the modern one-set-slightly-changed-for-each-scene school, for it is the mould into which most of the more recent Shakespearean revivals have been cast. The success of this kind of solution depends of course upon the adroitness of the stage designer in the turning of his kaleidoscope, in which the same elements are made to form a variety of different patterns, each one suggestive of a given place and adapted to the performance of a given action. The outstanding advantages of this scheme or method are unity, economy, speed and directness, but in achieving unity by these means it is difficult to escape monotony; and in effecting economy, by a shade too much of thrift the idea of poverty will be suggested.

In the production of *Othello* for Mr. Walter Hampden I had really no choice between these three alternatives. To do the play "in curtains" after the Elizabethan manner, for a Belasco-fed New York audience, would be to invite disas-

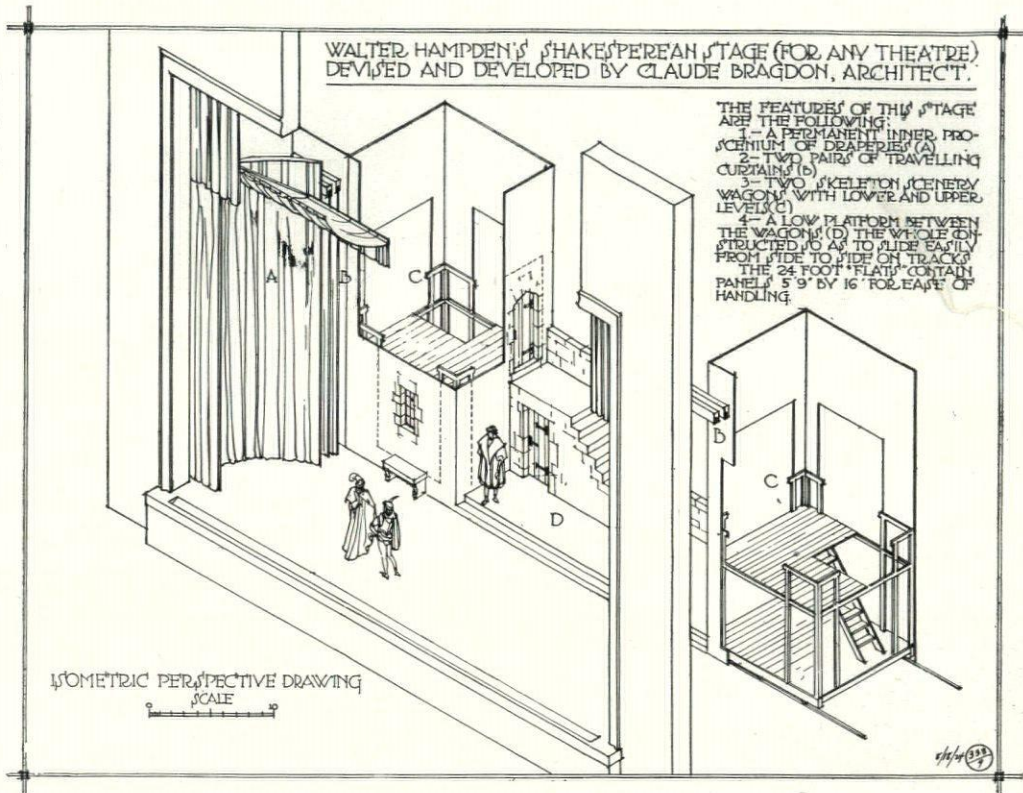


Figure 1

ter, because people simply wouldn't come to such a performance. To make a regular "scenic" production *à la* Irving or Beerbohm Tree would be no less perilous on account of the enormous initial cost. Moreover, as before stated, such a procedure would involve distortions, curtailments and arrestments in the play to which Mr. Hampden, with his deep love of Shakespeare, would never consent. These were my instructions: "The play is to be given as it is written; it must go forward without a pause, almost as rapidly as a moving picture—but we must have a real production for all that." The third alternative—some "permanent set" or unit system—was therefore not so much chosen as imposed.

Moreover, the production of *Othello* with its swift changes and many scenes, was only part of a larger and still more complicated problem—that of providing suitable scenery and accessories for a

number of Shakespearean plays, so that they could be presented on successive evenings in any theatre in any city in the land,—for unless Mr. Hampden was free to go on tour to supplement his New York season and to recoup possible losses, his ambition to re-create the great parts in more beautiful and more powerful projections of the great plays would be impossible of realization. To carry about the country separate and complete productions of several Shakespearean plays is now impracticable, on account of the high cost of transportation and labor, and the constricted storage and stage space in the modern theatres; therefore the thing to do would be to devise some scheme or system whereby a minimum amount of material, differently combined and arranged, could be made to do service, with the admixture of other things, in several plays, without the makeshift (to call it by its basest name) being too apparent to the audi-

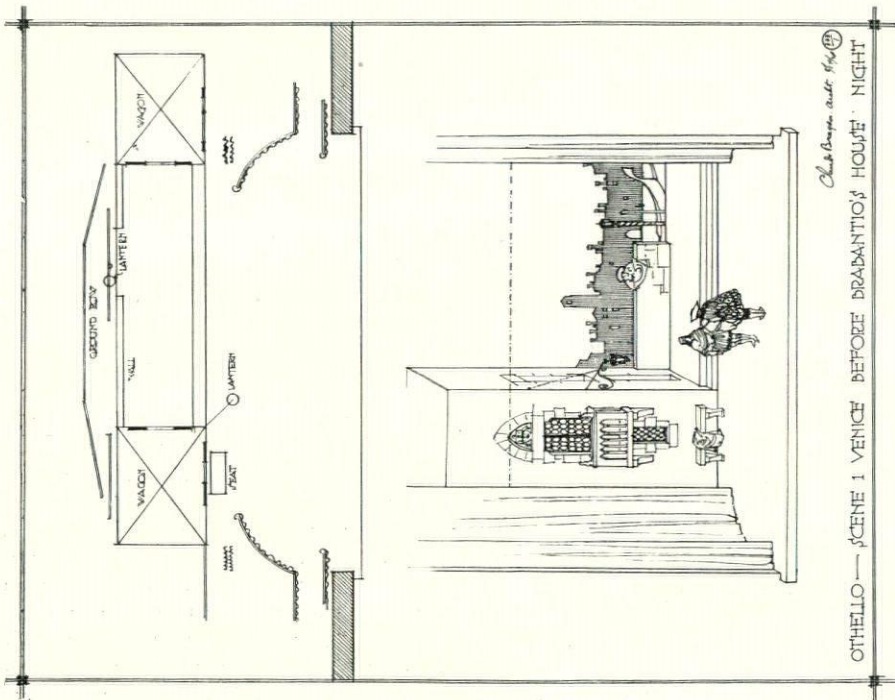


Figure 2

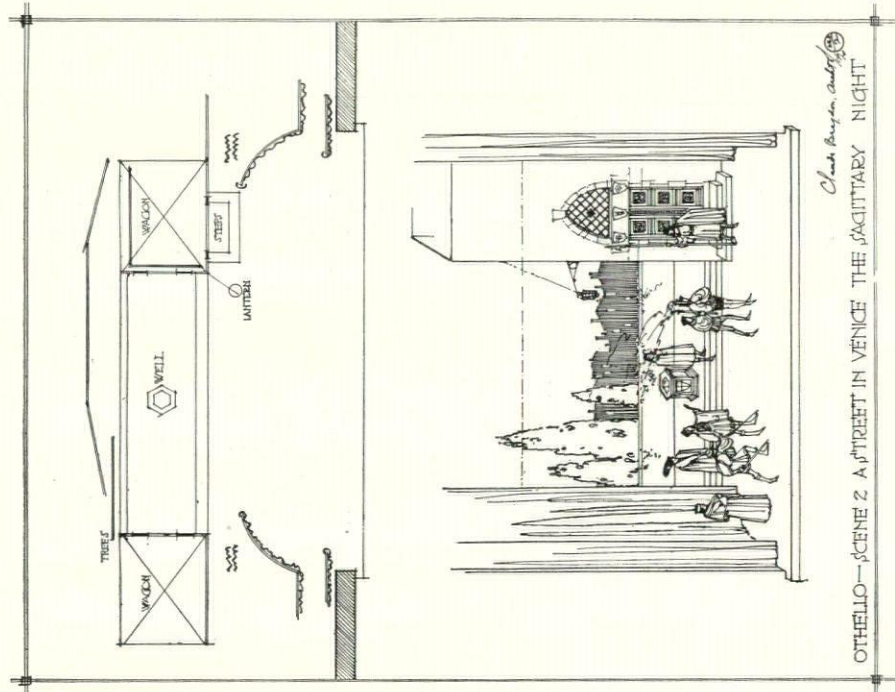


Figure 3

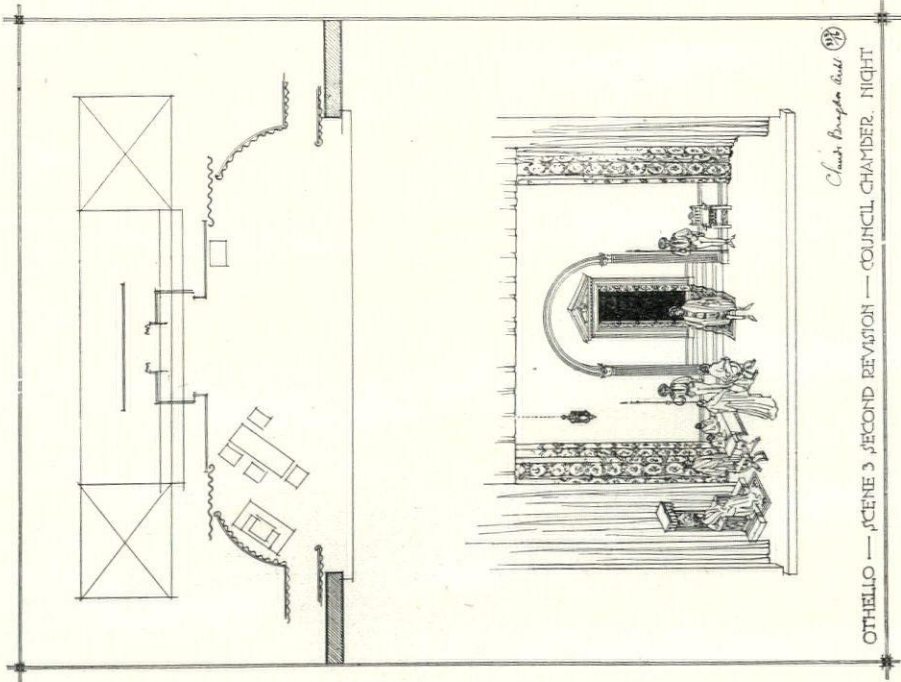


Figure 4

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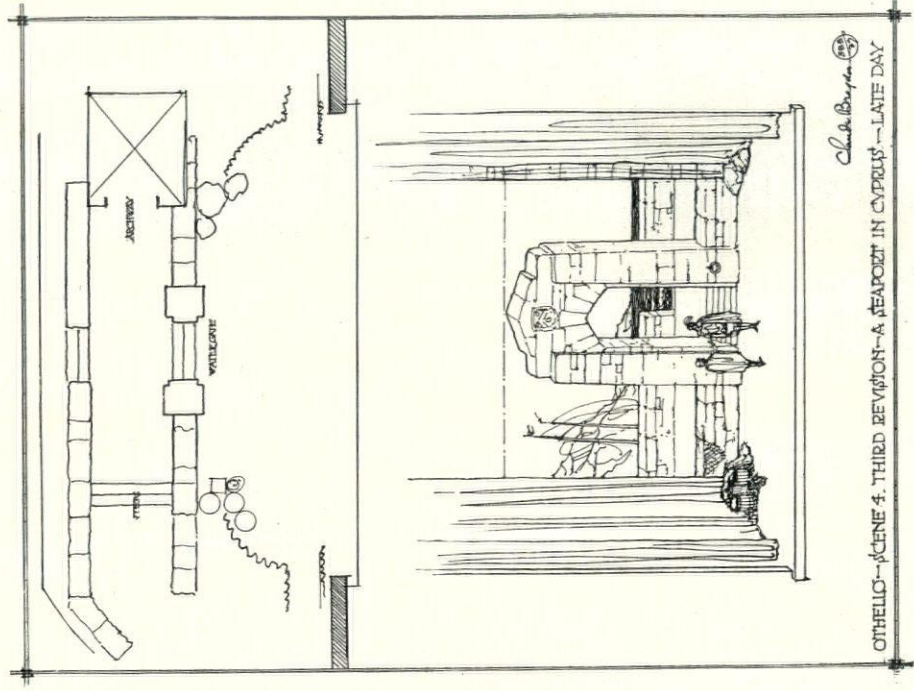


Figure 5

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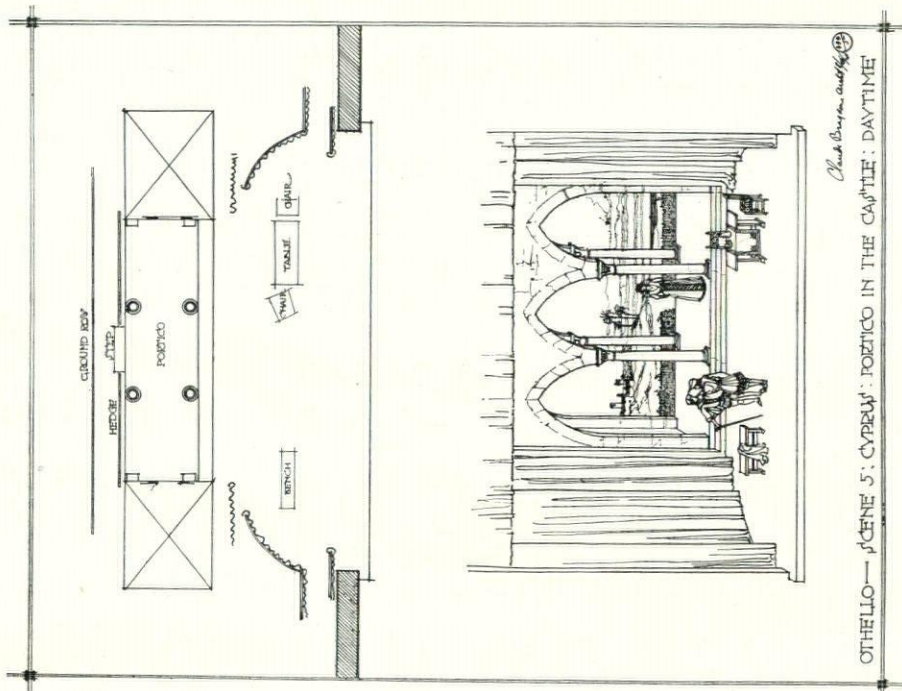


Figure 6

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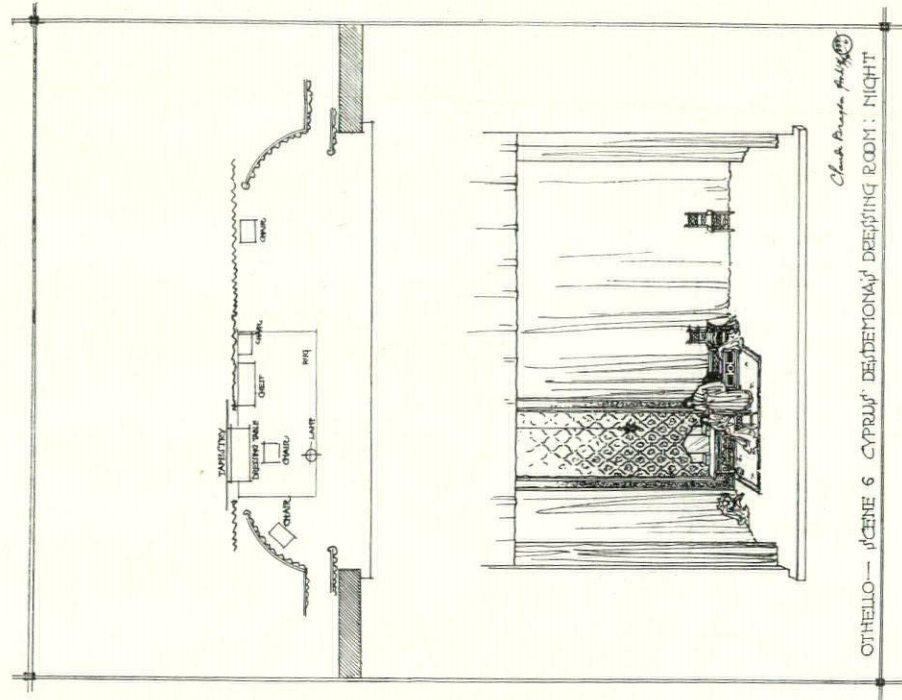


Figure 7

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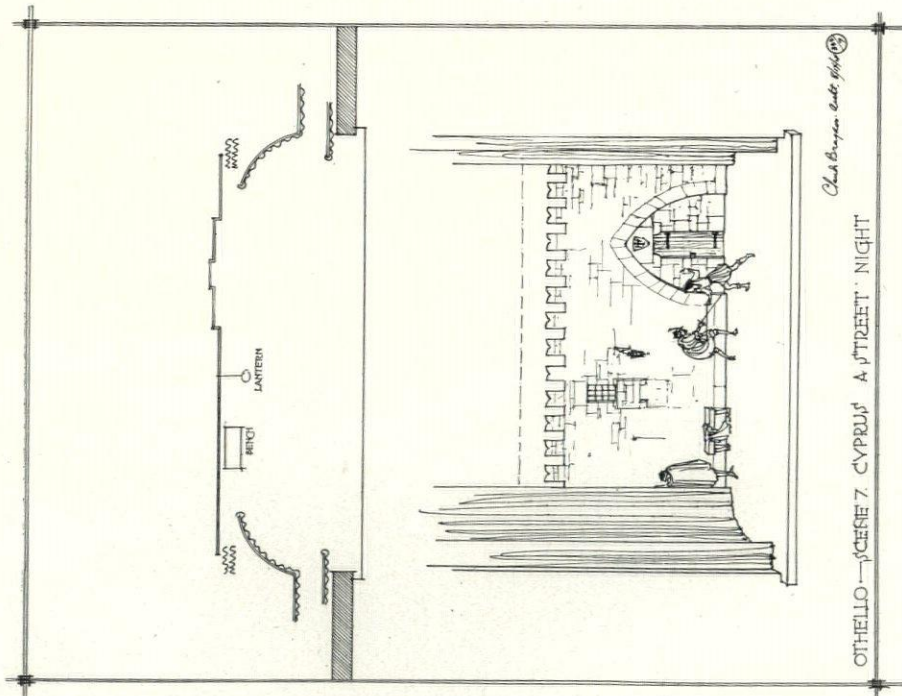


Figure 8

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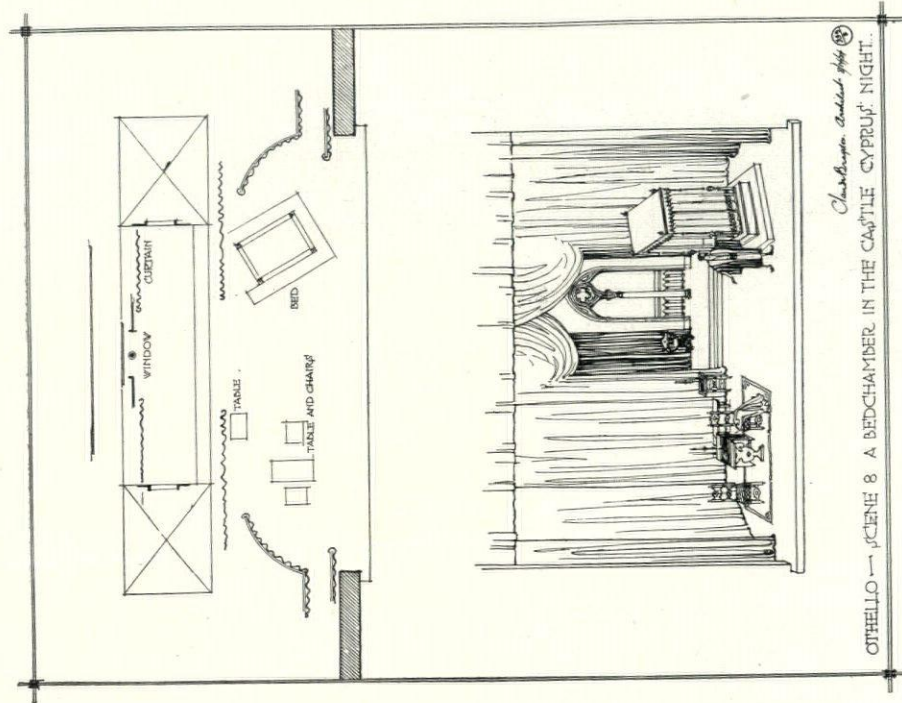


Figure 9

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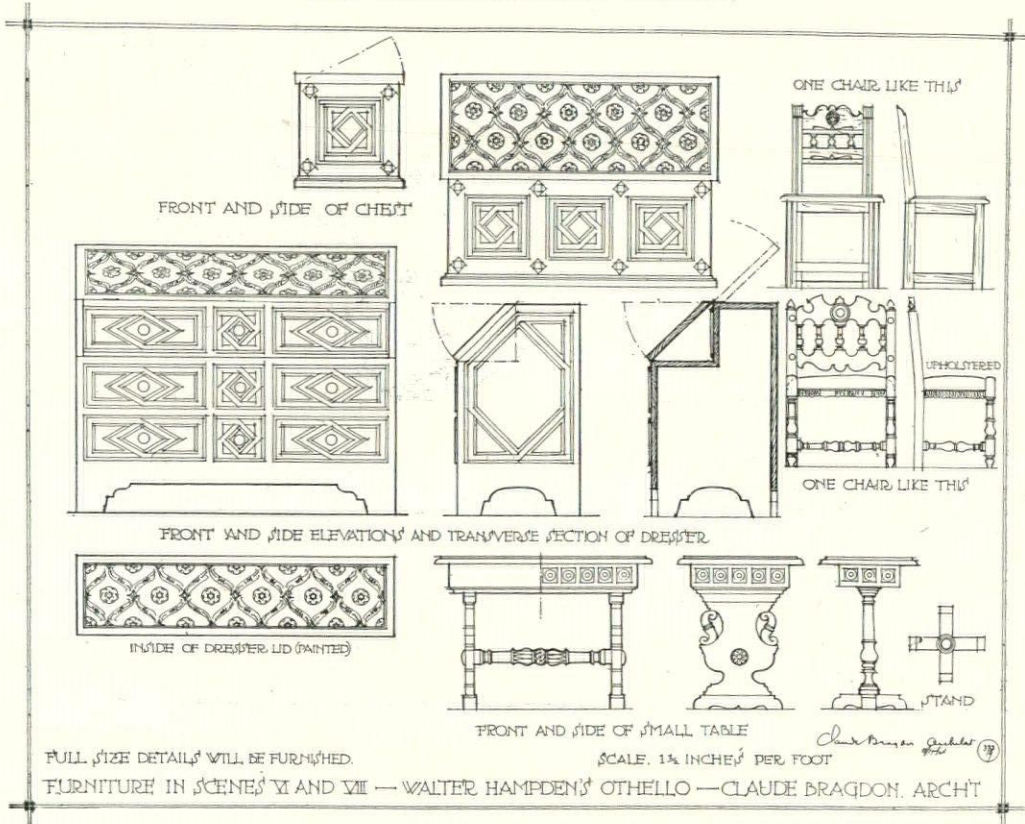


Figure 10

ences before whom they are presented.

This was my problem, stated thus at length, in order that the solution here presented may be better understood. The effort to fulfil these various stern conditions resulted in the permanent stage setting illustrated in Figure 1—an arrangement of curtains, borders, steps, platforms and movable wagons equipped with what might be termed "synthetic" scenery consisting of twenty-four foot flats with sixteen foot interchangeable panels containing doors and windows of different types to be used as required.

More specifically, there is a permanent inner proscenium consisting of concave vertical members covered with dark colored drapery hanging in folds, connected at the top with a gathered and draped border of the same material. If the theatre proscenium be thought of as a picture frame, this inner proscenium

would correspond in a sense to its shadow box—something which isolates the picture and gives it depth. Next behind this are two pair of traveling curtains which can be drawn wholly or partially, or looped back in the center, making an opening of any desired width. Figures 7 and 8 show the function which these curtains perform in the Othello production. Between the curtains and the platform and wagons there is a space sufficient for flats to be inserted, which, extending completely across the stage, permits the setting of one scene while another is in progress. Figures 7 and 9 illustrate two such scenes from Othello, consisting of a row of flats with a single aperture to give a suggestion of mystery and depth to the theme.

Next comes the movable platform, eighteen inches high, eight feet wide, and twenty-four feet long, with steps the



entire length. It is flanked at either end by the skeleton scenery wagons before mentioned, which are eight feet by twelve, with floors at two different levels, the first even with the top of the platform, and the second seven feet above this, or eight feet and one-half from the stage floor. These wagons act as a supporting framework for flats representing the walls of buildings; they have panels which can be taken out and others substituted, thus effecting a change of scene. Back of the platform and wagons is a cyclorama or skycloth of the usual type, with just enough space between it and the platform for ground rows and water rows which, while suggesting distant landscapes, serve also to conceal the pan-lights which illuminate the cyclorama from below.

With these elements a great variety of scenes can be built up. By bridging the

space between the wagons with flats let down from above, continuous walls or variously shaped enclosures can be formed; also, arcades or colonnades, as shown in Figure 6. By withdrawing one of the wagons out of sight and pushing the other on stage just far enough so that its end will be masked by the curtains of the inner proscenium, the effect is obtained of the angle of a great building jutting out into a street or square, as in Figures 2 and 3. Indeed, with the addition of other elements—walls, steps, etc.—many different architectural environments may be presented, or at least suggested, while a floor cloth thrown over the stage and platform, and a ground row or two in front of the cyclorama gives the effect of a field, a heath, a sea-coast—almost any kind of an open place. Cut drops, "leg" drops, or painted and per-

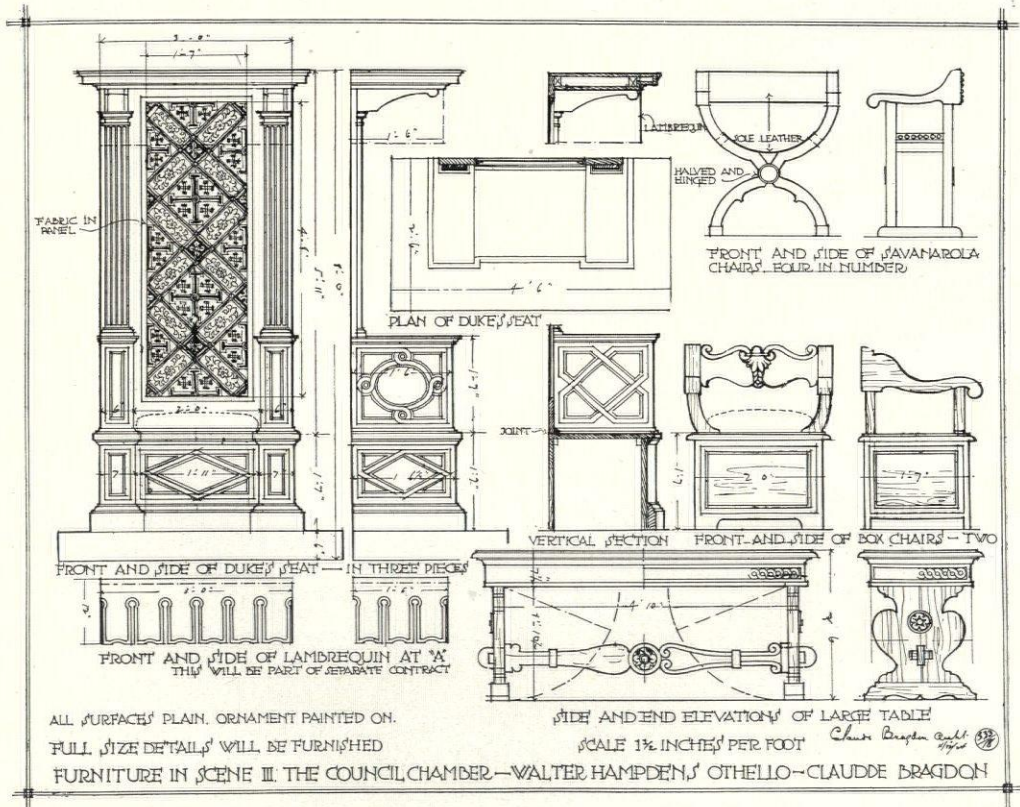


Figure 11

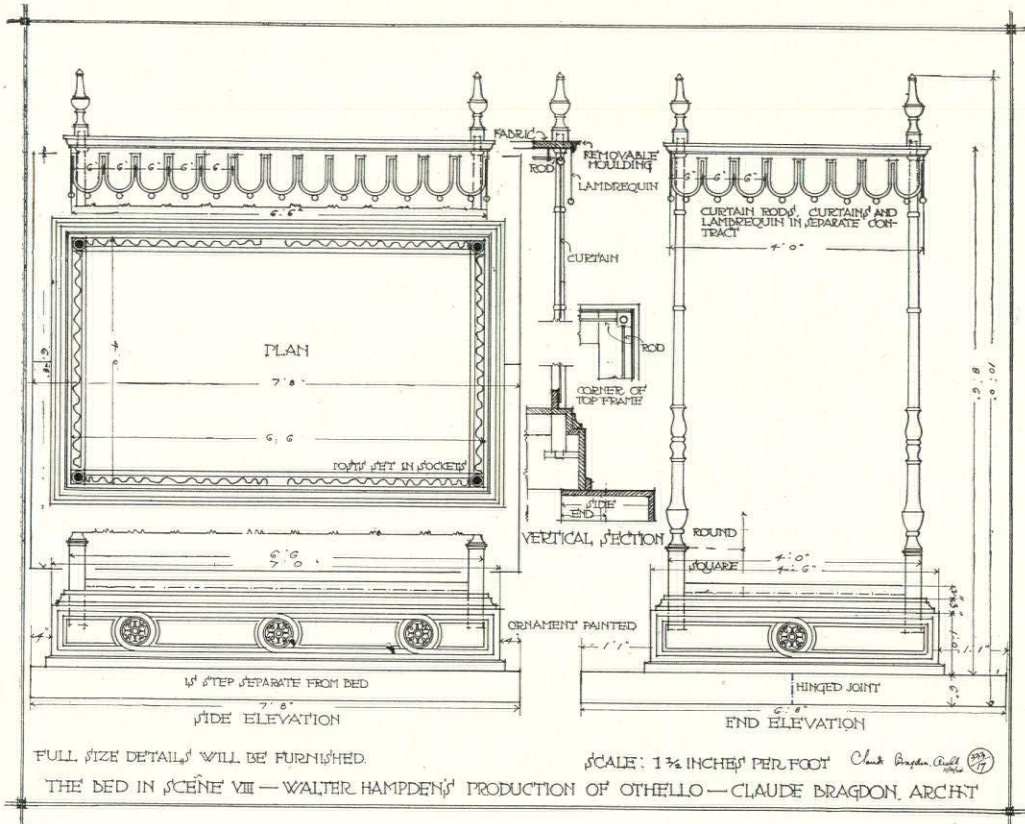


Figure 12

forated curtains interposed between the cyclorama and the inner proscenium can easily be made to represent a forest.

The important thing about a Shakespearean stage scene is not its literal realism or its pictorial quality—there need be only enough of these things to suggest a place or to create a mood—it is its *suitability to the dramatic action* involved; a scene is good only to the extent that it provides a proper platform and background for the actors, affording them effective entrances and exits and ample room to move about. In the Elizabethan theatre there were three levels always available, the stage floor, a first gallery and a second gallery. In this modern version there are also at all times three available levels: the stage floor, the platform (which is also the first floor wagon level) and the second floor level of the wagons. This makes balcony scenes, of which there

are so many in Shakespeare, a matter of no difficulty, and in ensemble scenes the actors can be arranged or grouped on different levels composing vertically as well as horizontally. A scene does not *live* until it is peopled; it should be considered less as a picture than as a picture frame. Its success will depend more than anything else upon how it displays the actors and the action; ideally, it should have no existence independent of these things, for it should never attract attention away from them. Stanislavsky says, in *My Life in Art*: "The only king and ruler of the stage is the talented actor, but alas, I cannot find for him a true scenic background which would not interfere with, but would help his complex spiritual work. What is needed is a simple background, but simplicity is the result either of a poor imagination or of a very rich one. I don't know how to keep the sim-

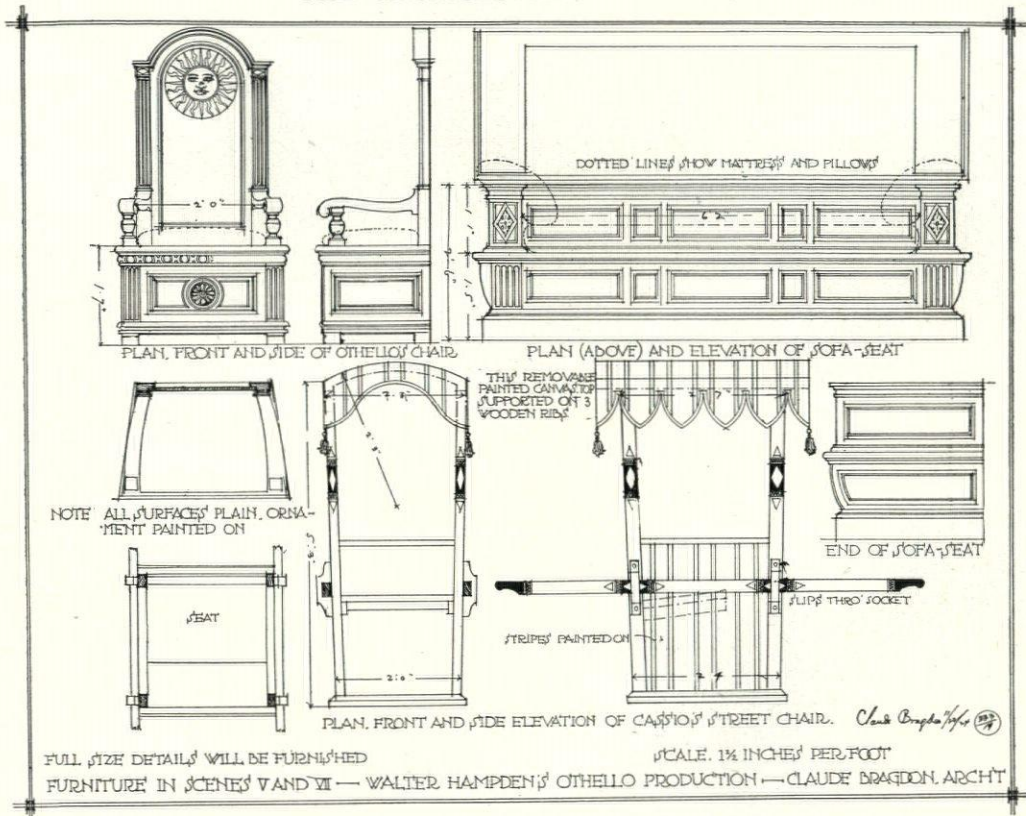


Figure 13

licity that is the result of rich imagination from forcing itself to the front of the stage even more than exaggerated and rich theatricality."

These words, embodying the ultimate conclusions arrived at by the greatest producer in the world, after he had tried, as he says, "all artistic tendencies, realistic, naturalistic, impressionistic, futuristic, statuary, schematized, exaggeratedly simple," were taken deeply to heart by

Mr. Hampden and myself in the preparation of the Othello production, and while the results are not always exactly what we had imagined them, that production represents a sincere effort to give the play according to its true values, with everything — actors, costumes, properties, scenery, lighting—in just relation, so as to create a single ultimate impression, that of the essential human and spiritual truth of the tragedy of Othello.

— The —  
ENGLISH PARISH CHURCH  
AND ITS DETAILS

By  
*Robert M Blackall*

*Measured Drawings and Photographs by the Author*

THE PORCH AT STRATFORD-UNDER-  
CASTLE, WILTSHIRE, ENGLAND

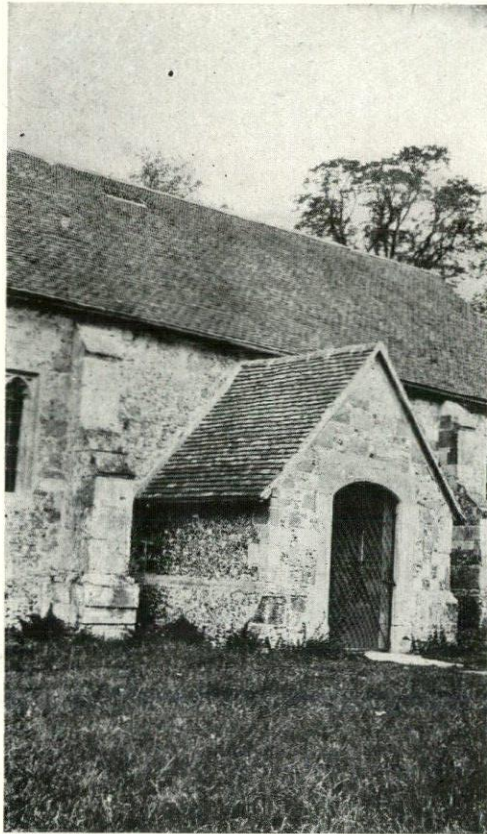
THE PORCH at Stratford-Under Castle, Wiltshire, is the simplest of the four shown in these drawings. It is absolutely devoid of any moulding and yet has a charm which cannot be exceeded when a good knowledge of proportions is used. It is built of Cotswold stone, with flint stone about an inch to an inch and a half in diameter. The roof, like that of the church, is a light gray stone field slate.

PORCH IN THE  
CHAPEL OF ST.  
LAURENCE,  
WARMINSTER,  
WILTSHIRE

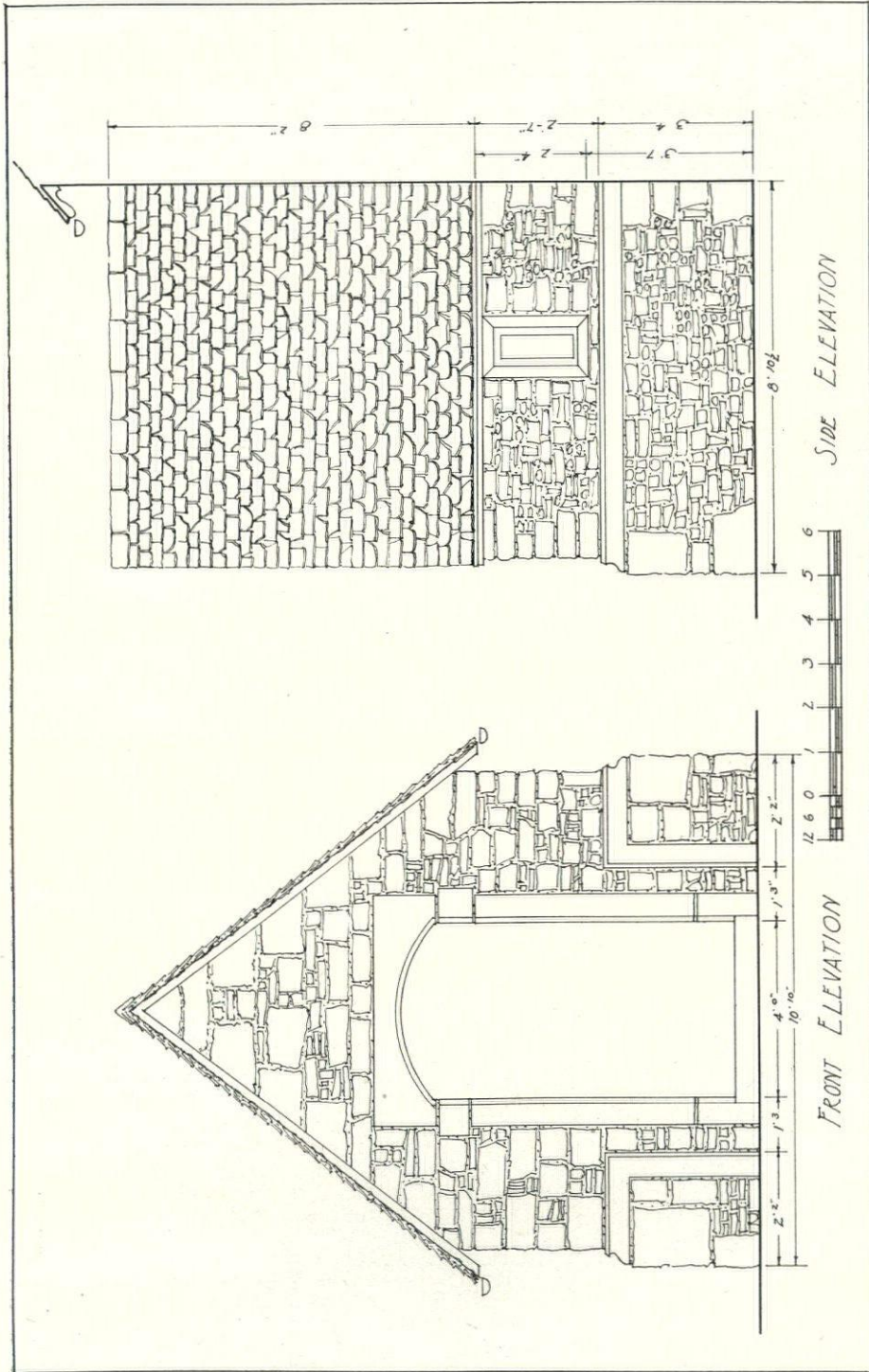
THIS PORCH is fairly modern, and has been built in English Gothic style. The church dates from the early 14th

century, although a great deal of modern restoration has been done. It is nev-

ertheless a good example of the Gothic stone porch, and harmonizes well with the rest of the building. Some of the detail seems to be more French in character than English, although the English stone work, which one rarely finds in France, gives a character to the porch that only the English parish churches have. For true English style the roof is half timber. Unlike so many other churches, the floor is raised two steps above the surrounding ground. This is due more to conditions of site perhaps than to original plan. Nevertheless, as one looks at the porch from the street it gives a very pleasant effect.



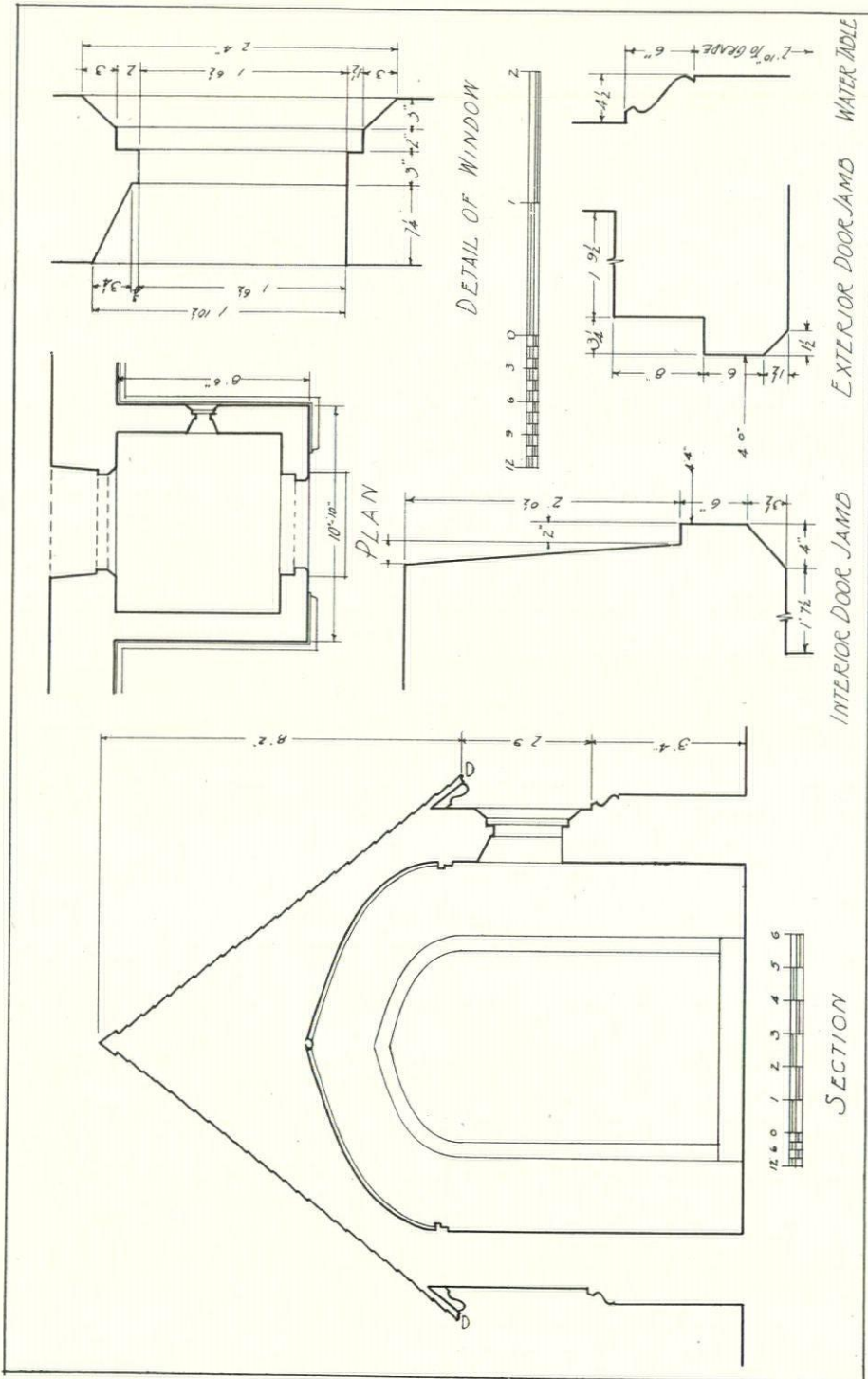
PORCH OF THE CHURCH AT STRATFORD-  
UNDER-CASTLE, WILTSHIRE, ENGLAND



March, 1925

PORCH OF CHURCH AT STRATFORD-UNDER-CASTLE, WILTSHIRE, ENGLAND  
 Measured and Drawn by Robert M. Blackall

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PORCH OF CHURCH AT STRATFORD-UNDER-CASTLE, WILTSHIRE, ENGLAND  
 Measured and Drawn by Robert M. Blackall

March, 1925

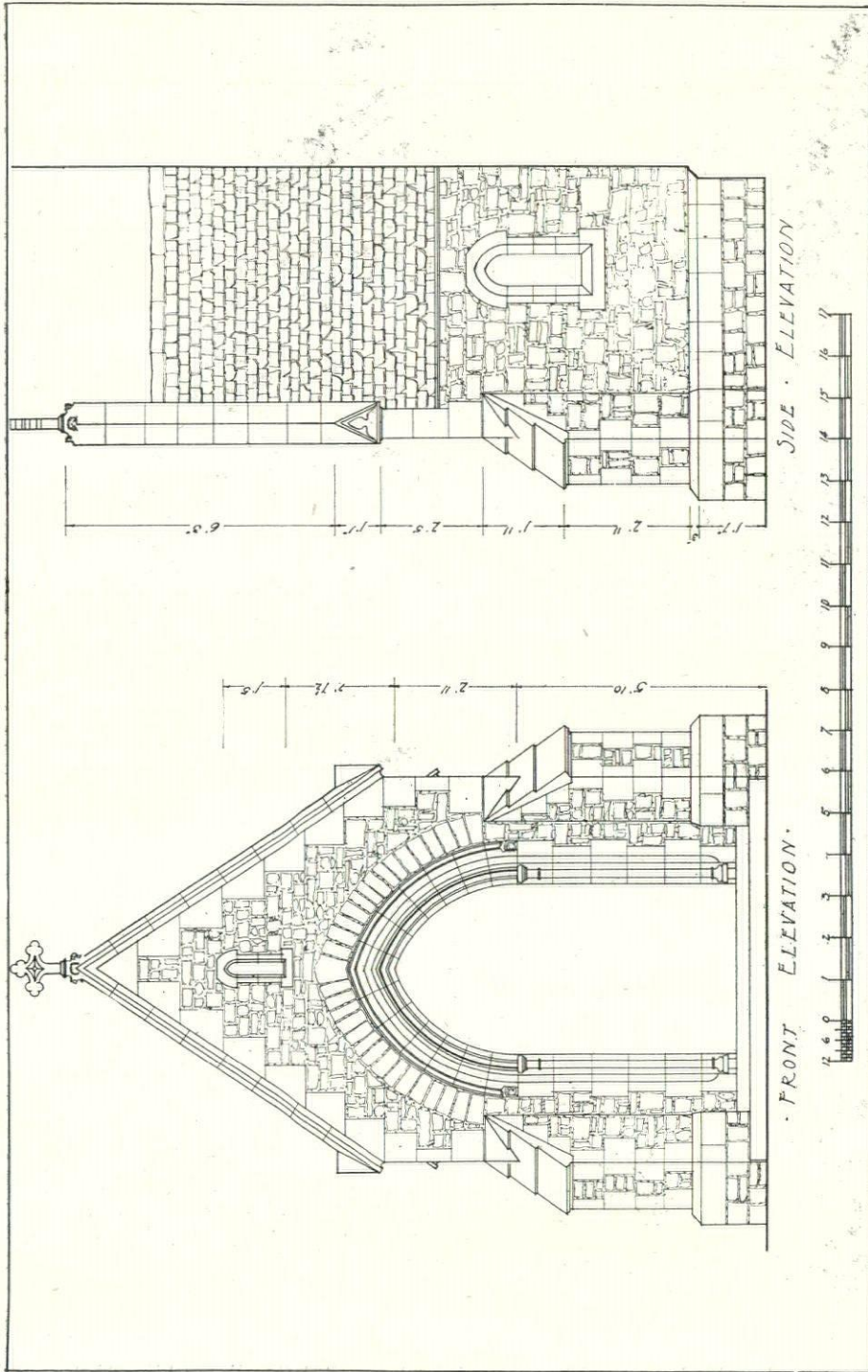


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PORCH IN CHAPEL OF ST. LAURENCE, WARMINSTER, WILTSHIRE, ENGLAND  
Measured and Drawn by Robert M. Blackall

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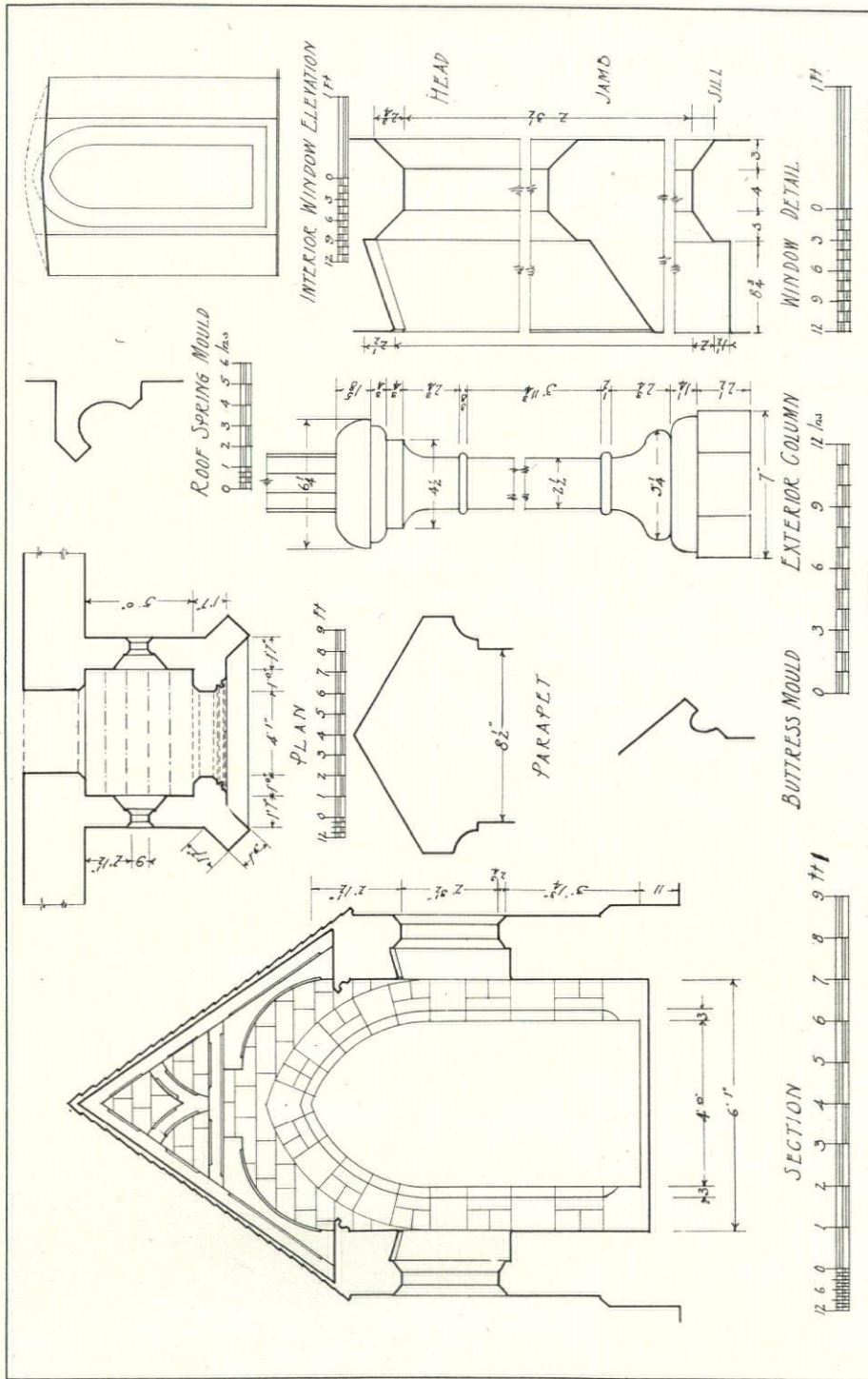


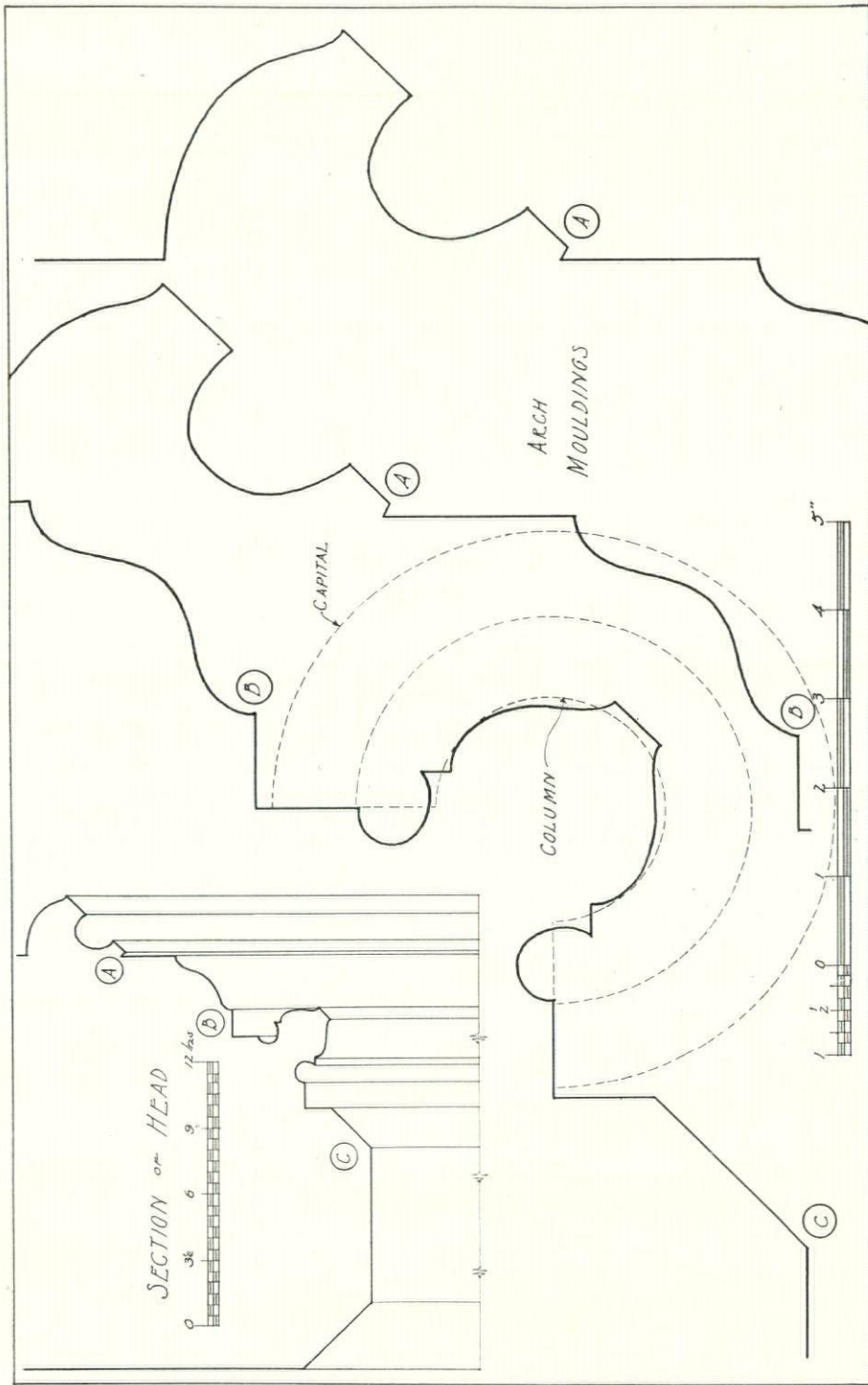
*The Architectural Record*

PORCH IN CHAPEL OF ST. LAURENCE, WARMINSTER, WILTSHIRE, ENGLAND  
 Measured and Drawn by Robert M. Blackall

March, 1925



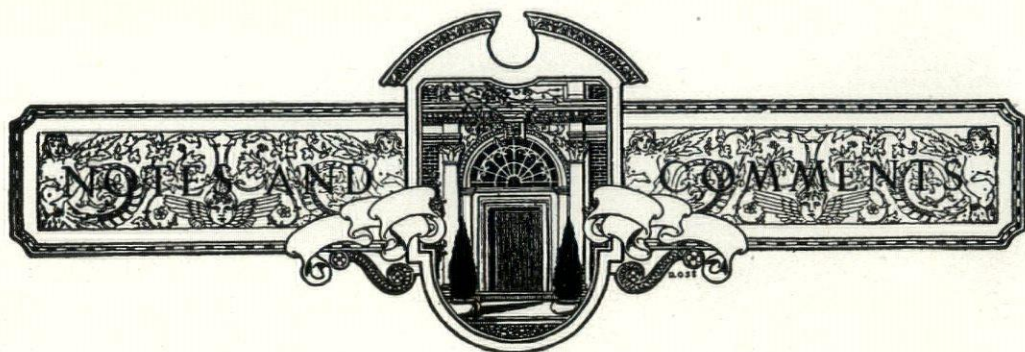




*The Architectural Record*

PORCH IN CHAPEL OF ST. LAURENCE, WARMINSTER, WILTSHIRE, ENGLAND  
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March, 1925



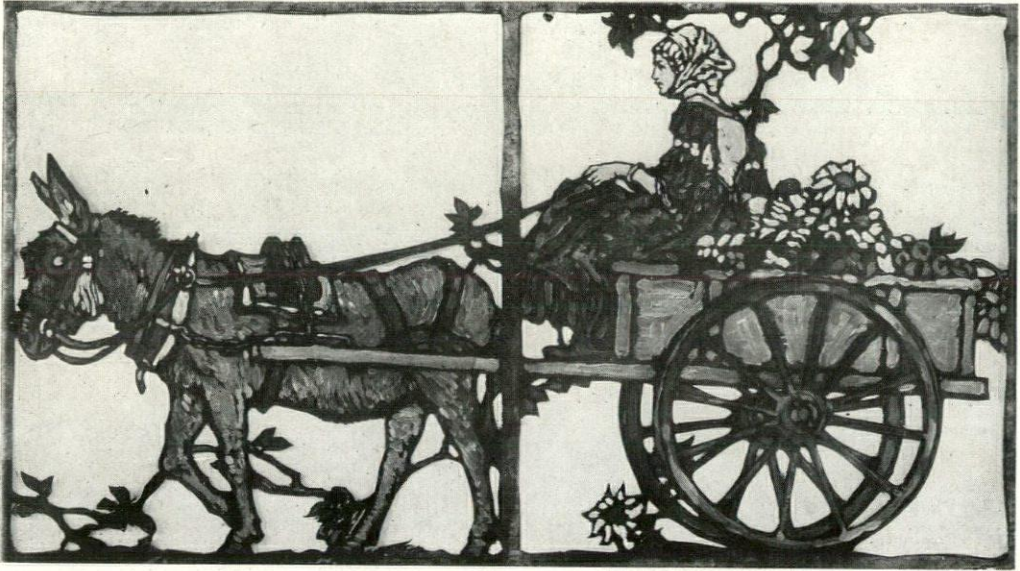
### A NOVEL, DECORATIVE METHOD FOR LEADED GLASS

In view of the wealth of technical achievement and decorative invention which has accumulated with the passage of centuries in the art of leaded glass, the assumption would appear justified that the boundary in ingenuity had been reached from every angle. This is however not the case, as is proved by a delightful innovation originated by Scott Williams, who has developed a method which renders leaded-glass a decorative feature in artificial light as well as in daylight. By his process the window becomes capable of a two-way effect instead of depending for its ornamental efficiency upon light in one direction only. The decorative function of the leaded window ceases with the fading of daylight, and the drab color which it assumes under artificial light is a note which is in-

capable of harmonious incorporation in an interior of the less formal type. He conceived the idea that it might be possible to invest it with another variety of interest with the light upon the reverse side; he solved the problem by applying color upon decorative forms silhouetted in lead, a method which he has developed with great ingenuity and success. The windows consist of leaded rectangular panes; he designs to fit the pane subjects in silhouette which are cut out in lead and affixed to the glass or placed between two panes; the silhouetted subjects are then brilliantly colored in a vigorous manner. By the halation of light around them, these colors are effective in daylight; but at night the illumination of the room falling upon the opaque color produces an impression that inlays of brightly colored enamel are set in the dark glass



DECORATIVE LEADED GLASS WINDOWS DESIGNED BY DWIGHT BAUM FOR A FLORIDA RESIDENCE AND EXECUTED BY SCOTT WILLIAMS



A DECORATIVE LEADED GLASS WINDOW BY SCOTT WILLIAMS  
The silhouettes are cut out of sheet lead and brilliantly colored



TWO DECORATIVE LEADED GLASS WINDOWS BY SCOTT WILLIAMS  
These and all others shown in this article were designed for a Florida residence by Dwight Baum

ground, changing its drab tone to one of decorative value by contrast. In the technique of their color treatment, Scott Williams has assiduously avoided any inclination to simulate that quality of effect which is characteristic of stained-glass; as a result he has evolved something excellent and individual. In addition to the charm he develops in his delightful miniature groups and single figures, birds, and animals, he has created a decorative feature of great utility in the general scheme, as these luminous spots of color perform a valuable function in chromatic distribution, carrying the tones which

occur in the rest of the room across an area which has hitherto been a dead zone in effect. We reproduce a few of the subjects which form part of an extensive series designed for a Florida residence by Dwight Baum. They are very varied in their grouping, pose, and concept of theme; touches of delicate humor and evidences of subtle observation reward one for careful inspection of his compositions. Throughout his work we find a dominant thought controlling invention; that imaginative exuberance must be subject to process—the maxim of the true craftsman; this involves a considerable amount of self-restraint in one who is as imaginatively gifted as Scott Williams. He shows his thorough grasp of the two types of effect in the manner in which each is rendered independent of the other in a separate decorative existence. It is quite a *tour de force* to create a decorative theme which is capable of performing two distinct ornamental functions without making the observer feel that one is a makeshift.

LEON V. SOLON

#### AN OMISSION

We wish to call attention to the omission of the name of Frederick A. Waldron from the captions under the views of the John Hancock Building, Boston, Mass., published in our August, 1923, issue. On the corner stone of the building is cut the following authorship legend: "F. A. Waldron, Engineer-in-Charge. Parker, Thomas & Rice, Architects."

#### ELOISE OLMSTED

DIED TUESDAY, JANUARY 20, 1925

The ARCHITECTURAL RECORD has sustained a great loss in the sudden death of Eloise Olmsted, Librarian and Desk Editor, who was carried off on January 20 by pleuro-pneumonia



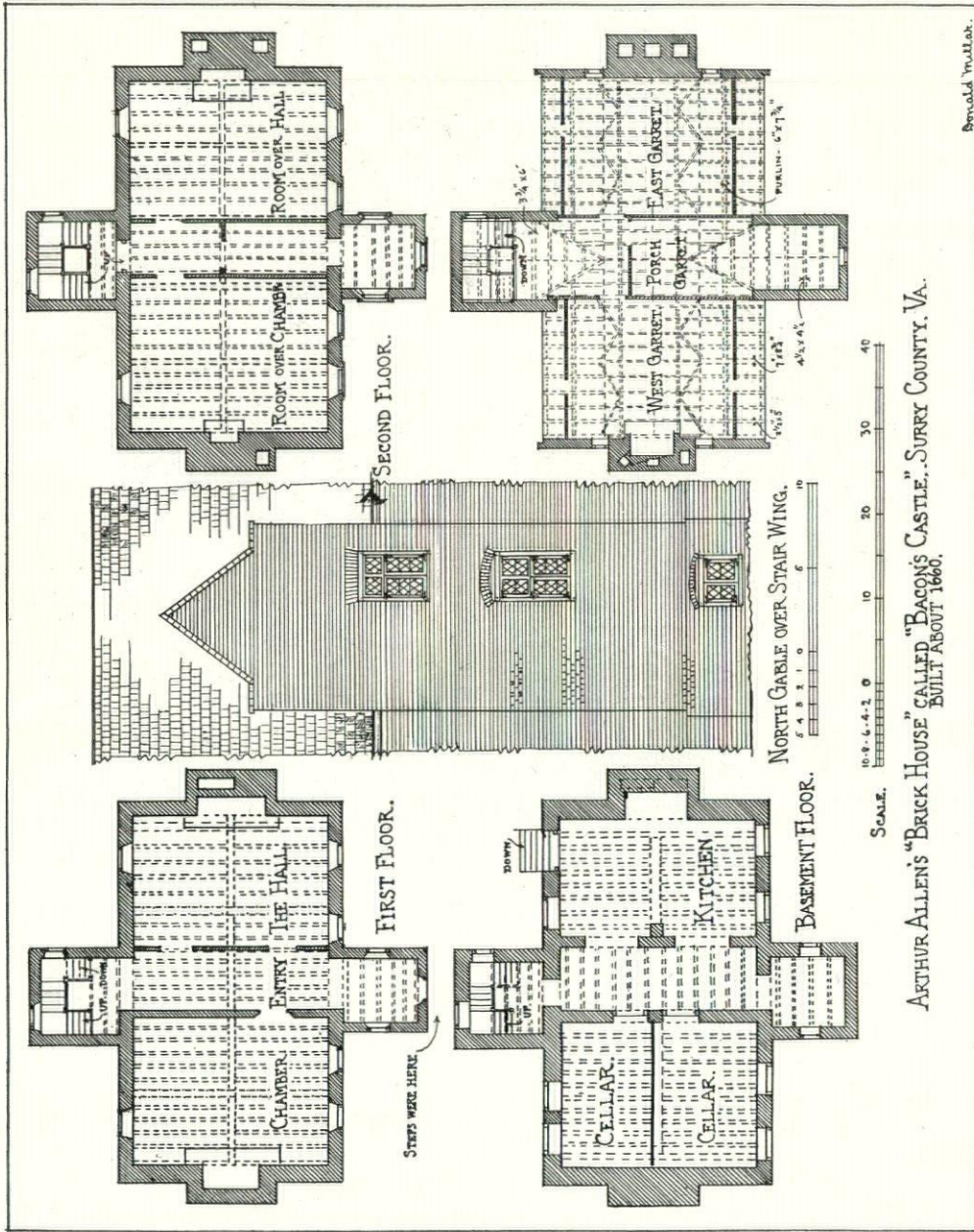
DECORATIVE LEADED GLASS WINDOWS DESIGNED FOR  
A FLORIDA RESIDENCE BY DWIGHT BAUM AND  
EXECUTED BY SCOTT WILLIAMS

after an illness of only a few days. Miss Olmsted, possessed of far more than ordinary culture and abilities, found in this work a wide and fertile field for her talents and had become a highly regarded member of the organization. Her wide circle of friends and acquaintances in the architectural field, both business and social, sincerely mourn the loss of a valued co-worker and a most interesting and charming personality.

#### A JACOBAN HOUSE IN VIRGINIA

Some miles from Smithfield, Virginia, near the James River, stands the seventeenth century house known as "Bacon's Castle," one of the most interesting houses of the original colonies, having been built by Arthur Allen, who came from England in 1649. Family tradition dates the house from 1654. It was seized by the rebel forces in Bacon's Rebellion of 1675, whence its name. The bricks are of a dark sandy-brown color and have worn well. They are laid in irregular English bond.

A glance at the plates accompanying this article will show a small Elizabethan, or rather Jacobean, manor house, transplanted to the forests of Virginia. It has curved and stepped gables, clustered chimney stacks topping great outside chimneys, and on the front some interesting architectural window-trim in brick, which projects two inches. On the projecting porch the cornice of this trim returns on the wall; on the house wall the cornice is cut off square. The band of white plaster just below the caps of the chimney-stacks gives a note of lightness. The cuts show the house as built, as far as can be determined from a close examination. Originally the interior walls would have been



Samuel M. Lee.

March, 1925

The Architectural Record



"BACON'S CASTLE," NEAR SMITHFIELD, VIRGINIA

Probably built by Arthur Allen in 1654

plastered and whitewashed, the doors and staircase being the only woodwork, and the framing of the floors would have been exposed. The rooms are named as they are listed in an old inventory of 1711.

The partition of the first floor is of brick; the screen partition which divides the entry from the hall is, to judge from the inventory, very old. Probably this was originally one room, the plan much resembling several East Anglian manor houses. The use of the word "Chamber" is a survival of the Elizabethan name for the retiring room which still contained a bed. The lower rooms were panelled about 1712, and a stair of that period replaced the original which must have had the same shape. At this time also the old rear windows were closed up and two new ones opened in each room on the first floor. On the east end of the house a large addition was made about 1854 so that this chimney is now covered, but it ran straight up without the shoulders found on the other. The details of this brickwork are shown on the elevations. The construction is excellent and

stands firm after more than two hundred and fifty years.

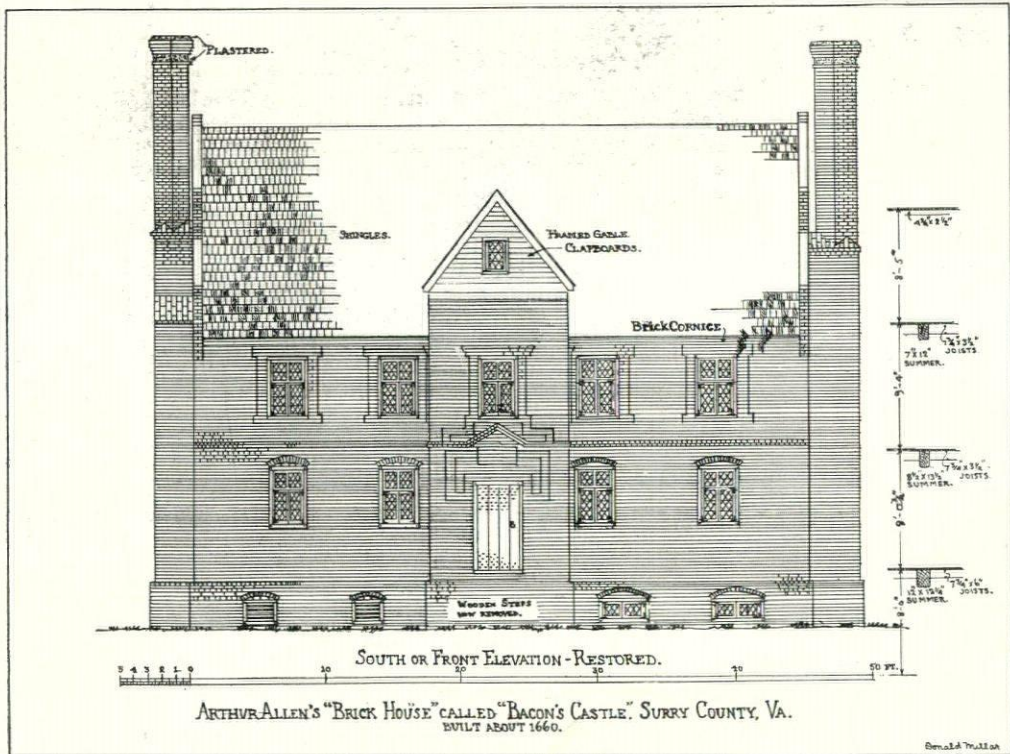
The chamfers of the summer beams are to be seen on the second floor and are quite interesting. The chief interest of the exterior centers in the chimney stacks, gables, and trim of the second story windows on the front, very like certain examples in Norfolk-shire, England, dating from the opening years of the seventeenth century. An old woodcut, made before 1850, shows a curious hood-moulding and pediment of brick over the porch door, but this has all been hacked away and covered with hard cement. An attempt has been made to restore it in the drawing. There is a pointed brick gable over the staircase projection, but it is uncertain whether the front gable was originally of brick or timbered as shown in the old print. The glazing of the windows is shown as old English prints indicate was the custom of the seventeenth century. Probably in this type of house rectangular panes four by six inches were used.

It is in the garret that one finds the least

alteration. The great roof has wind braces from the principal rafters to those at the end and besides the partitions. These spring from just below the ceiling level and rise at an angle of forty-five degrees. The fireplace in the west garret chamber and the long garret over the porch have a most venerable air of old England. The same note of antiquity is apparent in the basement story. The great fireplace has its iron trammel-bar, and brick piers support the framing of the first floor. The entire kitchen is paved with square bricks. The old church at Smithfield, which can hardly be as early as 1632, the reputed date, is of excellent brickwork, having gothic mullioned windows and exhibiting the same East Anglican characteristics. One suspects that they are the work of the same builders.

The present surroundings of the "Castle" are interesting. The old garden lay to the southwest and foundations show that old brick walls ran across the front of the house and probably surrounded it. It is more likely that these walls were ornamental enclosures of garden and forecourt than hastily constructed defences during the time the house was in the hands of the rebel forces in 1675-6. The house is the property of Charles Walker Warren, Esq., and stands on a level lawn with an old detached kitchen behind, on the east the later enlargement and a smaller house, and on the north a farm courtyard surrounded with barns, stables, and other outhouses, in all, some twenty-one buildings.

DONALD MILLAR





RAVENNA MOSAIC PANEL  
IN  
IRIDESCENT AND MATT GLASS

An interesting example of the Modernist feeling applied to pure decoration. Through its kinship to the Primitive Schools, this new phase of artistic interpretation seems better adapted to decoration than to pictorial themes. The representation of plastic form with bands of color lends itself excellently to the mosaic technique.



NOSCUM PROLE  
PIA BENEDICAT  
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