

THE ARCHITECTURAL RECORD

CONTENTS

J. M. R.

VOL. XLIV. No. 6

DECEMBER, 1918

SERIAL No. 243

Editor: MICHAEL A. MIKKELSEN

Contributing Editor: HERBERT CROLY

Business Manager: J. A. OAKLEY

| | PAGE |
|---------------------------------------------------------------------------------------------------------------------------------------|------|
| COVER—The Bishop's Well at Palencia, Spain. <i>Water Color, by Arthur Byne.</i> | |
| THE RESIDENCE OF ALLAN S. LEHMAN, ESQ., TARRYTOWN, N. Y.: John Russell Pope, Architect <i>By Howard Dwight Smith.</i> | 483 |
| THE WORK OF OLMSTED BROTHERS. Part II. <i>By John Taylor Boyd, Jr.</i> | 503 |
| THE NEW OFFICE BUILDINGS AT WASHINGTON, D. C., FOR THE NAVY AND WAR DEPARTMENTS <i>By George P. Hales.</i> | 522 |
| MODERN INDUSTRIAL PLANTS. Part II. <i>By George C. Nimmons.</i> | 531 |
| ARCHITECTURAL ETCHING <i>By Frank Weitenkampf.</i> | 551 |
| THE RED CROSS HEADQUARTERS AT WASHINGTON, D. C. | 558 |
| THE GOVERNMENT'S HOUSING ACTIVITIES <i>By Sylvester Baxter.</i> | 561 |
| THE ARCHITECT'S LIBRARY: Recent French Books <i>By Barr Ferree.</i> | 566 |
| NOTES AND COMMENTS | 571 |

Yearly Subscription—United States \$3.00—Foreign \$4.00—Single copies 35 cents. Entered May 22, 1902, as Second Class Matter, at New York, N. Y. Member Audit Bureau of Circulation.

PUBLISHED MONTHLY BY

THE ARCHITECTURAL RECORD COMPANY

115-119 WEST FORTIETH STREET, NEW YORK

F. T. MILLER, Pres. W. D. HADSELL, Vice-Pres. J. W. FRANK, Sec'y-Treas. E. S. DODGE, Vice-Pres.

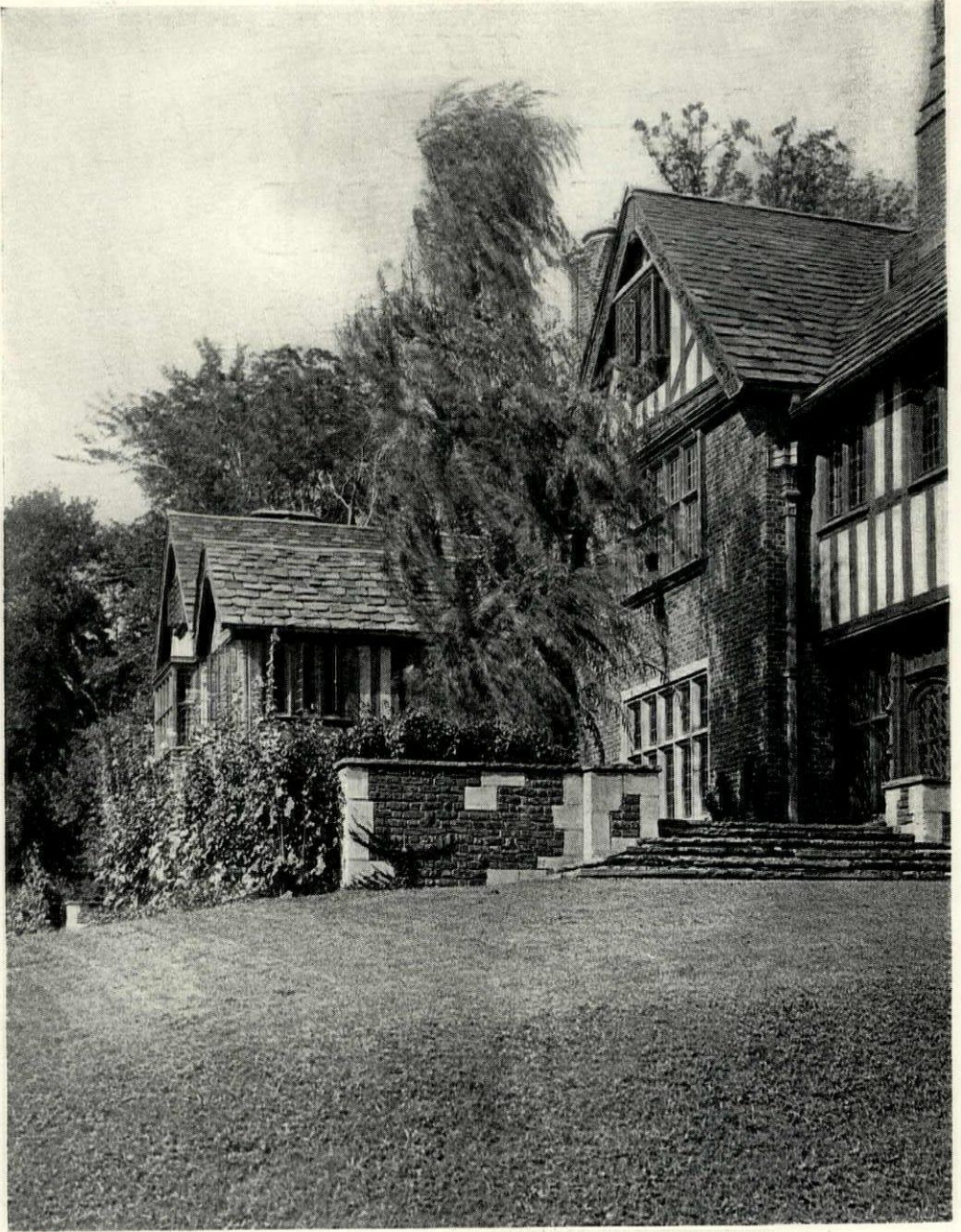


FIG. A. THE END OF THE TERRACE—RESIDENCE OF ALLAN S. LEHMAN, ESQ., TARRY-TOWN, N. Y. JOHN RUSSELL POPE, ARCHITECT.



THE ARCHITECTURAL RECORD

VOLUME XLIV



NUMBER VI

DECEMBER, 1918

 *The* RESIDENCE OF 
ALLAN S. LEHMAN, ESQ.
— TARRYTOWN, N. Y. —
JOHN RUSSELL POPE, ARCHITECT

By Howard Dwight Smith

*No false note disturbs the color harmony of the front. Silvery-gray of the oaks and the mellow tints of the spaces between the uprights combine beautifully in the setting of foliage around the house. The large expanse of roof and the restful lines of the front invite the eye to dwell on the delicate timber work in the gables and the rich detail of the bargeboards.—
Description of Ockwells Manor, built in the Fifteenth Century.*

THE practice of architecture, particularly domestic architecture on a large or even on a relatively small scale, is essentially an art of peace. The genius and the organizations which devise and execute the solutions of problems incident to the comfortable and convenient domicile of man in time of peace may be quite fitted to devise and execute the solutions of other problems of construction incident to the prosecution of a great war, but domestic architecture as a fine art must be nurtured by peace and prosperity.

However detrimental the waging of wars may be to the vigorous practice of domestic architecture, we owe in a great measure to the invention and use of gunpowder the inception

and development of the domestic style ordinarily known as Tudor architecture. By the creation of so powerful an arm of warfare as artillery the feudal castles and baronial strongholds of the medieval centuries, which were essentially fortresses, became obsolete as places of residence. The strongest available artillery units of England in the fifteenth and sixteenth centuries were in the control of the reigning house of Tudor. The futility of the use of force against such military power by any aspiring to usurp the royal prerogative brought a state of general peacefulness to a hitherto quarrelsome countryside. The medieval castles, with their battlements and moats, machicolations, drawbridges and turrets, gave way more or less suddenly to less

fortress-like dwellings. This period of transition, a new style supplementing an old one, came with that period of "new learning" known elsewhere as the Renaissance, a time when originality and richness of thought were at their height. Sir Edward Coke said, in the seventeenth century, that "the house of everyone is to him as his castle and fortress as well for his defense against injury and violence as for his repose." The Tudor houses were the first in England wherein the latter use was not overshadowed by the former.

It is to the Tudor period and style that the architect for Mr. Allan S. Lehman turned for inspiration when he designed this new residence at Elmbrook, Tarrytown-on-the-Hudson. The historical exactness of the execution of the work and the atmosphere of the period which have been given to the building and its surroundings warrant some reference to precedent and prototype. The creation of such a building is only possible when the artist has made such a thorough and intensive study of the period as to be able to think and to work in it with facility. Precedent and prototype are made the servants of the designer in solving a modern problem, clothing it in the charm of an interesting though long past period.

The building of a home on a country estate today presents, besides the usual and unusual exigencies of plan conditions incident to particular family requirements, the added problem of catering to a fairly well-defined prejudice or inclination on the part of the client to some historical style. A wave of philanglicism in architecture and decoration has been sweeping over America for the past decade. It is natural that we should look to England for precedent in domestic architecture, inasmuch as the problems to be met and solved in England are probably more nearly similar to our own than are any others. This wave of philanglicism is spending itself in the popular demand for Adam, Georgian and Tudor work.

So, in the "program" presented to Mr. Pope at the outset of his work on the Lehman residence, there was included a

decided inclination to the Early English as one of the salient points for consideration. Seeking inspiration from such a highly developed and wonderful style set a high standard to work upon. The results obtained in the execution of this residence evidence again the ability of Mr. Pope and his organization to attain fine ideals of feeling and atmosphere in outward appearance while satisfying the practical requirements of plan and convenience withal achieving a measure of structural perfection at an economical expenditure compatible with the owner's requirements of permanence and durability.

The success of the exterior of the Lehman residence has been due to the unusual boldness with which the materials have been chosen and used and the sincerity with which the effects of age and weathering have been simulated. The charm and dramatic effect of the building furnish the strongest sort of justification for the deliberate "making of an antique"; not for the sake of the antique, but for the sake of the charm which it possesses. Mass and line and light and shade are fundamental factors in determining beauty in architecture. But color and texture and "patine" are also pawns with which to buy charm and interest, and the architect who chooses his brick and stone and wood and slate with the same care and thought as the painter chooses his pigments, and who builds them together with the studied technique of a painter, is insuring added and sustained interest to a building which may satisfy all the academic requirements of grace and beauty. It is thus that the Lehman residence has been builded.

The character of style and texture once fully determined upon, the boldness of the execution was facilitated by the very practical expedient of constructing models of portions of the building. The principal one of these models consisted of a section of wall erected at the site in a position of average light and shade, in which was built a portion of a window, comprising sill, jamb, head, and one mullion, and over this was a half-

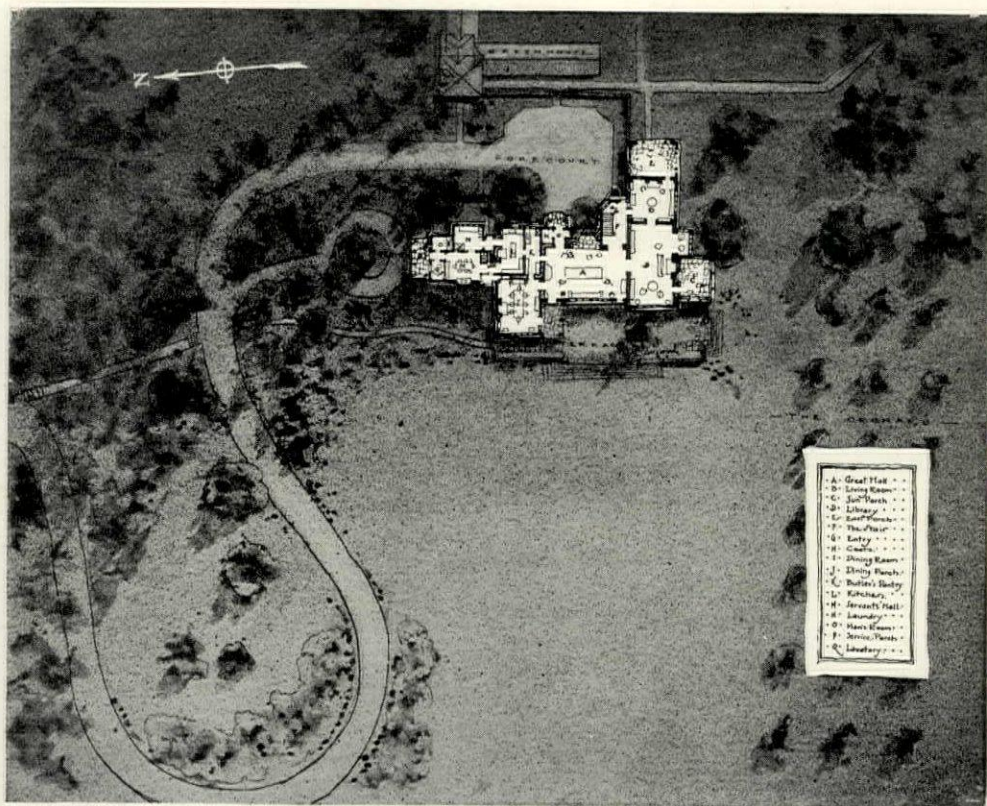


FIG. B. BLOCK PLAN—RESIDENCE OF ALLAN S. LEHMAN, ESQ., TARRYTOWN, N. Y.
John Russell Pope, Architect.

timbered section with overhanging eaves. This model served three distinct and very important purposes. Primarily it assured the designer as to the proper execution of his conception, and it permitted him to study delicate points of relationship between materials which would not otherwise have been possible. The greater the calibre of the designer the more does he insist upon the complete visualization of his work before he feels justified in leaving it to those who are to execute it. The second thing which the model did was to become a specification for the work. The significance of this may be appreciated by the profession, which has had to face on every hand the commercialism of competitive building, a competition which delights in seeking refuge for its shortcomings behind the expression "usual practice" in the execution of work.

When the bidders on the Lehman work

saw and realized that the contract called for the laying up of the split, swelled and fused cull brick from a dozen or so old Dutch kilns, and that the half-timber framework had all exposed surfaces adzed and treated with sandblast, and that the stucco panels could not be placed in any category of current specification phrases, they could realize quite vividly that the line drawings upon which their estimates were to be based had a definite meaning in three dimensions as well as in two.

The third important function performed by the model was that of assuring an intensely interested client that skepticism as to the efficacy of the described methods which were proposed in the finishing of his residence was unfounded, and that such methods would not result in an appearance of dilapidation and wanton destruction if followed in the actual building.

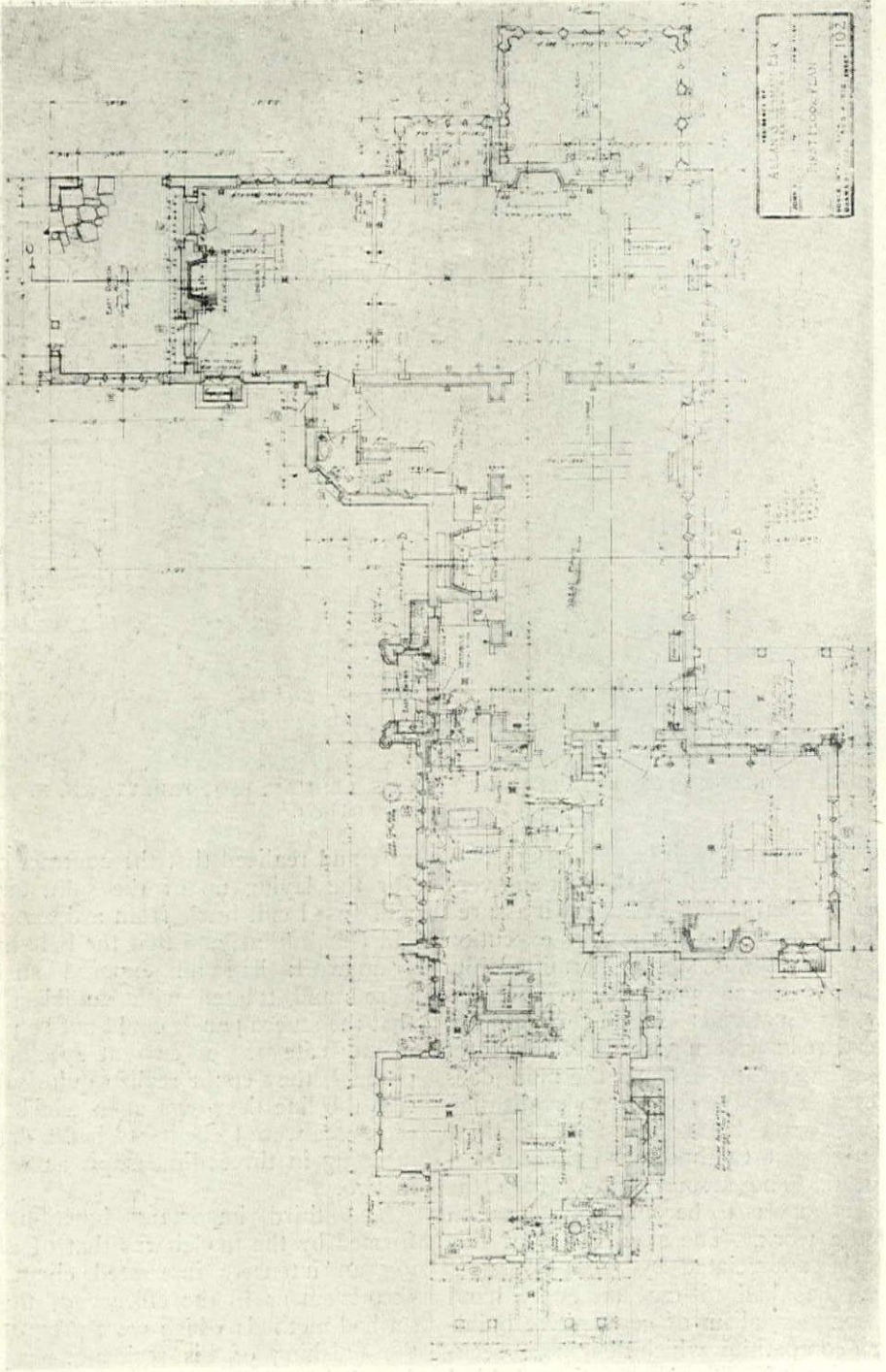


FIG. C. FIRST FLOOR PLAN—RESIDENCE OF
ALLAN S. LEHMAN, ESQ., TARRYTOWN,
N. Y. JOHN RUSSELL POPE, ARCHITECT.

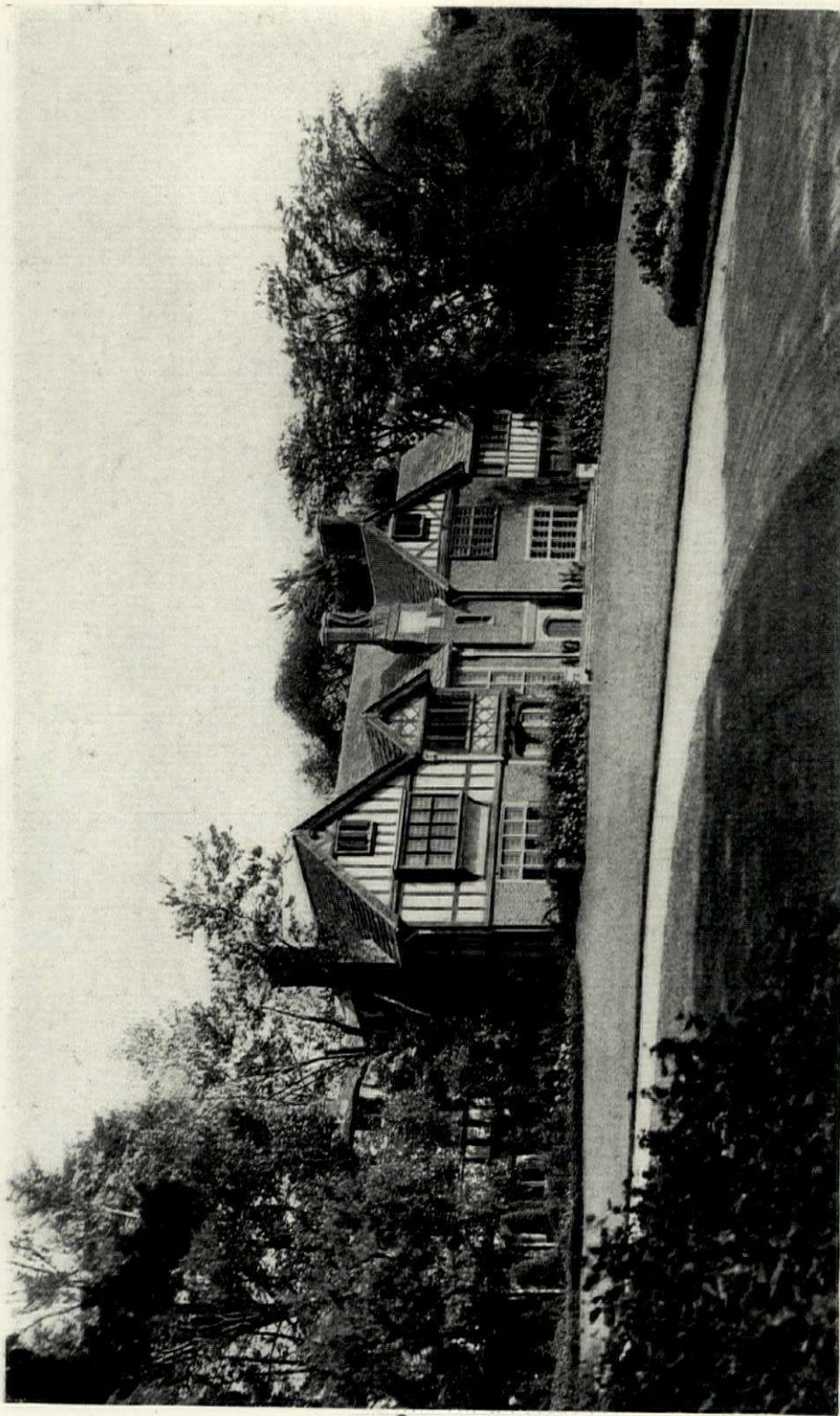


FIG. D. WEST OR RIVER FRONT—RESIDENCE
OF ALLAN S. LEHMAN, ESQ., TARRYTOWN,
N. Y. JOHN RUSSELL POPE, ARCHITECT.

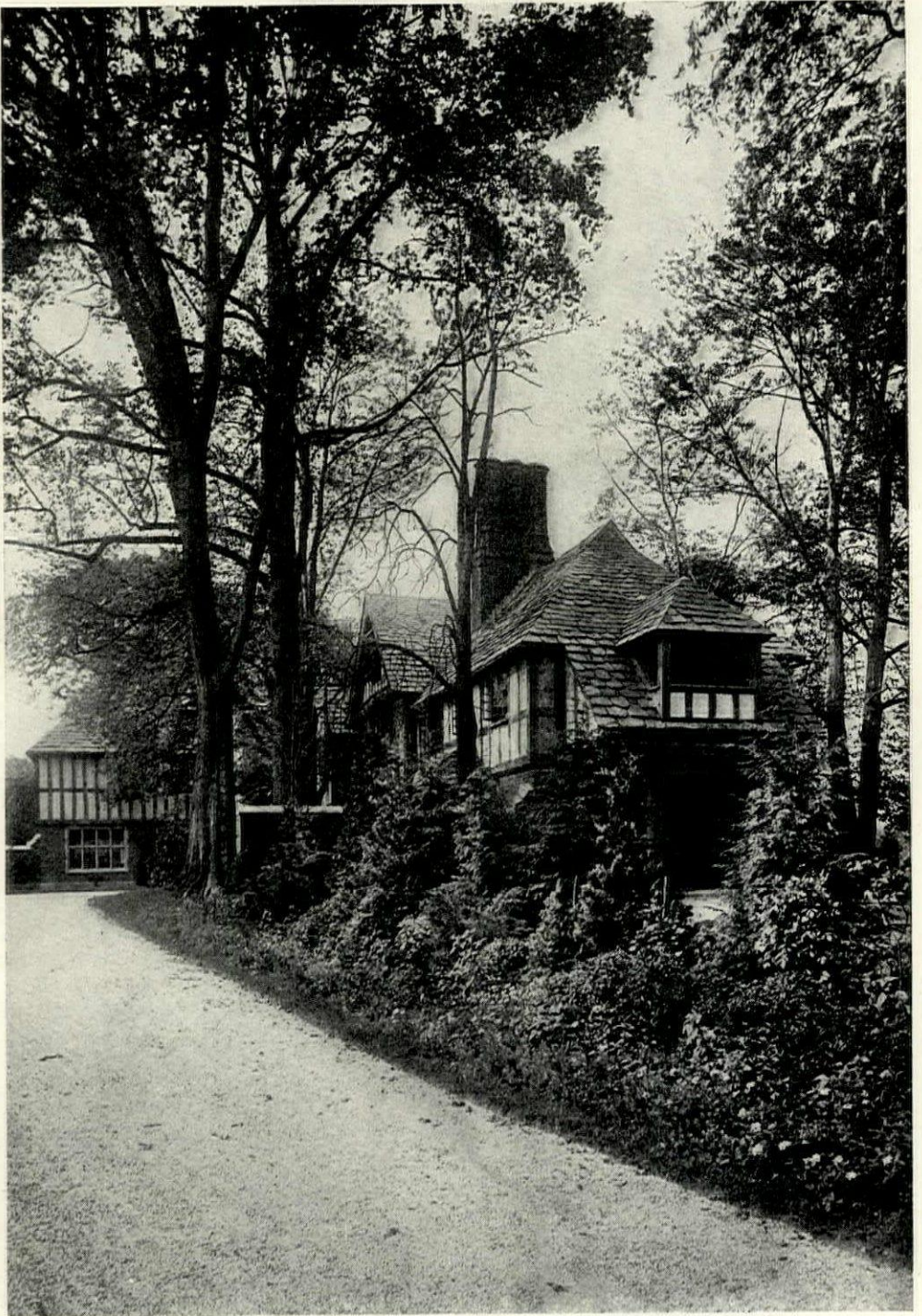


FIG. E. FROM THE ENTRANCE DRIVEWAY—
RESIDENCE OF ALLAN S. LEHMAN, ESQ., TARRY-
TOWN, N. Y. JOHN RUSSELL POPE, ARCHITECT.



FIG. F. FROM THE NORTHWEST—RESIDENCE OF ALLAN S. LEHMAN, ESQ., TARRYTOWN, N. Y.
John Russell Pope, Architect.

The problem of plan presented to Mr. Pope was in a way not a very complicated one as domestic plans go today. The great hall, always the *pièce de résistance* of the Tudor manor house, forms a satisfactory nucleus about which to dispose the other necessary elements of plan requirement. As in the old houses, this great hall is used for circulation and assembly as well as the centre of the life and activities of the household. With this great hall occupying a central position, its great window facing the west, where are the open vistas and views across the Hudson to the Palisades, the natural disposition has been to place the more private and secluded rooms of the family to the south and the service wing to the north with an adjacent dining room ell for convenient service access. The difficulties of vertical circulation where a great hall extends up through two stories has been quite logically and conveniently worked out in this instance by the use of two stairs. The principal one is directly off the great hall and leads to the south suite of mas-

ter's bedrooms; the secondary one in the service wing leads to the children's suite and on up to the third floor. Access is provided from one to the other by an open gallery across the east side of the great hall at the second floor.

So much, then, for a general discussion of the plan. If we consider the exterior in the chronological sequence ordinarily occasioned by a visit to that portion of the estate upon which the house is located, we shall be able to consider details of elevation and plan as we proceed.

The approach to the house is by a devious roadway on the estate, at first between rows of elms along a narrow stream and over an old stone bridge of no pretense save that of picturesqueness. The site of the house is the highest part of the estate, and this height is reached by a long loop between the bridge and the forecourt. It is on the second arm of this loop (Fig. D) that the house is first seen diagonally across the lawn, with a passing view of a typical Tudor composition of gray timbered gables,

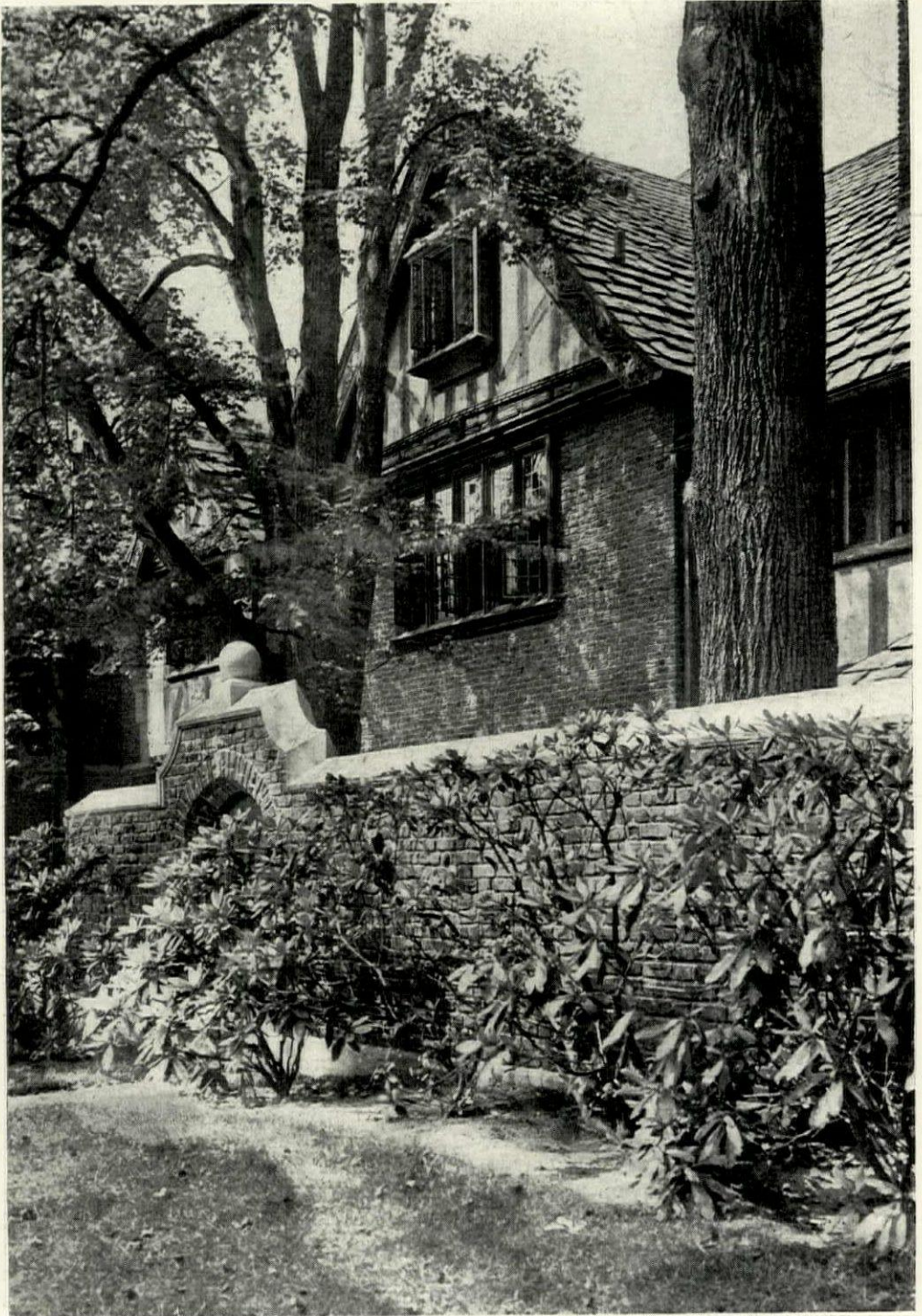


FIG. G. SERVICE COURT WALL—RESIDENCE
OF ALLAN S. LEHMAN, ESQ., TARRYTOWN,
N. Y. JOHN RUSSELL POPE, ARCHITECT.

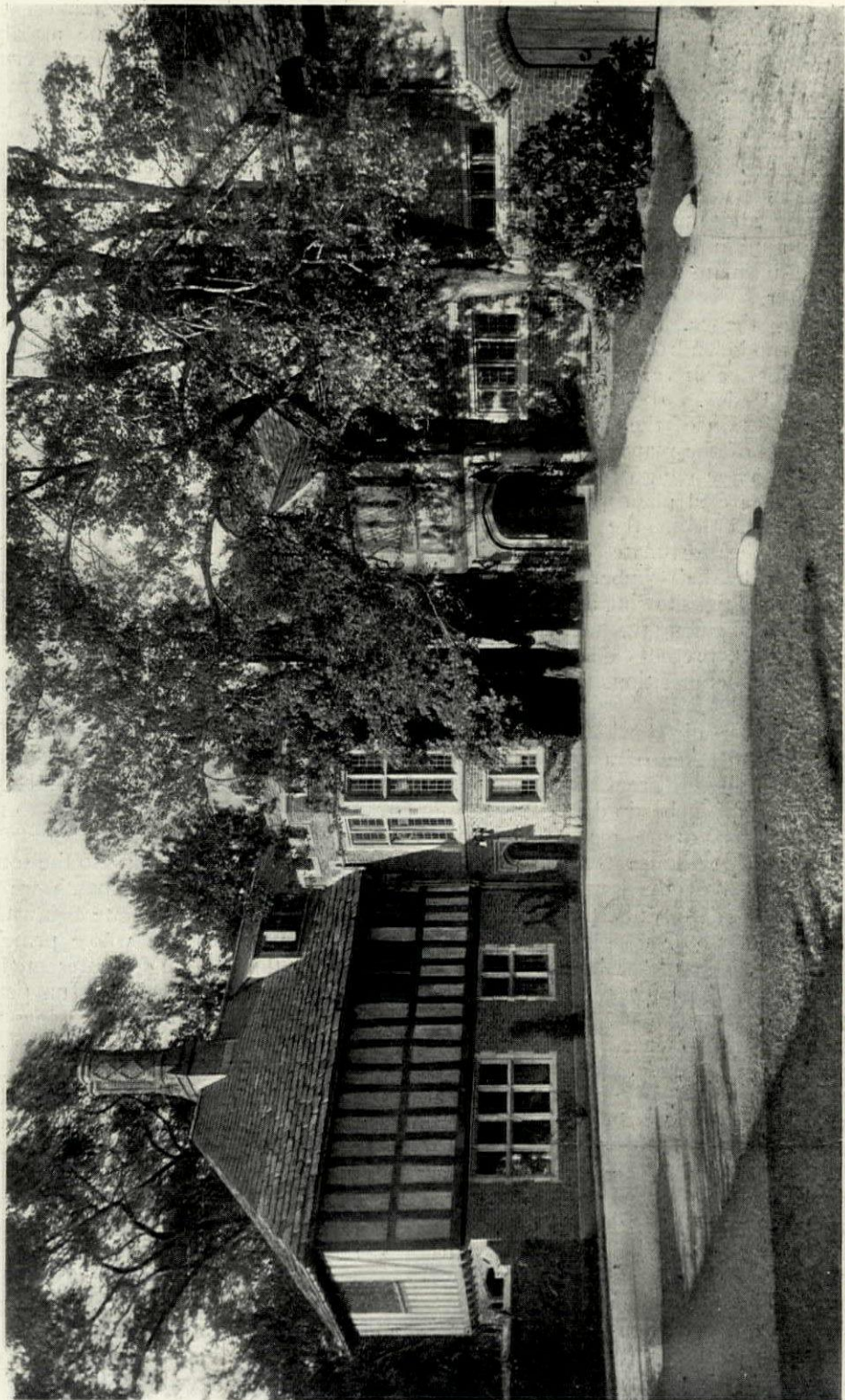


FIG. H. ENTRANCE COURT—RESIDENCE OF
ALLAN S. LEHMAN, ESQ., TARRYTOWN,
N. Y. JOHN RUSSELL POPE, ARCHITECT.

brick walls, quaintly twisted and patterned brick chimneys and a long flat terrace. This passing view (Fig. F) suggests also a very soft harmony of color—a sort of burnt sienna gray brick of velvety texture, leaded casements, brown gray timber, yellow gray stone and warmer toned stucco. One retains this view and impression of the lawn front in mind until one sees it again from a more intimate position on the lawn itself later.

Passing thence, among the trees and beds of rhododendrons, past the carefully planted service drive, the straight length of drive leads to the forecourt. This straight portion of the drive, by the requirements of the planning scheme, goes past the service wing of the house. By thick and careful planting the dooryard is eliminated from the main picture; while by the fortunate feature of its simplicity the half-timbered portion of the service wing, showing above the laundry yard wall among the heavy foliage of the big trees, presents one of the most picturesque compositions of the whole estate (Fig. E).

Here it is realized what great advantage has been taken of a very favorable natural setting. Trees from sixteen inches to thirty inches in diameter, whose topmost branches are more than twice the height of the house itself, grow within a few feet of the house and within inches of garden walls (Fig. G). By the employment of nurserymen to take proper care of trees whose roots and branches might be interfered with during building operations, the house has been successfully placed in a seemingly impossible position. This fact alone would make it seem most certainly a part of the landscape itself as if it had always belonged there.

The forecourt is angular, and that part which is not bounded by the main portion of the house, the stair bay and the library wing, is enclosed by a seven-foot brick wall with stone coping (Fig. H). The long stretch of wall to the east shuts off the greenhouses and gardens. The entrance feature (Fig. I), with its little open loggia on the ground floor and

its gabled second story, is reminiscent of Gifford's Hall, Suffolk. The moldings of the stonework are interestingly crude, and here we get a close enough view of the woodwork to see the texture which has been given to the surface by the process of ship-adzing and sandblasting, and also of the bargeboards whose rich carving is of that style which was a valuable legacy of Gothic to Tudor, and which was so creditably nurtured and used by the latter (Fig. J).

The stair bay (Fig. K), with its long leaded panes, well indicates the plan, and the little problem of getting into the house informally yet comfortably under the stair landing has furnished the opportunity of disposing an intimate looking door (Fig. L) in a manner so typical of the style. Exit to the greenhouse and gardens from the forecourt is through the gate in the wall opposite to the main entrance door. Once through this gate we are shut off from the public and into the private portion of the grounds immediately surrounding the house. The library and the east porch are the most secluded parts of the building (Fig. M). They overlook the south lawn and the gardens of flowers and vegetables to the southeast, and only stray glimpses of the river view can be obtained from these portions.

But as we pass on around to the southwest corner past the sun porch we get the view again of the west lawn or meadow front and the whole principal façade of the building is presented to view (Figs. N and D): the sun porch, the gables, the great hall window and the dining portico, not unlike the fifteenth century Ockwells Manor in Lancashire, save that one small gable of that historic example is ingeniously replaced by an oriel-like chimney motive with a sun dial and a port-hole window. In passing it is interesting to note the form of this sun dial, which has been computed to register accurately the hours and fractions, even though it is placed on a wall facing due west. In the woodwork and carving of the sun porch (Fig. O) there is recalled the old Lavenham Guildhall, variously described as one of the

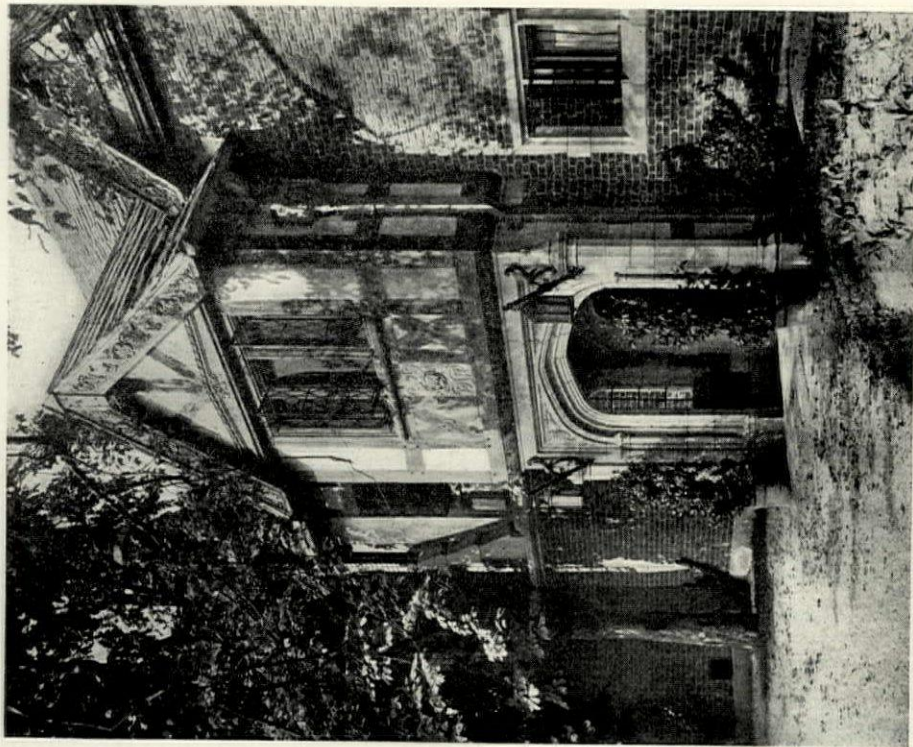


FIG. I. MAIN ENTRANCE—RESIDENCE OF ALLAN S. LEHMAN, ESQ., TARRYTOWN, N. Y.
John Russell Pope, Architect.

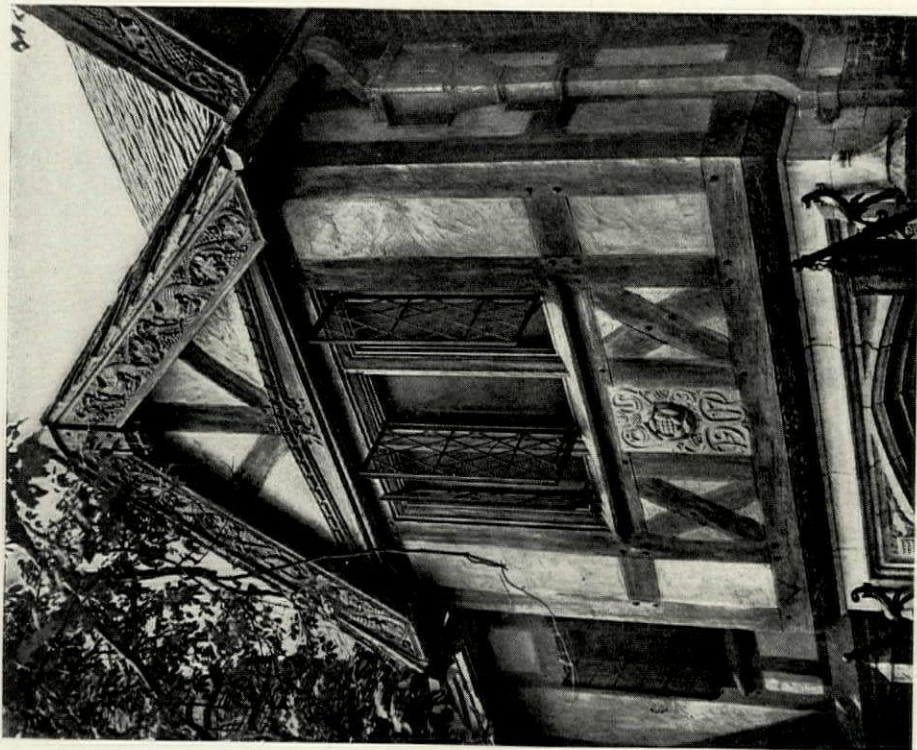


FIG. J. DETAIL OF ENTRANCE GABLE—RESIDENCE OF ALLAN S. LEHMAN, ESQ., TARRYTOWN, N. Y.
John Russell Pope, Architect.

best examples of the early sixteenth century half-timber work. In the gables and bargeboards (Fig. A) and the projecting bays we see the influence of the study of Compton Winyates, the country seat of the Marquis of Northampton, Warwickshire, from which Mr. Pope found so much inspiration for the residence of Mr. Stuart Duncan, at Newport. The bargeboards perform the structural function of protecting the half-timbered gable portions from the weather; but the effect of age and weather has been approximated by the finish given to them, so that we can say of this building, as has been said of its prototypes, "even without ornament on gables, leaders or vergeboards the texture of wood becomes so beautiful through age and weather as hardly to require ornament." The color of the woodwork is successful just in so far as the silver gray of weathering has been produced instead of the brown which is so prevalent in work of newer appearance.

The possibilities of the use of cypress as an exterior material have always been conceded structurally, as it ranks among the best American woods for good weathering qualities and strength. But it has remained for this example of Tudor work to show that it is possible, by proper treatment, to produce the pleasing effects of aged oak and to obviate the present difficulties and expense of obtaining the heavier material. Cypress has been used throughout for exterior work.

Ockwells Manor is most closely followed in the dining porch (Fig. P). The porches of the entire house, four on the first floor and three on the second, are disposed within the mass of the building, and a very difficult problem which always confronts the designer in Tudor work has been successfully overcome. The service porch on the north is included within the building by carrying the north end of the service wing roof down in a sweep which ends at the eaves of the lower porch. The library, or east, porch, which is on the north and south axis of the main drive and forecourt, is enclosed on the north by a masonry wall pierced

by an unglazed window. The second story extends completely over this porch. Both the sun porch and dining porch carry a projecting second story above, in which has been placed a sleeping porch. So the plan abounds in porches without extrusion.

The consistency with which the artistic effects produced by original sketches have been carried into execution applies to the roof as well as to the other parts of the house. Much of the charm of the Tudor roofs and those of Normandy of the same period is due to the irregularity of gradation in size and thickness and the humanizing effect of patches and repairs. In the Lehman residence texture is augmented by a studied gradation of color as well, in which unfading black slate from Virginia is used at the ridge and predominates in the upper third of the roof. Receding from the ridge, weathered and fading greens and olive grays from exposed quarry ledges in Vermont are mixed in. At the eaves the Vermont varieties predominate in sizes up to thirty inches in length and an inch thick. The leaded gutters at the eaves and the hand-wrought leaders and leader heads are distinctly in the period as to design and particularly as to execution.

The west terrace is the embodiment of the spirit of the Tudor idea of domesticity. The forbidding moat of an earlier period is replaced by a long embracing terrace, almost as another room of the dwelling, inviting and pleasant and open. In this instance all the principal rooms of the house have entrance onto it. The dining room and great hall have doors onto the open dining porch into which the terrace intimately extends. The great hall has a door to the terrace under the oriel chimney and the southwest sun porch opens onto it. The level of its worn flagstones and its grass is the same as the floors of the rooms inside the house. The enclosing wall is very low and does not shut out the open meadow down to which the long line of low steps leads. The natural landscape advantages of the site, the topography and the large trees and the careful placing of the house

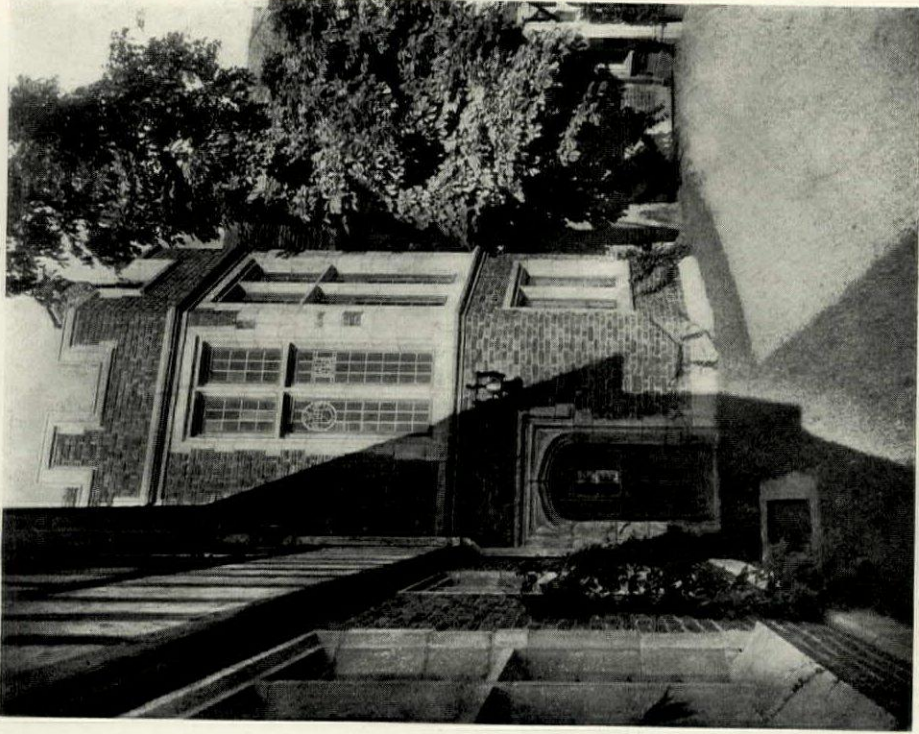


FIG. K. STAIR TOWER—RESIDENCE OF ALLAN S. LEHMAN, ESQ., TARRYTOWN, N. Y.
John Russell Pope, Architect.

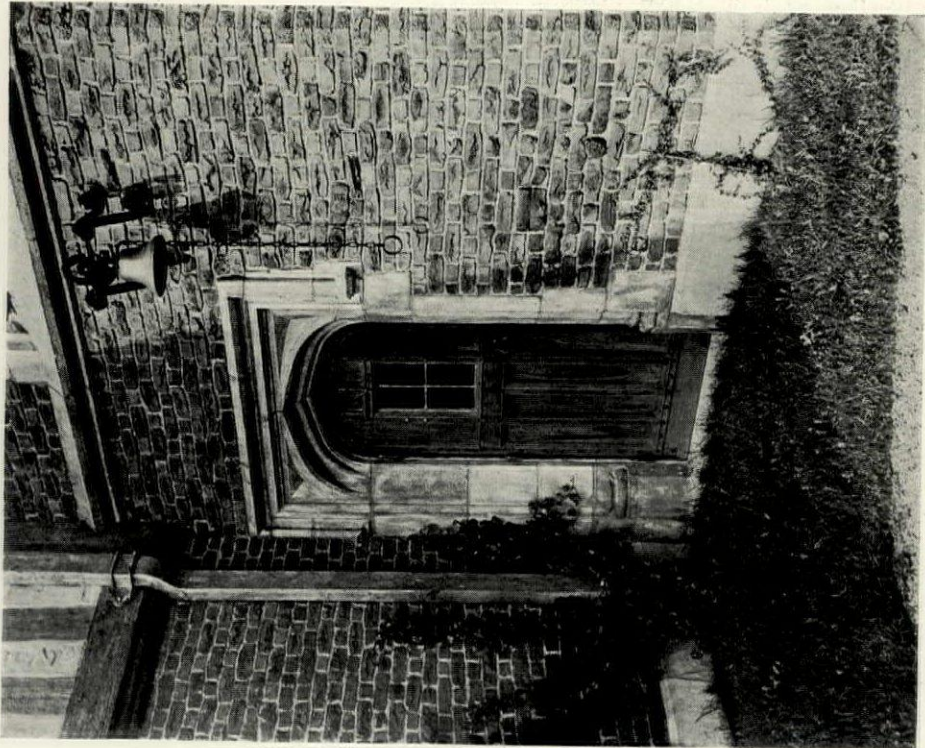


FIG. L. DOORWAY IN STAIR TOWER—RESIDENCE OF ALLAN S. LEHMAN, ESQ., TARRYTOWN, N. Y.
John Russell Pope, Architect.



FIG. M. FROM THE SOUTHEAST—RESIDENCE OF ALLAN S. LEHMAN, ESQ., TARRYTOWN, N. Y.
John Russell Pope, Architect.

with reference to them have made it necessary to use planting only sparingly and as a supporting adjunct or detail in the architectural scheme.

There is always a certain intimacy between exterior and interior in a Tudor building due to the practice of using full thickness stone mullions in the windows which show in the rooms. This is a pleasing heirloom from the Gothic which gives strength and character to Tudor interiors. This should not necessarily lead to crudity of interior detail, but unfortunately it often does just that in actual practice. There is an attractiveness about "primitives" which makes them interesting to look at and to enjoy as museum subjects; but the refinement of our domestic requirements today are such as to make it imperative, or at least advisable, to exercise a great deal of care in the execution of interior finish and the choice of furnishings and hangings. That which has a momentary appeal may not wear well. In most instances in the interiors of the Lehman residence crudity has been avoided by simplicity. The great

hall (Figs. S and T), the show place of the house, is most elaborately finished and appointed in architectural detail and applied decoration. The most important feature of the room is its great window to the west, fourteen feet wide and extending some nineteen feet from the floor. Opposite to it is the large stone mantelpiece in a sort of inglenook under the gallery, which is used as circulation between the two wings of the house on the second floor. The contrast between the light plaster and the applied irregular half-timber is not generally to be commended in interiors of this sort.

The wood trim and doors in the dining room are the most interesting details of that room (Fig. Q). The trim is of well selected old oak and it is set flush with the plasterwork—a feature which is not always easy to accomplish in modern work, but which does more than any other one thing to give the feeling of the old half-timber construction.

The simplicity of the living room rivals that of the dining room. The warm-toned, slightly rough-finished plaster of

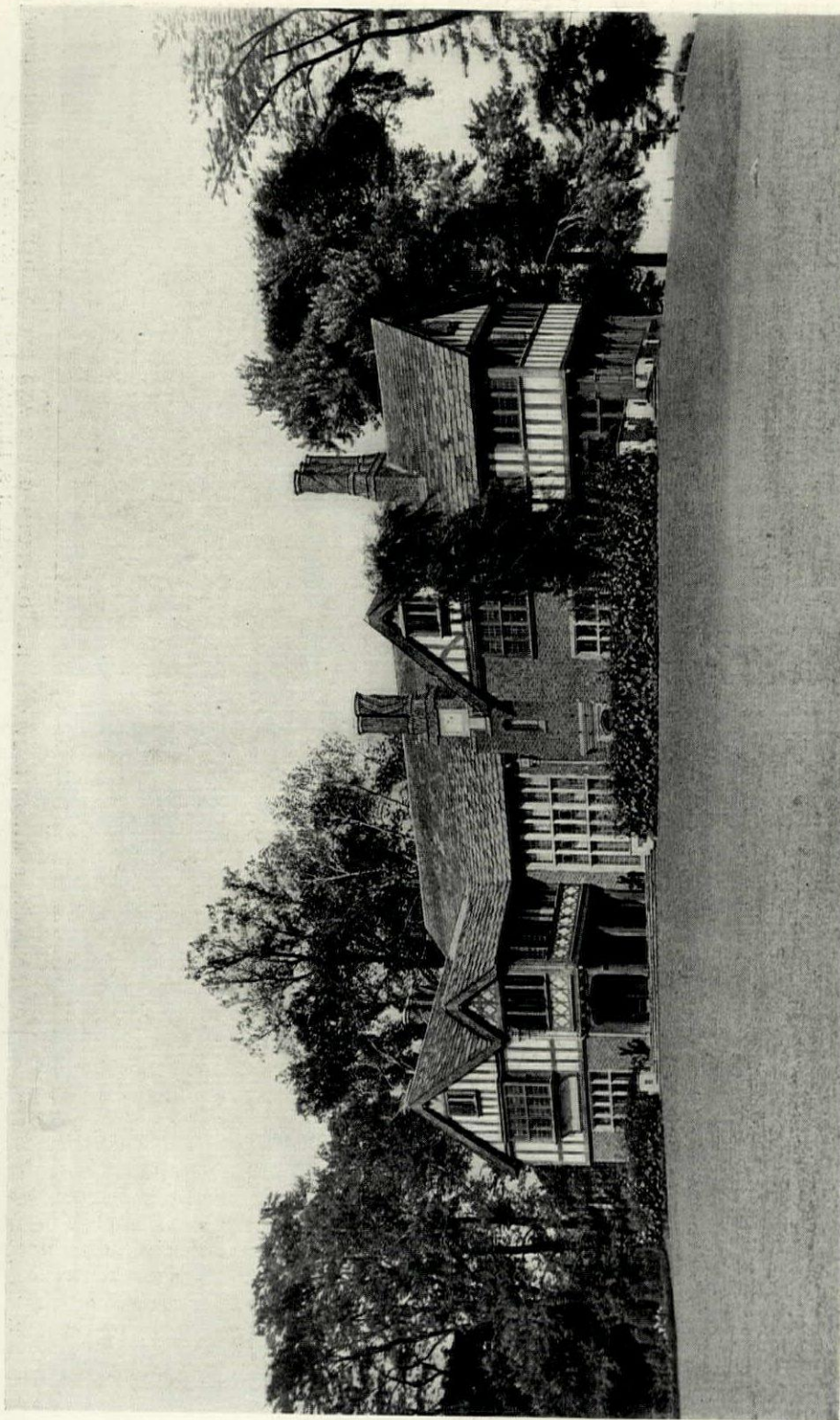


FIG. N. THE RIVER FRONT—RESIDENCE
OF ALLAN S. LEHMAN, ESQ., TARRYTOWN,
N. Y. JOHN RUSSELL POPE, ARCHITECT.

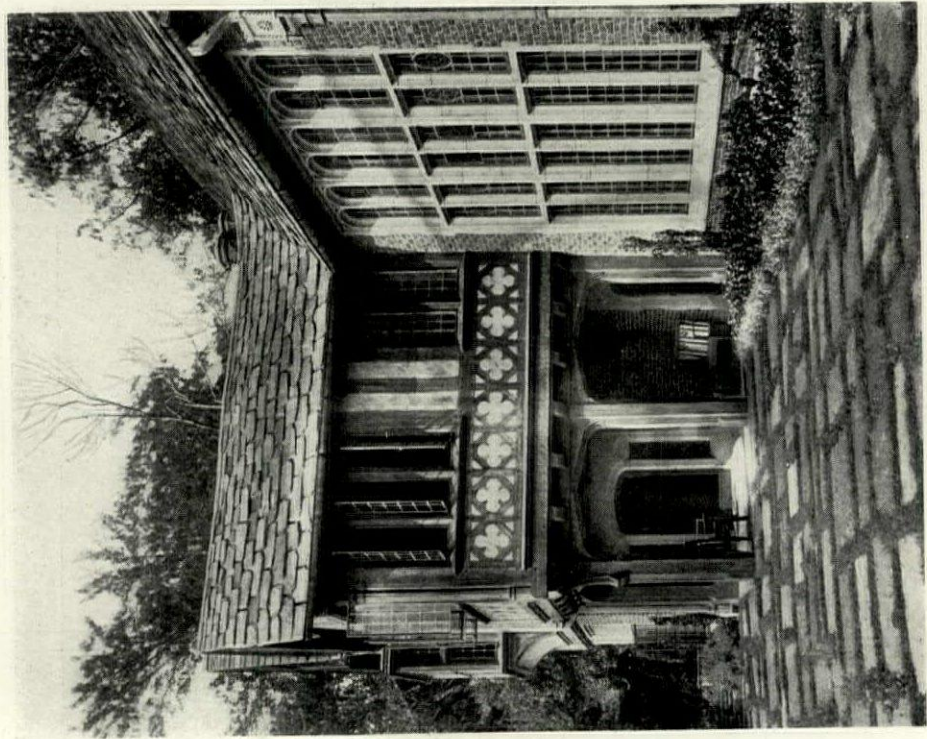


FIG. P. THE TERRACE—RESIDENCE OF ALLAN S. LEHMAN, ESQ.,
TARRYTOWN, N. Y.
John Russell Pope, Architect.

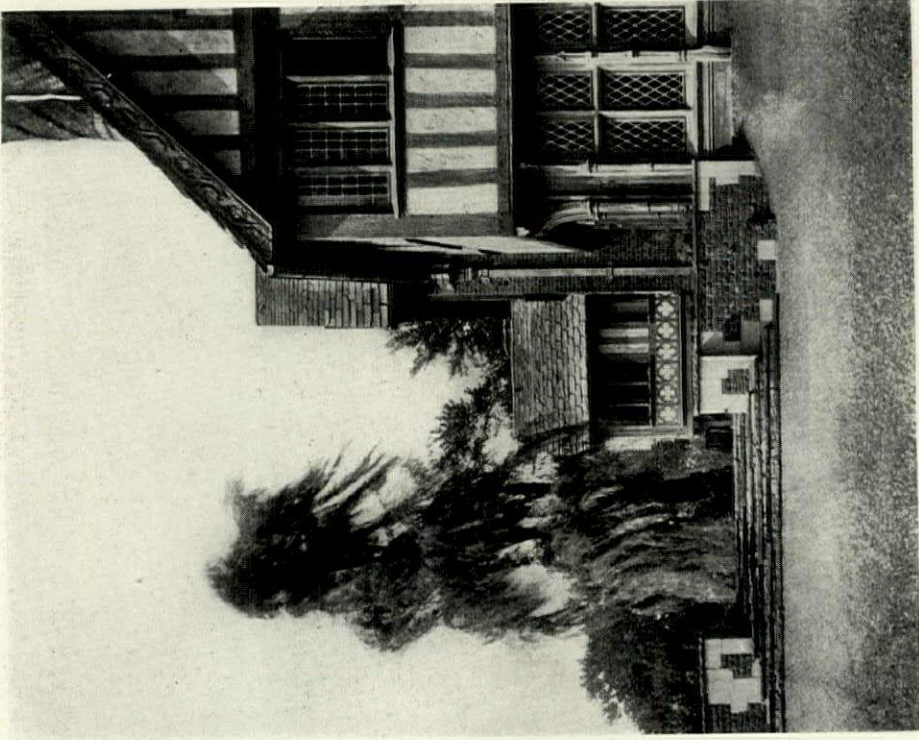


FIG. O. SOUTH GABLE AND ENCLOSED PORCH—RESIDENCE OF
ALLAN S. LEHMAN, ESQ., TARRYTOWN, N. Y.
John Russell Pope, Architect.

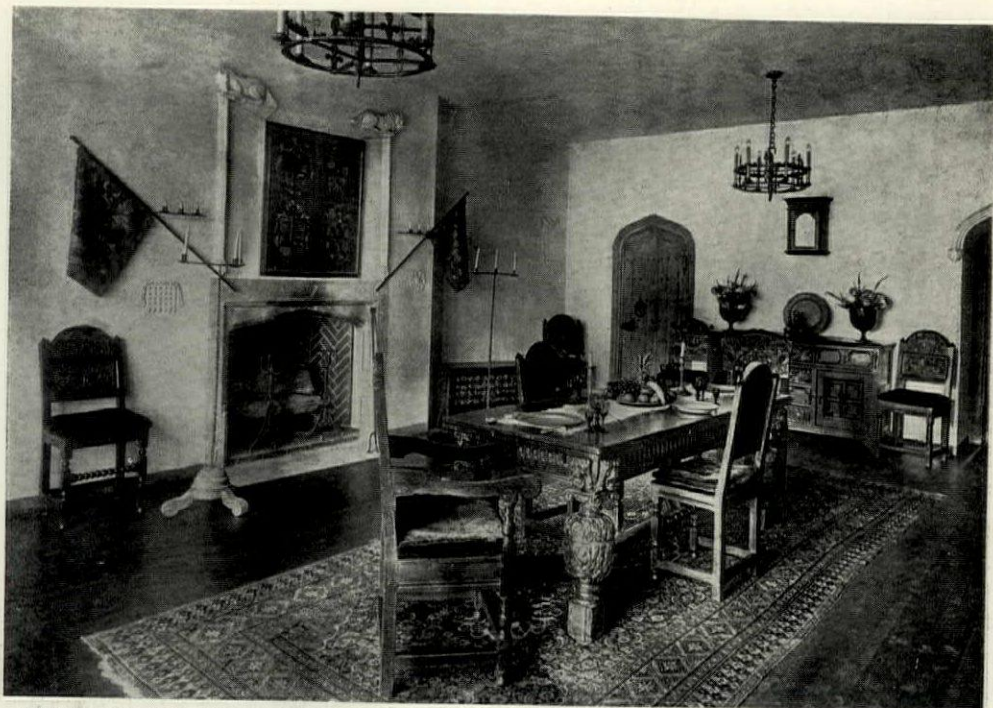


FIG. Q. THE DINING ROOM—RESIDENCE OF ALLAN S. LEHMAN, ESQ., TARRYTOWN, N. Y.
John Russell Pope, Architect.



FIG. R. THE LIBRARY—RESIDENCE OF ALLAN S. LEHMAN, ESQ., TARRYTOWN, N. Y.
John Russell Pope, Architect.



FIG. S. THE LIVING HALL—RESIDENCE
OF ALLAN S. LEHMAN, ESQ., TARRYTOWN,
N. Y. JOHN RUSSELL POPE, ARCHITECT.

the walls has been left in its natural condition and is an appropriate background for the several pieces of interesting furniture in the room. The small library (Fig. R) is the room of greatest privacy and seclusion on the first floor and has been treated as such in its refined finish of old wood wainscot and low ivory-tinted plaster ceiling in flat relief. The colors of the room are very quiet and rather dark, the bookshelves being covered with secret panel doors to avoid the introduction of additional color or relief. The only interior door into the library is from the living room, except for the secret door at the side into the stair hall, by which one can enter on coming down from the second floor without going through the more public great hall.

The stair hall extends through two stories and is very open and light. It has the three large windows extending from the exterior belt course up to the ceiling, and it embraces a portion of the long gal-

lery of the great hall and a part of the corridor of the suite of master's rooms in the south or library wing. The stair itself is of oak, disposed in three runs of eleven, five and five risers, approximating rather closely the best examples of Tudor and Elizabethan stairs.

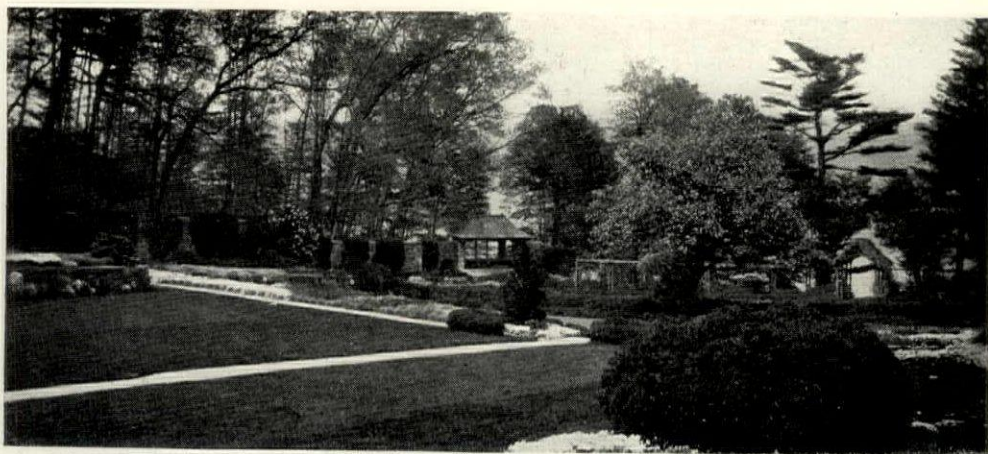
Of this house it may be said that it has been practically planned and carefully executed. The success of the architect in an operation of such unique accomplishments has been due to his ability to lead his client during the entire course of the conception and development of the building, while always maintaining a due and serious regard for the client's wishes and actual requirements. It is for such leadership in thought and service in action that a man of discretion seeks the advice and association of an architect of ability and standing. Mr. Lehman's new residence at Elmbrook is a decided step forward in the progress of the peaceful art of domestic architecture in America.



FIG. T. END OF LIVING HALL—RESIDENCE
OF ALLAN S. LEHMAN, ESQ.,
TARRYTOWN, N. Y.
John Russell Pope, Architect.



ONE OF THE TWO GATES—GARDEN AT
BEACON HILL HOUSE, NEWPORT RESIDENCE
OF ARTHUR CURTIS JAMES, ESQ. OLM-
STED BROTHERS, LANDSCAPE ARCHITECTS.



GARDEN AT NETHERMUIR—RESIDENCE OF H. W. DE FOREST, ESQ.,
COLD SPRING HARBOR, N. Y.

— The —
WORK OF OLMSTED BROTHERS

By John Taylor Boyd, Jr

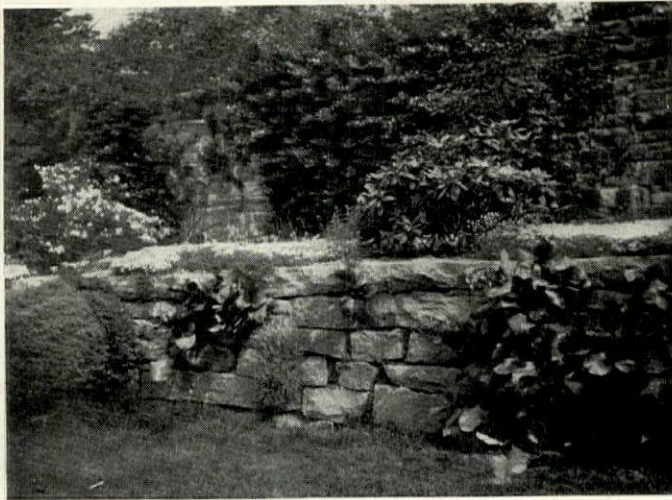
PART II

THE large parks in New York, Brooklyn, Chicago and Buffalo that Olmsted laid out in partnership with Vaux and Withers must have given him a great push forward. After the partnership was dissolved, his elder son, John C. Olmsted, joined his father in 1875, to remain with him throughout the length of his career and then, after the death of Olmsted senior, to continue at the head of the firm, which he leads today, apparently as vigorous as ever. Truly a record to be compared with his father's. Mr. John Olmsted has an uncanny memory for details, for conversations, instructions. Immediately upon joining with his father he became the latter's whole office force, doing all the drafting himself, keeping all the records. When Frederic Law Olmsted traveled to superintend the work, his son went with him, witnessed all the transactions and decisions, and acted as secretary to his father in meetings with clients.

Many commissions came to Frederic Law Olmsted. In New York City he laid out Madison Square and Tompkins

Square, while Riverside Drive was started. Then, in association with Mr. Croes, an engineer, a vast scheme for the whole of Westchester County was drawn up, a forerunner of the great real estate development schemes of today. Mr. Croes worked out a complete rapid transit system of railways—cut and fill, etc., in the correct method—which if stuck to would have saved millions of dollars. Those who know how awkward the present entrance of the New York Central Railroad into New York City is will realize what a boon it would be to the dwellers in the district north of the Harlem River had the transit problems been solved before the growth of vested interests and the enormous increase in real estate values had rendered a thorough solution impossible.

In the Westchester County project Olmsted devised the system of curvilinear streets. The whole effort was a fine example of early city planning, but, unfortunately, it was too far ahead of its time to be adopted. It furnishes a striking example of Olmsted the pioneer—



VIEW IN GARDEN AT NETHERMUIR—RESIDENCE OF
H. W. DE FOREST, ESQ., COLD SPRING HARBOR, N. Y.
Olmsted Brothers, Landscape Architects.

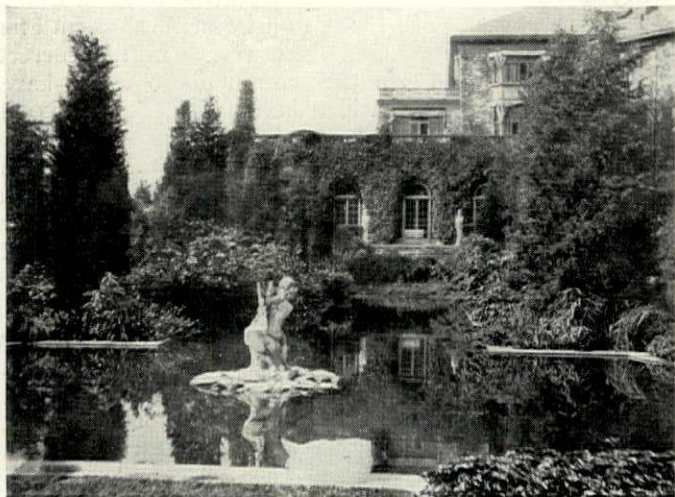
always adventuring into new paths in his profession; always adapting it to new uses.

The summers of '78 and '79 the Olmsteds spent in Cambridge, Mass., working on plans for the Back Bay Fens of Boston. Here Olmsted's practical and literary genius won acceptance for his plans from the Boston authorities. The "Fens" were a large basin of tidal marshes that blocked Boston's growth toward the west. So noisome were they from receiving the sewage of many neighboring districts that they threatened to devastate Boston with epidemics. Olmsted proposed to drain them, confine their wandering, sluggish streams between well-defined banks, to add paths and roadways, and to create thus a park. Thereby he hoped so to increase land values in the neighborhood of the Fens and to the west of Boston that the millions of dollars spent in the improvement would be more than paid for. His project seemed too good to be

true to the business men of that day, but they accepted the scheme as a necessary measure of sanitation. Afterwards, it may be remarked, the growth of real estate values around the Fenway surpassed even the hopes of the landscape architect. It was often this way; for Olmsted gained the acceptance of many projects by utilizing their practical possibilities to the utmost.

With the adoption of these plans of his for the Fenway, Frederic Law Olmsted became the landscape architect of the Boston Park Commission

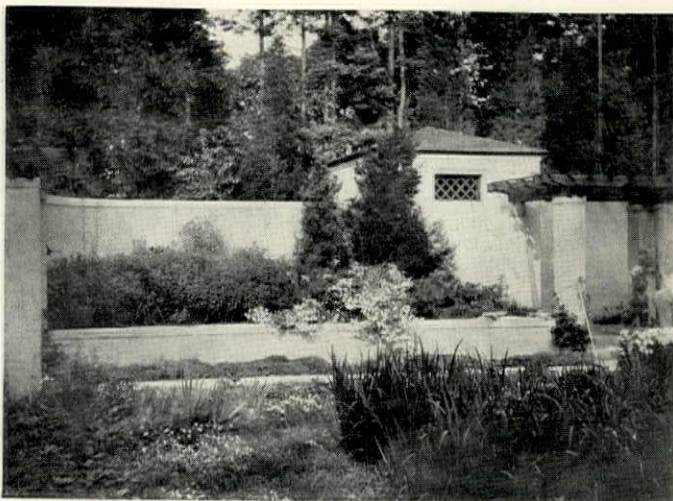
in 1880. He took up his residence in Brookline, the Boston suburb, in order to be near Mr. H. H. Richardson, the celebrated architect, his contemporary. Mr. Richardson and Mr. Olmsted had been close friends ever since the two had worked together on the Albany Capitol, where Mr. Olmsted laid out the grounds. In a room of his Brookline house the Olmsted firm's office was established, where it still is today, much enlarged.



LOOKING UP LONG POOL TOWARD TERRACE—GARDEN OF
ARTHUR E. DAVIS, ESQ., DOVER, MASS.
Olmsted Brothers, Landscape Architects.

In Brookline Frederic Law Olmsted worked on the practice of the firm. As his first junior partner he took Henry S. Codman, a nephew of Professor Charles Sargent, a man invaluable in consultation and in his powers of persuasion. Mr. Codman entered the firm in 1889 and died in 1893.

Then came Charles Eliot, son of President Eliot of Harvard. Eliot contributed greatly to the firm, doing effective work in the design of the great Metropolitan Park System of Boston. Eliot entered the firm in 1893 and died in 1897. His activity is covered in a biography written by his illustrious father. Like the elder Olmsted, he, too, by his reports and writings, did valuable service in the cause of landscape architecture. Especially notable is his report on the Vegetation and Scenery of the Metropolitan Reservation (Boston) in 1897. Frederic Law Olmsted's reports to the Boston Park Commission are still models for the landscape profession; mines for in-

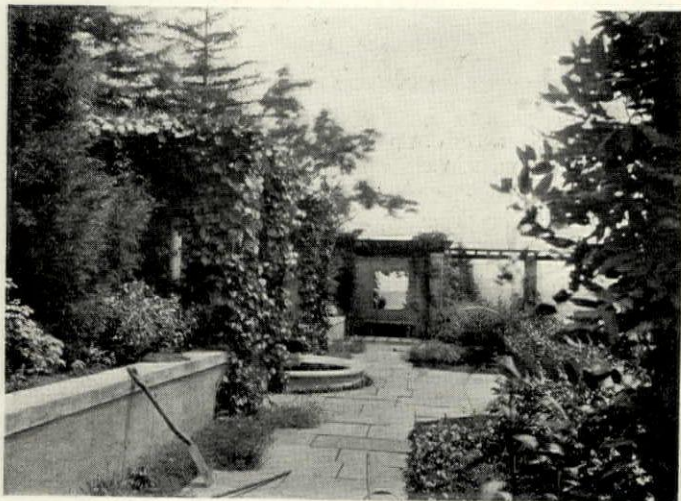


ONE OF THE TWO GARDEN HOUSES, WITH ADJACENT TREATMENT, IN GARDEN OF CHARLES W. HUBBARD, ESQ., AUBURNDALE, MASS.

Olmsted Brothers, Landscape Architects.

formation and for the material of propaganda. His paper read before the Society of American Political and Social Science, "The Justifying Value of a Public Park," is celebrated in landscape architectural circles.

The work of the firm went on, largely on parks and private estates, until the World's Fair at Chicago in 1893. The Olmsteds were the landscape architects of the Fair, and the ground plan of it was made in their office. Five architects, chosen from different geographical districts of the United States, shared in the design of this ground plan, and they took over the design of the more important buildings. The ground plan was drawn up from various sketches of the Grand Court, after discussions with Mr. John Root of Chicago, Olmsted relocating the buildings. Mr. Charles McKim came frequently to Brookline to assist in the design, also Mr. Robert S. Peabody of Boston, and Mr. Augustus



GARDEN OF CHARLES W. HUBBARD, ESQ., AUBURNDALE, MASS.

Olmsted Brothers, Landscape Architects.

St. Gaudens, the sculptor, though the latter was too busy to give much time to the project.

In 1898, the senior Olmsted's younger son, Frederic Law Olmsted, Jr., joined the firm, after graduating from Harvard in 1894, traveling in Europe, and serving an apprenticeship in the nurseries of Mr. George Vanderbilt at Biltmore, North Carolina. "F. L." Jr., as he is popularly known by many of his fellow landscape architects, has occupied himself largely with town and city planning, and, in addition, has been the head of the School of Landscape Architecture at Harvard. Very recently, since the nation entered the world war, he has taken a prominent part in the planning of cantonments and housing schemes with the Council of National Defense at Washington.

With the entrance into partnership with Olmsted Bros. in 1906 of James Frederick Dawson and Percival Gallagher as associate members, the list of men who have been connected with the firm comprises seven—the three Olmsteds, and Messrs. Codman, Eliot, Dawson and Gallagher.

Certain aspects of the Olmsted firm deserve notice. The elder Olmsted dealt largely with parks. Besides his first works and the work for the Metropolitan Park System of Boston, there were numerous projects of his in the Eastern and Western States. In Buffalo are to be counted also South Park and Cazenova Park. Delaware Park had been designed by Olmsted and Vaux and was revised by John Olmsted. It resembled

Central and Prospect Parks in New York in that it was laid out after one plan, consistently and comprehensively carried out by landscape architects, not gardeners or engineers; and in that it was financed by large bond issues. The reservation around Niagara Falls is also another Olmsted work, planned by the elder Olmsted during his partnership with Vaux. In Boston, minor parks, like Charlestown Heights, Wood Island Park, and some playgrounds, are to be noted

in addition to the work mentioned above. The Cambridge, Mass., system was designed by John Olmsted. In Chicago the Olmsteds had long relations. Olmsted and Vaux had laid out Jackson Park there, planning a canal connecting two parks. After the changes due to locating the World's Fair in Jackson Park, this park was redesigned for the second time, largely reverting to the original plan. With his father, Mr. John Olmsted drew the plans for parks in Portland, Oregon, in Seattle, in Spokane, and in Milwaukee; and with



GARDEN AT NETHERMUIR—RESIDENCE OF
H. W. DE FOREST, ESQ., COLD SPRING
HARBOR, N. Y.

Olmsted Brothers, Landscape Architects.

Mr. Codman's aid he schemed the Louisville parks entirely from the beginning. Also parks in Atlanta, in Charleston, Kentucky, and in New Orleans. Mount Royal Park at Montreal is another Olmsted design.

At Washington the Capitol grounds are largely the conception of the elder Olmsted, the terracing being designed by Thomas Wisedell, an English architect. In these Capitol grounds one cannot help regretting that Frederic Law Olmsted's devotion to the informal ideal carried him

too far. The imposing extent of walks nearly one mile long, with the great domed Capitol at one end and the tall Washington Monument at the other, creates an axis that cannot be ignored—not only an axis, but a demand for a vista. The planting of trees and shrubs shows, of course, all the Olmsted skill. But if one stands on the large mound at the base of the Monument, even the dome of the Capitol cannot be seen. The Capitol has no relation to the Monument or the other features of the Mall save that of being set in the same great space. It has no relation through an effect attained by any elements of architectural design. However this may be, one cannot praise too highly the planting of the White House grounds. There the lovely old masterpiece of earlier times stands out, framed by massed planting, simple yet quietly dramatic—rich masses of greens throwing into relief the beautifully proportioned white walls against the deep blue southern sky, in a flood of sunshine. Even during the long winter months the color is exquisite. The soft light violets and browns of differing species of trees, contrasted with a few evergreens, stand lace-like in front of the white walls; the sky still blue, but often with that violet blue, opaque instead of transparent, that one sees close to the horizon in Paris.

More recently the Olmsteds have handled the parks in the Oranges, in Newark and in Essex County, New Jersey. This particular park system was

begun about twenty years ago and is still being carried on by Mr. Gallagher. It is altogether a fine example of a park district, composed of parks connected by boulevards or parkways of the same type as those of the earlier Boston system.

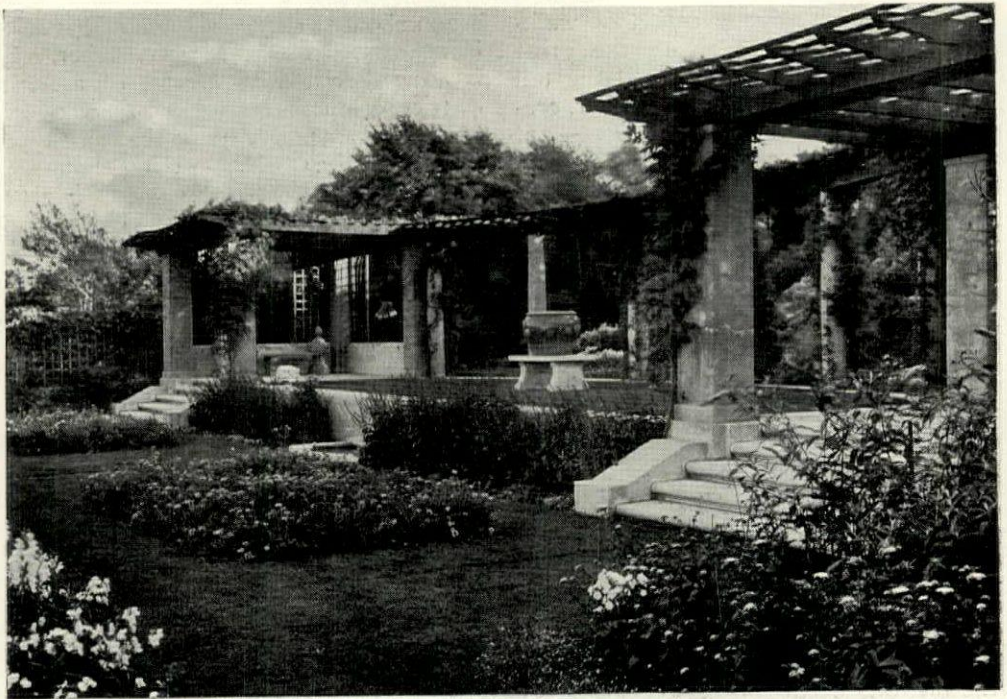
But of late years the design of large public parks has languished. The reason for this is that most American cities have been provided with some sort of parks; but, more than that, the public has turned its attention to city planning and to playgrounds. Such needs are more pressing today. It is fortunate that Olmsted and his school—for his office may be said to be a school in which many members of the landscape professions received their training—were responsible for most of the best parks of our cities. Often, indeed, their loveliness is the sole ornament of their community, and it is to be regretted that contemporary engineers in their city plans and architects in their buildings fell so far below the standards set by the Olmsteds.

As heretofore noted, the elder Olmsted established a park tradition in America that was both naturalistic and practical. In each case the design was an expression both of the topography and of its flora; and, in addition, the practical needs of communication or recreation were explicitly provided. If the park had several different functions to perform, each function was clearly perceived and coherently provided in a well co-ordinated and subordinated scheme. In this, as

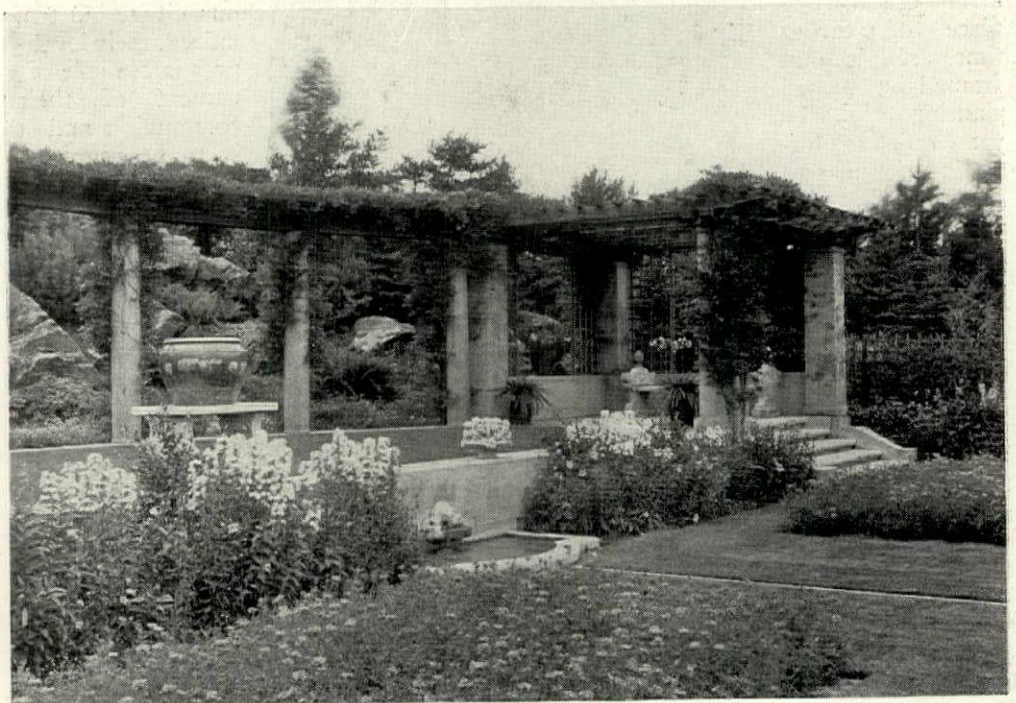


GARDEN AT NETHERMUIR—RESIDENCE OF
H. W. DE FOREST, ESQ., COLD SPRING
HARBOR, N. Y.

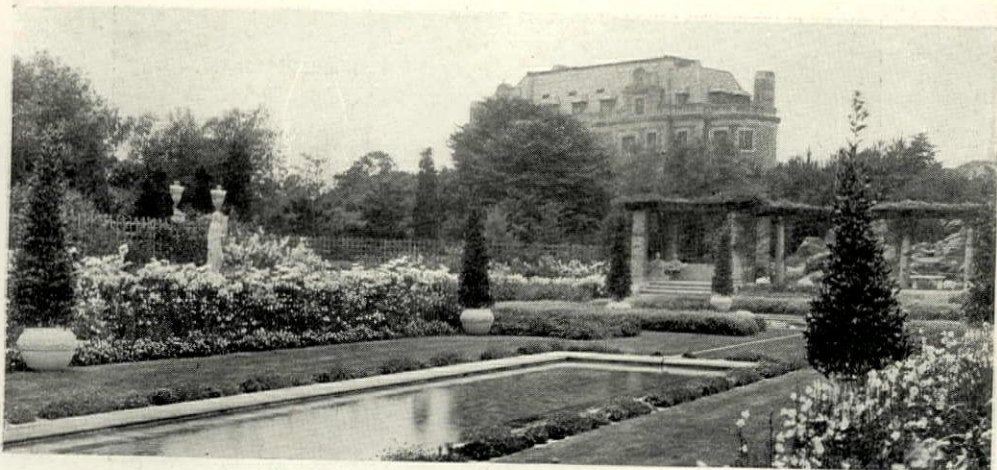
Olmsted Brothers, Landscape Architects.



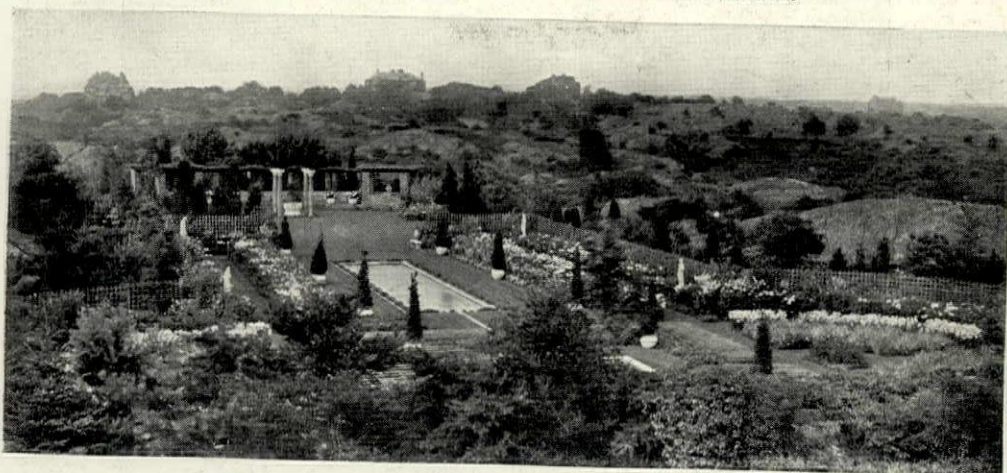
PERGOLA IN THE BLUE GARDEN, BEACON HILL HOUSE, NEWPORT RESIDENCE OF ARTHUR CURTIS JAMES, ESQ.



PERGOLA AT BEACON HILL HOUSE, NEWPORT RESIDENCE OF ARTHUR CURTIS JAMES, ESQ.
Olmsted Brothers, Landscape Architects.



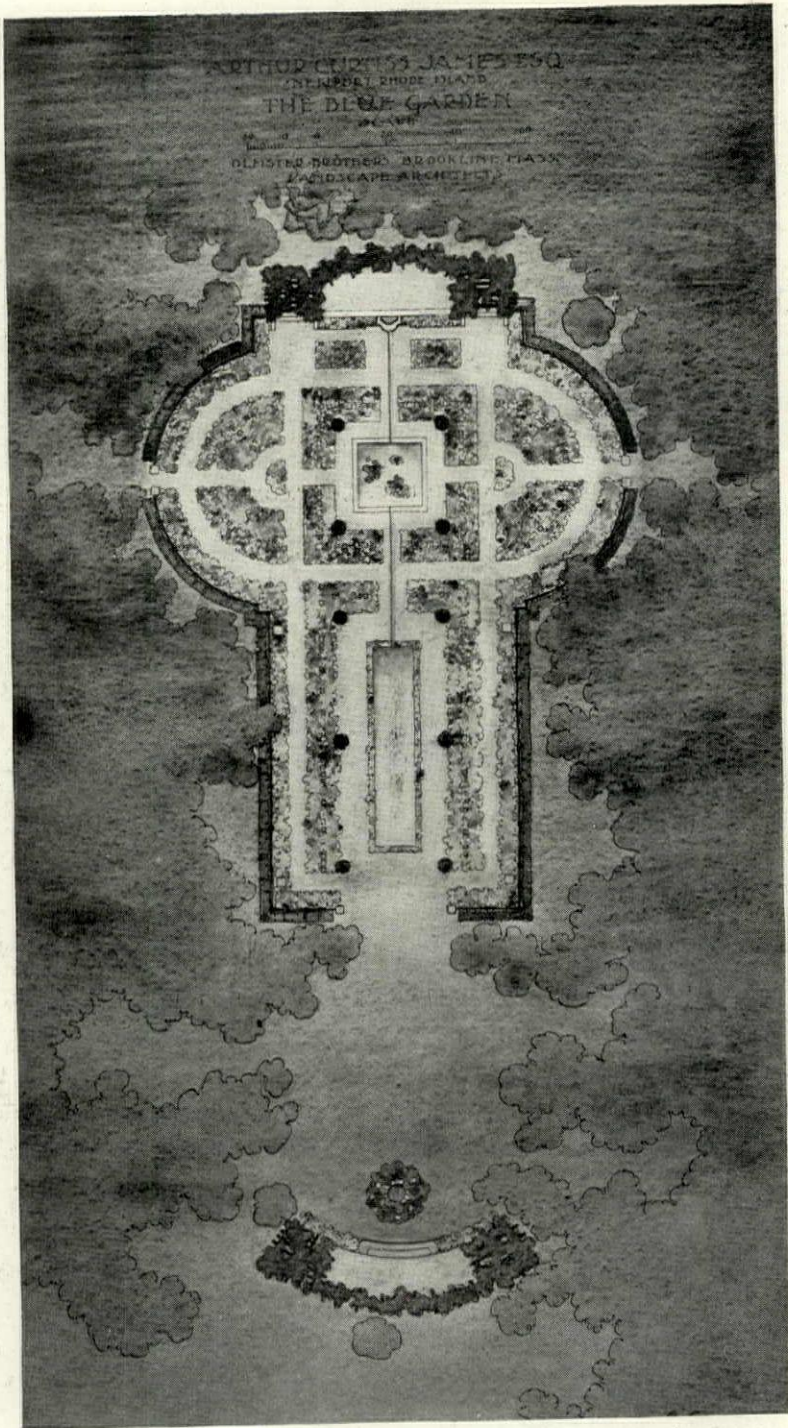
VIEW OF GARDEN AND HOUSE, BEACON HILL HOUSE.



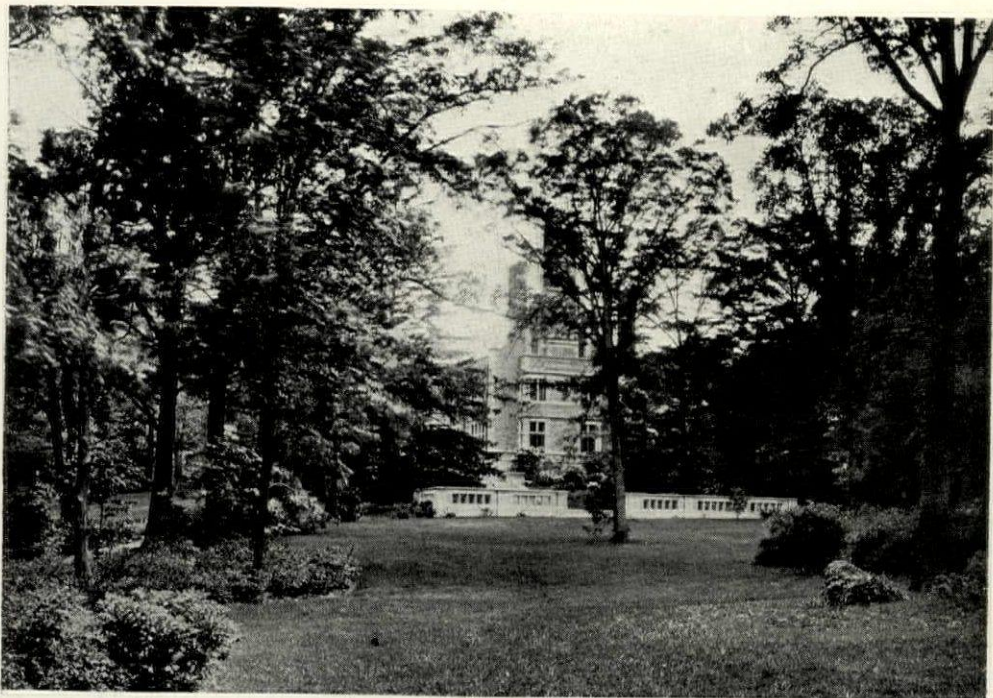
GENERAL VIEW OF GARDEN AT BEACON HILL HOUSE.



PERGOLA AND ONE OF THE POOLS AT BEACON HILL HOUSE, NEWPORT RESIDENCE OF ARTHUR CURTIS JAMES, ESQ.
Olmsted Brothers, Landscape Architects.



GENERAL PLAN OF THE BLUE GARDEN AT
BEACON HILL HOUSE, NEWPORT RESIDENCE
OF ARTHUR CURTIS JAMES, ESQ. OLM-
STED BROTHERS, LANDSCAPE ARCHITECTS.



"FERNWOOD"—ESTATE OF ALFRED DOUGLAS, ESQ., BROOKLINE, MASS.
Olmsted Brothers, Landscape Architects.



BOULDER SLOPE AND STEPS—ESTATE OF ALFRED DOUGLAS, ESQ., BROOKLINE, MASS.
Olmsted Brothers, Landscape Architects.



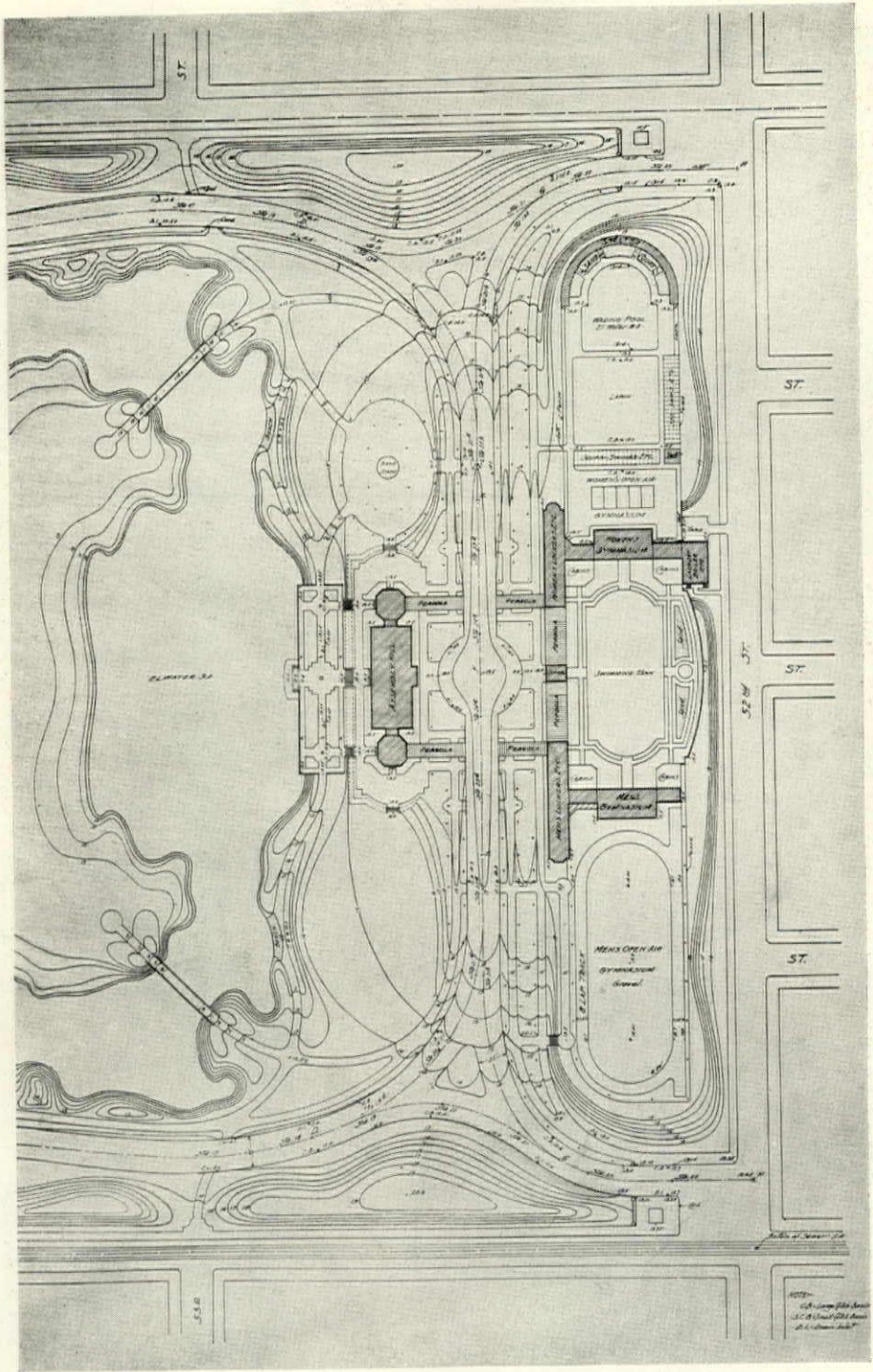
THE TERRACES IN RELATION TO THE HOUSE—RESIDENCE OF JAY COOKE, ESQ., CHESTNUT HILL, PHILADELPHIA. OLMSTED BROTHERS, LANDSCAPE ARCHITECTS.



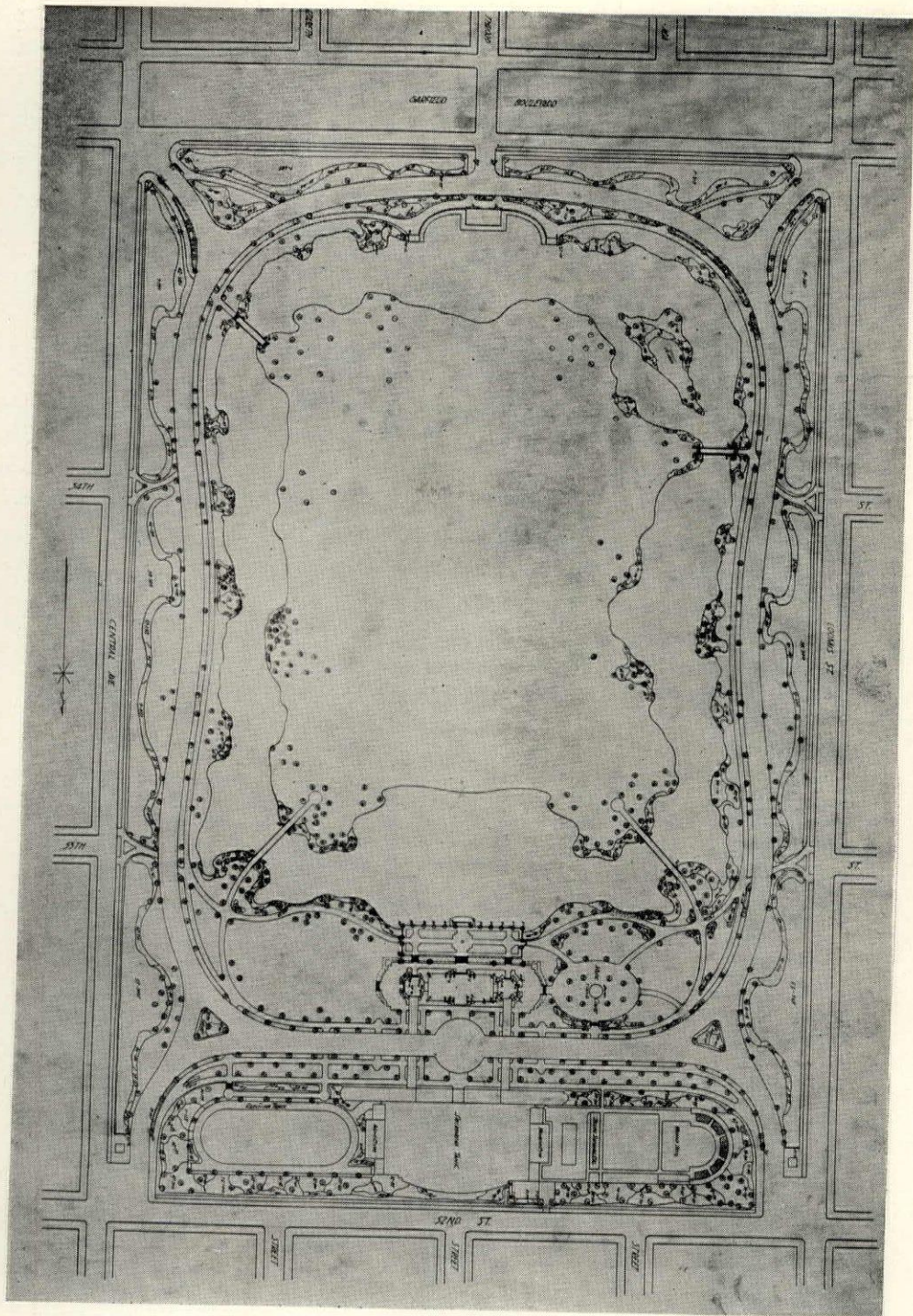
UPPER TERRACE AND DINING ROOM ENTRANCE—RESIDENCE OF JAY COOKE, ESQ.



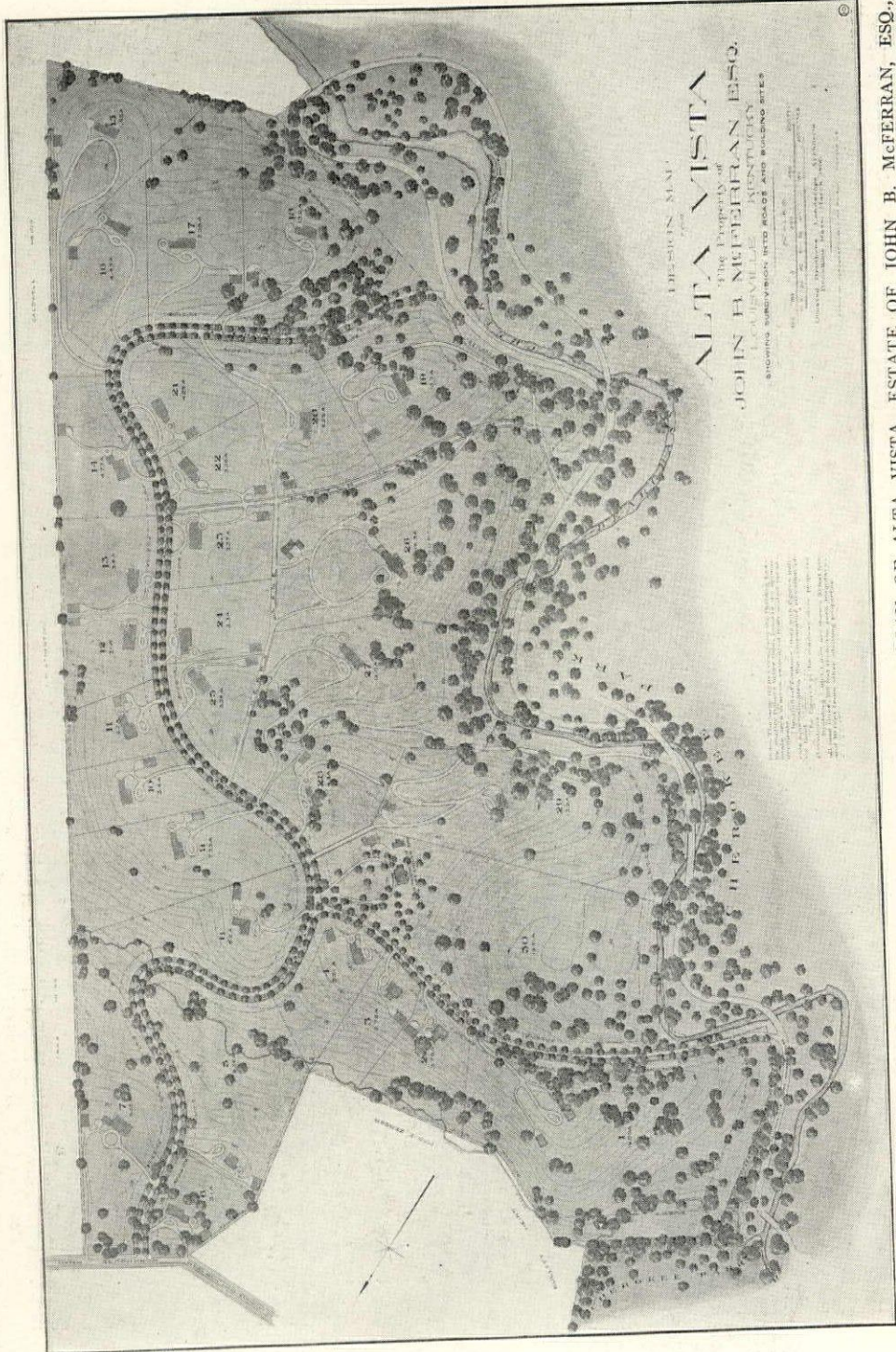
THE TERRACE FROM UPPER LEVEL—RESIDENCE OF JAY COOKE, ESQ.,
CHESTNUT HILL, PHILADELPHIA.
Olmsted Brothers, Landscape Architects.



ALTERNATIVE GRADING PLAN (ADOPTED) FOR THE
 NORTH END OF SHERMAN PARK, CHICAGO, ILL.
 OLMSTED BROTHERS, LANDSCAPE ARCHITECTS.



PLANTING PLAN FOR SHERMAN PARK, CHICAGO, ILL. OLMSTED BROTHERS, LANDSCAPE ARCHITECTS.



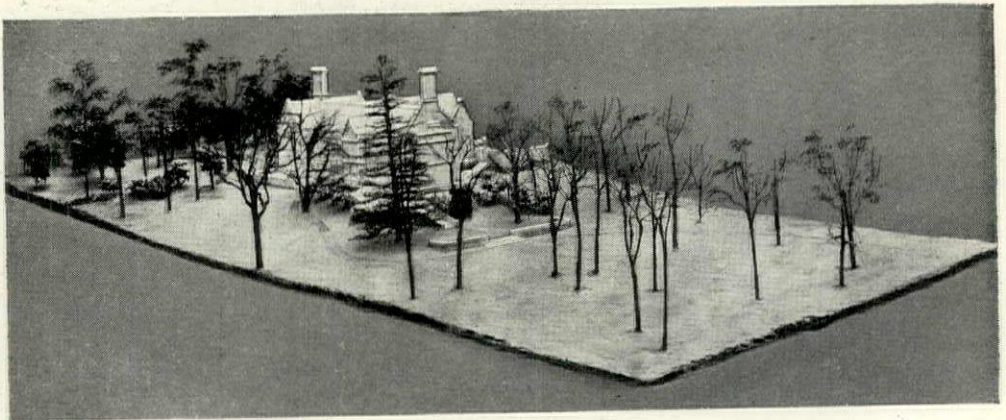
PLAN OF ALTA VISTA, ESTATE OF JOHN B. McFERRAN, ESQ.,
 LOUISVILLE, KY. OLDEST BROTHERS, LANDSCAPE ARCHITECTS.



MODEL SHOWING PROPOSED TREATMENT NEAR HOUSE—RESIDENCE OF ALFRED E. DOUGLAS, ESQ., BROOKLINE, MASS.
Olmsted Brothers, Landscape Architects.

in other respects, it was a real work of art. The true principles of organization lie deep in the mystery of art. To take one example of Olmsted's art, no better could be found than the three-mile strip of Parkway connecting the Boston Fens through Brookline and Jamaica Plain with Franklin Park. Much more than a connecting link, it fulfills a remarkable array of purposes. Contracting and expanding with the original topography, that of a sluggish stream winding down, vile with many sewers, this parkway is today a series of admirably designed little neighborhood parks, serving several well populated districts. These are closely knit together by the stream and its ponds, some of them lakelets; by motor roadways, a bridle

path, by walks; and, for over a mile of its length, the Boston and Albany Railroad skirts it on one side. Olmsted boldly took the railroad right into the parkway scheme, hid its rails behind a low, thickly planted dike, which serves to increase the height of the banks of the stream. A walk separates the top of the original bank of the stream from the dike. The charming little Longwood suburban station is cleverly worked into the plan, unobtrusively fitted into the sloping ground beside the masonry arch of the Longwood bridge, tawny-colored against the green foliage. Along the whole parkway, in the course of years, numerous schools, hospitals, churches, playgrounds, private estates have been located, until the strip of this parkway



MODEL SHOWING PROPOSED TREATMENT NEAR HOUSE—RESIDENCE OF ALFRED E. DOUGLAS, ESQ., BROOKLINE, MASS.
Olmsted Brothers, Landscape Architects.



SKETCH MODEL SHOWING TREATMENT OF GROUND AT HEAD OF RAVINE—RESIDENCE OF WALTER JENNINGS, ESQ., COLD SPRING HARBOR, N. Y.
Olmsted Brothers, Landscape Architects.

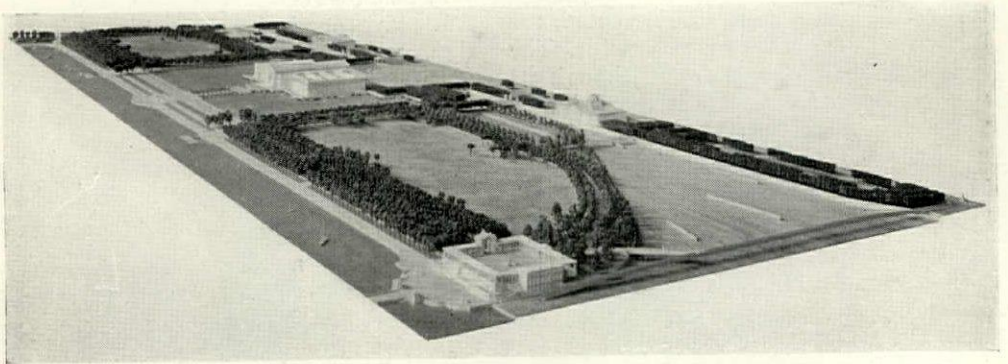
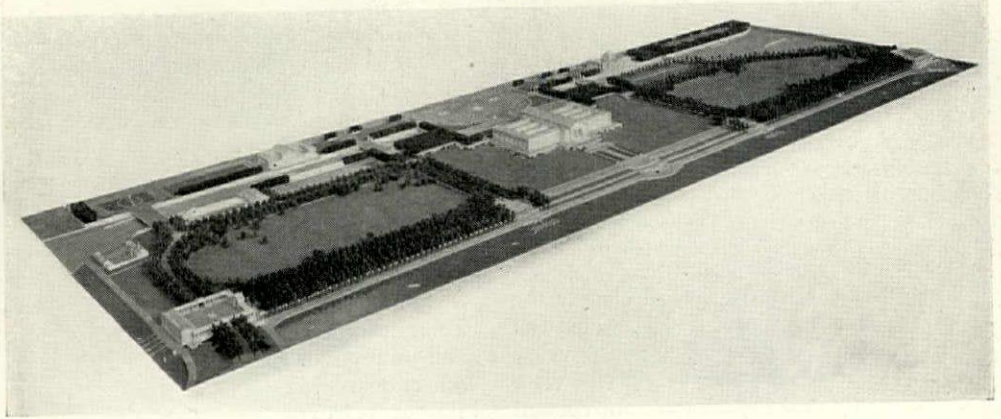
neighborhood forms one of the finest bits of community in the country.

The elder Olmsted grasped clearly the social aspect of park work. He felt keenly the duty of civilization to develop the physique of the people. This view led him easily into the modern movement for playgrounds, in which he strove to lead the park commissions. Although this social idea is now well accepted, the earlier park commissions resisted it. The first commission to adopt it, though its members dared not push it too far, was the admirable South Park Commission of Chicago. This body bought up valuable land for the purpose of providing playgrounds near schools and in crowded

districts. It took up vacant lots where it could and strove to be business-like in its finances. In fact, the South Park Commission has set the standard for such public work in America. Powerful, well-educated, it has the right of absolute control over the east and south districts of Chicago, and it maintains the very best and completest system of parks and playgrounds in the country, in design, construction, equipment and maintenance. It was the South Park Commission that built the groups of bath-houses, open air swimming pools, the gymnasium and community houses designed by D. H. Burnham & Co. and by Edward H. Bennett that are so well



SKETCH MODEL SHOWING TREATMENT OF GROUND AT HEAD OF RAVINE—RESIDENCE OF WALTER JENNINGS, ESQ., COLD SPRING HARBOR, N. Y.
Olmsted Brothers, Landscape Architects.



MODEL SHOWING TREATMENT OF PROPOSED LOCATION FOR FIELD COLUMBIAN MUSEUM IN GRANT PARK, CHICAGO, 1908. OLSTED BROTHERS, LANDSCAPE ARCHITECTS.

NOTE.—The project of locating the Museum in the Park was set aside by an injunction obtained by a property holder and sustained by the Supreme Court. The railroad right of way below street level is that of the Illinois Central Railroad.

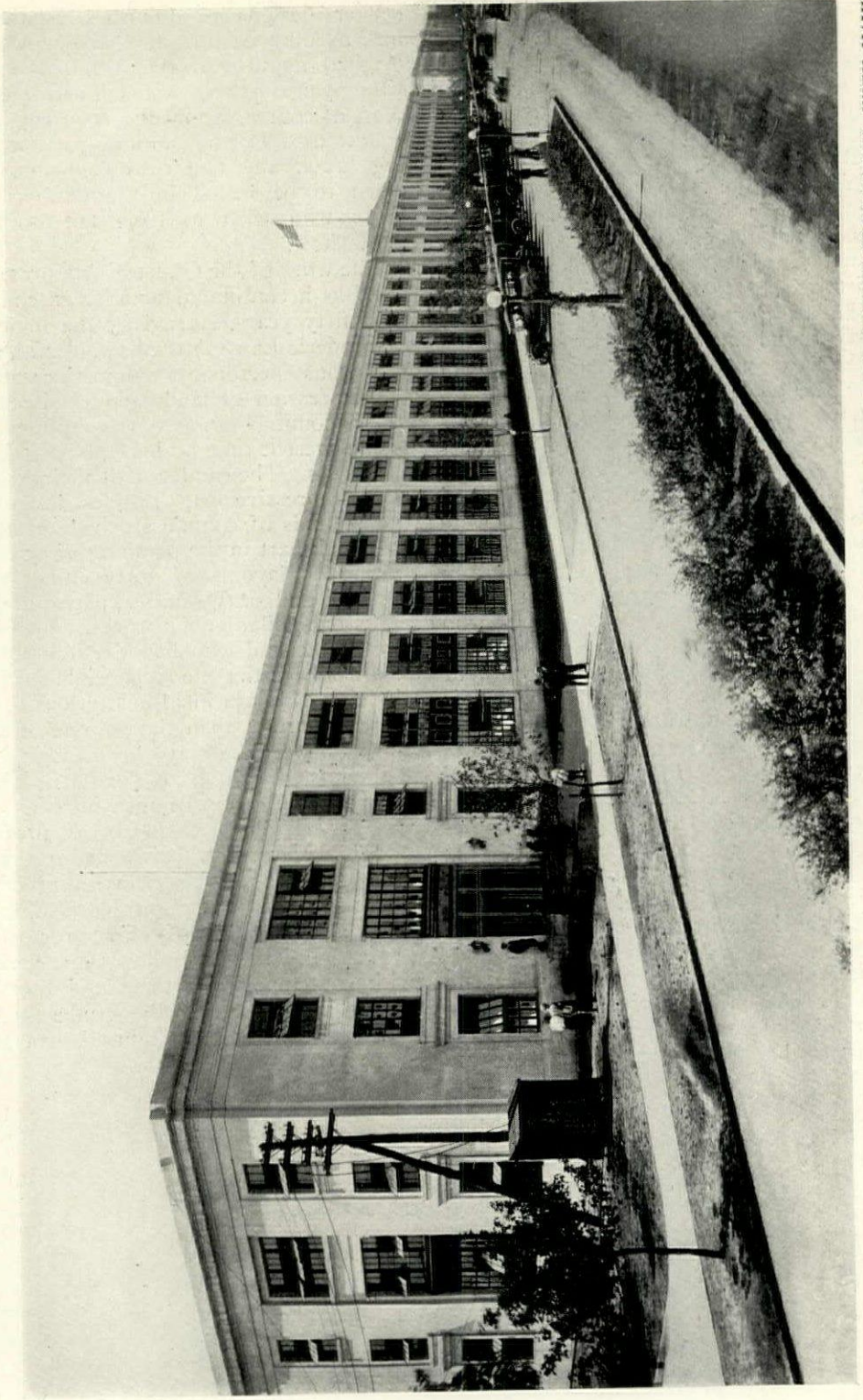
known to the architectural profession and which have often appeared in the pages of the *Architectural Record*. Once Olmsted Brothers drew plans for thirteen of the Commission's playgrounds in thirty days, of which two were executed, each about thirty acres in extent.

Most of the Olmsted playgrounds are located in Boston, about a score of them, designed in the late eighties and early nineties. The first, the Charlesbank, is historic, for in it, in 1878, Frederic Law Olmsted brought out the first modern playground conception. He proposed not merely a complete gymnastic equipment for the playground, but an athletic director to be in charge and also a women's society to make use of it. In accepting this scheme the authorities yielded less to Olmsted's idea than to the force of his personality. Those interested in playground design will find much of value in the appendices of the *Boston and Buffalo Park reports* written by the elder Olmsted and his son John, who wrote all those after 1890.

As we have seen, the recent work of Olmsted Brothers has lain in the public and government work of city planning and of housing, carried on by Frederic Law Olmsted, Jr., besides the design of private estates. Mr. Gallagher is active in this latter field, and it was he who designed the admirable garden of the Rogers house at Southampton, Long Island. He has lately concerned himself with the landscape work of some large residences, of which Mr. Bertram Goodhue is the architect. Following the taste of the day in this private work, large formal gardens are often laid out, in contrast to the more naturalistic bias of the

earlier designs of Olmsted Brothers; but, as may be imagined, the powerful original impulse of the firm sets itself strongly against any excess of artificiality. Nor, of course, would the New England tradition of Puritanism and good breeding brook any theatrical elements, too often to be found in the gardens of those who wish to have but do not know how.

The work of the Olmsted firm presents itself as a continuous activity extending over fifty years, started by the impulse of Frederic Law Olmsted's powerful, adventurous personality almost creating the profession of landscape architecture in this country—an activity continued up to the present time by his sons and their associates. The catalogue of their works is an impressive list. Besides designing the grounds of countless private estates, they took part in the planning of or consulting on layouts of forty cities; two hundred and sixty squares, playgrounds, parks or similar public works, and sixty universities and schools. Mr. John Olmsted has been the one responsible for the planning of educational institutions. But more important than the volume of the work done is the way the members of the Olmsted firm have done it. They form a little group of men insisting on the very highest standards of professional achievement, balancing art with common sense and American resourcefulness, and, in a broader way, always seeking new fields of effort for their profession. They knew how to cooperate with contemporary artistic and literary circles in moderating the crudeness of nineteenth century industrialism in America.



GENERAL VIEW OF B STREET ELEVATIONS, WITH NAVY BUILDING IN FOREGROUND—OFFICE BUILDINGS, AT WASHINGTON, D. C., FOR THE NAVY AND WAR DEPARTMENTS.



The NEW OFFICE BUILDINGS AT WASHINGTON, D.C. for the NAVY and WAR DEPARTMENTS



By George P Hales

[The necessity of speed, of stringent economy, and of utilizing such raw materials as were available in bulk without intermediate manufacturing processes, was the governing factor in the design and architectural treatment of the buildings described in the following article. While the structural framework is of the most enduring character, the buildings are not intended to be permanent; and the whole design, both in plan and in elevation, was influenced by this idea. The buildings may be cited as evidence that concrete, when properly handled, can be made to express architectural inspiration of a high order.—Editor.]

THE congestion of work and workers which war necessities have imposed on the administrative departments has put the Government to some strenuous shifts to get its business activities under roof. Rentals, commandeering of finished and unfinished buildings, and "emergency" construction have all played their part in this struggle for accommodations.

The typical temporary structure is seen on every hand throughout downtown Washington. One noted example was built to house the labors of no fewer than ten thousand employees. All are vast buildings erected almost over-night, occupying every vacant tract adjacent to the parent departments.

With the exception of the new temporary office buildings for the War and Navy Departments, these hastily-built structures have been of frame construction veneered with pebble-dash. Some are two stories in height and some three, but have the same general appearance, though varied somewhat with colonnaded entrances or pediments at the central portions.

Being of wood throughout, with the possible exception of masonry fire walls contained in a few, they are necessarily subject to the hazard of rapid destruction by fire. Preventives of this peril, such as sprinkler systems and fire escapes, have been installed with great care to reduce the risk to a minimum and to in-



MAIN ENTRANCE—PAVILION OF NAVY BUILDING, WASHINGTON, D. C.

sure as far as possible the safety of the valuable records and documents on file in the various bureaus.

Long having outgrown its original quarters even in peace times, and being established inadequately in rented buildings throughout the city, the Navy Department was greatly handicapped in prosecuting the multiplied volume of work that devolved on its offices as the war progressed. New quarters became imperatively necessary, and the problem of providing such quarters in the absolute minimum of time was squarely faced by this department last February.

It was desired that the whole department be located under one roof for the sake of coordination in the administration of its affairs. This, it was found, would require a building larger than any previously built for such purposes. It would have to be more than temporary in construction on account of the vital importance of the work and documents of the various bureaus making up the department.

At this point an original solution suggested itself. The feasibility of using

concrete was investigated, and it was found that a structure built of such material could be erected at a cost not unreasonably above that of an equivalent frame building. Investigation also proved that, with the cooperation of the Government, regular transportation and prompt delivery of material could be guaranteed, so that one of the chief obstacles to speedy construction could be disregarded. The resources and facilities of a great construction company were enlisted, and in this way the necessary labor was assured to carry out the project as listed on a specific time schedule.

Presented with such data, Congress was asked to provide the necessary funds, and saw fit at the same time to provide additional office space for the War Department upon the same basis, thereby relieving the crowded condition in which this department found itself even after the occupation of acres of new floor space.

It was provided in the bill enacted at that time that the buildings should be erected upon public lands bordering Po-

tomac Park and also that the buildings should be harmonious in design and character with the permanent structures in the immediate vicinity.

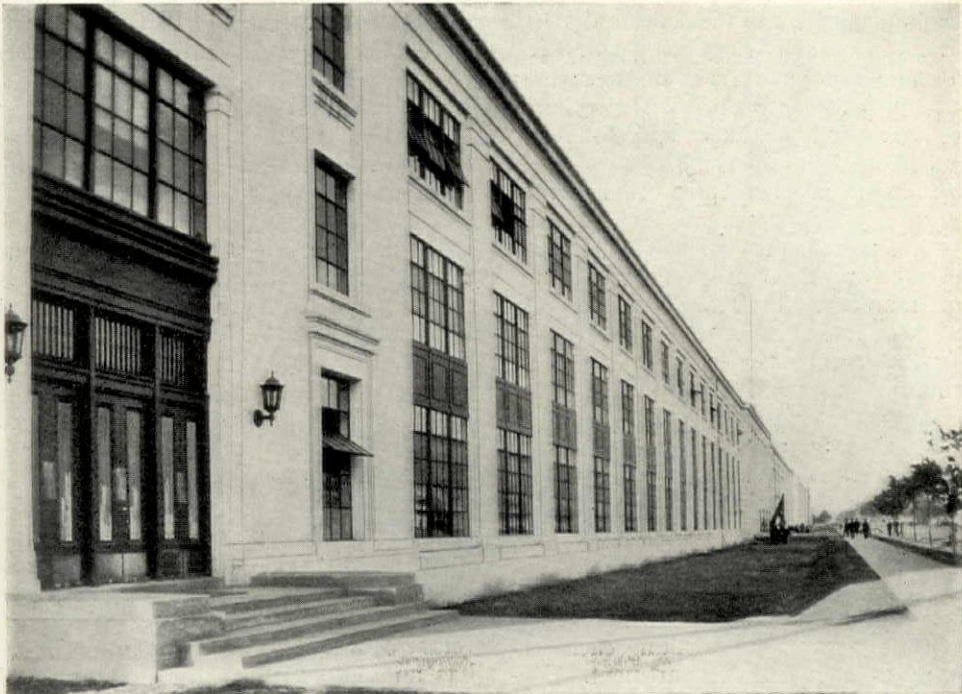
The Bureau of Yards and Docks of the Navy Department was entrusted with the work of preparing plans and supervising the construction of the buildings. Speed in erection, being the essential factor, implied that the structural design should be of the simplest type; and it was found that the beam-and-girder type of concrete construction most satisfactorily answered this demand. This treatment resulted in a system of uniform structural units; all column spacing and distances between girders being similar without exception. No complicated connection of beams or girders at columns was permissible, which fact alone held the architectural design down to certain indisputable conditions and prohibited the usual breaks and offsets so desirable in a design of great expanse. As will be seen in the accompanying photographs, the two buildings are identical in appearance, the front and side façades being divided into bays by pilasters. The mon-

otony of the design is broken by the introduction of pavilions at the centers and ends, producing harmonious features for the entrances.

The elevations of the buildings, being low in proportion to their enormous lengths, are heightened in appearance by the two-storied window treatment, which gives the effect of single openings of proper proportions extending from the first to the second stories.

Necessary economy and speed of construction prohibited the use of deep window reveals, which would have added greatly to the effectiveness of the design.

All exterior moldings are of concrete, which permitted the introduction of only the most simple types. They were designed so that the wooden forms used in their construction might be of merchantable stock, and that these forms could be stripped from place without injury to the moldings. They count sufficiently in detail, however, to give a pleasing architectural character to the whole composition, and they are placed only where their use would count the most. The line drawings show in detail the peculiar



VIEW ALONG B STREET, SHOWING END ENTRANCE OF NAVY BUILDING, WASHINGTON, D. C.

characteristics of these moldings, such as the sloping offsets to permit the stripping of the wood forms.

The first floor of the buildings rests on the natural average grade of the site; and to give a proper base to the design, the parking space has been excavated to form a sunken terrace along the fronts. The top of the terrace, so produced, will later be planted with hedging to make a pleasing transition between the sidewalk and the buildings.

The window spandrels at the second floor are of metal, molded and panelled, and painted dark green to match the doors and other exterior trim.

All concrete surfaces are treated with a white cement and sand mixture rubbed into the material by hand, giving the entire surface a uniform texture.

The proper natural lighting of all rooms governed the shape of the plan, which consists of a series of wings connected at the fronts by what are termed the "headhouses."

The headhouse of the Navy Building extends along B Street for a distance of 860 feet, while that of the War Building extends 780 feet along the same street. The wings project to the south a distance of 500 feet, each wing being sixty feet wide and separated from the next by a court forty feet in width. The two buildings have a combined floor space of forty-one acres.

All floors are of reinforced concrete, designed to support a live load of seventy-five pounds per square foot, and are finished with a wearing surface of the same material. This finish will be covered with linoleum as soon as it is possible to procure the material required, amounting to something over 143,000 square yards.

The dividing partitions in general are of wood studs having a gypsum-board base for the plaster finish. At intervals, partitions of a fireproof material are built, dividing each floor into sections so as to localize any fire that might occur. All openings in these partitions have automatic firedoors, thus making each section an independent compartment. Concrete staircases are so placed that egress

from one section may be had without passing through any of the others, thus affording ample protection in case of emergency.

Both buildings have in the center of the headhouses large vestibules entered by nine double doors, giving free passageway under the most difficult conditions. Opening from the vestibules are the main staircase halls, of such dimensions as to admit of the transaction of preliminary business concerning identification and similar matters.

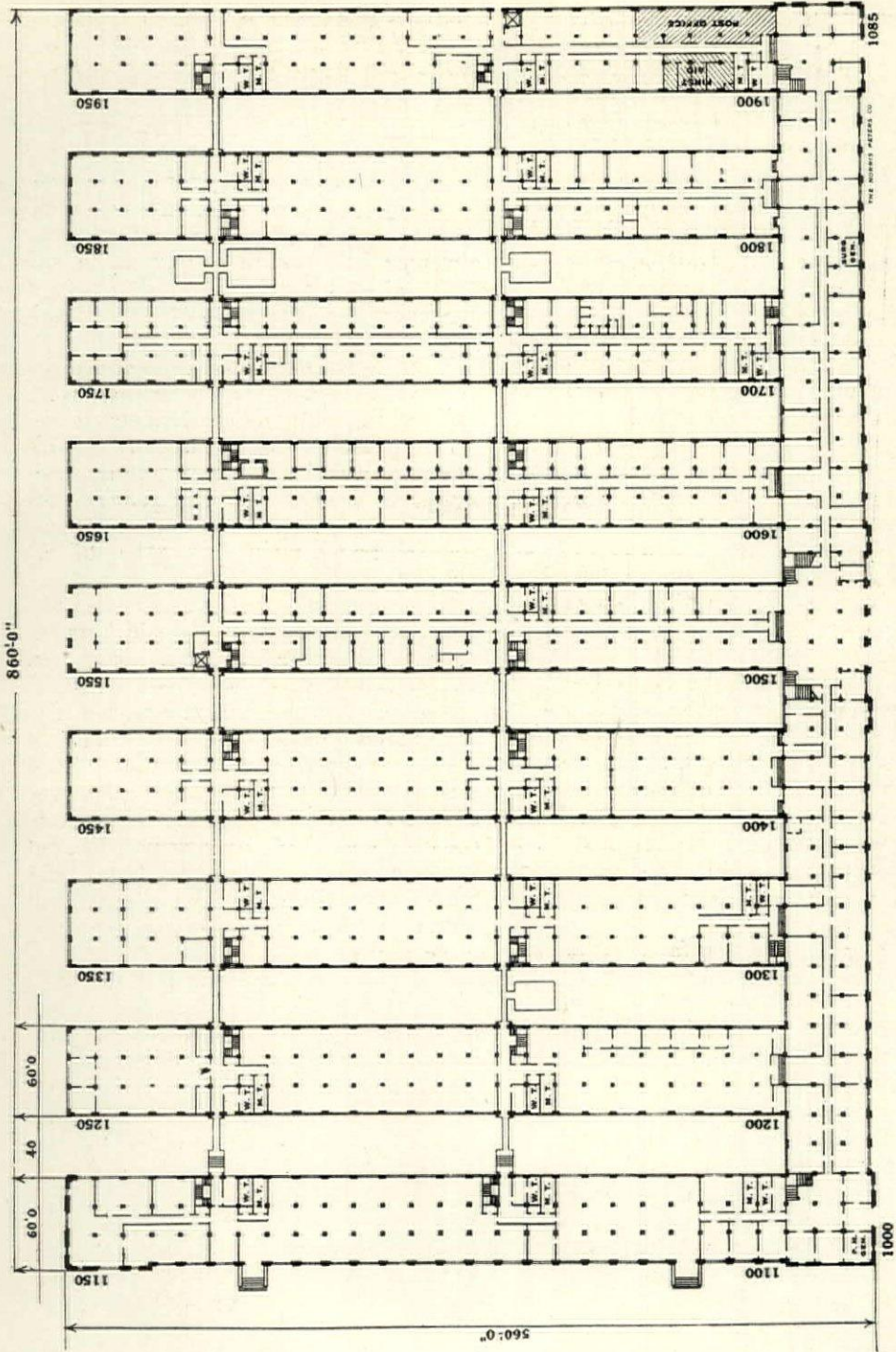
The vestibules and halls present a finished appearance, having plaster walls and ceilings with embellishments of columns, pilasters, and cornices. A durable floor is provided in these rooms, consisting of cement and small pebbles—the latter being treated so as to give a pleasing finished texture and color to the surface.

The corridor partitions have an unusual amount of glass area, which makes the corridors cheerful and pleasant even on the duller days. Staircases are all of reinforced concrete, and are particularly wide—these being the only means of travel from one floor to the other. Steel sash is used throughout, since this type of window is well adapted to concrete construction. Its adaptation insured speed in erection, provided large light areas, and affords (where glazed with wire-glass) a considerable amount of fire protection.

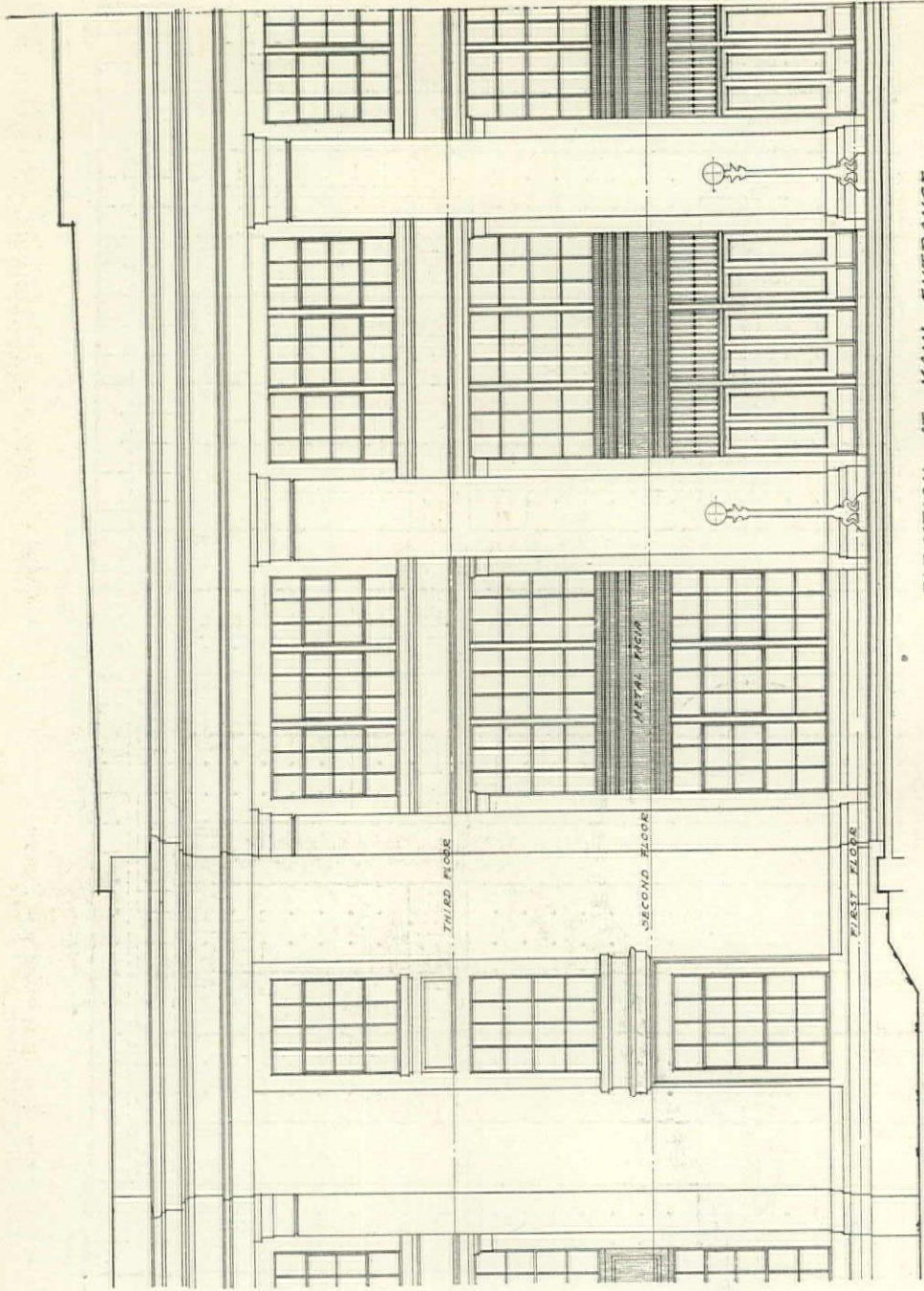
The floors are subdivided to meet the particular needs of the various bureaus, but so arranged that access may be conveniently gained to any and all parts of the buildings.

The office rooms are plain, well lighted, and of workable proportions. Only the interior partitions forming these offices are plastered, the inner surfaces of exterior walls showing the structural concrete. Water color paint is used throughout on the walls and ceilings, making the texture of these surfaces harmonious and effective.

The suite of rooms assigned to the Secretary of the Navy and his working force has an individual treatment, though of modest design and material. Ornamental

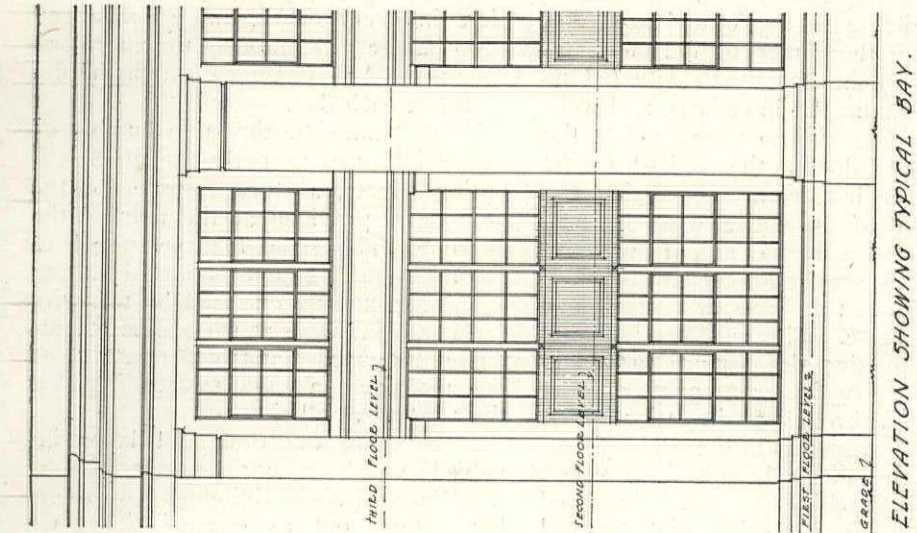


FIRST FLOOR PLAN—NAVY BUILDING, WASHINGTON, D. C.

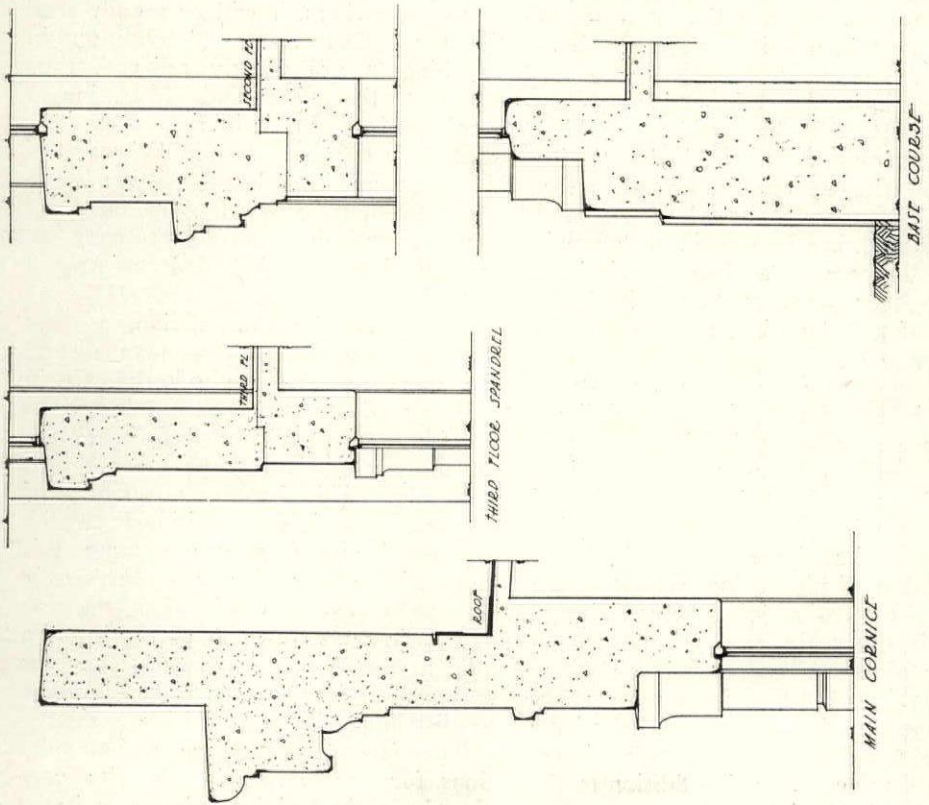


ELEVATION AT MAIN ENTRANCE.

ELEVATION AT CENTRAL PAVILION—WAR
AND NAVY BUILDINGS, WASHINGTON, D. C.



ELEVATION OF TYPICAL BAY—WAR AND NAVY BUILDINGS, WASHINGTON, D. C.



SECTIONS OF CONCRETE MOLDINGS—WAR AND NAVY BUILDINGS, WASHINGTON, D. C.

plaster cornices decorate this suite, together with presentable fireplaces and mantels and cork tile floors.

The buildings, being located some distance from the center of the city, and consequently inconveniently situated as regards restaurants, have large and well-arranged cafeterias to accommodate the many clerks during the limited period allowed for luncheon. Occupying the third floor of an entire wing in each building, the cafeterias are of such size as to provide service for thirteen hundred patrons at one time without confusion or apparent haste. The most modern mechanical cooking devices are in use in the kitchens, which were planned from data gained through an investigation of the largest cafeterias in the country connected with industrial institutions.

The toilet facilities are carefully placed and equipped with a substantial standard grade of fixtures. These rooms are exceptionally well lighted and ventilated, and are generous in size. The women's toilets have rest-rooms adjacent, a necessary adjunct in a building of this character.

Numerous ice-water fountains are conveniently placed in the corridors. Added protection from fire is furnished by the installation of a modern fire-alarm system.

Two elevators, electrically controlled and operated, are located in each building for the purpose of handling freight. No passenger elevators are provided, the height of the building not warranting their use.

A low-pressure vacuum-return steam system is used for heating the buildings, the live steam being furnished by privately-owned local power company. This steam is transmitted from the point of supply, a mile distant, to the building by means of underground steel piping, each length of pipe being welded to the next and expansion joints being inserted at regular intervals.

The telephone system of the Navy Building is controlled from a large exchange located in the center wing of the first floor, and provides a complete intercommunicating system in addition to the usual outside service.

This building also has its own post-office, equipped and maintained as a branch of the city post-office. It is complete in every detail, and so arranged as to handle expeditiously the enormous amount of mail passing through the department each day.

To accommodate the large number of automobiles usually parked in the neighboring streets, a storage space for the purpose is provided at the rear of the building. This space is large enough to accommodate five hundred machines, and is inconspicuously enclosed by tall wire fencing. Gateways at various points, attended by guards, control the passage of the machines, a pass system insuring their safety at all times.

Considering the time and labor involved in such an enormous operation as the War and Navy Buildings it will perhaps stand out as one of the great achievements "over here" during the war.

Accommodating no less than 15,000 war workers, it will be readily seen that the hitherto congested conditions in Washington are greatly relieved, thus adding to the efficient administration to war needs. Preliminary work was started on the plans late in February of this year, and actual construction began about the first of April. The buildings are now entirely occupied, the first bureau having been installed on August sixteenth.

To hasten the construction, a most thorough organization was planned and the most modern methods known in building construction were adopted to provide every possible means of facilitating the work.

The handling of the great quantity of concrete materials expeditiously was a problem in itself, and to manage this phase of the work a heavy wooden trestle for auto trucks was built along the rear of the site, this trestle being a third of a mile in length. At intervals, ingenious dumping stations were arranged in order to distribute the material conveniently.

The fact that rooming accommodations for war workers in the city were already at the straining point necessitated

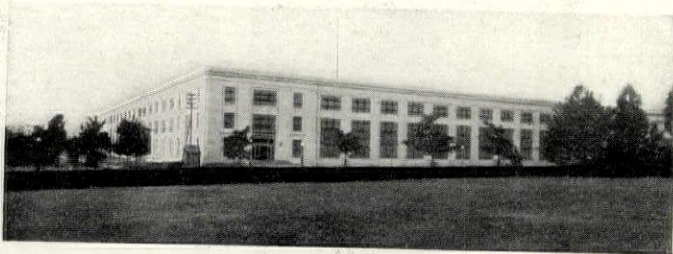
the construction of living quarters for the workmen, who had to be imported in large numbers. They were provided complete commissary arrangements which supplied the men with substantial food and in every way catered to their comfort.

The buildings as they now stand completed are well adapted to the ends intended, and provide working accommodations suited to the particular needs of the departments and bureaus occupying them.

The design, while Governmental in character, is simply an arrangement of masses unifying the various parts of the composition. It is an interesting ex-

ample of the possibilities of design as applied to a concrete structure, and creates a favorable comparison with buildings of similar type of more expensive materials.

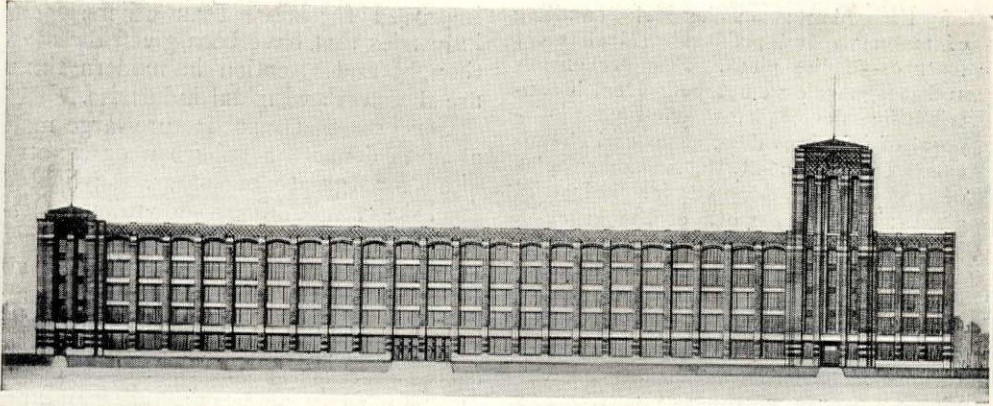
The project was carried out under the general supervision of Commander A. L. Parsons, Civil Engineer Corps, U. S. N., with Lieutenant Commander O. A. Mechlin, U.S.N., as the Officer in Charge. The architectural features of the design were developed and passed upon by a committee from the Bureau of Yards and Docks, composed of Lieutenant Commander F. W. Southworth, U.S.N., and Messrs. Charles H. Stratton, George P. Hales and H. J. Briggs.



NAVY BUILDING, FROM GROUNDS OF PAN-AMERICAN BUILDING.



ENTRANCE DETAIL—C. A. BREWER BUILDING,
CHICAGO. ALFRED S. ALSCHULER, ARCHITECT.



SKETCH FOR PROPOSED ADDITION TO BURROUGHS ADDING MACHINE CO.'S PLANT.
Albert Kahn, Architect.

MODERN INDUSTRIAL PLANTS— By George C. Nimmons, F.A.I.A.

PART II.

UNDoubtedly, the two aspects of this subject that give the greatest concern now are (1) what are the main features that have brought about the highest development in modern industrial plants, and (2) how best can war plants, in many cases hastily put up, be transformed so as to incorporate in them the largest proportion of these features in connection with the production of other things which they may now undertake to manufacture?

With the object in view of contributing as largely as possible to the answer to these two important questions, it is proposed to discuss the features of greatest value as represented in some of the most modern plants under the headings given below, and to illustrate the discussion with examples of the best industrial work by different architects.

I. TYPES OF INDUSTRIAL PLANTS:

General description of the various kinds of buildings erected by the different industries; discussion of the character of buildings adopted; the effect of city and country locations.

II. ESSENTIALS FOR THE SELECTION OF SITES FOR INDUSTRIAL PLANTS:

Center of the market for the sale of

the product; accessibility of materials consumed; transportation; possibility of securing the most suitable employes; favorable building conditions and power requirements; room for expansion of the plant; proper foreground and landscape effects; out-door recreation; housing employes.

III. PLAN AND DESIGN OF THE BUILDINGS.

The vital importance for the most successful operation of having the arrangement and design of the plant specially and properly adapted to the efficient conduct of the business. The essential principles in planning and designing industrial buildings, their relation to manufacturing processes, handling goods and materials; their effect on the work of employes. How to go about securing the best plan and design of the plant. The selection of the most suitable type of construction and the various materials involved. The layout of floor plans for the buildings; column spacing; the determination of the practical location for stairways, elevators, vertical conveyors and spiral chutes; discussion of the various types of windows and the most durable wearing surfaces for floors; the making of plans to show the routing of material and goods as they travel through the processes of manufacture

of the plant; mechanical handling of materials and products. Mechanical features of the plant. Fire prevention and safeguarding employes. Health contributing devices for employes; disposal of injurious dust, gases and chemicals. Discussion of the various styles of architecture adapted for industrial plants; landscape work of the grounds.

IV. THE TURNOVER OF LABOR.

The growing importance of the subject; causes of its increase. Features in industrial plants that have been found effective in reducing the amount of labor turnover. Essential provisions for employes; proper entrances, exits, stairs, elevators, toilets, drinking water, and well adapted working spaces with proper heat, light and ventilation. Efforts and influences to make all work interesting. Welfare work; the modern attitude toward it by employer and employes. Rest rooms, lunch and recreation rooms, outdoor recreation, hospitals, medical care and supervision. Apprenticeship schools; general educational and entertainment activities. Accident and sickness insurance; old age pensions. The opinion of David Lloyd George of welfare work.

V. SPECIAL DISCUSSION AND ILLUSTRATION OF IMPORTANT FEATURES THAT HAVE PROVED TO BE UNUSUALLY SUCCESSFUL IN CERTAIN NOTED PLANTS.

VI. THE TRANSFORMING OF WAR PLANTS FOR NEW KINDS OF PRODUCTION.

Changing the buildings so as to accommodate new kinds of manufacture. Converting machine shops to other kinds of buildings. Suggestions for increasing space where needed. Salvaging of temporary buildings to the best advantage and the utilization of the material for permanent buildings.

VII. CONCLUSION.

The training of architects by the Architectural Schools of America founded and maintained on the basis of assisting the industries. The relation of the present practice of architecture to the industries. Summary of those features that have contributed most to the highest development of industrial plants.

I. TYPES OF INDUSTRIAL PLANTS.

Each kind of industry has established a certain type of building or plant that is supposed to be best suited for its purpose. Among these various types of buildings some have been developed and

improved far more than others. The industries that have been given the most thought and attention in modern times are the steel and metal industries.

Concerns that manufacture large metal units demand a suburban or country site for great one-story, skylighted steel skeleton buildings—for rolling, casting, forging, machining and assembling of the parts of the output. The small unit metal manufacturing is done in all sorts of buildings; but one kind of building, usually well adapted for this sort of production, is the one-story, saw-tooth, skylighted building. This type of building may be of unlimited solid area, without any interruptions of interior light courts and consequently with the opportunity of routing the manufacture of the product in a circle, or forward and back, or laterally from front to rear or in any way desired to secure the most logical and direct way of working up raw material into the finished product of the shipping and stock rooms. Such industries are often also accommodated in city locations, in buildings of even more than six or eight stories in height. Sometimes a machine shop can be well arranged to operate vertically from one story to another, and it is not uncommon to find a foundry of a material capacity located in the top story, with its furnaces shooting the objectionable gases high into the air where they will best disappear.

The industries producing food are, of course, of the first importance. They have a most varied class of workshops. Beginning with a loaf of bread and tracing these industries from the wheat field, including the making of all the wonderful machinery for the harvest, the granaries, the flour mills, the little bake shops, and the big ones where millions of loaves are turned out daily by machinery, it would be found that there is material enough on this one subject to fill a volume of uncommon interest. In this connection it may be of interest to note that France still handles her wheat largely in bags by hand and that she has never adopted the modern system of great grain elevators, flour mills, and breakfast food plants, which have all been developed to such a high state of perfection in this



THE PETERBORO PLANT OF THE QUAKER OATS COMPANY.

Leonard Construction Company, Builders.

[A grain elevator, flour mill and breakfast food plant combined. The grain is stored in the vertical tubes of concrete, as well as in the interstices between the tubes. All grain is mechanically handled from the cars into the elevators and then through the processes of manufacturing to the completed products. Plants of this kind would be a great thing for France, which still handles most of its grain in bags by hand.]

country. The American system in these industries saves an enormous amount of manual labor over the old methods, and also provides safe, fireproof storage for vast amounts of foodstuffs. This country might do a further material service for France, after the war, by calling attention to these approved methods of food production and storage, and offering the results of our experience in the design and construction of such plants.

The meat industries have undergone a decided transformation since the days of the small slaughter houses. The main part of the meat business has gradually been taken over by a few corporations which, with a few exceptions, have grown to be the largest concerns in the country. At first their buildings were of wood, which were great fire hazards and not very well suited to their business; but since the adoption of concrete for building construction, they have found in it

a material that is sanitary and well adapted for their purposes.

Next to the food industries, the most important industry is the one supplying clothing and its materials. Here again a most marked development has taken place. The textile manufacturing plants, where the cotton and woolen cloths are produced, have very generally been built after one type—long mill constructed buildings—such as those so common in the New England district, that are sixty feet or more in width and four stories or more in height. The manufacture of clothing involves not only the large clothing manufacturing plants, but also those working places, called sweat shops, that have caused so much trouble. A large part of the work of sewing clothes is done at home in the private houses and tenements of people who make their living by doing piecework of this kind.

In recent years a great deal has been

done to improve the workshops of the clothing industry, and an illustration is shown of a modern clothing factory, built away from the center of the city, in the form of a one-story, saw-tooth factory, where the skylights give excellent light and ventilation to all parts of the building. In strong contrast to the ideal conditions for the work and for the healthy condition of the workmen and women, as found in this plant, are those existing in the tall loft buildings of large cities, where thousands of people, engaged in the manufacture of clothing, are often crowded together, usually above the fifth story, and sometimes up to the twentieth floor. Such workshops are a handicap to the business, because they are not built for the purpose, and lack, as a rule, not only the building features that are essential for the best production, but they often contain impediments and obstacles in the way of attaining a hundred per cent. quality or quantity of production.

The industry coming naturally in importance after those producing food and clothing is the one that contributes the things necessary for shelter. This would include the industry of building and all those allied industries producing the manufactured parts of buildings. Wood-working plants, saw mills, and planing mills are usually housed in buildings that are of themselves very combustible and inferior as a class to the buildings of most of the other industries. While they make the best things for other buildings, they resemble the shoemaker in being down at the heel as far as their own buildings are concerned.

In this way, one could go all through the list of the needs, comforts, luxuries, customs and activities of life and find that special industries have been created to supply each one. The types of industrial plants therefore are as numerous and varied as are the needs and demands of human life.

II. SITES FOR INDUSTRIAL PLANTS.

The essentials for securing the best location for each industrial plant will of course vary according to the nature of the industry; but the following six sub-

jects will demand careful study by most of the industries in selecting a site:

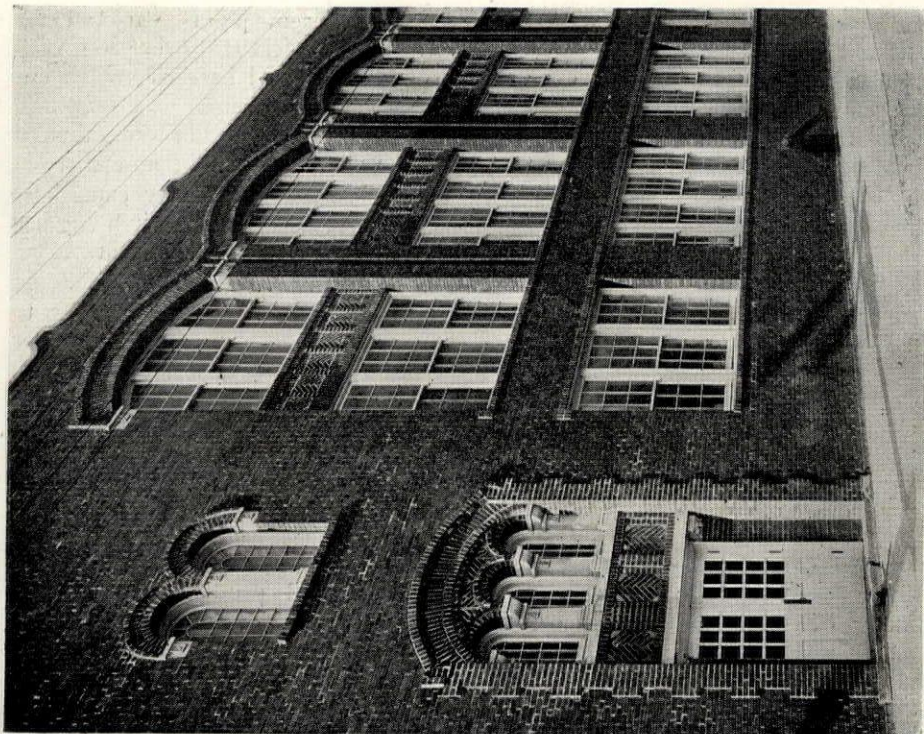
1. Center of the market for the sale of the product.
2. Accessibility of materials consumed.
3. Transportation.
4. Possibility of securing the most suitable employes.
5. Favorable building conditions and power requirements.
6. Room for expansion of the plant; proper foreground and landscape effects; space for out-door recreation; and, if not otherwise provided, space for housing employes in a modern industrial village.

1. CENTER OF THE MARKET FOR THE SALE OF THE PRODUCT.

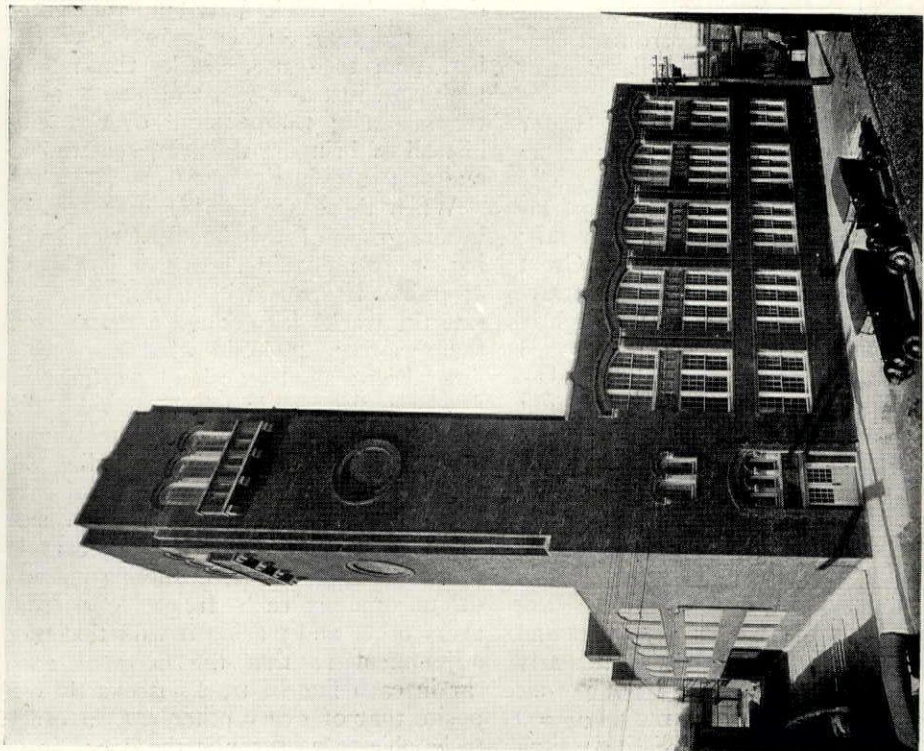
The selection of a site for an industrial plant, which is as near as possible to the center of the market consuming the goods of that plant, has a great advantage over others not so fortunately situated in being able to reach its customers in the shortest time and at the least cost of shipment. This is particularly true of producers turning out goods of material size and weight; customers in such instances are strongly influenced to buy the big or heavy things as near home as possible, as long transportation hauls increase the possibility of shipments going astray, of causing damage to goods en route, and they prevent the possibility of filling hurry-up orders promptly in response to urgency calls of customers. Traveling salesmen and managers of branch houses can also keep in touch more effectively with the head of the producing plant if it be located in the center of the market.

2. ACCESSIBILITY OF MATERIALS CONSUMED.

The second subject, of the accessibility of materials to the industrial plant, is one of the most important ones; and yet, in spite of its being so apparent, many large industries are located far from their sources of supplies. The great meat industries of Chicago are far from the grazing fields of the western prairies, where much of the cattle is raised, not-



DETAIL OF ENTRANCE—PEACOCK REAL ESTATE, TRUST
BUILDING, CHICAGO.
E. Norman Brydges, Architect.



GENERAL VIEW—PEACOCK REAL ESTATE TRUST BUILDING,
CHICAGO.
E. Norman Brydges, Architect.

withstanding the disadvantages of excessive cost and hazard of hauling cattle such long distances. In recent years, however, additional plants at Kansas City, Omaha, and other western cities, have been established to do away with some of these long hauls. The same policy has been pursued by the steel industries in breaking away from Pittsburgh and locating some of the new plants at Gary, Duluth and Birmingham, and thereby getting closer to the mines from which they get their raw material. Many causes, sometimes beyond the control of the manufacturer, have brought about the necessity of long hauls of materials; but the subject is so important that mention of it should be made as one of the essentials for highest development.

3. TRANSPORTATION OF INDUSTRIAL PLANTS.

The means of receiving and transporting materials and goods to and from an industrial plant have often been a deciding factor in determining the location. It has been always considered necessary to have at least two railroad lines for shipment in order to obtain reasonable freight rates. Perhaps Government control may remedy that while it has control of the railroads.

Any industry that has both water and rail transportation direct from its plant to important points is particularly fortunate. Rates of water transportation are usually much lower than by rail; but away from the sea coast or Great Lakes, water routes, including the attractive old canals, have been only slightly developed in this country as compared with those in Europe.

The kind of transportation, the freight rates, switching charges, the number of switches made per day, if done by the railroad, the question of less than car-load lot shipments, and the service of express companies are all important determining features of every site.

The manner in which switches are brought into a plant is an important and sometimes a difficult problem, particularly when the lack of space will not permit curves in the switches of a radius of 360 feet or more. The radii of existing switch

tracks at different plants vary all the way from 150 feet to over 360 feet. Originally the wheel base of switch engines was small enough to go around small curves properly; but since then it has been increased, so that now there is no end of trouble and delay caused by the derailment of modern switch engines on switch tracks of small curvature.

The choice of direction for bringing switch tracks into a plant is usually to run them from the rear to the front. If there are a number of tracks to be used, the best arrangement to try for is to place them in two groups, arranged so that the tracks for out-going freight are on one side and the incoming freight on the other, thus leaving the center space all free of tracks for the occupation of building and for the uninterrupted travel of material and product through the various processes of manufacture. If the nature of the manufacture is of a certain kind, the least handling of things and the shortest travel for them may be secured by placing incoming freight tracks all the way down the sides, and the outgoing tracks partly up the center from the rear. It is seldom ever the best plan to scatter tracks throughout the plant, just as it is a bad plan to scatter incoming railroads all over a city instead of bringing them in, centered in one or two points.

When there are two or more tracks in any group of switches next to a loading or an unloading space, it is always desirable, if space will permit, to separate the tracks far enough apart so that there is room to build what has sometimes been called an island platform of five or more feet in width, between the lines of cars. These island platforms will permit of loading or unloading directly through the different lines of cars without the necessity of having to spot the freight cars. Spotting the cars is that tedious and time-consuming process of uncoupling each freight car from every other and placing it with that nice adjustment so that the door of each car in each line of tracks is exactly opposite that of every other car, in order to be able to go through the doors from



FORD ADMINISTRATION BUILDING, DETROIT, MICH.
Albert Kahn, Architect.

one line of tracks to the other. On account of the many different lengths of freight cars this process of spotting the cars is the cause of enormous waste of time and needless expense at many freight terminals.

In the case of a small plant, where there is only one or a few switch tracks, a site for the building may be best chosen where the tracks can be placed to run along the rear of the plant. If the problem is one where one or more tracks must make a curve off from the main line and run into any building, then care should be taken to see that there is space enough so that the tracks will not have to curve after they enter the building, as curved switch tracks inside of a building always mean material extra cost in framing the structural parts of the building over such tracks. If switch tracks inside of a building, several stories high, are to be placed along one side of the building, it is seldom the best arrangement to place these tracks directly against an outside wall, where they are often placed, because this gives access to the cars from

only one side; while if they are set over from the outside wall, even one column space, they will then be accessible from two sides, and it may often be possible in such a case to make a receiving platform of this space where materials for manufacture may be received and where also elevators or conveyors may be placed to elevate these materials directly to their proper floors, without in any way interfering with the space on the opposite side of the tracks, which may all be devoted to an uninterrupted shipping room.

The standard height of floors or platforms above the rails of switch tracks is from 3 feet 9 inches to 4 feet. Notwithstanding this well-fixed standard, some bright designer of refrigerator cars started the custom of making the hinged doors of such cars so low at the bottom that they cannot be swung open when the cars are run alongside of a standard platform. Platforms must be only about 3 feet 4 inches above the rails to allow such doors to open. This defect in refrigerator cars has now been corrected in some of the new cars by the substitution of doors



FORD SERVICE BUILDING, OMAHA, NEB.
Albert Kahn, Architect.

that will open on standard platforms; but there are a lot of cars of the other type on the different roads, which have often to be provided for, in existing platforms, by building slots with removable covers, and by lowering some sections of the standard platforms, or by opening the doors of such refrigerator cars and fastening them securely before shifting them in alongside of the platforms.

When the tracks of railroads are elevated, as they now are in many cities, this fact need not preclude the selection of such a site for a plant unless there is some special requirement for surface tracks. Plants with ordinary requirements can usually plan very well to have the shipping and receiving facilities in the second story. There are some large and important plants operating under this plan. In city localities the elevation of the railroad tracks often makes possible a most desirable space below for trucks and teaming, also for the gravity unloading of coal. This first story space can also be often used to advantage for offices, sales space or the storage of things

not actively moving in the operation of the plant.

Some building sites offer the advantages of tunnel freight delivery, such as the Illinois Tunnel Company's system, under the streets of Chicago. This system connects with the principal freight terminals of the city and has branch tunnels extending into many of the commercial and industrial buildings from the street tunnels nearby. From the end of each branch tunnel under the building an elevator is provided that will elevate the cars to any story of the building desired. Switch tracks are usually installed on some floor devoted to shipping, where a miniature freight yard can be laid out, as the cars are small and run on narrow gauge tracks. In this way a vast amount of team and truck traffic is removed from the congested streets of the city.

Cities having navigable rivers and waterways offer a good means of short haul transportation through use of lighters. These can be made in quite large units and utilized effectively for delivery directly to railway terminals, ship docks



GOODRICH TIRE SERVICE BUILDING, DETROIT, MICH.
Albert Kahn, Architect.

and receiving points. The relative level of waterway docks and adjoining streets should be such that, with a reasonable amount of filling and construction work, delivery can be made from the ground floor level of the plant to both boats and motor trucks, or if the street is considerably above the waterway, as is usually the case, boat delivery can be arranged on a basement level and truck delivery from the floor above. If railroad service is also to be provided, then additional attention should be given in selecting the site to the relative levels of these three means of transportation in relation to the building construction and design.

The final matter for consideration in selecting a site is the local transportation to and from the plant, if it is to be located outside of a city. The employes as a rule prefer to live near enough to the plant so that they can walk to and from their work. If it is not intended that they shall, then adequate means of travel by trolley or railroad should be assured for them as well as for all other people who may need to visit the plant, before

being committed to the selection of any site. Such local transportation can often be made one of the conditions contingent upon the selection of a site, if it is provided for in time.

4. POSSIBILITY OF SECURING THE MOST SUITABLE EMPLOYEES.

The securing of employes is, for some industries, the chief deciding factor in selecting a site. These are obliged to seek the locality where the people live whom they wish to employ. Cigar and tobacco factories are usually affected in this way when selecting a site. Paper box factories and such industries, which employ many boys, girls and women, often seek the location of some large industrial center with the idea of securing for their work the sons, daughters and wives of the workmen employed in the larger works.

The most important plants of each industry usually group themselves together in one locality, so that they are assured of the kind of employes they require. Some industries, particularly those with

high-class skilled labor, can induce their men to follow them to almost any location where the other inducements are the strongest.

Mail order houses have a big problem in securing adequate help, and one of the chief requirements of such a plant is its accessibility to its employes. One large firm, before it changed its location to larger quarters, took a map of its city and indicated on it, by marking six thousand stars, the locations of the homes of its own people. With this as a basis it made a six months' study of the situation before selecting the new site.

5. FAVORABLE BUILDING CONDITIONS AND POWER REQUIREMENTS.

There is usually no difficulty now in erecting any kind of a building where there are transportation facilities. Unless it is unusually inaccessible to material or labor markets, its cost would not be essentially effected. If heavy timbers are not available at reasonable prices for mill construction, it is probable that reinforced concrete can be built at less cost. In warm climates some regard should be given in the construction to insulation against excessive heat and ventilation from the outside; while in cold climates inside mechanical ventilation, heating, disposal of snow and roof drainage should receive extra attention. Climatic conditions would also properly influence the plan and design of the plant in other ways.

One very important consideration of every site is whether or not proper sewage disposal is available and whether the surface drainage is such as not to cause various troubles from floods, in the way of submerged basements, pits, damp walls, mildewed and rusted floor constructions. Pure drinking water is, of course, one of the first essentials.

Localities over which the prevailing wind carries excessive smoke and injurious gases should always be avoided, as well as places where a stream or river is polluted by the refuse of some other plant.

In fact, no site can be ideal unless it is clean, wholesome and attractive, at least to start with.

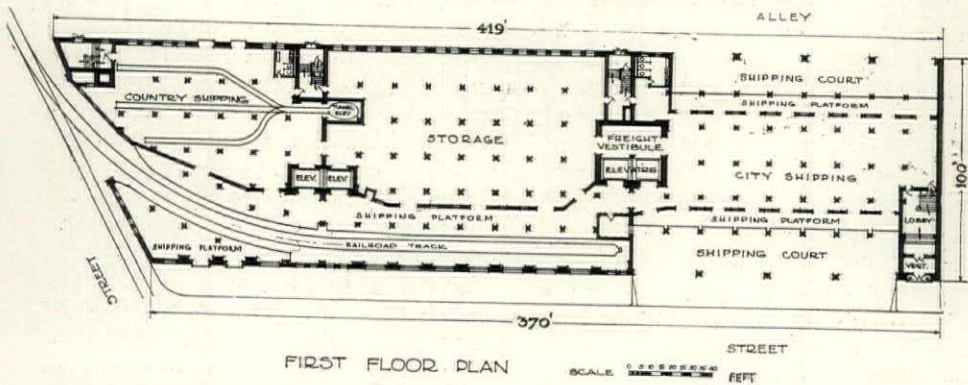
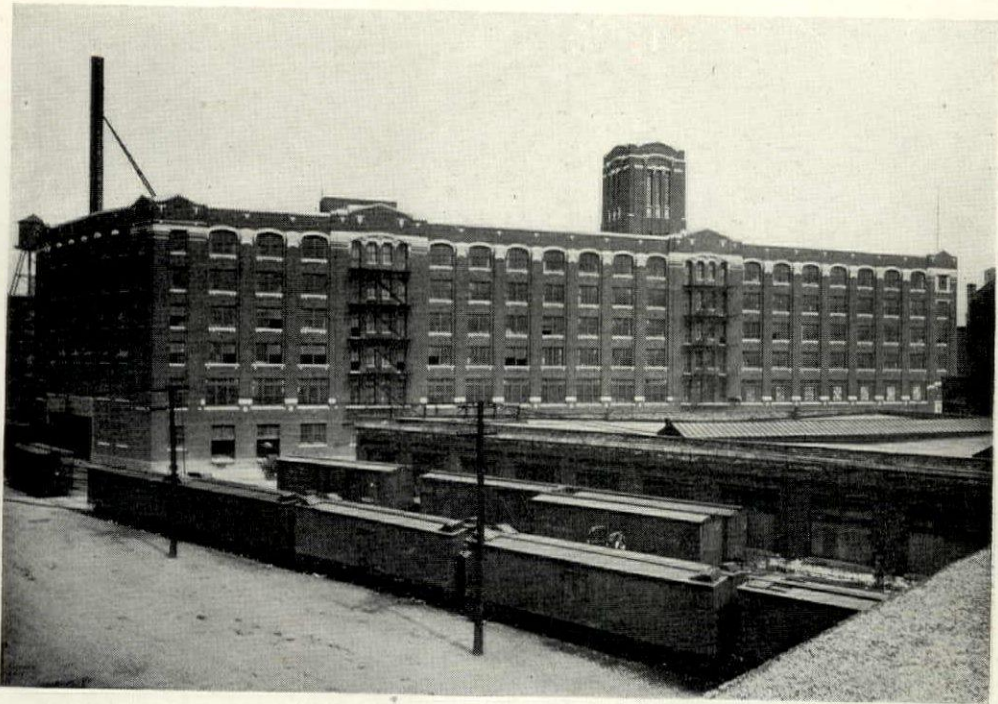
If a plant seeks water power, that requirement would narrow the selection of a site down to the streams which have a proper fall to produce the power. If it is not intended that the plant generate its own power, then the selection of a site is again restricted to localities equipped to supply that, as well as water and gas, if required.

6. ROOM FOR EXPANSION, SPACE FOR A FOREGROUND, RECREATION, HOUSING, ETC.

There is probably no one provision that has to do with the selecting of a site for a plant that is of more importance than room for expansion. If an industrial firm goes through all the trouble and expense of building a new plant, moving and readjusting itself to the new conditions, and then finds, after it has started on a new career of expanding business and successful operation, that it has failed to provide wisely for enlarging its buildings and operating space, it will finally be compelled either to go through the whole ordeal of moving and building another plant all over again, or allow its business to be gradually choked to death by trying to grow in quarters that are too small and inadequate to accommodate properly a growing and an expanding business. Many a concern has found itself in just such a predicament after rebuilding, because proper provision was not made in the first place for expansion of the business.

Future growth of a plant deserves just as much study as present requirements. A new plant should never be built without a well-studied, comprehensive plan for at least a reasonable amount of future growth. Such a plan should provide not only space for future buildings and handling and storage yards or spaces, but it should, in the construction of such buildings as may need to be enlarged, also provide ample foundations and supports for extending them up higher or building on to them laterally. No building site, therefore, should be accepted which will not permit of future growth or expansion.

In addition to the necessity of secur-

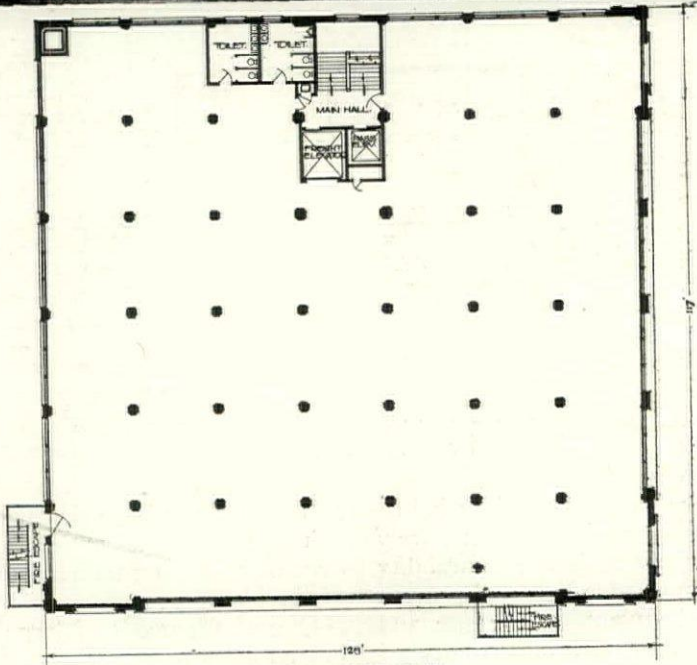


FIRST FLOOR PLAN
 EXTERIOR VIEW AND FIRST FLOOR PLAN—BUILDING OF JOHN SEXTON & CO., CHICAGO.
 Alfred S. Alschuler, Architect.

ing ample space on the site of an industrial plant, for expansion to meet purely manufacturing needs, is the desirability also of providing space that will prevent crowding of the plant on the site and thereby eliminating any opportunity of creating a foreground for the buildings, recreation or playgrounds, and room for special buildings and requirements that

in recent times have proven to be most valuable accessories to decrease the turnover of labor and increase the efficiency of the plant.

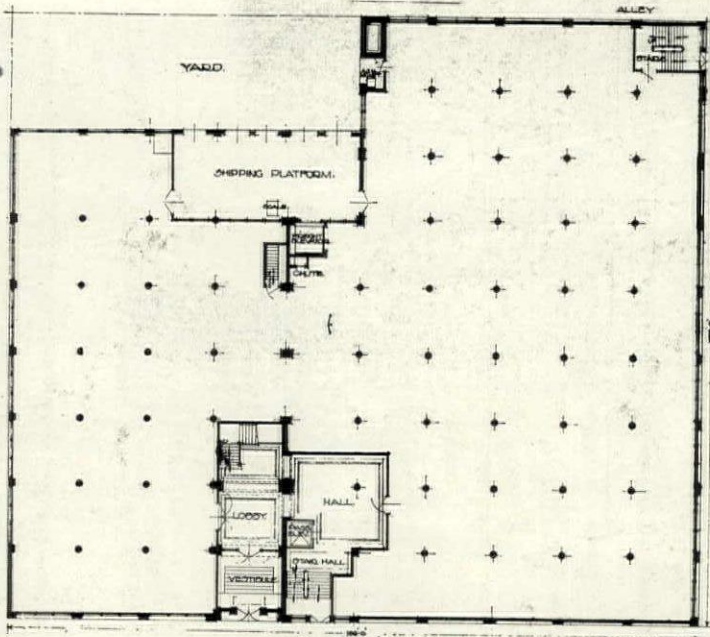
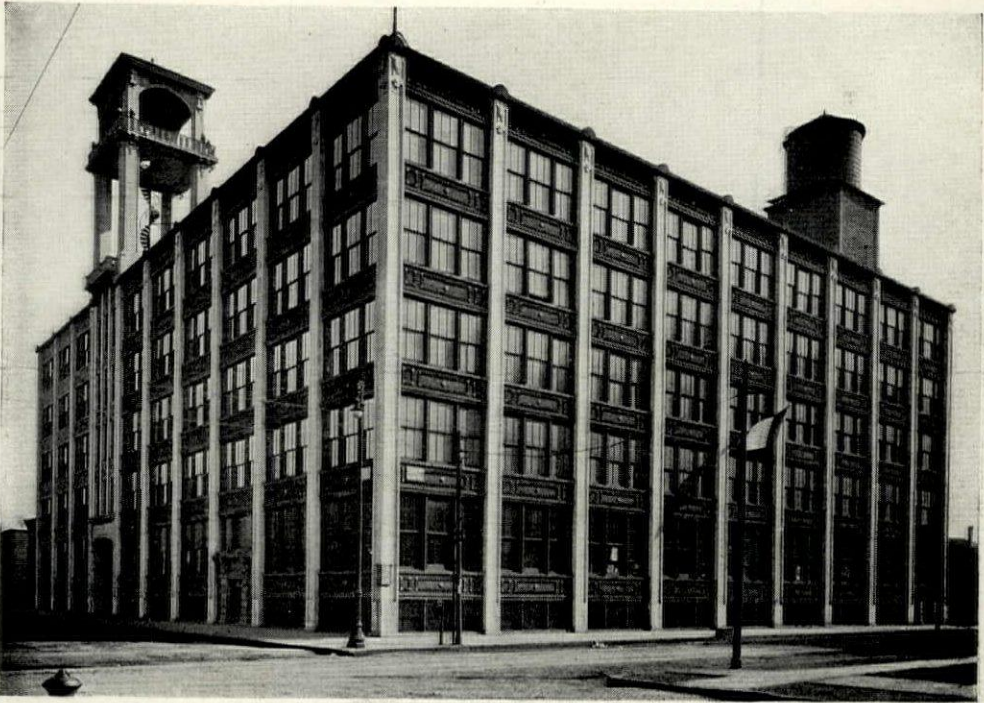
One of the needs of large plants that has required more serious attention during the war than almost any other has been the housing of employees. It was thought in England, at first, that on ac-



TYPICAL FLOOR PLAN.



EXTERIOR VIEW AND TYPICAL FLOOR PLAN—BUILDING FOR ALBERT H. LOEB,
CHICAGO
Alfred S. Alschuler, Architect.



FIRST FLOOR PLAN
Scale 1/8" = 1'-0"

EXTERIOR VIEW AND FIRST FLOOR PLAN—BUILDING OF A. STEIN & CO., CHICAGO.
Alfred S. Alschuler, Architect.



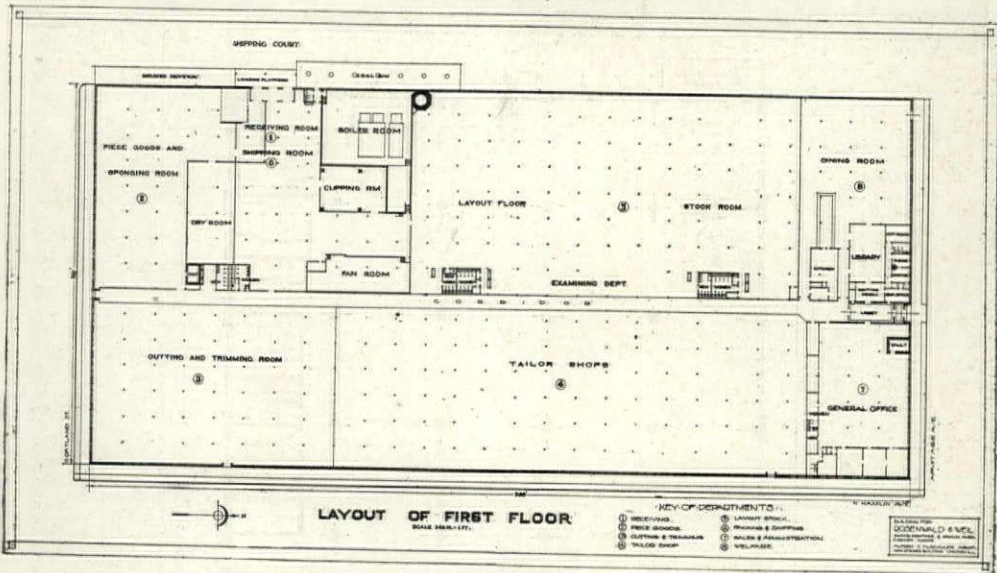
ROSENWALD & WEIL BUILDING, CHICAGO.
Alfred S. Alschuler, Architect.



INTERIOR VIEW—ROSENWALD & WEIL BUILDING, CHICAGO.
Alfred S. Alschuler, Architect.

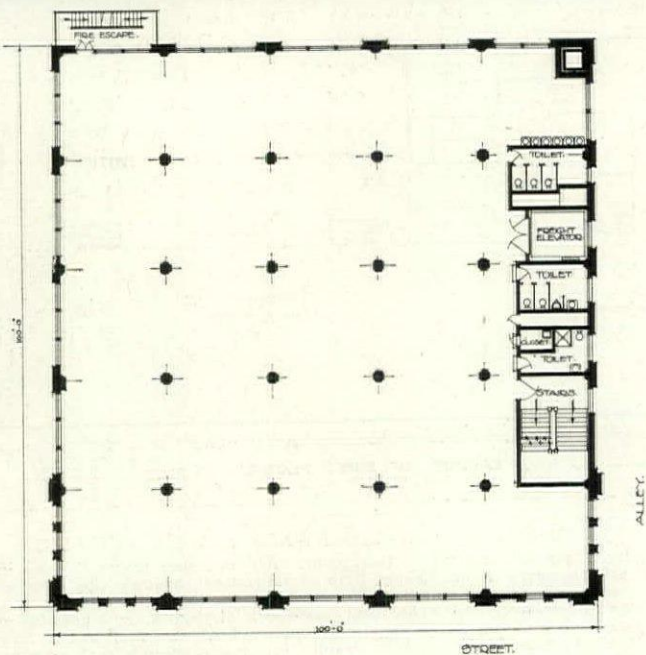
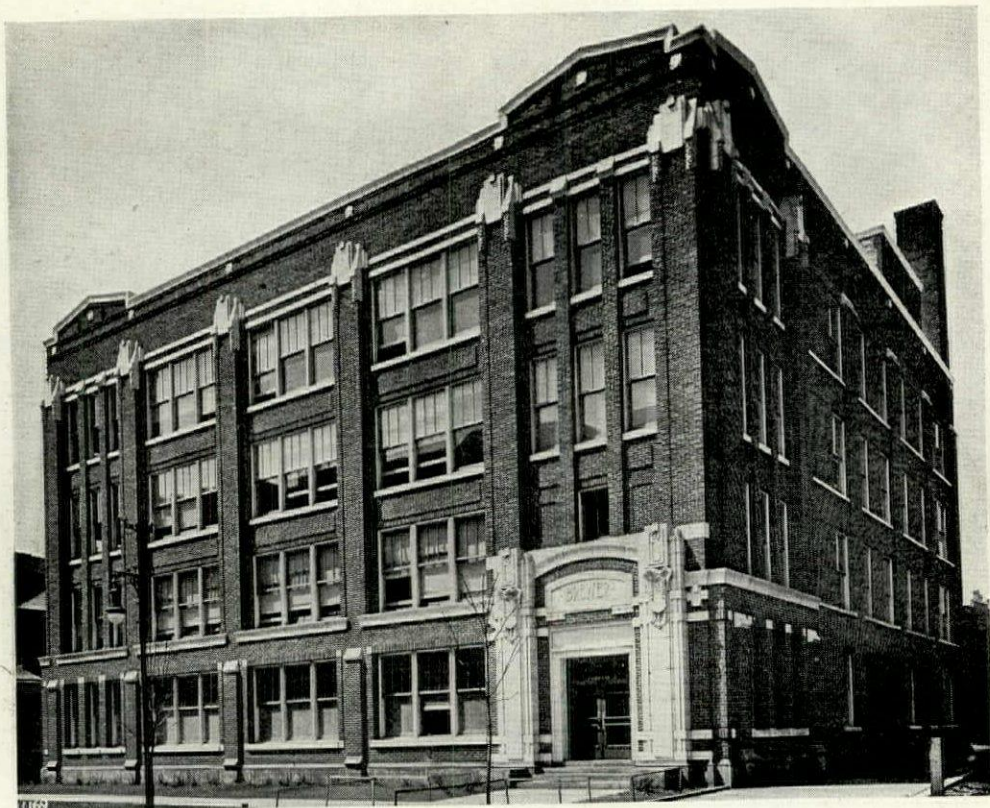


ENTRANCE DETAIL—ROSENWALD & WEIL BUILDING, CHICAGO.
Alfred S. Alschuler, Architect.



FIRST FLOOR PLAN—ROSENWALD & WEIL BUILDING.

[Men's clothing is manufactured in this plant. All incoming material used in manufacture is brought to the receiving room. From here it is routed through the various processes of manufacture in the order of the numbers from one to six marked on the plan. All operating departments have direct overhead light from saw-tooth skylights, and heating and ventilation from a fan system. As an insulation against summer heat the roof has a layer of one-inch insulating quilt in its construction, which results in saving enough coal in winter to pay for its cost in four years. Pivoted vertical sash in the saw-tooth skylights provide summer ventilation. Tests have shown inside temperature ten degrees lower than that outside in the hottest weather. Provisions are made for employes' welfare work, as represented by the dining-room, kitchen, library and hospital.]



TYPICAL FLOOR PLAN.

1" = 10' 0"

C. A. BREWER BUILDING, CHICAGO.
Alfred S. Alschuler, Architect.

count of the temporary character of munition manufacture and the urgency of speed in establishing new munition plants, employes would be willing to get along with living quarters which merely supplied the necessities of shelter. This proved to be untrue and resulted in an investigation of the whole situation of housing employes, which brought to light and established many facts on this subject that formerly were unknown or disputed. As a result of this a new reform movement has already firmly established itself in this country, and the Government and many private concerns are now actively engaged in building new model villages for workmen.

If employes are therefore to be housed in connection with the new industrial plant, very careful selection of such ground should be made as would be suitable for an industrial village of the new and model type.

Few owners appreciate at first, until their attention is called to it, how desirable a foreground will be at the front of their plant. No building can look its best or serve its purpose as well if built right up to the sidewalk or streets, as it would be if set back from the property line. In crowded city locations this may be impracticable; and yet even in such locations it is often possible to set back some portion of the front façade, perhaps that near the main entrance, without infringing on the maximum usable area of the site. In less crowded districts a setback of a few feet, say ten feet, may give opportunity of treating this space properly, of improving the appearance of the whole plant greatly, and of adding materially to the natural lighting efficiency of the glass area of such a front.

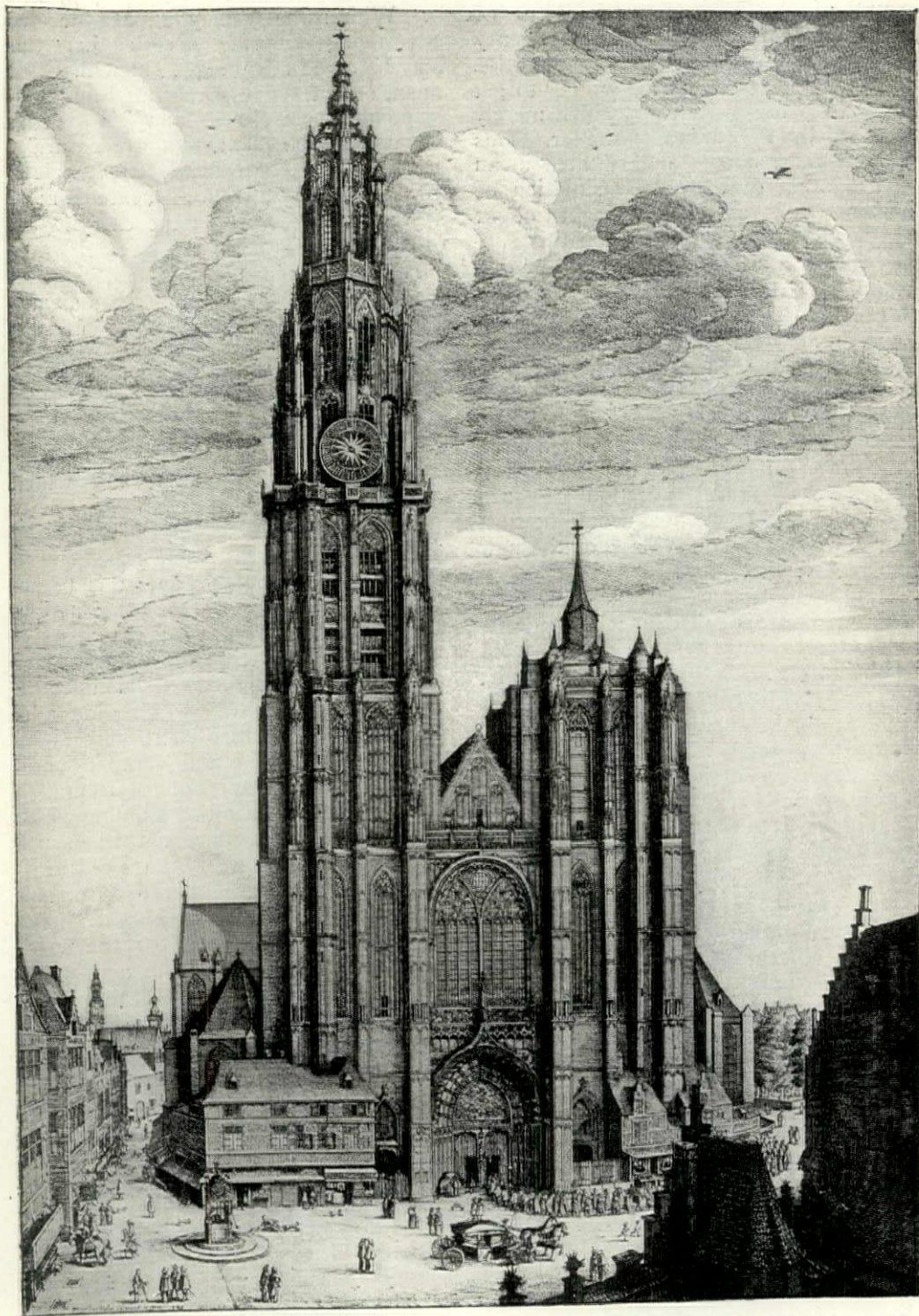
Where the selection of a site permits the devoting a generous amount of space to the foreground, then a real opportunity occurs for doing something, usually without material expense, that will change the whole character of the plant. There is no industrial plant that does not benefit in some way from the proper and attractive treatment of the ground around

it. With some it may have a decided advertising value, while with others this may be of no advantage; but with all of them, an attractive foreground and corresponding cleanliness and good order throughout the plant, that are naturally a part of the program of attractiveness, have a material influence—mentally, morally and financially—in the carrying on of the work of that plant.

A plant which is obliged to locate in the crowded district of a city has always the problem of providing against the diminution of its light and ventilation in the additional building of its own or that of its neighbors. Light courts that are sufficient for good results at first may be made most inadequate by future vertical additions. Streets at first which afford good light may also be greatly impaired in this way in their lighting efficiency afterwards. An expedient to adopt to overcome this defect is to arrange, in the design of the construction, for setting back the walls on a street or light court, so that the areas can be enlarged as the building extends upward.

The only safe way to provide adequately against future encroachment on the space for light and ventilation, in a crowded district, is not to attempt to occupy all the space with a building which the building ordinances permit, when such occupancy may be greatly impaired in its efficiency by building operations on adjoining property over which the owner has no control. Often half the space needed for a light court on a property line is left by one owner, with the expectation that his neighbor, when he builds, will leave a corresponding one; but unless there is a contract to that effect, with provision for the maximum height of construction, which is very difficult to get, such a light court may become utterly useless.

Compliance with most building laws do not always insure good light and ventilation, and it is safe, therefore, to plan to use only such area on any building site as is reasonably safe from being spoiled by future building operations.



Illustrations by courtesy of Prints Division,
New York Public Library.

ANTWERP CATHEDRAL. ETCHING
BY WENZEL HOLLAR.

Architectural Etching

By Frank Weitenkamp

NO matter what subject the artist attacks, or what medium serves him in his work, it is inevitably the artist back of the subject and the medium who counts.

Even a layman, not unintelligently interested in matters of art, might conceivably consider such a specialty as architectural etching a matter to be simply stated in terms of a definitely circumscribed method. Yet that it cannot be, for reasons of personality above indicated. Architectural etching, similarly to other specialties in the reproductive graphic arts, well illustrates the wide diversity and rich resources of that only apparently limited field of art activities grouped under the name "prints."

The classifying—pedantic, if you will—mind of a librarian or a custodian of prints may at once busily sort architectural etchings into groups. For instance, the more or less "straight architectural" plates of A. H. Haig or Hedley Fitton, emphasizing structural composition, effect of façade, decorative detail. Then there are artists, such as Frank Brangwyn, to whom the building becomes an affair of masses of light and shadow, seized and accented with an eye to decorative effect—things to be said also, with allowance for quite different personal view and expression, of Marius Bauer. To others, Eugène Béjot, for instance, buildings have interest in groups, as expressions of the character of a locality, and so we get street scenes. Another, again, may see the building as part of its surroundings, a viewpoint expressed by architects in the surely growing consideration of the adaptation of construction, particularly rural, to the building site and its environment. And there are etchers of city life—such as the Frenchman, Félix Buhot, and our own L. G. Hornby—to whom buildings and humanity are inseparable, one the setting for the other,

the latter the *staffage* for the former, the whole a complete expression of the city's life.

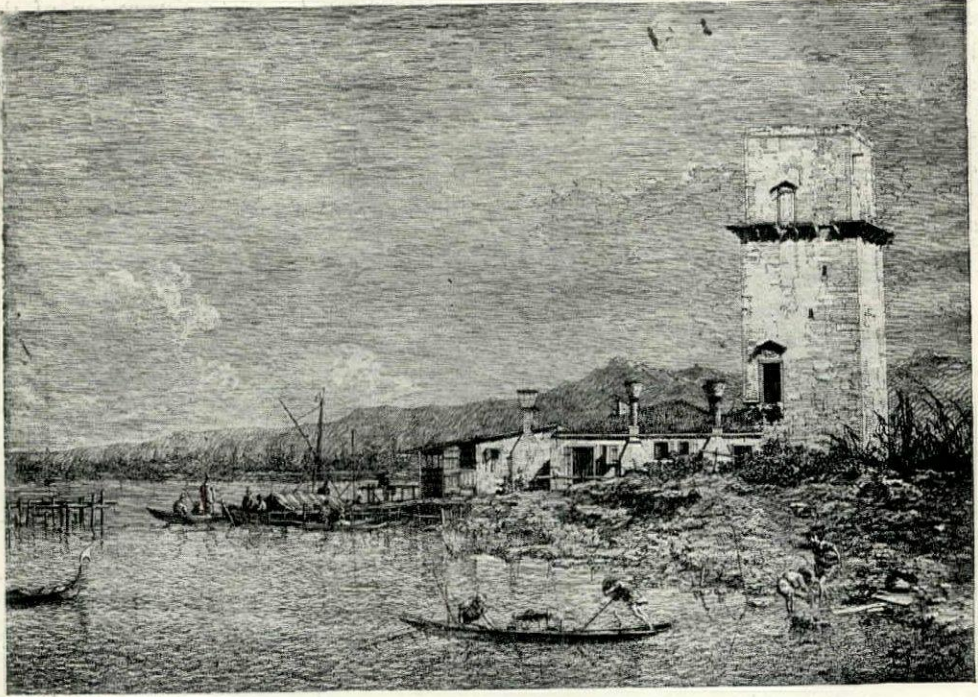
Strong contrasts are easily found. Take the large plates by Haig, depicting cathedrals and other large buildings in straightforward transcript. Compare them with the very much smaller Venetian subjects by Whistler. Light, airy, almost imponderable and yet perfectly tactile, his palaces rise beside the canals, gossamer-like, the perfect expression of a joyous delight in conveying an individual and beautiful impression of the world. And there we are again, face to face with that fact of the ultimate subclassification of all art into expressions of individuality.

Whistler's Venetian work influenced various artists directly or indirectly—Pennell, Frank Duveneck, Otto H. Bacher, D. S. MacLaughlan, Cadwellader Washburn. He himself went through a development which we can trace back to his early London scenes, quite precise and firm, though not hard. Even these, with primary emphasis on the beauty of the etched line as a means of expression, are apart from the class of work signed by Haig, Fitton, Rochebrune or the quite dry and unemotional Queyroy.

For temperament of a fiery sort, with an admixture of delight such as Cyrano de Bergerac's, in "the gesture," one goes to Piranesi. What James Huneker once called "hunting the black butterflies of analogy" usually amounts to the application of procrustean beds, as violent as this present mixture of metaphors. Therefore the name "the Rembrandt of architecture," bestowed on Piranesi, is repeated here with reservations, and solely in order to emphasize the sombre shadows with which Piranesi enveloped his views of ancient Roman buildings. They stand out in imposing reality, not with the appearance of meticulously care-

ful restorations. In shadows, under archways, in various nooks, there pose figures in strained attitudes. They throw side lights on an imagination which rises to its height of feverish activity in the *Carceri d'Invenzione*, that series of impossible prisons rising to impossible altitudes of super-imposed floors and gal-

holds a place quite by himself. To pass from him to artists working with a more delicate touch, implies readjustment of eye and mind. His large plates, with a big emphatic line which does not call for too close examination, decorative in effect, are adapted to framing and the wall, rather than to the portfolio. More or



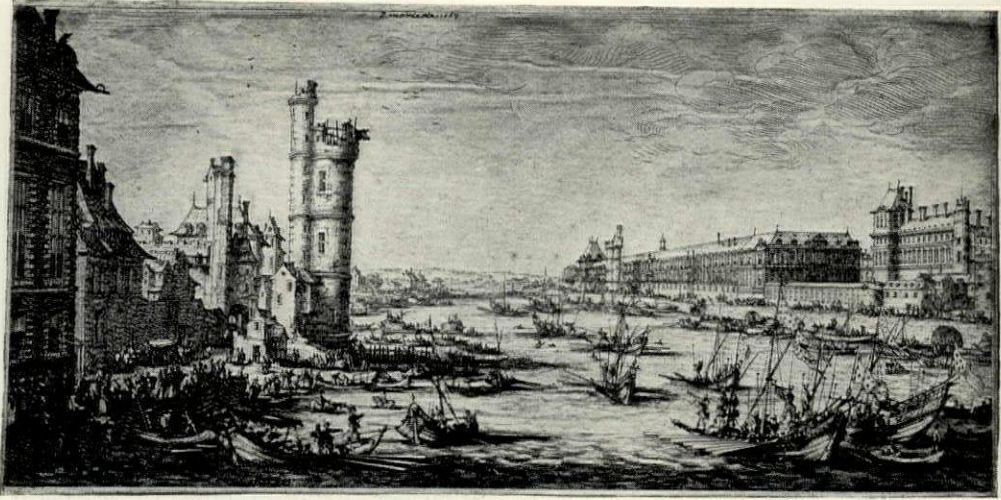
LA TORRE DI MALGHERA.
Etching by Antonio Canal (Canaletto).

leries, reached by a vertigo-crowned succession of stairs and ladders that stretch up and, who knows how far, beyond the confines of the picture. Yet the artist who evolved this architectural opium dream did also series of plates which have been a source of inspiration to architects. Arthur Samuel, who says that "architectural etching has culminated with him," has told us of the great influence his designs had on Robert Adam and other decorators in England, and that "American architects have drawn liberally on his entire output."

For a certain grandiloquent vigor of imagination, force and sweep of technique, depth of color and prolific devotion to the subject of his choice, Piranesi

less in this class of wall decorations are also the larger plates of men such as Haig, Fitton, Brangwyn—it being understood again that this grouping has no farther significance as regards style, viewpoint or any other quality implied in the make-up of personality.

Most etchings, even of architectural subjects, have an element of greater intimacy in enjoyment, an element akin, let us say, to that offered by the string-quartette concert. It is an element that calls for study in small exhibition galleries or in the print room with its portfolios. It is the sort of thing exemplified in absolutely differing aspect by those two masters of the art, Rembrandt and Whistler. Rembrandt, however, approached archi-



VIEW OF THE LOUVRE (1629).
Etching by Jacques Callot.

ecture only in a few of his religious subjects. He pictured mainly farm cottages, as part of the homeland which he saw and reproduced with sympathetic appreciation.

The interest in locality is responsible for a large number of the architectural etchings which we know.

Whistler had a precursor in Venice in the early Eighteenth Century, a precursor in local interest, I mean. Without our expatriated countryman's dainty preciousity and unflinching distinction in the choice of the right line, Canaletto had a quiet dignity of firm, light precision. His contemporary, Samuel Scott, depicted London in a somewhat similar manner and spirit. And to the British capital there had drifted, in the preceding century, under the protection of Lord Arundel, a Bohemian artist, Wenzel Hollar. A pupil of Matthew Merian, surpassing his master in freedom of touch, he varied his large and carefully executed plates of exteriors and interiors of the cathedrals of Strasbourg and Antwerp, and of other buildings, with little views in London and elsewhere, done with the charm of honest workmanship and sympathetic application. In recent years a number of Britain's etchers have recorded bits of her architecture interesting for beauty, or historical associations, or age. Such artists as Albany R. Howarth, Affleck, Dodd,

Hewins, O. Hall, C. J. Watson, William Monk, Constance M. Pott, with Cameron and Bone as outstanding names. D. Y. Cameron's "richness of tone in the treatment of architecture," says A. M. Hind, "is the achievement of great power and individuality." His "Five Sisters of York," that apotheosis of stained glass, is a particularly impressive and beautiful example of his work. As to Muirhead Bone, "From the first," wrote Wedmore, "it was humble London that moved his thought and his hand. He understood at once the aspect of the commonplace street, . . . he saw that in it which was peculiar and personal: its little touch of dignity or interesting homeliness."

Joseph Pennell, long a resident of London, and recently returned to our land of his birth, has been an artist-recorder of his travels in various countries. His quick resourcefulness and a directness, born of what one has called "a wise reticence in line," have been admirably applied to the delineation of city views in London, New York and elsewhere. There is in his style a crispness which was particularly emphasized, in the case of his lithographs, by Whistler.

Buildings, often as part of a given locality, figure in the works of a number of modern etchers. Picturequeness, local and historical associations, are governing factors in the choice and delineation even

of individual structures, and more often it is the group that is shown, the square or street. The spell of urban life is strong on us to-day. Architectural etching is assiduously practiced. Inspiration is perhaps not so frequent as dexterity; love of place not always so strong as recognition of a taking subject. But the best work will endure.

Each country that has etchers has its etched glorification of its cities' beauties.

Our American cities have their artistic votaries. Joseph Pennell naturally comes to mind, picturing the quaintness of Philadelphia at the beginning of his career, and later on New Orleans, Chicago, San Francisco, New York, Pittsburgh. Charles Henry White, a few years ago, was issuing in *Harper's Magazine* a series of sprightly articles on American cities, illustrated with reproductions of his etchings. Text and illustrations mirrored his interest, both artistic and purely human, in the city's picture as a whole, the character which its buildings impress on its streets, the little comedies in the life of its inhabitants, and the sun and air playing on and around it all.

Some artists have been identified more or less with certain individual cities. Thus, New York City appears, under as many different aspects, in plates by B. J. Olssen-Nordfeldt, Childe Hassam, A. T. Millar, J. André Smith, Henry Winslow, Henry Deville, J. C. Vondrous, Earl Horter, W. J. Quinlan, and especially C. F. W. Mielatz. The last-named is indeed New York's etcher, Father Knickerbocker's own. With a sure eye for the picturesque, the quaint and the attractive, seeing things from the proper point of view and reproducing what he sees in perfectly sane and straightforward statement and with an ardent experimenter's sure knowledge of the processes of etching, Mielatz has for years cultivated the gentle art of showing New Yorkers the beauties and attractions, at times either not obvious or out of the beaten track of travel, of their "little old town." Rudolph Ruzicka must be mentioned, too, although he works, not on copper, but on the wood block. His little cut, about 2x3 inches, of the New York Public Library,

gives, in its few, open lines, an effect of size and solidity that neither a larger scale nor added work could make more impressively read and adequate. Cincinnati has its George E. Burr, Chicago its Nordfeldt.

Not a few artists have sought inspiration abroad. Cadwallader Washburn not only in Mexico, but as far afield as Japan and Siam. Some have been attracted by Italy: D. S. MacLaughlan, E. D. Roth, H. A. Webster. But particularly Paris, mother of artists and their model, has drawn them: George C. Aid, F. M. Armington, Pennell, H. A. Webster, T. E. Tallmadge, John Marin, Lester G. Hornby, Nordfeldt, C. K. Gleeson, O. J. Schneider, Vaughan Trowbridge. These have joined the little army of French and other artists who, since the days of Callot, have sung the praises of the city by the Seine. Callot's two views, looking up and down the river, showing the old Tour de Nesle and the long stretch of the Louvre, are classic. In the Eighteenth Century came the many engravings of palaces and gardens of royalty and the nobility, elevations, plans and scenes. These were done with the formality of the burin (graver) instead of with the greater freedom of the etching needle, but they are mentioned here on account of their interest to the architect and the landscape gardener. The copper plates of these are housed in the "Calographie du Louvre," Paris, where they are still printed from, impressions selling at low figures.

And then, what an array of etchers has glorified Paris and other French cities during the Nineteenth Century! The exhibition illustrating "The War Zone in Graphic Art," now on view in the main building (Fifth Avenue and Forty-second Street) of the New York Public Library, exemplifies this to a considerable extent. The cathedral of Rheims was etched by Haig, Henri Toussaint, G. T. Plowman and Vincent Randolph; that of Amiens by Haig, Camille Fonce, Auguste Lepère and lithographed by J. D. Harding, and that of Strasbourg by Hollar, Haig and Octave Rochebrune. Here, too, are castles and other buildings by Rochebrune



RUE DU GROS HARLOGE, ROUEN.
LITHOGRAPH BY R. P. BONINGTON.



THE APSE OF NOTRE DAME, PARIS.
Etching by C. Meryon.

(Pierrefonds), Lalanne (Thaumont) and others, and Belgian cities by Brangwyn and Haig. And leaving the scenes of actual fighting, we may find in the portfolios of our print rooms Paris scenes by Meryon, Brunet-Debaines, Lalanne, Lucien Gautier, Lepère, the industrious A. P. Martial, Leopold Flameng, the sprightly Felix Buhot, Eugène BÉjot, to whom Paris is ever a charming, sunny place, Emile Rousseau and Edgar Chahine. Reproductions of etchings by these and other modern artists, as also of the work of Israel Silvestre (Seventeenth Century) and Pernot (Sixteenth Century), will be found in "Paris Past and Present," a volume edited by Charles Holme and published by the *Studio* in 1915.

In the first half of the Nineteenth Century, when lithography was assiduously cultivated by French artists, Baron Taylor enlisted the services of a number of the latter in the production of a voluminous and sumptuous work on the scenery and monuments of France (*Voyages Pittoresques en France*). This is noted, although etchings only are supposed to be dealt with here, in order to call attention particularly to two drawings by R. P. Bonington, the English artist. His "Rue du Gros Horloge, Rouen," and

"Tour du Gros Horloge" are of an interest not only local, but technical and architectural. Especially the first named, in which the block of buildings is indicated with a sureness of touch that, at a little distance, indicates a rich detail of architectural decoration, which on closer view dissolves into the indefiniteness of atmospheric effect.

Of all those who have pictured Paris one stands forth by the strength of a personality neither brilliant nor outwardly successful during his life-time. A brooding spirit, eventually losing itself in madness, was that of Charles Meryon. To him the buildings of Paris spoke of the past, of those who had lived and suffered and died there. "Meryon," said Burty, "preserves the characteristic detail of the architecture. . . . Without modifying the monument he causes it to express its hidden meaning, and gives it a broader significance by associating it with his own thought." His posthumous fame is based mainly on about a dozen-and-a-half beautiful plates in which he gave a weird, powerful embodiment of the spirit of a Paris which was disappearing under the leveling activities of Baron Haussmann. A fine illustration of his point of view and method may be found in his masterly etching of the

"Apse of Notre Dame," which stands supreme among pictures of that grand old structure. That implies no derogation of the impressions of the same cathedral given us by other artists: Rochebrune, Toussaint, Haig, T. F. Simon, B ejot, Chahine, Webster, Wm. Walker, Plowman, E. L. Warner, Hornby.

All of this brings us back to the original statement that in architectural subjects, as in any other, it is the etcher who counts, his attitude toward his subject, what he sees in it, what he expresses to us, and the manner in which he expresses it. Which, after all, constitutes the basic elements of all art.

Furthermore, even in this summary survey there may be, in the mere indica-

tion of the wealth and diversity of material, a hint to the architect. What opportunities there are for him who wishes to acquire for his walls pictures of fine examples of the art which he practices! Pictures which show the impression of architectural masterpieces on an artistic individuality working in another medium. After all, architecture, like any art, may be characterized, at its best, in Ruskin's words as "giving noble grounds for noble emotions." It is precisely that which we see exemplified in architectural etchings, where the product is the inevitable measure of the etcher's ability to enter into the spirit of a structure and to reflect it in an impression purely personal. In that lies the value of his art.



THE RIVA, NO. 2.
Etching by Whistler.



Red Cross Headquarters

At Washington, D. C.

OVER the main entrance to the National Headquarters of the American Red Cross at Washington, D. C., which faces the White Lot, one of the public reservations, is the inscription: "A Memorial to the Heroic Women of the Civil War." The building is the fruition of a suggestion by the late Major General Francis C. B. Barlow, who had expressed the wish that some day a monument should be erected at Washington to the heroic women who cared for the sick and wounded during the Civil War. Among these women was the wife of General Barlow. Talking one evening, shortly before his death, to his old comrade-in-arms, Captain James A. Scrymser, of New York, General Barlow told of his hope. Later, in 1911, Captain Scrymser laid the plan before the Commandery of the State of New York of the Military Order of the Loyal Legion of the United States.

The Loyal Legion heartily approved the idea, and in 1912, during the admin-

istration of President Taft, a bill was presented to the United States Senate which appropriated \$400,000 towards the purchase of a site and the erection thereon of such a memorial, provided that not less than \$300,000 be contributed. On the suggestion of Captain Scrymser it was provided that the use of the building be given in perpetuity to the American Red Cross.

Miss Mabel Boardman, at that time executive head of the American Red Cross, brought the subject to the attention of Congress in 1912 and in 1913; and in October, 1913, the bill was passed and was signed by President Wilson.

Contributions to the amount of \$400,000 were promptly secured by the Red Cross. Captain Scrymser and the Rockefeller Foundation each contributed \$100,000, Mrs. Russell Sage gave \$150,000 and Mrs. E. H. Harriman \$50,000. Mrs. Adolphus Busch gave \$15,000 for the interior finish of the assembly room, and Col. A. C. Kaufman and Mrs. Morris K.

Jessup each contributed \$100 toward interior work. All of these amounts were secured before the laying of the corner stone. Messrs. Breck Trowbridge and Goodhue Livingston, of New York City, were selected as the architects for the building.

In March of 1915 the corner stone was laid and a little over two years later, in May of 1917, the dedicatory exercises were held. The building is of pure white marble, and over the main stairway is a marble tablet with the words:

A MEMORIAL

Built by the Government of the United States and Patriotic Citizens

To the Women of the North and the Women of the South, Held in Loving Memory by a Now United Country, That Their Labors to Mitigate the Sufferings of the Sick and Wounded in War May Be Forever Perpetuated, This Building Is Dedicated to the Service of the American Red Cross.

Above the window, on a broad ledge, are three busts by Hiram Powers, symbolical of Faith, Hope and Charity. The spacious assembly room is finished in the Colonial style. A three-panel window, which forms more than one-half of the north wall of the room, opposite the entrance door, is of favrile glass and of unusual beauty and interest, typifying as it does the whole thought for which the building stands—ministry to the sick and wounded through sacrifice. It was Miss Boardman, of the Central Committee, who suggested the idea to the organizations of the North and South who cared for the sick and wounded of the Civil War, and these organizations accepted the proposition. The cost of the three panels was \$10,000, and the Women's Relief Corps of the Grand Army of the Republic contributed \$5,000 from funds on hand, while the United Daughters of the Confederacy gave an equal amount raised through popular appeal. Mr. Louis C. Tiffany, the well-known ecclesiastical artist, designed the window after suggestions by Miss Boardman and Hon. Elihu Root.

The central panel takes one back to

the days of the crusaders, showing the army of gallant knights with their horses and spears. In the middle foreground is the standard bearer on his white steed, decked with jewels and carrying a large white flag with the Red Cross emblem. On the ground near him is a faithful comrade, supporting a wounded warrior who has fallen from his horse. While the whole scene suggests life and action, emphasis is given to the central thought that, in the onrush, time must still be found to minister to the fallen.

The women of the North gave the west panel, which shows Saint Filomena surrounded by an army of women symbolizing virtues. The first of these carries a shield decorated with the Red Cross, and is followed by Hope, bearing a banner with an anchor, Mercy with her gifts and Faith carrying a torch and palms, and Charity offering a healing draught.

The east panel is the gift of the women of the South. It also tells the story of noble women and noble deeds. The graceful Una from Spencer's "Fairie Queen," is the central figure, with her apron filled with roses, reminding one of St. Elizabeth. Una is the personification of Truth and Fortitude.

This three-panel window, taken as a whole, occupies perhaps a larger space than any other window of modern times.

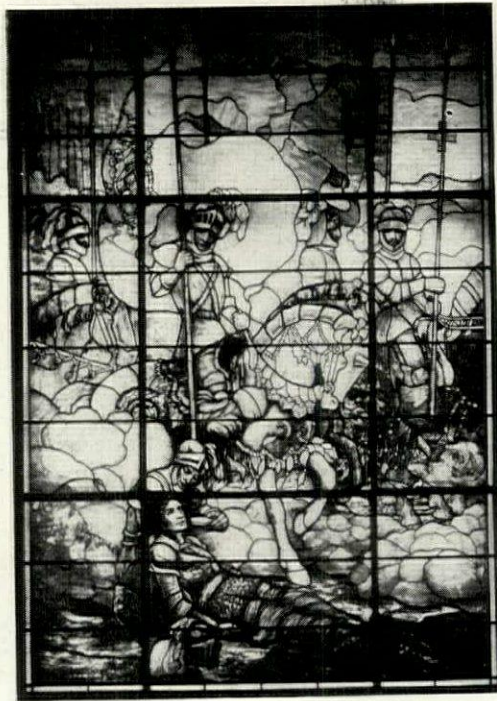
In late January, 1917, the building was first occupied. Soon afterward the diplomatic relations with Germany were broken off and the enormous expansion of the work of the Red Cross began. Without the National Headquarters it is difficult to imagine how the work which devolved upon the organization would have been accomplished.

In May of 1917, with the appointment of the War Council, the building became a beehive of activity, every room, even to the attic and cellar, coming in for crowded use. Almost immediately it was apparent that the space was inadequate and a temporary annex was added, the building being in construction exactly twenty-four days, from May 15 to June 19, 1917. The first temporary annex contains 18,000 square feet of floor space.

The initial cost, approximately \$52,000, was borne by two members of the Red Cross. In January and February of 1918 the congestion again became so great that it was necessary to add another three-story temporary building, and this one, containing more than 20,000 square feet of floor space, was erected and occupied in less than thirty days. A red brick building which had stood on the grounds was also taken for office purposes, and now still another annex, the last being a permanent structure, has been added, making five in all, connected by covered passageways. About a thousand persons are working at the headquarters.

The buildings are used solely for administrative purposes. They are the head of the American Red Cross, while the heart is found among the people who

are working through their chapters in the fourteen Territorial Divisions into which the work is divided. It is this great heart that will throb with the beginning of the Christmas Roll Call of the Red Cross, when the membership books will be opened and every man, woman or child of the country will have the opportunity to add name and membership fee to the rolls. The membership fee is one dollar, half of which is retained by the chapter for local work, and the other sent to the National Headquarters for distribution. As not a cent raised for war relief is ever used for operating purposes, everyone can readily see that a large membership is necessary now, if the wheels which keep the great work going are to be kept in motion. The date of the roll call is December 16 to 23.



CENTRAL PANEL IN WINDOW OF ASSEMBLY ROOM.

THE GOVERNMENT'S HOVSING ACTIVITIES



By Sylvester Baxter

ONE of our Government's great war problems has been how to assure the most efficient activity in manufacturing the multifold things needed for munitions and supplies, from ships to cartridges. Every existing industrial center in the country was engaged in this work, and new centers had been created for the purpose. A chief impediment in the work was the impossibility of securing workers in sufficient numbers and quality. The labor-turnover was enormous; the prodigious losses in time, money and energy from this source were fairly incalculable. The great want of homes for the workers near their work was at the root of the trouble. It was realized that they must be able to live decently, according to the standards to which they were accustomed; otherwise they would seek jobs where the situation was better.

The only recourse was for the Federal Government itself to meet the need. Building conditions in general had made it impossible for private enterprise to undertake the work. An investigation undertaken by the various branches and departments of the Government concerned led to the creation of an effective organization for the task. Furthermore, the Shipping Board had the funds necessary for starting the work of housing near the shipyards; yet it still lacked the legal authority to employ them for the purpose. As for the industries producing war-materials, neither money nor authority was available for supplying homes for the workers. The immediate enactment of legislation necessary to these ends was urged upon Congress; yet several months passed before the bill was passed. The Housing Act was signed by the President on May 16, 1918. The authority thus conferred as to war-material industries was vested in the

Department of Labor. Its Bureau of Industrial Housing and Transportation was organized in June, and work on a nation-wide scale was promptly taken in hand. Since the workers to be accommodated were employed upon contracts for the War and Navy Departments, both departments were represented in an advisory capacity in the directing of the Bureau. The Shipping Board, having the means at hand, was able to act on its own account before operating independently through its own Division of Housing and Transportation, but in close cooperation with the Labor Department's Bureau of like name. Much of the Shipping Board's work is done through a local housing company. In carrying out the housing program of the Department of Labor the participation of local interests was at first looked for—a local organization to contribute part of the funds, to assume the management of the properties during the war period and to take title to them upon repayment of the money advanced by the Government. This participation, however, might have complicated operations, and a clean-cut Government scheme was for various reasons found advisable. Hence the procedure is for the Government to build, own, control and rent all the industrial housing which it creates during the war. After that, the permanent status of the properties will be decided.

The freedom of action needed, to be rid of the danger of possible red-tape entanglements, has wisely been assured by the creation of the United States Housing Corporation as a corporate entity and an adjunct to the Bureau of Industrial Housing and Transportation of the Department of Labor. The Housing Corporation thus becomes the operating instrument of the Bureau. In its Emergency Fleet Corporation the Shipping Board already had a like instru-

mentality available for the purpose. One exceedingly important aspect of the creation of such legal entities lies in this circumstance: Property directly owned by the Federal Government is non-taxable. But since the ownership here is vested in a corporation this makes possible the payment of reasonable taxes to the municipalities and States that cooperate with the Government in its new developments—a consideration mutually advantageous.

This entrance of the Federal Government into activities customarily viewed as of purely local concern, and involving operations of vast magnitude, may be regarded as fairly epochal in its relation to questions that have been under discussion for at least two generations. The appropriation at first apportioned to the Bureau was for \$60,000,000. Ten million of this was assigned to meet the urgent needs for housing that had arisen in the District of Columbia. A second appropriation has increased the total to \$100,000,000. To carry to completion some of the plans already made and regarded as still falling short of meeting existing needs further large sums will be required. The amount involved in the work near the great shipyards undertaken for the Emergency Fleet Corporation is \$100,000,000, represented by two appropriations of \$50,000,000 each, making a total expenditure of \$200,000,000 for the housing operations of the Federal Government now in hand.

The impossibility of relieving every community where there is a housing shortage has made it necessary to require certification from the branch of the Army or Navy concerned in the fulfilling of war contracts in such a place that additional housing there is absolutely essential. Investigations are also made to see if a situation cannot be relieved by inducing owners of existing homes to accommodate war-workers in their houses; also to see if the improvement of local transit facilities may not greatly help by transporting workers to more remote sections where they can find housing accommodations. This part of the work accounts for the second half

of the designation: Bureau of Industrial Housing and Transportation. The outlay of many additional millions for housing has thus been saved.

The organizing of the Housing Corporation has been characterized by uncommon sagacity, with a resulting competence and efficiency. Moreover, it shows that such work may in quality and in economy compare favorably with private work of the same class.

In the first place, the work is done by a corporation. Although the United States Housing Corporation is strictly a public corporation, in management and in methods it has as much freedom of action and efficiency in conduct as any privately owned great public-service corporation. In one particular it has the advantage: it does not have to assume large legislative expenses and pay big lawyers' fees to protect itself, or for other ends, in dealing with the public. Pains have been taken to secure the most competent and highly trained men, experts of high standing, to direct and administer its affairs. And all these men, out of public spirit, have foregone large professional incomes to conduct this work for low pay.

At the head of the corporation, its president, is an engineer and builder of national reputation—a man of masterly executive traits: Otto M. Eidlitz, of New York. Its vice-president is Joseph D. Leland, 3d, the Boston architect. The general manager is also an architect: Burt L. Fenner, of McKim, Mead & White. The Operating Division, which has to do with upkeep and the generally sociological side of the work, is in charge of Allan Robinson, of the City and Suburban Homes Company of New York. Frederick Law Olmsted, the younger, by reason of his great work on the plan of Washington and other notable achievements, is the logical man for Chief Town-Planner. The Chief Engineer is John W. Alvord, of Chicago. The Manager of the Construction Division is Daniel T. Webster, the engineer. William E. Shannon, of Washington, is manager of the Real Estate Division.

The Housing Department, Division of

Production, of the Emergency Fleet Corporation, is in charge of the Philadelphia Engineer, B. Antrim Halderman, as Chief Town-Planner. Frederic L. Ackerman, the New York architect, heads its Design Section. Another New York architect, Robert D. Kohn, is in charge of the Production Division.

For this vast work the needed talent, by remarkable good fortune, was available in good measure. This circumstance has saved it from constructing what would have been little better, except in degree, than huge camps for artisans in the neighborhood of the works—at the best, assemblages of barracks and of houses turned out in uniform batches as monotonously depressing in aspect as the outskirts of Philadelphia and Baltimore. Instead, we are assured the creation, all through the country, of numerous model communities, beautiful to behold, convenient and comfortable to inhabit, more permanent in character than any “additions” any American city has ever before known, and setting an example that cannot fail to have a lasting and beneficent effect in shaping the future of American domestic and social life and commensurately raising its standards. Only a few years ago such aims would have been called “Utopian” and correspondingly impracticable.

This happy outcome has been made possible by the circumstance that within the past ten or fifteen years what is practically a new profession, akin to, and allied with, architecture, has come into being. This profession has here found an unparalleled opportunity for exercise on a magnificent scale. Its American beginnings date with the Columbian World's fair of 1893 in Chicago, and its fundamental planning by the senior Olmsted—a work of genius. An excessive individualism had been a fault of architecture as practiced with us. At Chicago our architects learned for the first time the value of team work. Out of this grew the widespread interest in town-planning. Then came the splendid plans for the improvement of the nation's capital and the assurance of their realization to an unlooked-for extent. Many

projects followed for a corresponding improvement of leading cities all over the country. A large proportion were architectural pipe-dreams, concerned more with embellishment than with logical development from fundamental circumstances and little less visionary than the academic *projets* of architectural students. But out of this enthusiasm has gradually grown a capacity for a practical application of these principles along with a steadily growing demand for services of the sort in the development of large undertakings. The profession of landscape architecture, mostly concerned with aesthetic values, here came into the field; our landscape architects, by virtue of training and experience, became also the professional town-planners, in close cooperation with architects. Probably the most extensive and comprehensive scheme of this sort developed in this country after the Washington plans was that of 1909 for Metropolitan Boston.

The predominating influences upon the shaping of the art in this country came from the important town-planning movements in Great Britain and Germany. That of Great Britain has borne fine fruit in the creation of “garden cities,” “garden suburbs,” and the like. The rise and growth of the profession in Germany came with the phenomenal demand for providing for the expansion of cities and towns into large industrial centers. Our American town-planners have studied and assimilated the methods and the ideals thus developed and now, in large measure, have bettered the instruction—by an irony of fate turning their “made in Germany” acquirements, in this, their magnificent task, against Germany herself as a potent instrumentality for efficient warfare. One wonders whether the art may not come into use there, also, in the regeneration of a ruined nation, as it will in the rehabilitation of devastated France and Belgium.

In these housing-projects numbers of our ablest practitioners have found gratifying opportunity for the exercise of one of the most attractive phases of their art on a scale of unprecedented magnitude.

In shaping its activities the Bureau of Industrial Housing and Transportation sought the counsel of many of the most eminent authorities on housing questions: builders, engineers, architects, town-planners, and sociologists. In consequence the work was most intelligently organized. The housing standards to be followed were set. Nine types of buildings were found necessary to meet the requirements of workers: single-family houses; two-family houses; single-family houses with rooms for lodgers; lodging-houses for men, and the same for women; hotels also for men and for women; tenement houses and boarding-houses. The single-family houses were to be either detached or semi-detached. To accommodate families of different sizes the dwellings were to vary from three to five rooms. General provisions for planning were prescribed. No houses were to be more than two rooms deep. There were to be basements, closets in bedrooms, gas for cooking, electric lighting, no board fences, but open metal for separating backyards and hedges for continuous boundaries; house-plans were to provide for easy moving of furniture, and in the bedrooms locations for beds and for two other pieces was to be planned for. As for gardens, allotments were to be preferred to backyards.

In construction, local materials were to be preferred, with substantial things like brick, terracotta, stone or concrete rather than wooden frame buildings, and with fire-resisting roofs. These requirements would largely reduce depreciation. All rooms, including bath and water-closet, were to have windows. Water-closets, baths, and hot and cold water were required. For row, or group, houses there were to be rear entrances from public ways of 12 feet minimum width; no private alleys. None of these requirements were inflexible; they might be departed from under certain circumstances. Detailed items were set forth as to what was requisite for each type of house.

It was laid down that provisions for workers must be suited for a healthy, efficient and self-respecting community;

but in each case these results must be obtained at a minimum cost. The good appearance of each development was also held to be a necessary and important consideration, and it was wisely required that it was to be obtained by an efficient and restrained design and arrangement of the houses, streets, open spaces, parks, and other features necessary for economic reasons, and not by any expenditure of funds purely for decorative purposes. The beauty and charm of much of the work designed on this basis indicates how much greater a factor in esthetic values is this principle of organic development than any effect reached by non-integral embellishment.

Each project is entrusted to a committee of designers; usually an architect, a town-planner and an engineer. The architect, on account of his more intimate relationship to the housing element itself, is commonly made chairman of this committee. Coordination of these three functions is looked for: the engineer preparing the ground, the town-planner developing the fundamental design from the topographical circumstances and also shaping it according to the housing requirements of the task in hand, the architect completing the pattern with his structural shapements. Each designer is therefore expected to keep himself informed as to what is done by his colleagues and to be free at all times to make any suggestions that may occur to him. Good team-play for efficiency's sake is the keynote here. Careful instructions to the designers as to their functions are given; also to investigators and surveyors. Standardization of housing-units and their equipment is demanded as far as possible; this naturally effects large economies as well as enables the use of high-class material produced in quantity.

The analogy between music and architecture is strikingly illustrated here. On the basis of only fifteen notes incalculable musical combinations are developed, making possible an infinitude of melodic and harmonic effects. Likewise, out of a few units wrought from standardized elements (nine or ten types of dwellings,

in this case) endless varieties of combination are possible, thus developing compositions of ever varying architectural beauty, according to the talents of the designer.

The efficiency with which this housing work is conducted, with the assurance of maximum values in return for these vast expenditures, is illustrated by the procedure in regard to purchase of sites. When it is learned that housing is needed in a given community two investigators are sent to look over the ground, examining not only the site suggested, but also picking out some other suitable site. A third investigator follows. If he finds that additional homes are not actually needed, the project is dropped. If housing is shown to be necessary, thorough steps are taken to ascertain actual land values there. A special commission of five is then sent to investigate: an architect, a real estate expert, a town-planner, and a civil engineer. The information being thus obtained, the question of purchasing is taken up. A "negotiator" is sent to arrange for buying the needed land. He then buys what land can be had at a fair price; if the owner refuses to sell for reasonable figures, the land is simply requisitioned at a price fair both to the Government and the owner. The Housing Corporation now has the right to condemn land necessary to its purposes. At first this right could not be exercised even by the War Department in buying land for cantonment sites.

In its suggestions to town-planners the Bureau lays stress upon facilities for effective self-respecting living and work. If they are already provided by the community, sufficient in kind and amount, and accessible from the new housing, the design should be related to them so far as necessary. If they be lacking, steps should be taken to assure their provision, so that when the houses are ready for occupancy, the schools, playgrounds,

stores, amusements, etc., shall also be ready in reasonably sufficient amount and reasonably accessible. How far these things, essential to the service and well-being of the workers, are to be provided by local authorities, or how far by the Housing Corporation—and how far, when provided by the latter, the cost is to be apportioned as a capital charge against the houses and lots, thus raising by so much the purchase price or rental requirement to meet the cost of each dwelling—is to be determined in each case by the Corporation.

The appropriation for the purpose represents the cost of a development. The number of houses to be built is roughly determined in the light of the Corporations' decision as to what types of people are to be housed and its knowledge as to the cost of houses of the appropriate types. The task of the committee of designers in charge is to devise the sort of development of land, utilities and buildings to the end that the people shall be accommodated at the least possible total cost per family.

A development, or an entire project, is commonly constructed as a whole by a single contractor. The procedure here is such as to avoid the wastefulness and extravagance of the "cost plus" method and obtain full value for the money expended. The bidder who offers the most favorable terms on a total of four points is selected. He receives a fixed and adequate contractor's fee.

In all this work the interests both of the worker and of the Government are safeguarded. The worker, while getting the full value of his money, and well rid of paying a profiteering landlord or jerry-builder for inferior accommodations, pays full value for what he gets. The Government gives nothing in excess of cost out of its expenditures and is repaid for its trouble by the greater efficiency of its workers.

THE ARCHITECT'S LIBRARY



SOME RECENT FRENCH BOOKS

By BARR FERREE

THE thesis maintained by M. Emile Mâle in his valuable comparison of French and German medieval arts,* that medieval art had its origin in France and received its utmost development in that country, while the Germans made but a poor hand in copying, is not new. It is, in short, no longer debatable, for the overwhelming supremacy of French medieval art, in architecture, in sculpture and in other forms has long since been recognized by candid observers. But it is useful to have the problem stated anew by so competent a critic and so graceful a writer as M. Mâle. He brings to his writing table a vivaciousness of mind and a keenness of observation that give fresh interest to even the oldest topics.

It is well, moreover, in these days when the Germans are putting forth the most impudent claims to supremacy in every conceivable thing, to have so fine and so complete an answer to their preposterous claims for art supremacy as M. Mâle has given us. His book has not the thunderous qualities of a long-distance cannon, for it was written before the unhappy

days in which those murderous instruments were brought into use; but it has the lightning-like rapidity of the "75's"—sharp, swift, cleanly destructive in its effect.

The Germany of the past, he says, has imitated, not created; and every page of his book is alive with demonstrations of this fact. Even the earliest German art, so-called, the sword of Childeric, found at Tournai, the armor ornaments attributed to Theodoric, found at Ravenna, the Visigothic treasure recovered at Toledo, and other objects, all having certain common elements of decoration, and all eagerly hailed as of German origin and invention—by Germans—are shown to have had Persian prototypes, so that any claim for German originality is at once disposed of. M. Mâle touches briefly on other phases of supposedly barbaric German art, and shows that they, too, had readily recognized non-German sources. The German claims of originality at the very beginning of artistic endeavor has thus been quickly disposed of.

In architecture we stand on more familiar ground, for the architectural monuments of Germany and of the rest

*Emile Mâle: *L'Art allemand et l'art français du moyen âge*.

of Europe are well known, and if many of the earliest have disappeared, descriptions and references to them in early writings give ample evidence as to date, and not a little material for visual reconstruction. The characteristics of German Romanesque architecture are shown to be of readily established foreign origin. The typical German plan of a church with two opposed apses was known in France in the abbey church of St. Riquier, near Abbeville, long before it appeared in Germany. The decorative features of shallow pilaster-buttresses, open arcaded galleries at the summits of the apses, and the cubical capitals—all long claimed as exclusively German—are actually of Lombard origin, and were borrowed from Italy. The alternating support of pier and column within the church is also of Italian origin, since it is known to exist in Italian churches of earlier date than the supposedly early German buildings. To the difficult question of the priority of vaulting M. Mâle makes the same answer. The Germans borrowed it from Burgundy. He sums up the whole matter by pointing out that the foundation of German architecture is Carolingian, and that for five centuries the Germans copied the churches of the France of Charlemagne; the Lombards gave them the interior rhythm and decoration and the French showed them how to build a vault and erect a façade. It is true enough that some German claims can be supported by twisting the chronology of sundry monuments, but no one now places any dependence on German-made chronology.

In claiming a German origin for Gothic architecture it might seem to any modern student that the Germans were sadly handicapped by readily ascertained evidence to the contrary. But the surprising number and beauty of Gothic edifices of actual French origin, since they were in France, did not disturb the German pundits at all. By modestly claiming that Gothic buildings in France were erected by German workmen, they both solved any awkward questions of chronology and afresh established the supremacy of the German claims. This astonishing

doctrine has been solemnly preached in Germany for years; it need hardly be said that in M. Mâle's graphic pages he admirably marshals the salient facts in French and German Gothic chronology, and shows how utterly baseless the absurd German claims are.

Problems relating to architecture are discussed at some length in this book, but other forms of art receive due attention. M. Mâle shows, with great lucidity, the dependence of German medieval sculpture on French sculpture, and adds an interesting chapter on the origin of engraving, once more demonstrating the priority of the French masters over the Germans in a field in which, popularly, the latter are often supposed to have been the leaders. The book appropriately closes with chapters on the cathedrals of Reims and Soissons, the two great French Gothic churches that the Germans have so persistently injured. It is indeed fitting that a survey of the art achievements of these overbearing people should conclude with a well-ordered and temperate discussion of two great monuments they have sought to destroy for no other reason than that they helped to point the less on both of German inferiority in art and of the immeasurably greater French achievement.

* * *

M. Brutails' little handbook* is admirable in every way. Few books of its size are so closely packed with information; yet while essentially a book of facts, it is eminently readable, and is, in truth, a brilliant survey of French architecture from the earliest times to the present day. Being a small book dealing with a great topic, the author has been well advised to omit any chronological or descriptive survey, and has, instead, adopted the topical method. He depends on his numerous small but excellent illustrations for the necessary descriptive complement.

He opens with a discussion of architecture in Gaul before the Romans. This is followed by chapters analyzing construction in the Gallo-Roman period, the Latin period, the Romanesque and Gothic

*J. A. Brutails: *Pour Comprendre les Monuments de la France.*

periods, and the Renaissance and modern times. Two chapters are devoted to an analysis of decoration, and the book is concluded with chapters on religious, military, civic, monastic and public edifices. The scheme is at once comprehensive and logical and follows the entire history of French architecture, which the ample illustrations make thoroughly clear. One may, indeed, regret that, where space was so restricted, any discussion should have been devoted to modern and contemporary work, especially to architecture in iron. The book would have been quite as complete and as thoroughly serviceable had such matters been omitted. But it was the author's idea to include them, and his book is so good and so well balanced that it is rather ungracious to suggest that any portion of it might have been omitted. As it is, it is one of the best and most serviceable surveys of French architecture. It is a pleasure to commend it most heartily.

* * *

As "Chef des services d'architecture au sous-secretariat d'Etat des Beaux-Arts," M. Paul Léon has long been identified with the work of the Commission des Monuments historiques, which he has directed for the last ten years. He brings to his book* the prestige of high office, the advantage of intimate personal acquaintance with his subject, and the skill of an accomplished writer. His topic is, indeed, most fascinating, for what more agreeable work can there be than the care of the great historical monuments of France?

The scheme of his book is fine; for he not only tells what the Commission des Monuments Historiques has accomplished, but how it has been accomplished. His introductory chapters on the early tentative efforts at preservation and restoration are most illuminating, both in showing how really backward the French were in a realm in which they are now supreme and in pointing out what might have been done and what actually took place.

The Commission des Monuments Historiques owes its foundation to Louis Philippe and dates from 1830. But the question of the preservation of the historical monuments of France had long been considered by some few enthusiasts and in some senses goes back very much further. M. Léon quite rightly begins his book with a brief survey of conditions before the Revolution. In the earlier part of this period there was no such thing as preservation; buildings were added to or transformed in the taste of the day, and no one thought of doing anything else.

The seventeenth and eighteenth centuries were dire times for architecture in France. The fashionable idea of preservation was destruction. Priceless windows were displaced for plain glass; choir enclosures and screens were demolished, and the strangest ideas as to the significance of medieval sculptures came into vogue. A colossal amount of harm was done under the guise of restoration. These doings, however, were actually insignificant compared with the destruction carried out everywhere in the Revolution. It is impossible to ignore the dreadful destruction of that time, for its results are still evident.

Yet in the midst of this orgy the first steps toward conservation were organized. The absorption of ecclesiastical and feudal rights by the State was followed by instructions that the property must be preserved. A decree of October 13, 1790, prescribed certain measures of conservation, and this first step was followed by other decrees. From 1790 to 1795 the Commission des Monuments, then the Commission temporaire des Arts, undertook work that, a century later, fell to the Commission des Monuments Historiques. An effort was made to inventory the monuments of France, and some extended work, with most insufficient funds, was accomplished. Museums were established in various departments, of which the most notable was the celebrated collection of the Petits-Augustin in Paris, placed in the care of Alexandre Lenoir in 1791, and which later became the Musée des Monuments Français.

*Paul Léon: Les Monuments Historiques.

The establishment of the Concordat by Napoleon opened a new era. In 1810 a Government circular required reports on the dispersed works of art, a request renewed in 1818. In 1816 Alexandre de Laborde published his famous book, "*Les monuments de la France classés chronologiquement*," which was the first of the "*Statistiques monumentales*" later published by the Government. National art engaged the attention of the authorities of the Louvre in 1824, and the Musée de Cluny was founded in 1843. Meanwhile books on French art were doing their task in awakening public interest in the national monuments. October 21, 1830, Ludovic Vitet was nominated inspector general of historical monuments. It was the dawn of a new era.

The story of the later development of this important work is best followed in M. Léon's own pages, where it is presented in a thoroughly detailed manner. There was always, as might be expected, a persistent lack of funds; but the first work was the making of an inventory of historical monuments: 880 appeared in the list of 1840; 1,702 in that of 1900. Since then the increase has been much greater, 1,865 names having been added between 1908 and 1913.

The work of the Commission was by no means limited to classifying monuments and placing them in the restricted list. Buildings and other works of art had not only to be classified and determined, but preserved and conserved. The rights of private owners in civic structures had to be considered and adjusted. Adjoining structures often had to be acquired and removed in order to ensure the preservation of a designated building. The complicated question of the restoration of structures requiring it not only absorbed the attention of the Commission, but required the expenditure of vast sums. Many new problems followed the adoption of the Law of Separation, which so acutely affected ecclesiastical edifices. A great Government department was organized to carry out these undertakings. All these matters M. Léon describes with abundant detail. His book is most interesting in

telling what has been accomplished by the most efficient body in the world dealing with the many complicated problems committed to its care. It is true enough that mistakes have been made, and one may not always agree with what the Commission has done; but of the general value of its undertakings there can be no doubt. M. Léon's book is a fine tribute to the general excellence of its work.

* * *

The highest compliment—and it is a very great one—that one can pay Professor Bréhier for his book on Christian art* is to say that it is worthy to stand beside the magnificent monographs on medieval art by M. Emile Mâle. The ground covered by the two writers is quite different, for while M. Mâle confines himself to French medieval art, Professor Bréhier covers the whole field of Christian art from its beginnings to the present day, and even goes further in some concluding speculations as to its future. It is not too much to say that it is the best general handbook of Christian art yet produced.

Christian art, as a Christian expression, is far from being understood or appreciated in America. This is doubtless because we have no traditions of our own, and hardly any examples, except in some few recent churches, in which art is used as a decoration, and not at all in its ancient sense as a means of inspiring devotion or of teaching religious truths and doctrines, as should be its real purpose.

Christian art only reached America after it had been fully developed and had entered into a period of decline. One must go much further back than the beginnings of American history to appreciate it and learn to understand not only its forms but the circumstances under which it was produced and the purposes and aims it sought to accomplish. This means going far afield in the study of the records, and it means becoming familiar with ideas far out of touch with the present day.

The value of a book like Professor Bréhier's is in marshaling these little

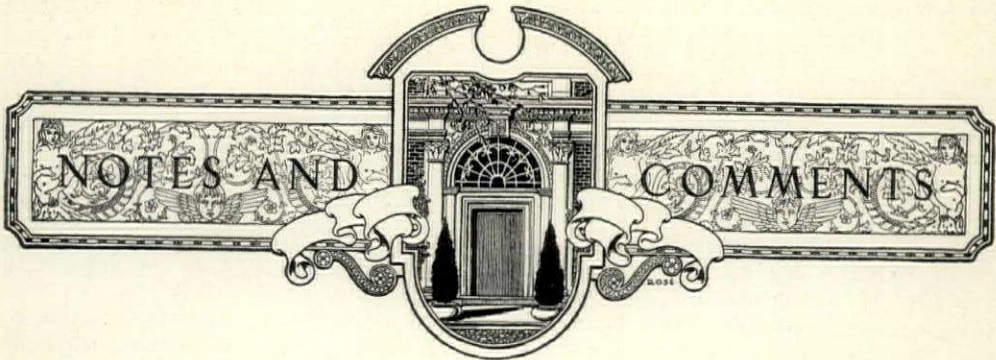
*Louis Bréhier: *L'Art chrétien*.

understood facts in an orderly way, digesting the whole history of Christian art in its manifold developments in the East and West, and presenting a continuous narrative in which each special manifestation, each new influence, each fresh development in Christian teaching is duly noted. All this he does admirably. His theme is a vast one, for the whole history of art to the time of the Renaissance is the history of Christian design and building. It is impossible, for example, to consider the development of Byzantine or medieval art apart from the religious conditions under which they were produced.

To the sixteenth century two great subjects absorbed the attention of the people of Europe: war and the church; and of these two the most absorbing was the church. It not only dominated thought, but it touched on almost every aspect of daily life. The cathedral, the monastery and the parish churches were the centres around which the life of their communities revolved. The sculptures and painting with which the sacred edifices were adorned were not decorations at all, but visual expressions of holy doctrine, giving instruction to an unlet-

tered populace, and affording inspiration and information to those who could not read. Fortunate folk, they, that in the golden epochs of Christian art so much fruitful teaching was conveyed in such marvellous form. We who, today, view a painting or a statue with interest, because it is a well-executed work of art, are indeed living in a degenerate age that understands the purpose and aims of Christian art not at all.

Hanbooks like Professor Bréhier's, in which this very important and highly interesting subject is presented as it ought to be presented, merit, therefore, the warmest welcome. His book is wholly without pedantry and without bias. He has no pet doctrines to bring forth, nor does he use his great theme to teach religious truths. He has produced a well-ordered survey of Christian art as Christian art; he shows himself on every page a thorough master of his subject and indicates a wide familiarity with his predecessors in special lines; he has embellished his book with an excellent series of illustrations, so carefully chosen that many of them are novel, or at least not well known; he has, in short, produced a most admirable book.



**Art Education
and the
Industrial Arts**

If beauty is to grace our industrial arts and virility mark their growth, the hand of the younger generation must be trained and its judgment developed through a carefully

adjusted system of education founded on aesthetic traditions. The chief requisite of such instruction is manipulation of material, or "craftsmanship." Theory, ranking second, explains cause and effect in method.

As a science existing apart from practical instruction, education is a modern invention; it dates in England from the middle of the nineteenth century, when the awakening democratic spirit of the people demanded opportunity for mental culture as its birthright. Recognition of this claim by legislative bodies involved the creation of official departments of education, standardization of studies, and the employment of large forces of teachers trained on academic lines.

When, after a time, certain elementary branches of decorative art were added to the official curriculum, the conduct of studies and the compilation of text books were entrusted to departmental educators, who were temperamentally more inclined to theory than to practice, with the result that, whereas in previous ages practice had been the foundation and theory its argument, the new regime made theory the basis and practice the exponent of the theory.

The contemporary discovery of the principles of evolution exerted an influence in the wrong direction on the analysis of practice for educational purposes. The field of art impulse was subjected to scrutiny with a view to formulating, from selected examples, maxims of such nature that an equivalent for the spontaneous

might be fashioned methodically. Classic examples of decorative art were dissected on the assumption that dismemberment reveals construction. It was argued that if the student were trained to seek the frame underlying the beautiful, by reflex process beauty might be systematically arrived at.

A fundamental reason why the effect of art education on industry has been negligible is the vicious academic influence, which is responsible for the general plan of studentship, for the angle from which problems are approached, and for the mental bias imparted to its training corps. The general policy of study has been governed by strangely impractical views.

For many years a premium has been placed by schools of art on a species of dilettanteism proceeding from a theory that genius should be unfettered by routine. Little importance was attached to the average percentage of geniuses among students, or to the observation that these have invariably created their own methods of assimilation. The acquisition of technique by discipline was discouraged through fear of cramping individuality, which is as plausible as to maintain that the born athlete risks loss of suppleness through physical training.

Cultivation of temperament at the expense of technique has been the curse of many educational institutions, corresponding to artificial stimulation of the nervous system in the adolescent at the expense of muscular development. This type of instruction aims to produce poets, but ignores syntax and prosody.

Another fallacy, long fostered, was that the most direct route to distinction in decoration lay in creating new types. However, experience has now led to a general concurrence of opinion that additional decorative species are superfluous; that, indeed, ingenuity can devise no type of ornamental structure or rhythm unrelated

to some recognized form of art activity. Though damage was done temporarily by the efforts of teachers to force originality, their failure has been instrumental in demonstrating that individuality has an existence independent of contour of detail or mass.

Few teachers of the academic type appreciate that undeviating precision in execution is as vital an element in art as in arithmetic, or that it is consistent with flights of fancy and freedom of rendering. Copying fine examples with the intent to discover and record every hidden beauty no longer holds the prominent place in study that it occupied in past ages.

The practical exponent of an applied art appreciates that interpretation constitutes one of the great problems of studentship. The capacity for interpretation is developed by estimating the relative values of those multiple qualities which are encountered in a phase of nature or in a work of art.

The elements of applied art education may be separated into three divisions: Practice, Influence and Transmission.

Practice comprises all activities relative to the acquisition of technical and manual skill, either in relation to manipulation of material or to the depicting of form in decoration.

Influence deals with the choice of, and submission to, standard authorities, the studious examination of which sets a worthy level for aspiration, enhances the quality of effort, and rectifies innate tendencies to inferior judgment in selection.

Transmission directs the application of abstract forces generated through "influence" to the problem in hand. By methodical system in discovering suggestive matter and converting it to practical purposes, production is rendered less dependent on chance inspiration and is safeguarded from repetitious treatment.

If we assume that influence is an element in a complete method of instruction in applied arts, we must consider how the system can be connected with the fountain head of influence—the museum.

When the great departmental system was founded at South Kensington to aid the craft-trades, the Museum constituted the pivot around which the original demonstration revolved. The school was located in the Museum, in order that habitual contact with beautiful objects might saturate the minds of the students, thereby instilling high ideals; appreciation being further stimulated by exercises in compo-

sition, based on chosen exhibits, prefixed by an explanation of historical, technical and aesthetic characteristics.

As the intrinsic worth of this educational experiment became apparent, manufacturing interests in the large industrial communities induced their municipalities to erect art schools under the departmental auspices, adding to the curriculum special courses for the aesthetic development of their local industries. The museum influence was introduced in all new branch schools, as an integral part of the system. In the majority of cases the funds originally raised were insufficient for the erection of a museum; this difficulty was overcome by the creation of a loan exhibit department at headquarters, which provided collections of objects, periodically changed. If the space for exhibition purposes was too restricted in the school, exhibition cases were placed in the public library, where students had facilities for sketching. As the groups of exhibits made a circuit, they were perforce of a heterogeneous nature, but the principal of each art school was authorized to select supplementary objects that might prove inspiring to those employed in the local decorative trades. By this means, youths in remote industrial centres who otherwise were unlikely to see historic examples of their craft were enabled to study them at their leisure, and were encouraged to make faithful and appreciative studies by the awarding of national prizes and medals.

This movement has grown to such an extent that it is doubtful whether any town can be found in the British Isles, of even 10,000 inhabitants, that does not boast its art school and museum.

As an instance of schools supplemented by museums devoted to the artistic development of the local craft, we might refer to the Seven Federated Pottery Towns, in each of which the school adjoins a museum, where excellent examples, admirably arranged, show the use of varying materials and decorative treatments throughout the history of ceramics. Should the commercial forecast sense a revival of Italian, French, Chinese or any other historic method, the designers and decorators find good representative examples at hand, in which they can study that spirit of craftsmanship which exists only in the original and which no process of printed representation has yet thoroughly conveyed.

In this country, where beautiful relics of ancient skill are inaccessible to the majority, there is urgent need for systematic

distribution of inspiring objects in industrial centres. The number of suitable objects available is wholly inadequate to meet the demand, and the question arises whether carefully edited replicas for educational purposes should not for the present supply the deficiency of originals. This was done extensively by South Kensington in the case of examples of the art of the goldsmith, of the silversmith and of the iron worker, of which excellent replicas were made that proved ample for the purpose.

To attain practical issues, applied art education must be frank in its statement of aims, cognizant of the actual motives of those seeking it, and direct in its methods of application. There is no necessity to regard applied art education, which is a vital adjunct to the highest form of industrial efficiency, from the altruistic angle. Its applicability and convenience in operation concern the producer as vitally as does his economic equipment. It should perform a definite function in fixing basic aesthetic standards and in training executives accordingly.

As a general principle, we must admit that the best energies of the majority are usually directed to those chosen activities from which personal benefit is likely to accrue. Of recent years a hypocritical prejudice has prevented practitioners of various arts from stating frankly that the material recompense for endeavor must as necessarily figure in their plan of life as it does in that of the business man. The majority of students employed in business undoubtedly regard study as the surest way to an increase of income. Is it reasonable to offer individuals actuated by so plausible a motive an educational system based on unrelated ideals, on inapplicable methods, and on the assumption that the study of art precludes mercenary motives?

Irrelevant studies grouped at random will neither attract nor retain the youth whose ambition causes him to sacrifice leisure to advancement. Practical reasoning provides him with standards of relative values by which he will estimate the utility of the educational plan. Daily observation demonstrates that a capacity to interpret efficiently the style-tendency of the day is a valuable commercial asset. The market for the decorative trades has very pronounced predilections concerning historic periods. Should the educational system ignore the existence or the claim to precedence of these preferences in style, the student will naturally conclude that its serviceableness does not extend to this

field, in which he most urgently needs guidance. Hence, the direction of certain branches of study must be indicated by those cognizant of the trend of taste through association with industrial activity. Such a step need not entail any depreciation of educational aims, as experience in plan of design and structure of ornamentation can be equally well taught in any of the classics or their derivatives.

Provision must be made for a large proportion of students already engaged in some occupation who decide to learn an applied art as a new means of livelihood and who will depend on school instruction to acquire it. For them it is particularly desirable that demonstrating instructors be recruited from skilled exponents engaged in the art-trades, whose skill of hand is acquired and maintained through constant production of the best types of commercial work. By certain standards in manipulation, work is deemed acceptable or useless in all industrial fields. Demonstrators familiar with this basis of selection would make studentship a graduation to employment, and save the disillusionment that has so frequently followed years of academic study, when, employment being sought, the fact is revealed that a school technique has no place in the industry.

Craftsmanship lies in a great measure in the advantageous manipulation of physical peculiarities of substance, a knowledge not conveyable by lecture or text-books. This can be taught only by demonstration, as it varies in detail and method with the temperament, ingenuity, and manual aptitude of the practitioner. Individual ways of obtaining results are evolved by every natural craftsman; many of these can be learned in comparatively short time from a skilled exponent, by individuals who would be incapable of originating them in a lifetime.

The compulsory subjects in any branch of education are usually those inseparably connected with it, and on which it depends entirely for expression and development, as for instance, chemistry in certain sciences and mathematics in others. In the applied arts, the subjects which exist in this basic relation are the rendering of form and the practice of design. In every instance these should be compulsory, to precede or run concurrently with every section of general and specialized study. To permit such elements to be optional is contrary to every sound argument and record of practical experience. There is no other professional training in which study of the elements of practice is a matter

of choice. The student engineer or chemist is not asked to decide whether he considers mathematics likely to be useful. Drawing and designs are as vital to the one career as elementary science is to the other.

Ignorance of values is the greatest handicap to making judicious selection. It is, therefore, unfair to abandon immature students to the whims of their preferences, expecting that the laborious and irksome essentials will receive greater attention than the more diverting phases of study. Examination of the results from this method, and comparison with those attained by the fixed progression of the apprenticeship system, can leave no doubt as to whether the general plan of studentship should be regulated and controlled by experience or by youthful preference.

It is generally assumed that the direct beneficiary of the applied art educational methods is the manufacturer. As an objective he is remote—so remote that it has been extremely difficult for those laboring ostensibly for his welfare in educational fields to ascertain whether the intended benefits reach their destination. The American manufacturer is notoriously enterprising, availing himself of anything that has direct utility, regardless of the outlay of energy or treasure needful to secure it. Does it not furnish food for thought in academic circles that up to the present moment the manufacturer has been apparently oblivious to the extensive efforts made on his behalf? In a land where every utility has its market, where enterprise constantly seeks resources, we find a vital educational element supposed to furnish industrial efficiency, working with its back turned on its objective. Its existence is a matter of indifference to its supposed beneficiary, though the identical service which the system should furnish is procured with great trouble and expense in foreign lands.

An educational method practically and systematically operated has much to give to industrial organization, and much to ask of it. It calls for recognition as a factor and a resource; it needs skilled demonstrators and prospective recruits. Its value to students will be measured by the assistance given toward attaining proficiency, and the material advancement resulting; its

value to the manufacturer will be that it can be relied upon to supply him with workers of a class that has previously come from Europe, workers who after the war will be badly needed here and unprocurable there.

Mutual interests and objectives are concerned; the first step has yet to be taken—cooperation between teacher and employer. The manufacturer has standards to meet, definite requirements to fill, the observance of which means commercial success or failure. Many have ambition to equal the best in that abstract measure which they know to be the highest form of valuation, but which they are unable to reach unaided.

The teacher must equip the student to fulfill a mission in life; not to become an aimless wanderer in the suburbs of art. On termination of studentship, the student must be able to contribute a definite form of skill, be it in design or workmanship, together with the breadth of view necessary to transmit appreciation of beauty to actual handiwork.

In summary, many industries today are striving after the highest tradition of their crafts; in the near future they will have to depend on native trained talent for the realization of their ideals. Cooperation must be established between art museum, factory and school of industrial art in order that the aim of industry may be held before the student and that the road to its realization may be shown through the fields of tradition, both in style and technique. There is neither time nor room for vagueness in such study, and elements known from experience to be essential must be enforced as the surest means to valuable results. The future of the American art industries depends in a great measure on the efficiency of the educational system available for the majority. Records of art history prove that its most brilliant epochs derive their lustre as much from the high average of the majority as from the works of their geniuses. A thoroughly practical system of education is the first need; not one based on theory, altruistic dreams or literary phrases, but on the experience of men who have travelled the road to knowledge as students and practitioners of the arts.

LEON V. SOLON.



A CORNER OF THE CAMPUS—WESTERN RESERVE COLLEGE, HUDSON, OHIO.

**Old
Western
Reserve
College.**

Several years ago the Architectural Record published a series of articles by the late Montgomery Schuyler on "The Architecture of American Colleges." Compared with the

great architectural groups which were considered in those articles, the plain little buildings shown herewith give interesting and touching evidence of the poverty and limitations of the pioneers who, in spite of the sacrifices involved, were determined to build the social fabric of their little settlements in the wilderness upon a foundation of broad intellectual training.

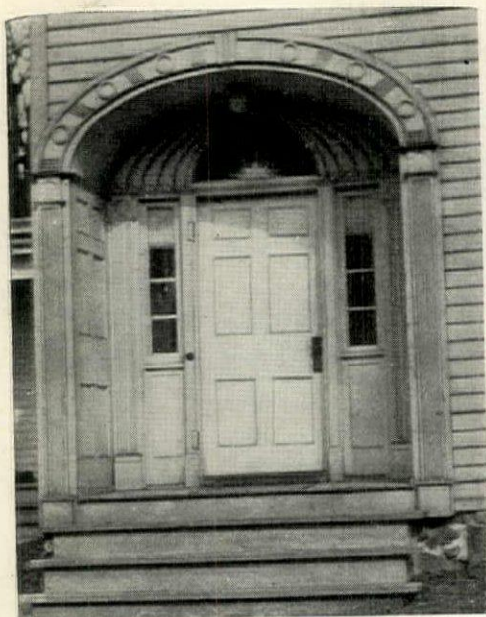
Foremost among the frontier settlements to establish institutions for higher education was the village of Hudson, Ohio, situated in the heart of Connecticut's Western Reserve. Settled in 1800, application for a college charter was made in 1801; but for some reason it was not granted until 1826, whereupon work was started immediately on the buildings and the first students were enrolled the same year.

The erection of the buildings was made possible by contributions of labor, building materials, farm produce, and limited

sums of money from the settlers in the surrounding country, and so scanty were their resources that the most rigid economy was necessary. Most of the labor was performed by local men, but the interior trim of the buildings was the work of a man named Latimer, who was brought to Hudson from New York State. Several pieces of furniture built by him in his leisure hours are still preserved by old families of the town.

The institution, which was known as Western Reserve College, maintained so high a standard of scholarship and its faculty was so largely recruited from Yale that it was often referred to as the "Yale of the West," and its vicissitudes and early struggles form an interesting chapter in the history of its times.

Of the old buildings, those known as South College and Middle College have been destroyed. North College, which was completed in 1837 for the divinity students, is the four-story building shown in the group picture. The chapel was completed in 1835 and the observatory in 1838. The latter is said to be the second oldest observatory in the United States, and from it were taken many important observations, which have made the name of the observer (Prof. Loomis) famous in the



ENTRANCE TO DORMITORY.



INTERIOR OF CHAPEL.

annals of astronomy. Other buildings, including faculty houses were mostly of later date.

Eventually, in 1882, the college was removed to Cleveland, the name at that time being changed to Adelbert College; and eventually it developed into what is now known as Western Reserve University.

The old buildings at Hudson were used as an academy under the control of the University until 1899, when it was abandoned and the buildings fell into decay.

Finally, three or four years ago, a former graduate of the college provided funds to restore such of the buildings as were still in a reasonably good condition and built on the site of old "South" and "Middle" colleges a new school building in harmony with the old.

It was natural that the architecture of an institution founded and fostered as this was in a community possessing such limited resources should reflect the simplicity and austerity of its founders.

Coming as they did from New England, we find that they brought with them the traditions of architecture which their parents or grandparents in turn had transplanted from their former homes in old England. So we find in these old college buildings of the Western Reserve a reflection of the spirit of the New England Colonial, shorn of all that might be considered superfluous, but still, in spite of extremely meagre opportunities for architectural effect, bearing the impress of classic origin.

I. T. Frary.



OBSERVATORY.

4074