

THE ARCHITECTURAL RECORD

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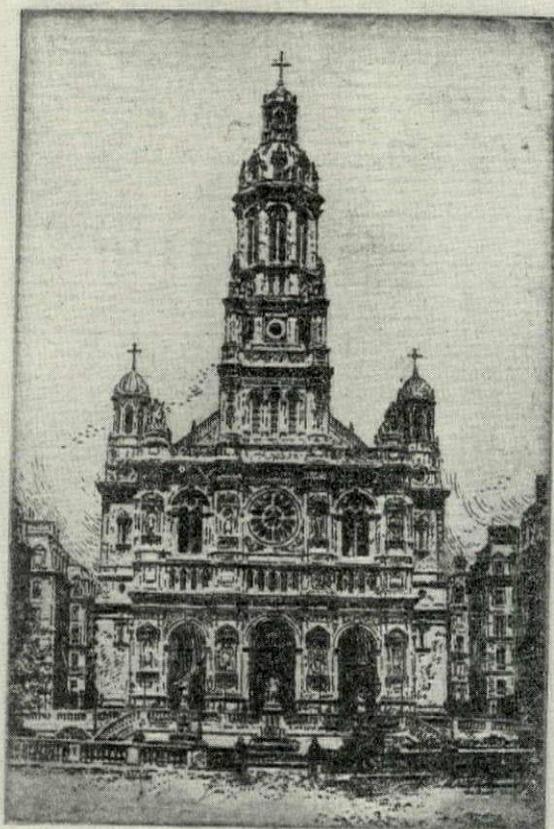
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Dewitt H. Fessenden

LA TRINITÉ, PARIS—ETCHING
BY DE WITT H. FESSENDEN.

THE ARCHITECTURAL RECORD

VOLUME XLIV



NUMBER V

NOVEMBER, 1918

BARRACKS GROUP AND HOSPITAL FOR THE
U.S. ARMY SCHOOL OF MILITARY AERONAUTICS
AT OHIO STATE UNIVERSITY, COLUMBUS, OHIO

JOSEPH N. BRADFORD, ARCHITECT



By HOWARD DWIGHT SMITH

IT is an act of treason against the Government to convey information of a military nature or to give aid and comfort to the enemy; but a discussion of the plan and construction of a small but very interesting barracks and hospital building group at a far inland town, even though published and flung broadcast in Germany itself, could be of no military value to the enemy. As for giving him aid and comfort, it can hardly be imagined that it can be a very comforting thought to Wilhelmstrasse that hardened and seasoned air pilots, observers, aerial machine gunners, mechanics and balloonists—all highly trained both theoretically and practically—are being graduated from our schools of military aeronautics and commissioned at our flying fields by the thousands. So these remarks on the barracks and hospital of the United States Army School of Military Aeronautics at Ohio State University will serve only the

purpose of satisfying what passing or permanent interest there may be in the subject among ourselves.

Whoever is interested in the plans or the elevations or the methods of construction of such a group as we propose here to discuss will be somewhat interested in the conditions which brought about its creation and the circumstances under which it has been built.

The organization of the United States Army School of Military Aeronautics at the Ohio State University, Columbus, Ohio, in August, 1917, was a part of the program outlined by the Aviation Section of the Signal Corps (since reorganized as the Air Service, United States Army) to train men for service as pilots, observers, mechanics and balloonists. The program called for the establishing of eight so-called ground or theory schools. At these ground schools the first half or theoretical part of the training for the air service is given. Besides

the school at Ohio State University, other schools were located at the Massachusetts Institute of Technology, Princeton University, Cornell University, Georgia Institute of Technology, the University of Illinois, the University of Texas, and the University of California. The term "ground school" has been quite universally adopted as applying to these institutions or organizations in spite of the fact that it is a little confusing to the lay mind and to the casual reader. The practical part of the training, that which has to do with the actual flying, being separate and distinct from that taught at the theory schools, is conducted at the various aviation grounds or flying fields through the country.

The organization and administration of the ground school at Ohio State University has been in charge of officers of the army, the officer commanding having the rank of major. The instruction has been under the control of an Academic Board, which consists of the military instruction officers and the civilian professors and assistants who make up the instructional staff of the school. The civilian instructors were chosen from the regularly constituted University faculty, those being taken whose regular subjects of instruction were the same as, or similar to, those required in the School of Aeronautics.*

As far as the physical plant is concerned, the School of Military Aeronautics uses the University laboratories, recitation rooms and armory by contract arrangement with the Board of Trustees. One additional large temporary factory-like laboratory has been erected by the State for the use of the Government school. By similar arrangement with the Overseers of Ohio (student) Union the dining room and kitchen facilities of that organization have been used to feed the enlisted men.

Being in the army, however, means,

*The prescribed twelve weeks' course in the School of Military Aeronautics includes in general the following subjects:

Theory of flight; engines; care of machines; rigging; machine gun; plane table map making; aero instruments; range and artillery observation; radio signalling; reconnaissance; bombs and bombing; meteorology; war aims; military papers; military tactics and drill.

for the enlisted man, military control twenty-four hours of the day. This involved, of course, the providing of sufficient living quarters to accommodate a maximum enrollment of some six hundred cadets. Temporary quarters in the armory were arranged to take care of between three and four hundred. To fulfill their part of the contract the Board of Trustees placed the problem of accommodating the balance in charge of the Department of Architecture and Construction, of which Joseph N. Bradford, the University Architect, is the head.

The plan problem cannot be likened to that of the army cantonments, since the number of men to be housed was small, even infinitesimal, as compared with the larger army problems. The construction problem was similar to that of the army cantonment, inasmuch as speed and economy were governing factors in the prosecution of the work. At Columbus the plan problem consisted in providing sleeping quarters, the necessary sanitary facilities, and space for study and limited facilities for rest and lounging. The problem also included the provision for post headquarters. This particular requirement was involved, because the administration space in the regular University armory was occupied by the Army military organization of the University, since, being a military land grant school, a certain amount of military instruction is required by law to be included in the curriculum.

Following the accepted barracks idea, Professor Bradford has chosen to house the men in long, narrow dormitories, a scheme which allows of maximum light and air. He has used these long, slender dormitory units to form the sides of a simple H plan. The bar of the H is formed by the sanitary unit or latrine building, which is thus as central as it can be located with reference to the barracks units. As a method of study in the arrangement of units, such as these, it is advisable to use separate pieces of cardboard cut out to scale, which can be rearranged and shifted in unlimited combinations, due regard always being



Photographs by F. H. Haskett.

BIRD'S-EYE VIEW OF BARRACKS GROUP FROM THE
SOUTHWEST, SHOWING POST HEADQUARTERS IN FORE-
GROUND—U. S. ARMY SCHOOL OF MILITARY AERONAU-
TICS, OHIO STATE UNIVERSITY, COLUMBUS, OHIO.

had for air and sunlight and particularly for control of circulation between units.

The essential parts of the barracks plan are used to form the H, as has been mentioned. With the two accessory units—the headquarters and the study rooms—Professor Bradford has closed the top and bottom of the H and formed two courts. But he has very easily and successfully unified the whole by a simple porch around the entire rectangle. This porch is not so much a feature of the plan, except as it serves to complete the lines enclosing the two courts. But in elevation and perspective it is the characterizing feature of the whole mass and of its shade and shadow.

First impressions are usually the most lasting. It is not the plan, or necessarily the arrangement of the group, which makes the first impression upon one. Rather, the impression is that here is a very interesting group of buildings, which is congenial looking because of the spaciousness of its porches and one that has a most pleasing color scheme. The temporary nature of the structure has not been made the excuse for leaving the exterior to present the mien of a lumber camp, where the nakedness of the fresh milled boards is only scantily clothed by the descending stains of spike-heads. The color scheme is simple; it hardly need be dignified by the term "color scheme." For, by the simple expedient of painting all woodwork a very warm gray tan, the color scheme has virtually made itself. The long lengths of prepared roofing, spread over the very low pitched roofs in great maroon planes, are just gray enough not to be too strong in color value. The green of summer foliage and the bleak grayness of the deciduous trees in winter do not add to or detract from the effect of these singularly well chosen colors. The fall foliage enhances the effect. The color scheme for the large but effective roof ventilators which break the skyline is the same as that for the roof.

The group, however, has not the appearance of being temporary. In fact, its general appearance of lowness, given by the continuity of roof and eaves lines and

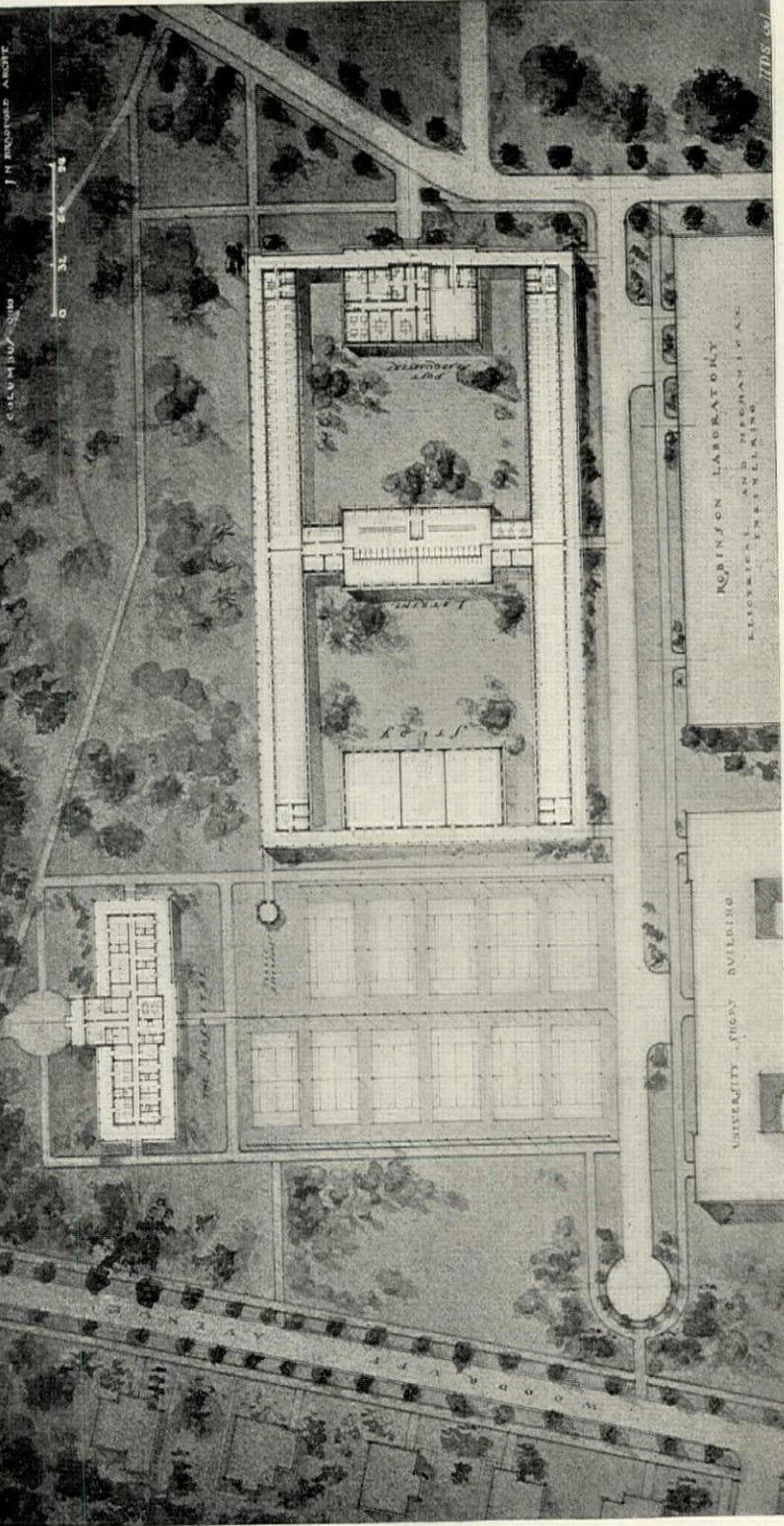
the warm color of the walls, somewhat recalls the solid structures of the South-western missions. The simile is perhaps exaggerated; but the allusion is assisted by the patio-like appearance of the enclosed courts, which have been planted with shrubs and evergreens.

The post headquarters has been placed in what might be called the top of the H plan, the front end of the group. The porch breaks out very slightly to signify this importance, and the main door is designated by a simple low gable which projects above the porch roof. In plan, this headquarters building consists only of offices for members of the military administration and for the quartermaster's office and property room. A study of the barracks unit shows that it is designed to take a row of cots along either wall with a middle aisle. Each cot has its own window, under normal conditions, with a hinged transom for ventilation. Each barrack dormitory unit has its non-commissioned officers' quarters, which consist of two sleeping rooms and one office. Entrance and exit to each unit is effected by two doors: one at the end leading through the non-coms' office, and leaving only one opening directly from the porch to the dormitory room itself. This arrangement has been found quite advantageous in the maintenance of control and discipline, in spite of the fact that ordinarily it would seem to be good planning to provide more than one exit from a room which houses some fifty men. In case of emergency, however, the windows can be used.

The feeling of completeness and finish, first noticed on the exterior, is given to the barracks units inside by their being finished with "compo-board," the joints covered by moldings, and all kalsomined with water paint. It is not expensive construction. Too few people realize the effect that surroundings have upon studying and growing minds. In normal human beings there is a natural, if unconscious, craving for an appearance of order and symmetry, and finish and completeness. That is why we find our National Army men and guardsmen time after time building little fences of stones

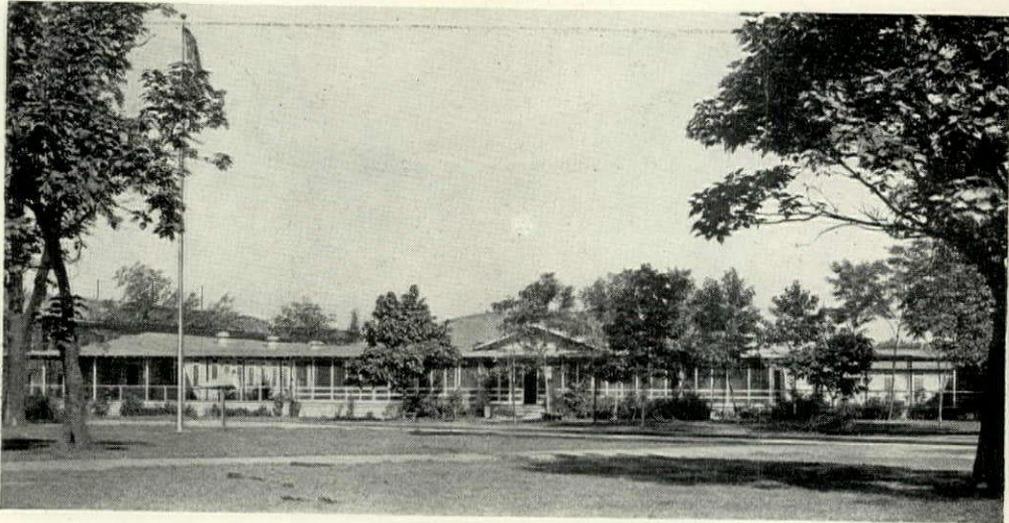
BARRACKS & HOSPITAL
 UNITED STATES ARMY SCHOOL OF MILITARY
 AERONAUTICS
 OHIO STATE UNIVERSITY

COLUMBUS, OHIO
 1:10,000 SCALE
 1914 PROPOSED ARCHITECTURE



PLAN OF BARRACKS AND HOSPITAL—U. S. ARMY SCHOOL OF MILITARY AERONAUTICS, OHIO STATE UNIVERSITY, COLUMBUS, OHIO.

77DS 68



SOUTH FRONT OF BARRACKS GROUP—U. S. ARMY SCHOOL OF MILITARY AERONAUTICS, OHIO STATE UNIVERSITY, COLUMBUS, OHIO.

and boulders about their sentry houses and whitewashing them, with the number and designation of their unit applied by way of ornamentation or decoration; and that is why we find them planting flowers and keeping their beds of sod trimmed and smart. The order and symmetry and completeness of one's surroundings have their good effects upon one's morale and mentality. This is a general truth too often overlooked. Too often, for instance, does the development of the physical plant of an educational institution follow an apparent hand-to-mouth program, instead of a prescribed scheme of physical expansion which is manifestly the product of the study of a well-ordered organization. A part, at least, of the educational value of good teaching is neutralized by incoherence of surroundings.

For the purpose of centralized control, just as there is only one door from barracks to porch, so also there is but one door from each barracks unit to the latrine building, where the accommodations are somewhat generous, as military discipline, which requires rising and retiring by clockwork, makes it necessary to have adequate maximum facilities that might not otherwise be required. The short connecting wings between barracks and latrine are used as store rooms,

tailor shop and barber shop. The study building corresponds in size and shape to the post headquarters building, and is placed at the north or rear end of the group plan. The study halls are provided with very strong artificial lighting, and are used as libraries and writing rooms as well as for study. Absolute quiet is maintained in these rooms. The canteen between them is devoted to the usual purposes of such an institution, but in emergencies is given over for use as a gun room.

The benefit of a discussion of a group of buildings such as this is twofold. First, it shows how effective a little study can be in making for pleasantness and comfort of surroundings for students in specialized work; and, second, lessons by practical example may be passed on for profit to others in similar circumstances. It is to satisfy most fully this second possibility that it might be well to catalogue here, more or less completely, the general structural features of the group.

Close proximity to the power facilities of the campus obviated the necessity of a low level for extensive heating plant. The building site was practically level, and the foundation plan for all parts except the latrine consists of a field of 12 by 12-inch concrete piers approximately

8 feet on centres and extending down into the ground 30 inches, each resting on a 6-inch tamped cinder cushion. These piers extend just above grade and support short 8 by 8-inch posts, which in turn carry the girders and floor joists. The barracks, headquarters and study floors are 3 feet above grade. The latrine building, which has a cement floor, is only 1 foot above grade and is reached by a cement gradient or ramp in the passage down from the barracks units. This permits the placing of the cement floor directly on cinder fill over the natural grade, making the most economical construction. The difference in level of 2 feet between barracks and latrine, and of 3 feet between barracks floor and outside grade, gives ample assurance, both real and psychological, of freedom from dampness in the barracks floors. Through the enclosed space under the buildings the heat mains have been run uncovered. This gives warmth and dryness and avoids a cold damp floor for the sleeping quarters.

The floor framing is fully indicated on the plans. In general the joists are 2 by 8 inches, the girders are built up of 2 by 8-inch and 2 by 10-inch beams, and are not framed flush. Consideration of shrinkage is not an essential item on account of the absence of plaster work. The floors themselves are of $\frac{7}{8}$ -inch

matched flooring, and in all units except the latrine are covered with brown battleship linoleum. Walls and vertical partitions are framed of 2 by 4-inch rough studs. In the latrine building, where the floors are of cement, the sill for wall studs is raised on a cement covered base. All framing timbers are spaced 2 feet on centres. Spacings in general have been worked out so that grounds for nailing the "compo-boards" would be conveniently furnished without additional framing or trimming. The stock width of "compo-board" is 4 feet, and it comes in 8-foot lengths. All interior walls, except the middle partition in the latrine, are of this "compo-board." The latrine partitions, including the single thickness closet and shower stall partitions, are of $\frac{7}{8}$ -inch matched and beaded flooring material thoroughly waterproofed. All exterior walls are of ordinary lap or drop siding, put on over heavy waterproof building paper, but no sheathing. Exposed framing, such as porch posts and porch rafters, are of dressed soft pine. This applies also to the interior posts in the latrine and study buildings. The underside of the porch roof sheathing is dressed. Roof framing consists only of rafters 2 feet on centres, held by collar members formed of two 1 by 6-inch pieces, spiked one on either side of each rafter. The



POST HEADQUARTERS, AT SOUTH END OF BARRACKS GROUP—U. S. ARMY SCHOOL OF MILITARY AERONAUTICS, OHIO STATE UNIVERSITY, COLUMBUS, OHIO.

ceilings of all rooms are of "compo-board," in as long lengths as possible and with joints covered with moldings as on the walls. In the ceilings of all units there are registers with louvres for ventilation into the air space above, which in turn is ventilated through patent ventilator outlets. In warm weather the current of air created is effective in keeping the ceiling space as cool as possible. With registers and ventilators closed, the dead air space is made as effective as possible in cold weather.

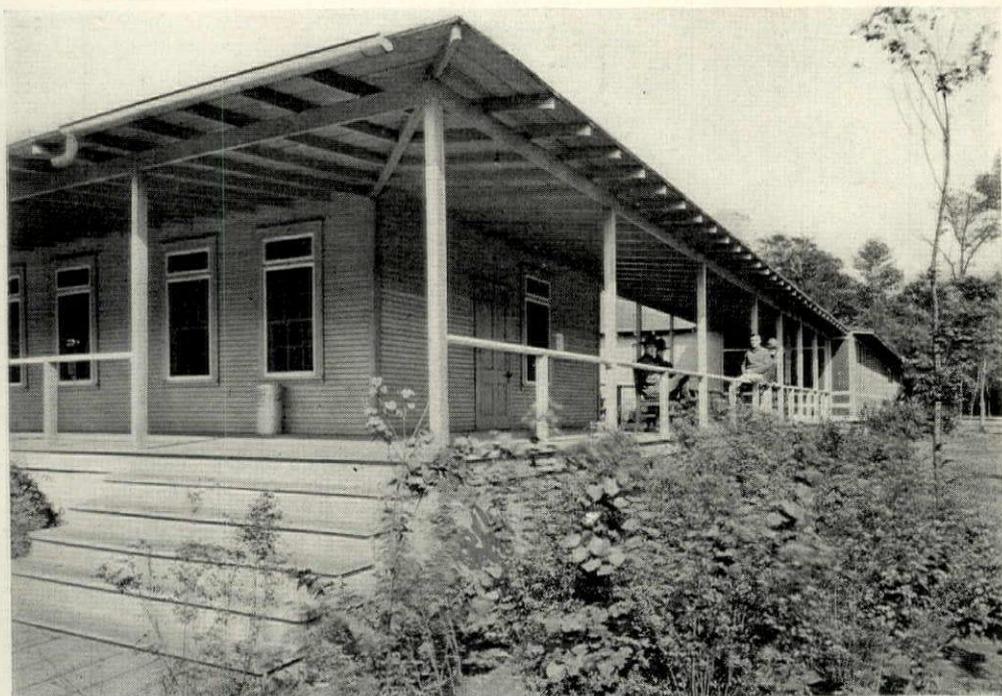
The roofs are all sheathed with $\frac{7}{8}$ -inch rough boards and covered with prepared roofing material and given color by having finely crushed red slate pressed into the top surface. The weight of the particular material used on these buildings is 80 pounds per square (100 square feet). It is in 4-foot widths and laid in long strips lengthwise of the roofs. The material itself has proven quite satisfactory, but this group of buildings has experienced the same difficulties which have been encountered in a very large percentage of the temporary structures throughout the country where similar roofing methods have been used. Considerable annoyance from leaks at first led to general dissatisfaction with the entire roofing material, till finally it came under careful investigation along with similar conditions in cantonments elsewhere. The results of this investigation, participated in by the manufacturers of the material as well as by others directly interested, showed that the cementing composition used at the joints was not of proper quality, that it became dry and allowed the joints to open. It was surmised that the great demand for the product at the beginning of the war, resulting in the speeding up of its production, had some effect on its quality.

It is now accepted as better practice to use two or three ply felt, mopped on with bituminous products and surfaced with crushed stone, brick or slate, pressed into the top coating. In the application of this top coating, the choice of the material is sufficient to allow of a great number of color schemes, producing quite as satisfactory results as

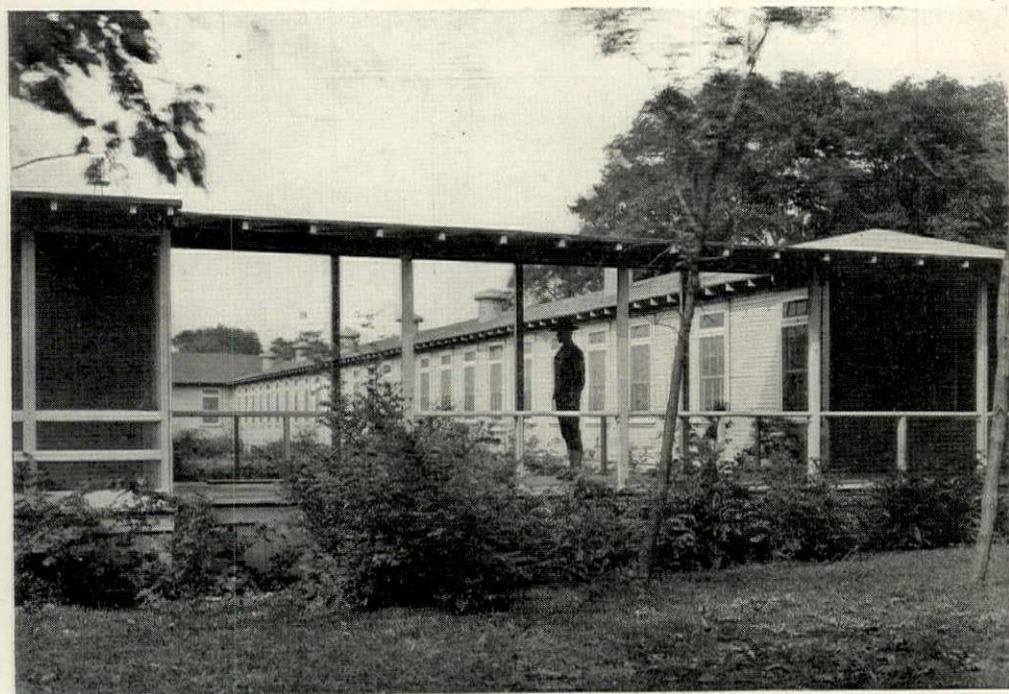
with prepared materials and far more practical as regards weathering qualities.

The plumbing installation is confined to the latrine building, except for a small toilet room in the post headquarters building. The building group is located near enough to a municipal trunk sewer, so that sewage disposal offered no problem. Water is supplied from the same city mains which supply the other forty odd buildings on the University campus. The arrangement of the latrine facilities consists of two separate compartments for the group, each set of two barracks (approximately housing one hundred men) using one compartment in the building. There is therefore available, for each group of about one hundred men, fourteen closets in the toilet room and eleven shower stalls, thirty-six lavatories and four laundry trays. Each fixture in the wash room is supplied with both hot and cold water (showers, lavatories and trays). This hot water is supplied by a heater in the small heater room located between the two wash room compartments. This system has a 1,000-gallon storage tank, which has been found sufficient to supply the entire set of twenty-two showers, seventy-two lavatories and eight laundry trays. Shower heads are of the perforated adjustable type, six inches in diameter; and the water supply to them is controlled by simple, inexpensive, common type of mixing valves. The entire floor of the latrine building is of cement on cinder fill, and is sloped to drains in eight places.

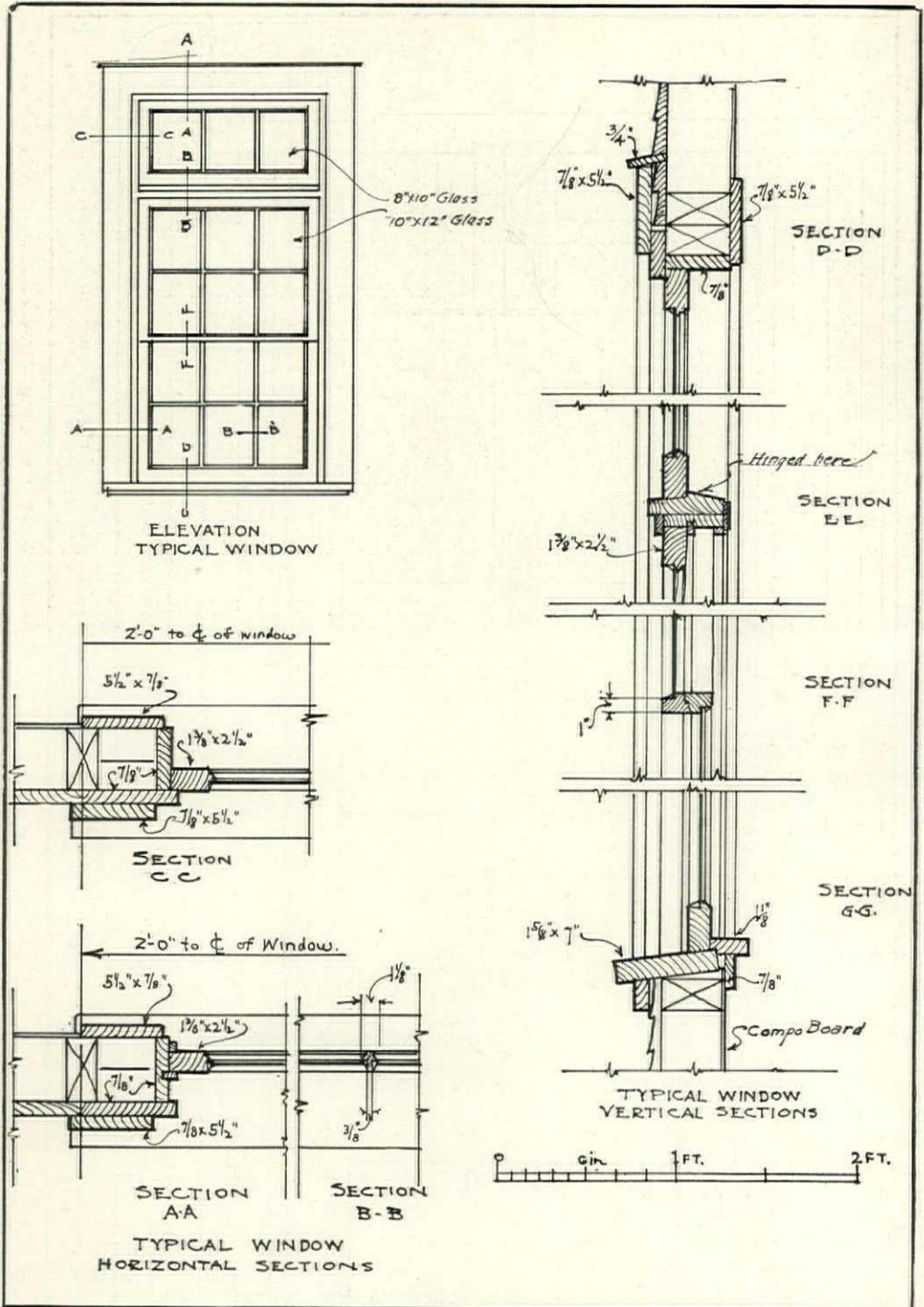
The heating of the entire group is by direct steam radiation. The steam is brought to the group through a main from a University power plant. As has been stated previously, the distributing mains are carried exposed in the open space under the floors of the various units except in the latrine building. This space has not been cemented and the presence of the exposed pipes has been effective in avoiding dampness as well as cold. The radiation in the rooms is furnished by pipe coils, which run continuously under the windows, supplying the quantity called for on the plans. It can be said that the heating system was effective



SOUTHWEST CORNER OF BARRACKS GROUP, SHOWING SOUTH AND WEST PORCHES AND
ENTRANCE TO BARRACKS UNIT.
Post Headquarters Porch at Right, Screened for Summer Use.



LOOKING THROUGH SOUTH PORCH INTO SOUTH COURT, SHOWING COURT WALL OF
SOUTHEAST BARRACKS UNIT.
Screened Porch of Post Headquarters at Left.



WINDOW DETAILS—U. S. ARMY SCHOOL OF MILITARY AERONAUTICS, OHIO STATE UNIVERSITY, COLUMBUS, OHIO.



INTERIOR OF BARRACKS UNIT. WALLS AND CEILINGS ARE OF WALL BOARD, WITH JOINTS COVERED WITH MOLDING.

during the rigorous 1917-18 winter. In the same connection it might be mentioned, however, that the rest of the University plant, except the administration building, was closed for an extended period on account of the general policy of coal conservation. Being an army post by Government order and essential to the prosecution of the war, the School of Aeronautics, however, was supplied with proper heat.

Erected by State funds for the fulfillment of a specific contract with the Government for war purposes, this group of buildings, built inexpensively and quickly, has shown that such things can be done effectively, and with some idea of good taste in execution as well as practicability in plan and construction. It shows that there are possibilities to which builders of temporary structures should be alert. There is no tangible way of measuring the effect of such possibilities in terms of strength and efficiency on the firing line. That, of course, is the ultimate test. But we feel that it

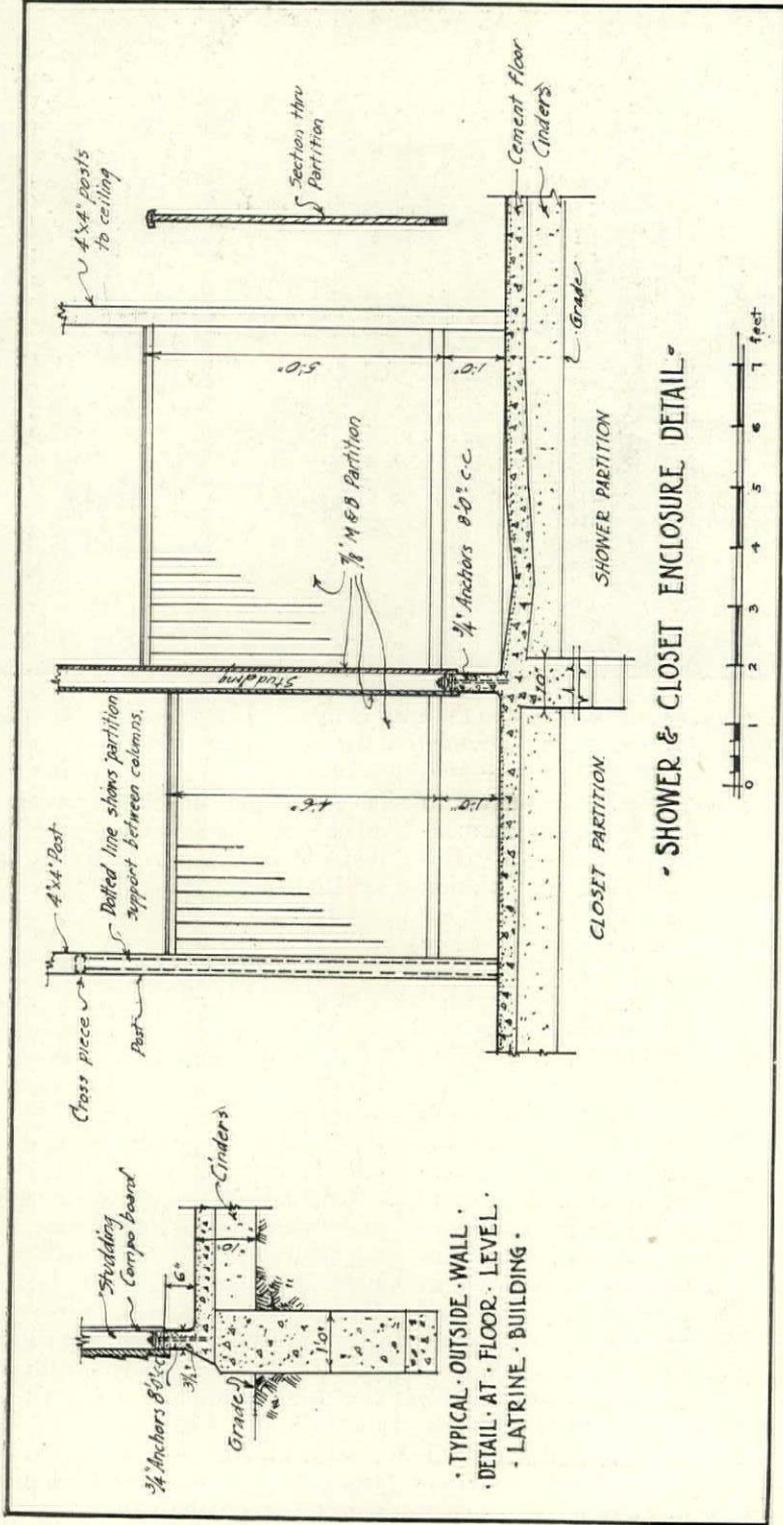
is axiomatic that deep-seated high-quality morale in troops at front line is fostered by a high quality of conditions which have to do with their education and training at home.

THE HOSPITAL.

With an enrollment varying from six squadrons coming in to take the place of those graduated from week to week, entailing physical examinations and quarantines, the hospital service was rendered by regularly assigned medical officers of the army.

Under ordinary circumstances in normal times the incidental sickness occurring in the enrollment of a University is naturally taken care of privately, although there is an ever-increasing tendency toward effective paternalism on the part of the Universities with regard to the health conditions of their enrollments.

In a military establishment the conditions are manifestly different, due to continuous control of the time and activi-

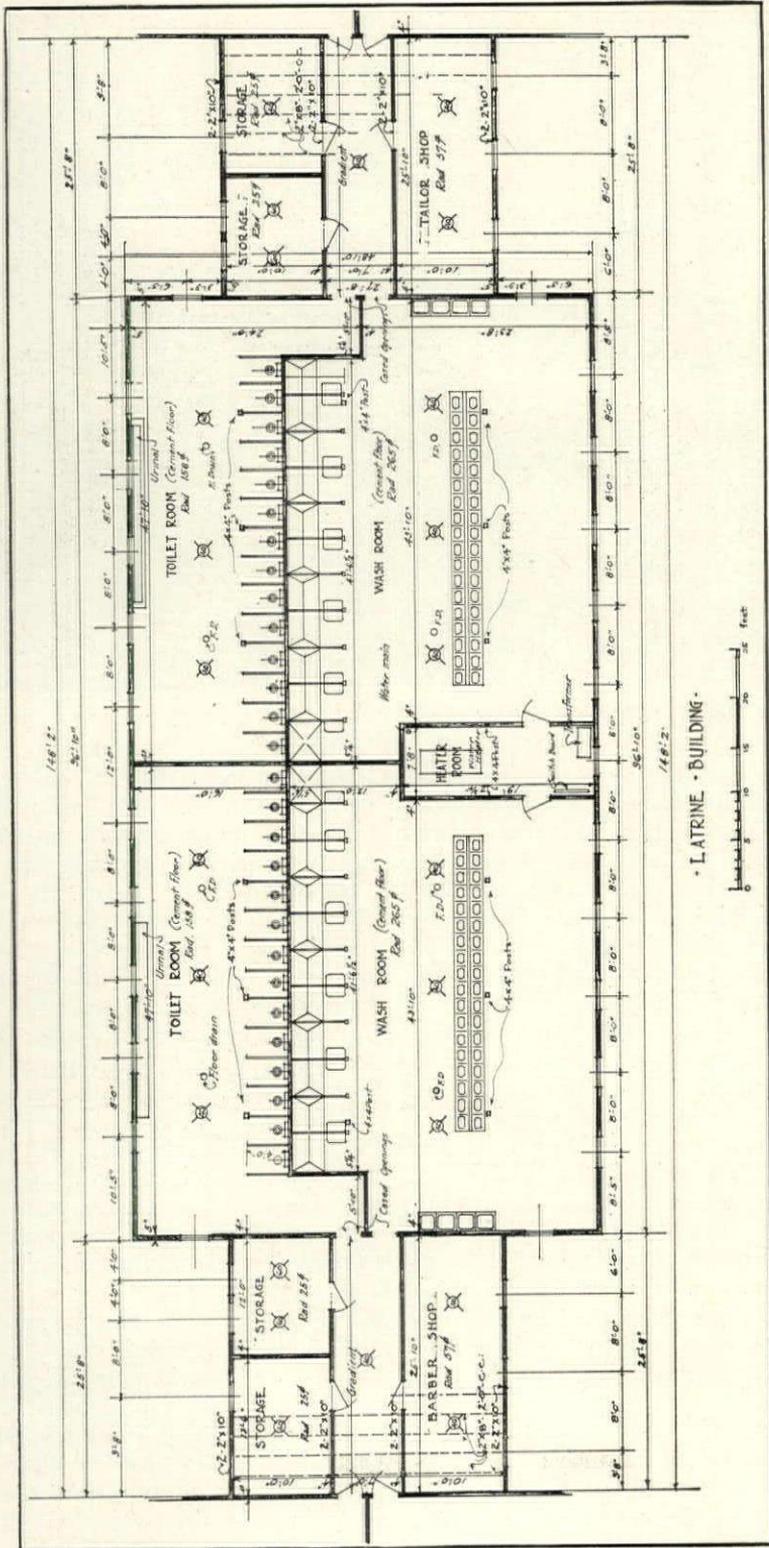


• TYPICAL OUTSIDE WALL •
 • DETAIL AT FLOOR LEVEL •
 • LATRINE BUILDING •

- SHOWER & CLOSET ENCLOSURE DETAIL -

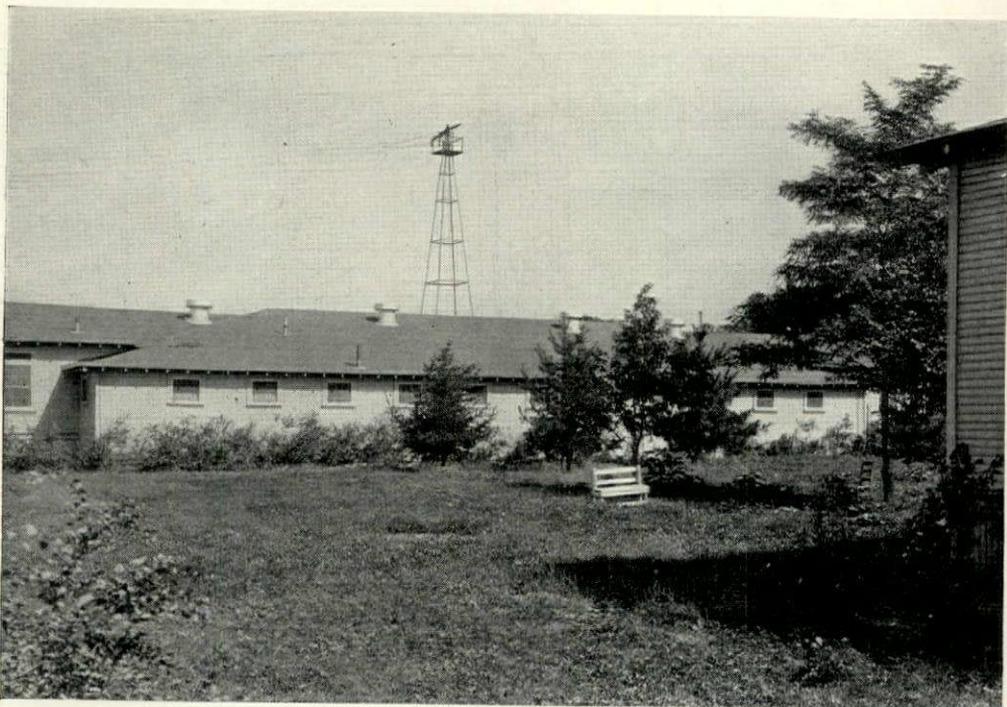


CONSTRUCTION DETAILS OF LATRINE BUILDING—
 U. S. ARMY SCHOOL OF MILITARY AERONAUTICS,
 OHIO STATE UNIVERSITY, COLUMBUS, OHIO.



• LATRINE - BUILDING •

FLOOR PLAN OF LATRINE BUILDING—U. S. ARMY SCHOOL OF MILITARY AERONAUTICS, OHIO STATE UNIVERSITY, COLUMBUS, OHIO.



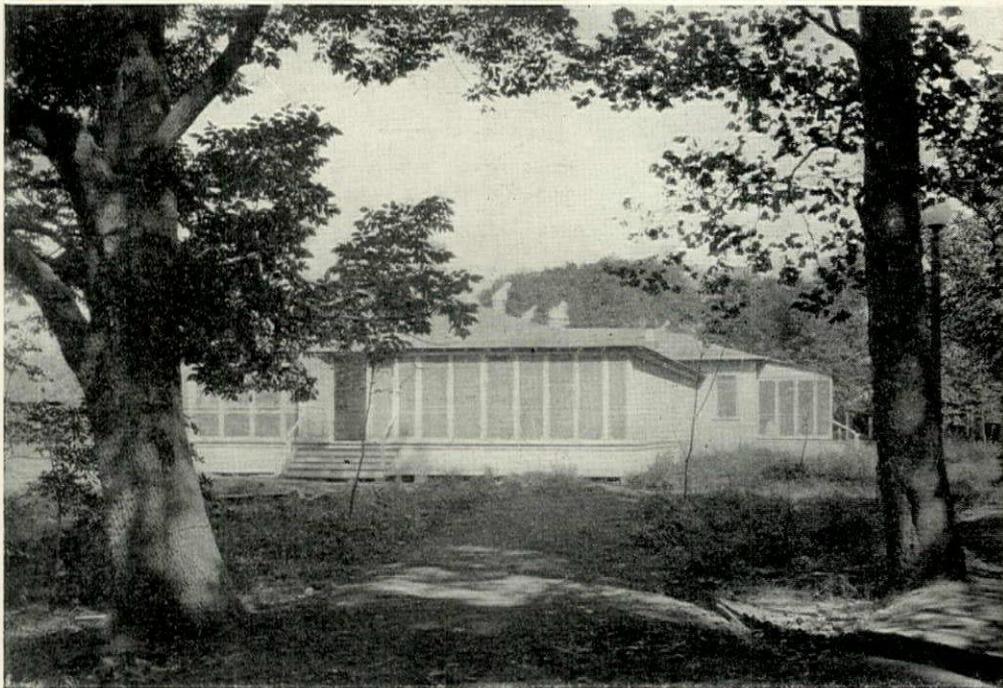
SOUTH COURT, SHOWING NORTH SIDE OF LATRINE BUILDING. CORNER OF POST HEADQUARTERS AT RIGHT.

ties of the enrolled persons, that is to say of the enlisted men. Cases of sickness which occurred among the members of the School of Military Aeronautics were taken care of on the campus in the hospital of Homeopathic Medicine, by arrangement with the government. At times this was found to restrict the regular and essential activities of the University hospital and led to dual or divided responsibilities as between civilian and military doctors. Accordingly, after the School of Aeronautics had been in operation for some six or eight months, the Board of Trustees of the University authorized the erection of a twenty patient hospital which would be for the exclusive use of that School and in charge of the army medical officers regularly assigned to the post. For convenience of operation and control it was to be placed in close proximity to the barracks group.

On account of the effectiveness of the construction and appearance of the barracks group the same general ideas were incorporated in the construction of the

hospital, except that in some places the materials and methods of construction have been improved with an idea of obtaining maximum sanitary effectiveness. Plaster on metal lath has been used throughout for walls and ceilings, and painted with two coats of "Hockaday" waterproof paint. This abolishes porosity and makes a washable surface. The floors in general are of double thickness with waterproofed paper between. The top floor is of maple strips, waterproofed with oil to make it non-absorbing and easily cleaned. All the toilet rooms have vitrified tile floors and sanitary base. Cement cove bases are provided in all rooms with wood floors, continuing down from the plaster walls with a flush joint. The exterior scheme and effect is similar to the barracks group.

The plan is a simple one. It has been studied and worked out in cooperation with the army medical officers with an idea of combining efficiency with compactness. The double administration portion in the front can be used effectively in case there are two doctors in



HOSPITAL BUILDING FROM THE SOUTHEAST—U. S. ARMY SCHOOL OF MILITARY AERONAUTICS, OHIO STATE UNIVERSITY, COLUMBUS, OHIO.



HOSPITAL BUILDING FROM THE SOUTHWEST—U. S. ARMY SCHOOL OF MILITARY AERONAUTICS, OHIO STATE UNIVERSITY, COLUMBUS, OHIO.

charge, or one portion can be used by doctors and one by nurses. The essentials of the plan are (1) the receiving ward for sterilization; (2) the isolation wards on the west for contagious cases, eight in number; (3) four general wards of three beds each on the east; (4) a discharging room; (5) small laboratory; (6) a diet kitchen; (7) a dining-room to be shared by patients and staff, and (8) the necessary store closets. The disposition of the contagious cases wards on one side of the building, each with its own toilet facilities, is an essential feature for the prevention of cross infection. The ventilation system in these wards is designed to be always positive through the patent roof ventilator. One roof ventilator of ward and toilet—70 per cent. of its capacity accommodating the ward and 30 per cent the toilet. Their respective registers are designed in proportion. Positive ventilation from ward to toilet is insured by having all ward toilet doors made one foot short at the bottom. Double French doors from wards to porch permit the moving of

beds from any ward without disturbing the patients. The simplicity of the general plan arrangement around the central continuous corridor and the completeness of the equipment are responsible for its effective operation as a small hospital.

On account of the possibility and the great probability of the equipment being used for a campus health service department after its usefulness as an army hospital has ceased, an equipment of the very best grade has been chosen. For this reason the Board of Trustees have felt justified in expending, in proportion, a greater amount for this building than for the barracks group. While the barracks group, which was completed in the fall of 1917, cost approximately \$.089 per cubic foot (exclusive of the linoleum contract, which was a separate item of \$3,500), or about \$1.26 per square foot of area, the hospital building, which was completed during the summer of 1918, was erected at a cost of \$.26½ per cubic foot, or \$3.49½ per square foot of ground area.

COST DATA

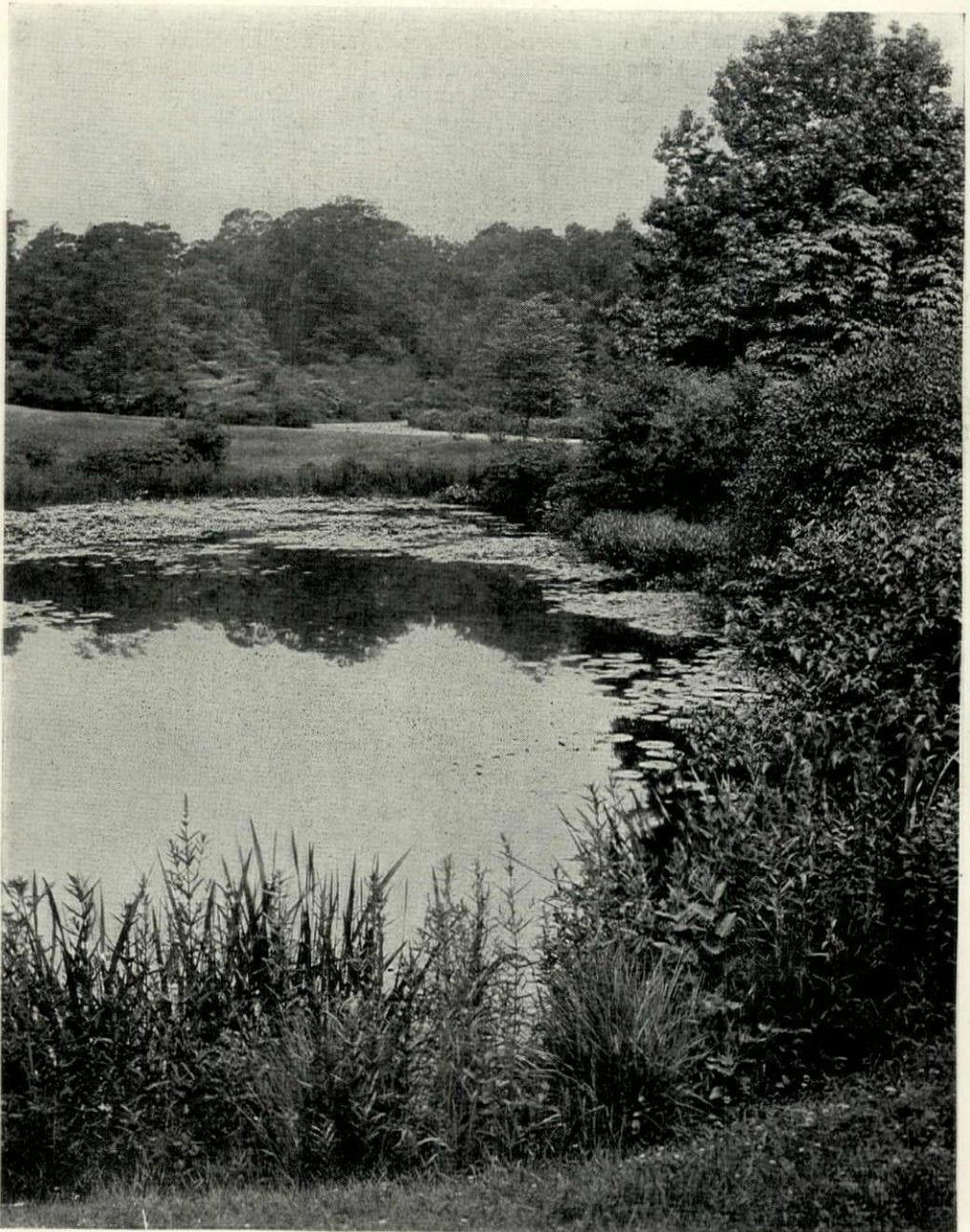
	Dimensions.	Square Feet.	Cubic Feet.
Barracks Group.			
Post Headquarters.....	48x 87x16	4,176	68,816
Study Building.....	49x101x16	4,949	79,184
Latrine	49x 97x16	4,753	76,048
Two Passages.....	26x 27x16 (2)	1,404	22,464
Four Barracks.....	22x176x15 (4)	15,752	236,280
Porch	1,170x 10x12	5,360 (½ actual area)	36,880 (¼ actual cube)
		36,394 sq. ft.	519,672 cu. ft.

General Contract	\$28,901.43
Plumbing, Heating and Ventilating.....	14,147.00
Extra Plumbing	54.79
Electrical Work	752.85
Shades and Screens.....	1,920.98
	\$47,775.05

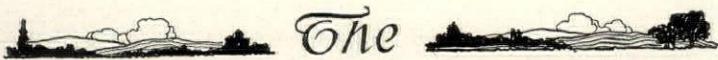
Cost per cu. ft. (porches at ¼)..... \$0.0889
 Cost per sq. ft. ground area (porches at ½)..... 1.26

	Dimensions.	Square Feet.	Cubic Feet.
Hospital.			
Two Ward Wings.....	51x30x16 (2)	3,060	48,960
Administration	30x50x16	1,500	24,000
Porch	364x10x14	1,820 (½ actual area)	12,740 (¼ actual cube)
		6,380 sq. ft.	85,700 cu. ft.

Cost per cu. ft. (porches at ¼)..... \$0.2642
 Cost per sq. ft. ground area (porches at ½)..... 3.4942



"THE POND BELOW US IN ITS EARLY SUMMER SETTING."



The Debt of Landscape Art to a Museum of Trees

By *Beatrix Farrand*
Photographs by *George R King*

THE word "museum" carries to most of us a quick memory of delightful, yet exhausting, hours spent in cold or stuffy galleries filled with more or less interesting things, all gathered arbitrarily together in that strange museum light "that never was on sea or land." We have to learn a completely new series of sensations to link with the word in the out-of-door exhibition of trees at the Arnold Arboretum.

In order to understand how this collection came to be started, we must go back just fifty years. James Arnold, a prosperous merchant of New Bedford, left a bequest of a hundred thousand dollars to the trustees of his estate, with the suggestion that the fund might be devoted to the advancement of agriculture or horticulture. Fortunately for the development of outdoor art in this country, Mr. George B. Emerson was one of Mr. Arnold's trustees. Mr. Emerson was one of the first really to see and appreciate the beauty of our New England woodlands, and his report on "The Trees of Massachusetts" was one of the earliest, and it still is one of the best, of the now multitudinous tree books which each year increase in number. Owing to Mr. Emerson's foresight and wise suggestion, the bequest was given to the fellows of Harvard University on condition that they start an Arboretum near Boston, on some land they had already received as a gift from Mr. Benjamin Bussey. The Arboretum, which has made Mr. Arnold's name known wherever people are interested in tree-growing, was started

four years after his death, on the Bussey land in Jamaica Plain.

This museum of living trees and shrubs was from the first intended only to include the sorts sturdy enough to endure the stern climate of eastern Massachusetts. The nucleus of the collection was to be an assemblage of our own long-neglected, native woody plants, and to these were to be added those of other countries which were hardy enough to withstand our dramatic variations of temperature.

This brief statement of the start of the Arboretum hardly more than suggests its later and fuller development, nor do we realize, without considerable thought, how much we each and all owe to this outdoor gallery of trees.

It is humiliating, but perhaps salutary, to realize that most of us need to have our eyes opened to our daily surroundings. We may think we know every stick and stone of a certain stretch of road or a familiar view, but we are actually quite unobservant and need to be told where to look for certain features of our daily walk which would otherwise pass unnoticed. It seems as though familiarity must breed blindness as well as the traditional contempt; otherwise it would not have been necessary to call to us to stop and see what grows at our very doors. This is just what the Arnold Arboretum has done. We had to be told to stop and realize that we who live in the Northeastern States are surrounded by one of the richest natural tree and shrub floras of the world. After we had

assimilated this, we were shown its beauty and its appropriateness for use in its own home surroundings. So today we are really learning to see our trees and shrubs growing "in plain sight" along our roadsides.

It now seems impossible to realize that until a comparatively few years ago we took the whole wild growth of our woodlands for granted. We actually could not seem to understand what a wide range of artistic material was ours for the taking until the Arboretum succeeded in showing it to us.

Before we had learned our lesson, it was the custom to plant alien shrubs and trees and to say that our countryside had not the beauty of the English hedged fields and ferny forests, or the finished charm of the cultivated French landscape. But now, at last, we know that we are surrounded, from earliest spring till depth of winter, with a succession and variety of foliage and flower unmatched in Europe.

Let us pretend it is possible to take one of the endless fairy-tale journeys dear to our youth, and so follow the slow footsteps of the year up and down the hills at Jamaica Plain. We must start with the first warnings of spring, when the soft black earth appears and the hollows are filled with shiny pools. For, if we delay a few days, the spice-bush flowers will spread a yellow mist in the leafless woods, and we shall not see the foam of the shad-bush flowers break out. Then we must move on to the higher ground, for the early plum and cherry blossoms are opening before us. Now, on the opposite hillside, the wild apples and pear flowers are unfolding, and down in the hollow beyond the pond the young leaves of the black and white oaks show silvery pink or white.

We have already spent several weeks on our imaginary journey, so the days are long as we wander up the hill and see the pond below us glistening and flashing in its early summer setting, and catch the scent of the mass of wild roses bordering our path.

Suddenly, one of the first hot days of the season overtakes us, and our valiant

stride up the slope slackens to a saunter. Shall we bravely push on past the lilacs to the hilltop with its scattered pines, its breeze and its view over to Blue Hill, or shall we weakly seek the shelter of the oak or hickory groves? We decide to wander lazily through the woods, knowing that we shall find shade and that soft grass walks will lead us to the valley where the rhododendrons and laurels cluster against the dark grove of hemlocks on the hill.

It is hot midsummer now, and the elder is in bloom as we walk up the Valley Meadow, but the prim regiments of spruces and firs will keep us busy in the Pinetum or the hillside till we realize that autumn is beginning. Then we go up to the newer part of the Arboretum on Peter's Hill to see the thorn plantations and all their gay foliage and fruit. And so the days grow short and cold, and the leaves drop, and perhaps the first snow falls as we retrace our steps to the Valley Meadow.

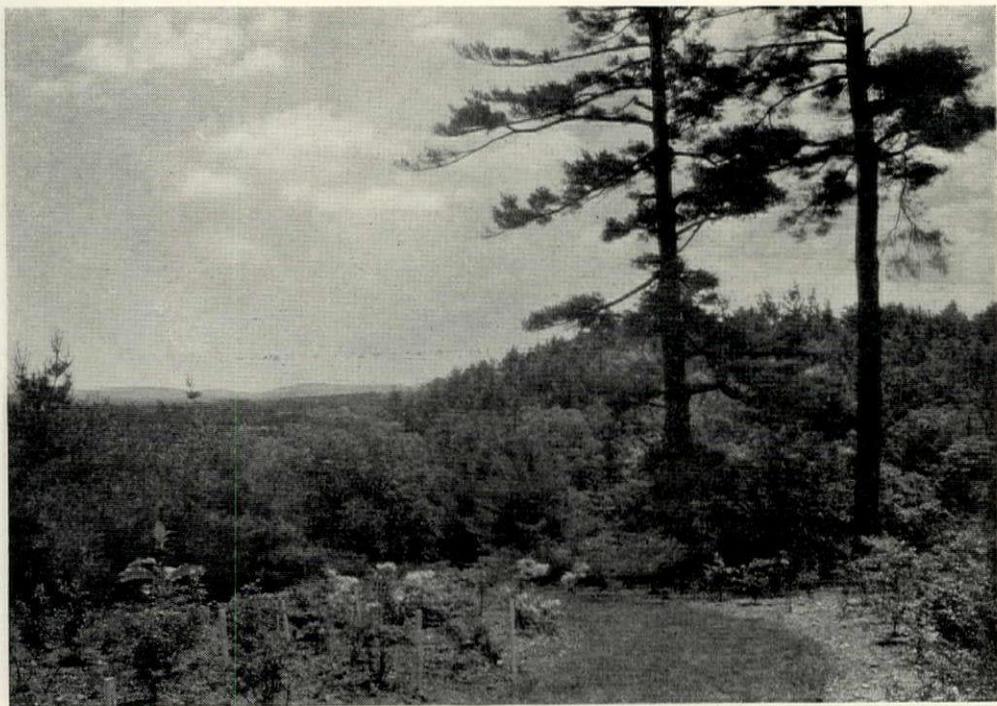
In our imaginary excursion of only a year, we have seen the result of more than forty years of steady and intelligently directed work. The plantations of trees and shrubs we saw were brought together, each sort in a family party. Some members of the group are our near neighbors, while others have had to be sought in far-away parts of the world.

Expeditions in search of new and promising materials for our woods and shrubberies have gone from the Arboretum all over our own country and to Chile and Peru in South America. The Caucasus has been explored; Japan and Korea have yielded much, while from northern and western China Mr. E. H. Wilson has recently brought back quite the most interesting plant material of the last thirty years. In his booty there are new wild roses, pale yellow, white or pink, new bush honeysuckles and spiraeas, and quantities of new and untried rhododendron seeds are now being grown in the experimental nursery.

To any of us whose work lies among plants, the Arnold Arboretum has been a constant prop and an invaluable help.



"THE MASS OF WILD ROSES BORDERING OUR PATH."



"THE HILLTOP WITH ITS SCATTERED PINES AND ITS VIEW TO BLUE HILL."



"THE SHELTER OF THE OAK GROVE."



"THE RHODODENDRONS AND LAURELS CLUSTER AGAINST THE DARK GROVE OF HEMLOCKS."



"IT IS MIDSUMMER AND THE ELDER IS IN BLOOM IN THE VALLEY MEADOW."



"THE PRIM REGIMENTS OF SPRUCES AND FIRS IN THE PINETUM."



"THE FIRST SNOW FALLS AS WE RETRACE OUR STEPS."



"THE HEMLOCK-COVERED HILLSIDE."

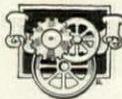
We have studied there year after year and realize more fully at each visit how much we owe to its revelation of beauty. We have learned from it that the only way to use plants intelligently, as well as artistically, is to know their natural habit of growth and the surroundings in which they are happy, and then to observe their individual qualities and structure, color of leaf, flower and fruit, and their changing aspects in the various seasons. In this way we may gradually acquire the instinctive appreciation of those characteristics which give a composition contrast and value.

No amount of book-learning will teach us what is appropriate in a planting scheme and what is in proper scale, but we must be dull of perception if we fail to absorb, almost unconsciously, the teaching of the object lesson we are studying. It is an extraordinary achievement to have succeeded in making a scientific botanical collection of trees and

shrubs an artistically admirable whole. The feeling of restlessness created by too great a variety of plant material is quite absent here, as the natural features of the land have been used in a masterly way. Broad spaces of meadow have been kept to rest the eye from the definite detail of the collections, and the beauty of the hemlock-covered hill has been kept untouched, so that all may see when to let well enough alone.

The controlling master hand has been that of the Director of the Arboretum, Professor Charles Sprague Sargent. Distinguished in the scientific world for his botanical work and the great fourteen volume "Silva of North America," he has yet given his unstinted time and unequalled knowledge to the creation of this out-of-door museum. Intolerant of any but the best, and instinctively sensitive to the artistic possibilities of plants, his quiet, persistent work has given us all a new revelation of beauty.

MODERN INDUSTRIAL PLANTS



By George C. Nimmons

Part I.

NEVER before in the history of this country have its industries and commerce been of such vital importance as they are just now. It is not alone that our soldiers must be fed, clothed and supplied with munitions; there are many nations whose people are more or less dependent upon us for their very existence.

To fulfill our great obligation, essential industries are being worked to their fullest capacity and the necessary commerce is being carried on with a speed and an intensity never before equaled. The increasing cost of labor and the rising prices of materials have no effect in diminishing output. Factories, warehouses, shipbuilding plants, are all being rushed to completion, and the energy of the nation is gradually being drawn into one gigantic effort to supply whatever may be needed to win the war.

This is, above all, a time for securing the greatest possible quantity production by methods already established; but a time is coming when the present methods will not avail. When the war is over, the big driving force back of our tremendous current production will be gone. The shops doing war work will close, the men will lay down their tools and the owners will be confronted with the problem of altering their plants to produce different goods, of obtaining new customers and of operating under selling prices that must admit of a profit while meeting both foreign and domestic competition.

Foreign markets and foreign competition will receive more attention than they have ever before received in this country; it will be necessary to find employment for the enormous fleet of ships

now being so rapidly produced for war transportation.

The soldiers returning will also look largely to the industries and to commercial houses for employment, and business will have to be so rearranged as to absorb them back into the positions where they belong.

The future has some hard problems stored up for solution. Anyone with the proper confidence in the ability and resourcefulness of the American people knows that these problems will be solved; but it will not by any means be a simple or an easy matter. On this account a most thorough study should be made in preparation of meeting the great change when it comes. Everything that can possibly help toward developing the industries and commerce of this country should be most carefully considered, and public attention should be directed to the great importance of discussing and determining all those agencies and policies which will assist them to establish themselves on a prosperous basis.

Among such agencies there is probably none that is so little understood as is architecture. Many manufacturers and commercial men do not even know that there is any important relation between their pursuits and architecture. Buildings to them often mean only shelter, four walls and a roof. Many of the improvements made for war work have simply been so much added space. Frequently this space has been obtained by erecting stock buildings, which, being prepared in units to suit every one, are devoid of features that would adapt them specially to the particular needs of the business in question—features looking to more productive and more econ-

omical methods of operation, more skillful and better workmanship and more contented workmen. Such features it is the function of the profession of architecture to provide.

There is hardly a business of any importance that is not in large measure dependent for its success upon its buildings—that is to say, upon problems of design and plans in construction, the solution of which is the one great object for which an architect receives his training. Unfortunately, many business concerns are operating under handicaps of poorly arranged and inappropriately designed buildings that absolutely prevent them from producing or handling their goods to the best advantage.

Before discussing the possibilities of architecture as an agency in developing industry and commerce, a word or two may be said concerning the reasons for the partial neglect of this agency in the past.

In the first place architects have not advertised, although recently the American Institute of Architects has removed from its code of ethics the clause against advertising. Neither has the work of architects been published extensively in the periodicals and magazines which reach the mass of people. Then also, for some unaccountable reason, the newspapers have largely adopted the policy of not mentioning the architect's name in connection with his work, although they give due credit to the painter, the sculptor, the landscape architect, and even the real estate agent.

Consequently few people know that some of the greatest industrial plants in this country were designed by architects and erected under their supervision, or that some of the most useful innovations and improvements in the construction of industrial plants were originated by architects, who take out no patents or copyrights.

Still another reason for the poverty of information as to the role of architecture in industry is the scarcity of good books in English on the subject of manufacturing plants and commercial buildings. Of the books which do exist some

only add to the misinformation already prevalent. In one instance, the author of a volume which has had a considerable circulation draws the conclusion that architecture has usually a minor part to play in connection with the building of an industrial plant. He evidently holds the conception that the chief function of an architect is to put ornamentation on a building after someone else has planned it and worked out its construction.

Another book that is quite popular, although it is by an author who does not make a profession of designing or building industrial plants, gives no credit whatever to architects for the great industrial buildings which they have done and some of which it illustrates. In one instance, at least, the author illustrates a prominent building which was designed entirely by an architect, without even securing the architect's permission for its publication. However, what is most harmful about the book is the shortsighted advice given in the chapter which directs the manufacturer how to go about securing the plans for the construction of the plant. There is not a word in reference to obtaining the services of an architect or an engineer, except to procure a survey plat of the site. On the contrary, the manufacturer is instructed on the assumption that he is to act as his own architect or engineer and make his own plans. The great regret of having such advice spread broadcast among industrial men is, of course, its effect in interfering with the natural improvement and development that might otherwise come through the preparation of the plans and designs by men who make it a lifework.

Among books of real worth must be mentioned that of Dr. G. M. Price, entitled "The Modern Factory." While Dr. Price is a physician and not a designer or builder of factories, there is probably no one in America who has had the experience which he has had in the inspection and study of industrial plants. He has been not only a student and a teacher of sanitary science, a practitioner among factory workmen, a sanitary inspector of the New York Health Department, a



PUBLIC PARK, PULLMAN, ILL., WITH RESIDENCES ON THE RIGHT.
S. S. Beman, Architect. N. F. Barrett, Landscape Architect.

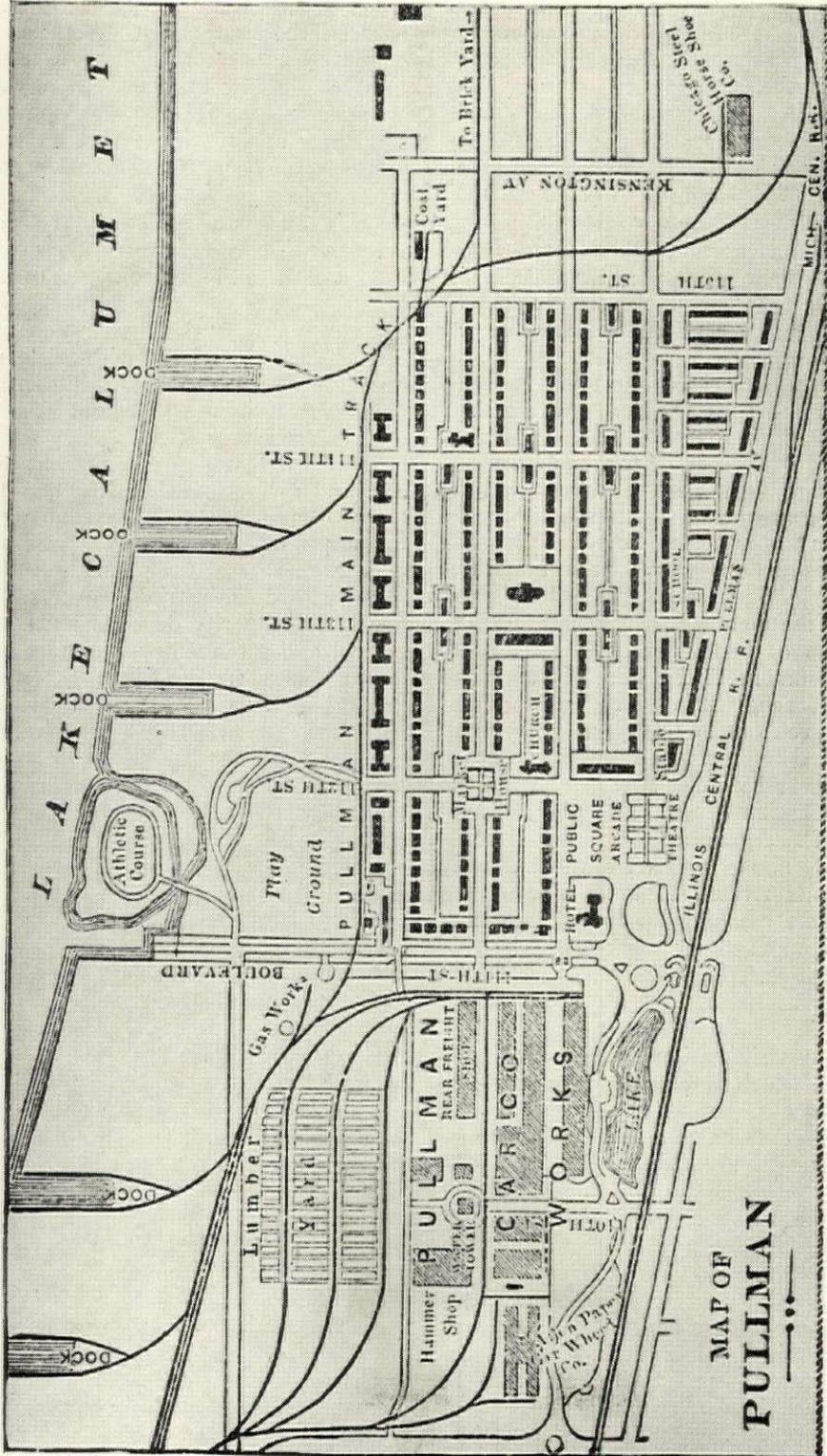
director on various inspection boards, but also the representative of the U. S. Government in inspecting the important factories in the principal countries of Europe. His book is a splendid record and is full of valuable information and sound advice.

There remains a commercial source of misinformation which cannot be overlooked—namely, a certain class of engineers and construction companies. The writer wishes to state distinctly that he intends no reflection whatever on those engineers, in the various branches related to building, who have always cooperated with architects and who practise their profession in the customary and legitimate manner. Reference is solely to a class of building companies which undertake to produce the completed building at apparently a greatly reduced cost. They claim to save a part or the whole of the architect's and engineer's fees, on account of having such men in their own organization. As a matter of fact, their "architect" usually consists of a draftsman with no ability or experience com-

mensurate with the importance of the work performed. Furthermore, as there is no independent architect or engineer to check and control their work, these companies are themselves the sole judge as to whether the work fulfills the contract and specifications. The dual situation of judge and workman calls for rare strength of character in a firm which engages in a business so complicated and disputable as building construction, and whose profit depends upon using as little material, of a quality as inexpensive as can be bought, and with as small an amount of labor and workmanship, as will just come within the limits of the contract.

It seems most fitting, therefore, at this time to discuss the relationship between architecture and the industries and commerce of the country. It is proposed to define this relationship and to show by concrete examples that the service of architecture is essential to their highest development.

The modern factory system dates from the invention of the steam engine and of



MAP OF PULLMAN, ILL. S. S. BEMAN, ARCHITECT. N. F. BARRETT, LANDSCAPE ARCHITECT.

MAP OF
PULLMAN

machines for cloth weaving between 1767 and 1785. It had no sooner become established than many of the owners of large factories began to operate them with children. A period of employment of child labor then followed, which forms one of the darkest pages of industrial history. The manufacturers first took the children of free workers to fill up their factories; and when these failed to supply their needs, they employed graft with the poor-law officials to obtain possession by force of the children of the poor.

The following account from Alfred's "History of the Factory Movement," quoted by Dr. Price, gives a good idea of the child slavery of this early time:

"In stench and heated rooms, amid the constant whirling of a thousand wheels, little fingers and little feet were kept in ceaseless action, forced into unnatural activity by blows from heavy hands and feet of the merciless overlooker, and the infliction of bodily pain by instruments of punishment. They were fed upon the coarsest food, often with the same as that served out to the pigs. They slept by turns in relays in filthy beds which were never cooled. There was often no discrimination of sex; and disease, misery and vice grew as in a hotbed of contagion. Those who tried to run away had irons riveted to their ankles with long links reaching up to the hips, and were compelled to work and sleep in these chains. Many died and were buried secretly at night, and many committed suicide."

It is a striking illustration of the extent to which a criminal practice will sometimes go before the law intervenes. The gradual enactment of laws to cure the many great wrongs that have disturbed and often outraged the industries are more and more establishing a permanent foundation of peace and harmony; but the greatest drawback of the law is that it usually intervenes only after the trouble has occurred. Great suffering and astonishing injustice are often endured before public interest can be aroused sufficiently to take action.

Past experience with industrial troubles

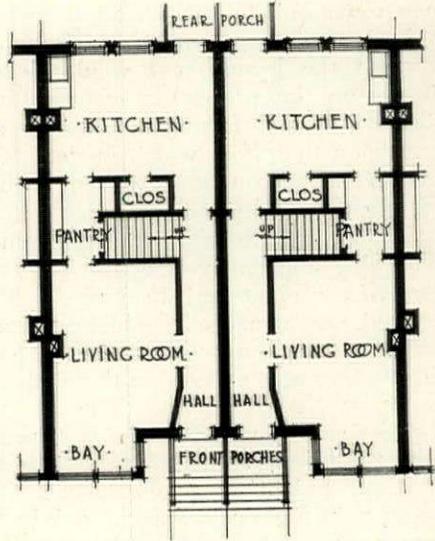
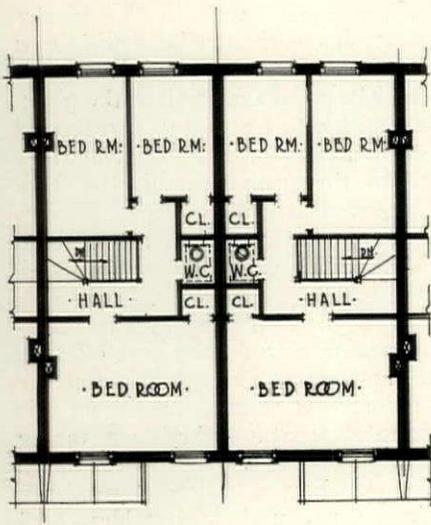
teaches one thing above all others—namely, that unless both employer and employee adopt and adhere to policies founded on fair treatment there can be no material progress or development of commerce and the industries.

This conclusion is gradually taking root among all classes, including employers; and as a result we have the development of welfare work, the progress in sanitation, and the promotion of better housing—matters which are being so actively promoted at this time both here and in England. Correlated with this general humanitarian movement, is the marked development in the plan and design of the modern factory that is doing so much to secure greater production at lower cost and to improve both the quality of the workmanship and the standards of the output of many concerns.

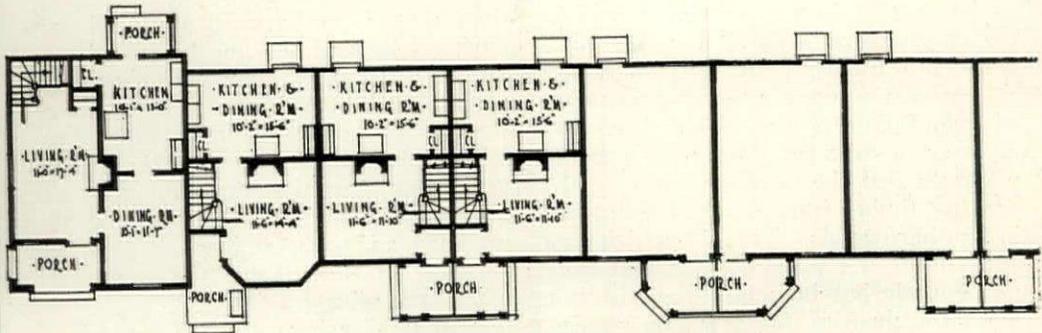
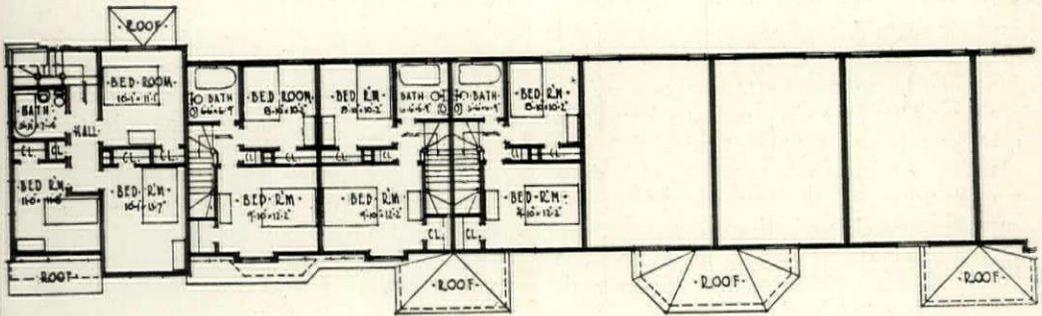
A large part of the population of this country are industrial workers. Our material prosperity depends upon a successful and satisfactory operation of industries and freedom from serious or general labor troubles. Whenever, therefore, any manufacturer or commercial concern institutes conditions in its plant that are better than the minimum required by law for the care and control of its employees, and when at the same time it erects buildings which by their plan and design result in reducing the cost and improving the quality or the manner of handling its products, then such a concern is a public benefactor. It enriches the country, by giving profitable employment to many people; and by making working conditions attractive, it reduces the extent of labor troubles.

I will close this introductory paper with a brief reference to the historically noteworthy industrial town of Pullman, Illinois, because it was the first attempt made in America to incorporate in one project both an ideal working plant and an ideal home environment.

When George M. Pullman, in 1880, decided to build a great central plant for the manufacture of sleeping and dining cars, he selected as his architect S. S. Beman, of Mr. Upjohn's office in New York. Mr. Pullman wished to make his



FLOOR PLANS OF A TYPICAL FIVE-ROOM HOUSE AT PULLMAN, III
S. S. Beman, Architect.



FLOOR PLANS OF TYPICAL SMALL HOUSES FORMING PART OF A BLOCK AT
NEWPORT NEWS, VA.
Francis Y. Joannes, Architect.

new town a model of its kind, being convinced that the maximum production of cars at the lowest cost would depend partly on the proper arrangement and design of the factory buildings, and partly on the effect which model homes and home surroundings would have in raising the efficiency of the men.

Mr. Beman, to whom the problem of designing and supervising the construction of the plant and dwellings was intrusted, was a man of the highest attainments among the architects of his day; and he was ably assisted in the landscape work by N. F. Barrett. The site was located twelve miles south of Chicago, with the Illinois Central Railroad on the west and Lake Calumet on the east. The manufacturing plant was placed in the center, and the dwelling houses were built in two groups, one north and the other south of the plant. The railroad connection was brought in from the rear, where also provisions were made for shipping by boats on Lake Calumet. Separate buildings were erected for the manufacture of the various parts of a car, and these buildings were so placed that the assembling of a car goes on logically from front to rear of the plant. As a Pullman car is a big unit to handle in manufacturing, a great traveling bridge platform operating between the buildings was installed, on which a number of cars can be rolled and then drawn either straight ahead or laterally to other buildings. Thus one sees nothing but the skeleton erected in the first shop. When this is done, it is immediately forwarded to the next in the row of factories making the numerous parts that are comprised in the finished car. As the design of cars varies constantly, the operation of manufacturing and assembling is by no means a stereotyped one; but it works perfectly just the same. Originally the cars had timber frames and were finished in fine hardwoods. The old models and patterns of the wood carvers still hang above their benches; but there is little work for them to do except on repairs, the new cars being made and finished in steel.

The more important of the two groups

of dwellings lies south of the works. The plant was separated by a wide east and west boulevard that runs through to the lake. The village, as well as the plant, was designed with a generous foreground between it and the Illinois Central Railroad. The foreground contained a lake, a park, curved drives and walks, flowers and a planting of fine trees and shrubs. East of the park was a first-class hotel, named Florence, after Mr. Pullman's daughter; to the south, the Arcade Building, containing a bank, the post office, a theatre, and shops and stores. On the axis of the street running east from this is a group of apartment buildings facing a circular court, in the centre of which is the market house. There were also a schoolhouse, a church and stables. All the residence streets were lined with trees; and the walks were separated from the streets by green parkways and lawns, planted here and there with shrubbery and flowers. The houses had no dark courts; everywhere the windows were made to stand free for sunlight and ventilation and to look out on some lawn or pleasant landscape. The drinking water, from Lake Michigan, was obtained far out, away from impurities; and the sewer system disposes of the sewage scientifically miles inland, where it was utilized for fertilizer on the large vegetable farm of the company. As a natural and certain result in a community so planned, the records show a death rate far below the average.

The houses of Pullman were not intended to be sold. However, no restrictions were placed against any workman buying a lot and building his own home adjacent to the company's property, plenty of land being available. There were no saloons in the town and no establishments of an objectionable character. There were theatrical and other entertainments, and the social life of the workmen and their families was provided for as completely as was the community life of the village.

With its pleasing water tower dominating the central group of buildings, in which variety was merged into architectural harmony, and the contour of

which slopes off to the low two-story dwellings, the village of Pullman, in its fine setting of trees, lawns and flowers, made a picture at once impressive and beautiful.

As to the influence exerted upon operatives by the environment of the shop and of the home at Pullman, it was summed up as follows in an article published in *New York World* of December 25, 1892:

"Whenever any manufacturers over the land have a necessity for more employees, their first effort is to get men from Pullman. The influences of Pullman town, which made the men there more valuable to the Pullman Company, made them more valuable elsewhere. The place has become a training school for the development of thrifty and thorough-going American workmen and mechanics."

Unfortunately, there had been in existence for years a law in Illinois which, although somewhat vague in meaning, was intended to define just what land and real estate a corporation might own and control. The question being raised whether the Pullman Company had a right to own any land other than that devoted strictly to industrial uses, the matter was finally brought before the Supreme Court of the State, which in 1895 handed down an opinion that the company must dispose of all its land, homes and buildings not strictly employed in the manufacturing authorized by its character. By 1905 everything outside of the manufacturing plant had passed out of the company's control and ownership.

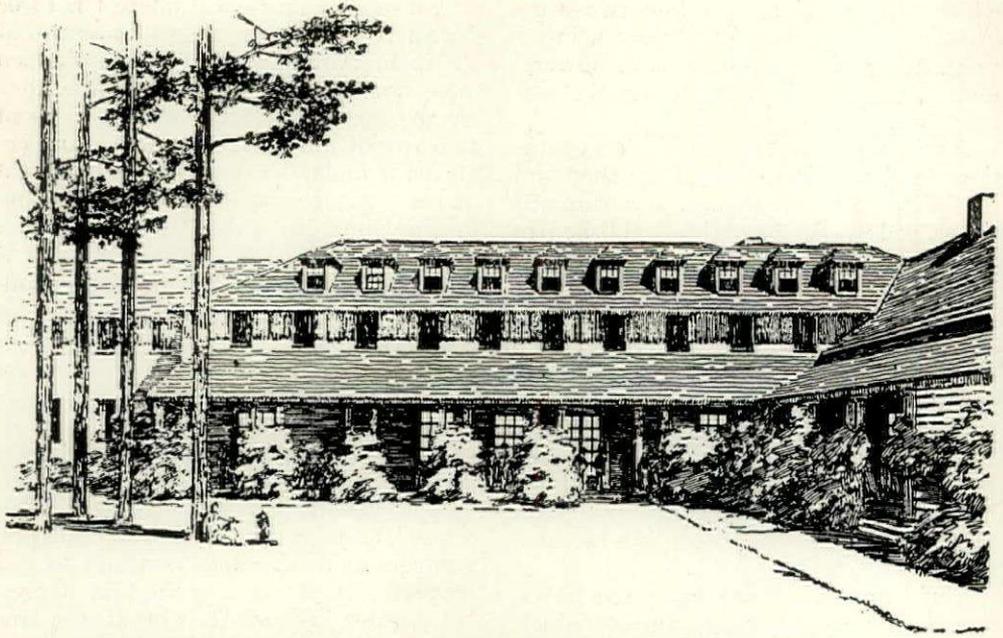
Since then the village has deteriorated both in character and in appearance. The upkeep of streets and homes and public buildings has been neglected; and the Illinois Central Railroad has filled in the beautiful lake, destroyed part of the park in front of the plant and cut down trees and shrubbery in order to make room for branch lines. Switch tracks, empty cars, coal piles and kindling sheds now give an appearance of a junk yard to what was once the beautiful foreground shown in the illustration.

A lesson of particular interest is to be drawn from the workmen's dwellings at Pullman. Although Mr. Beman planned these houses thirty-eight years ago, they are the same in principle of arrangement as many of the model dwellings now being built under the impetus of the great housing movement in this country and in England. In order to show this, a plan of the smaller Pullman houses is illustrated alongside of some of the modern ones. The principle of arrangement is to have no dark narrow side courts, but to make the buildings only two rooms deep, so that every room shall have direct and unobstructed light and air.

As to a corporation owning and renting houses to employees, there are many notable instances today. The policy has proved to be sound, and it secures advantages both to employers and to employees. Unfortunately, the law at present permits speculators to grab the land in the vicinity of a manufacturing plant, and lay out a town devoid of playgrounds, breathing places, and other essential features of a modern industrial village, the sole motive being to sell the largest possible number of lots from a given area. The lots and, consequently, the buildings must be long and narrow from front to rear, so that all the side windows are dark. The high price the workman pays for his land makes his taxes higher than they should be, compelling him to share his dark and unsanitary lot with other tenants to earn a fair return on the investment. In the absence of proper legislative control, the industrial town developed by speculative enterprise is inevitably ugly, repellent, unsanitary.

It is a curious commentary on the halting and uneven progress of reform that, although we no longer permit manufacturers to exploit child labor, we still permit real estate operators to exploit without let or hindrance entire industrial communities.

There can be no doubt but that control of the building and maintenance of industrial centers is one of the most urgent legislative questions of the day.



TYPE "A," HOUSING ABOUT ONE HUNDRED GIRLS, CONTAINS RECREATION FACILITIES AS WELL AS LIVING AND DINING ROOMS, AND IS DESIGNED FOR USE WHERE ONLY ONE BUILDING IS TO BE ERECTED.

HOUSING *for* WOMEN WAR WORKERS



By

Robert H. Moulton



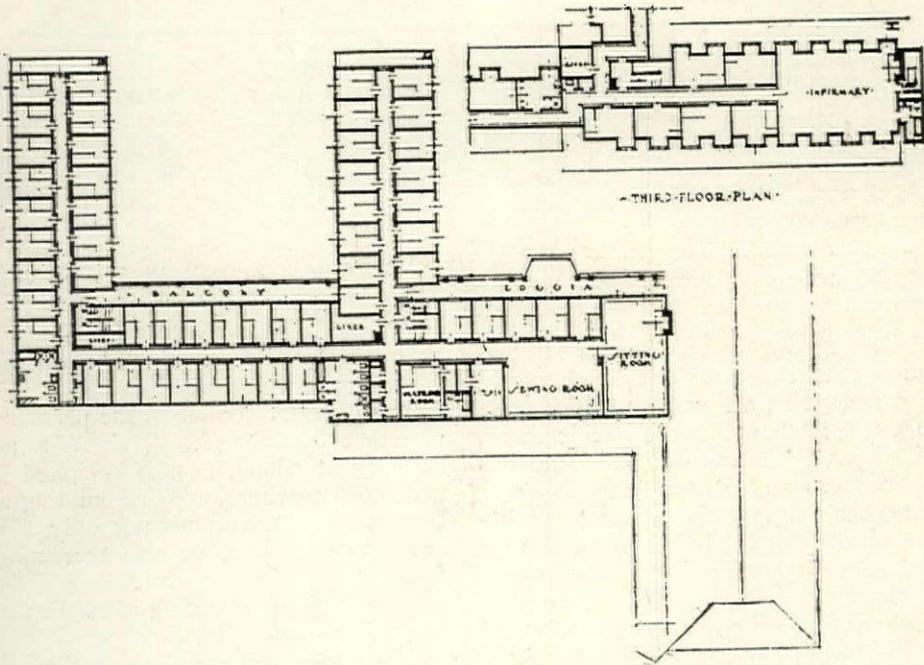
WAR brought the men of America to the camps of the country. It brought the women, too—mothers, wives, sweethearts. The Government made its plans for the men, but it made them without thought of the women. Then the women came to visit their soldier relatives. The camp commanders looked at the stream of femininity and asked what was to be done. Then the War Department began to think of the women, and finally it asked the Young Women's Christian Association for help. The Hostess House was the answer.

Eighty-five of these unique establishments are now either in operation or are definitely under construction. They are put up only at the direct request of the camp commandants. Some of the

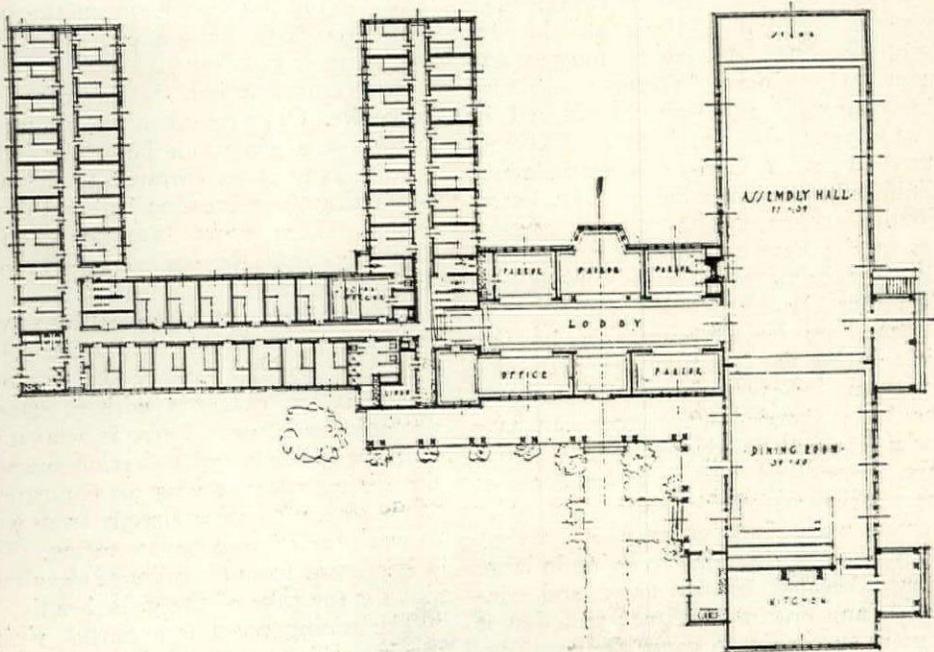
commanding officers were a little doubtful at first as to the practicability of the scheme. Now these same officers are asking for second and third Hostess Houses in their cantonments.

These centres of hospitality are under the supervision of the War Department's Commission on Training Camp Activities. They are a part of the Government's war work. The War Work Council of the Young Women's Christian Association promotes them as one phase of the Association's work for the country in this national emergency.

One phase alone of the work carried on in the Hostess Houses would justify their existence. Each house has a directory, a street guide, a map, a telephone exchange, a finding bureau, and a waiting room for visitors.



SECOND AND THIRD FLOOR PLANS OF TYPE "A" BUILDING.



FIRST FLOOR PLAN OF TYPE "A" BUILDING.



TYPE "B," HOUSING ONE HUNDRED AND FIFTY GIRLS, IS INTENDED AS A UNIT OF A GROUP OF BUILDINGS CENTERING ABOUT A RECREATION BUILDING (ILLUSTRATED ON PAGE 428).

An interesting feature of the Hostess Houses is that the architects in charge of the construction are women. Miss Julia Morgan is in charge on the Pacific Coast, while Miss Catherine Cotheal Budd has the Southern and Middle West fields.

Another work of the greatest importance which has just been undertaken by the Young Women's Christian Association is the housing of women workers in connection with our great industrial establishments. While this is not strictly a problem created by the war, the calling of many women workers to war service makes the situation immediately acute. Obviously the providing of proper housing for these newly called women workers, since it is a part of the war program, must be done by the Government. The Young Women's Christian Association is now constructing at its own expense two buildings as a demonstration: one at Camp Sherman Annex, Chillicothe, and another at Charleston, South Carolina, for the women employees in the navy uniform factory. The latter is being built at the request of Secretary Daniels.

Based on its experience in housing girls during the last fifty years, the Association believes that younger girls should be grouped where they can have social life and an opportunity to entertain friends and still be under some of the restrictions of the home; that older women want independence of living, many of them objecting to living in large groups because of the noise and confusion and ensuing fatigue; and that it is more successful to house the non-English speaking foreign girls in small groups

until they learn English and become used to American customs.

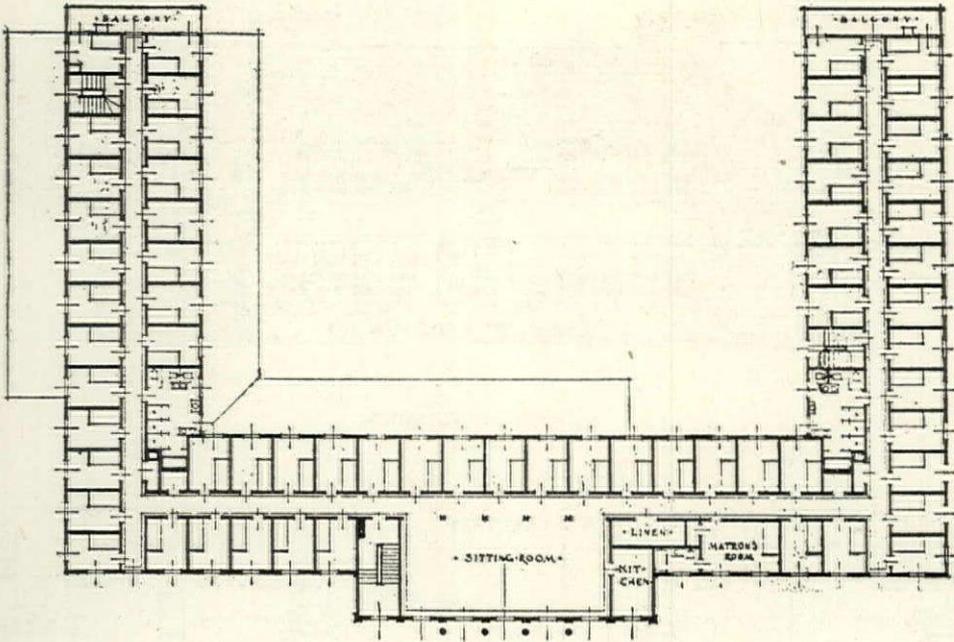
The type "A" building, the permanent structure that the Y. W. C. A. is now building at Charleston, is designed for use in places where only one building will be erected. It includes not only living and dining rooms, but also recreational facilities. There are adequate fire-escapes outside the building as well as two fire walls inside.

The dining room and recreation hall, several parlors, and bedrooms for forty-four girls are on the first floor. There is but one entrance for the residents. This makes it possible for the matron or social head of the house, who is in the office near the door, to see every one who comes in or goes out.

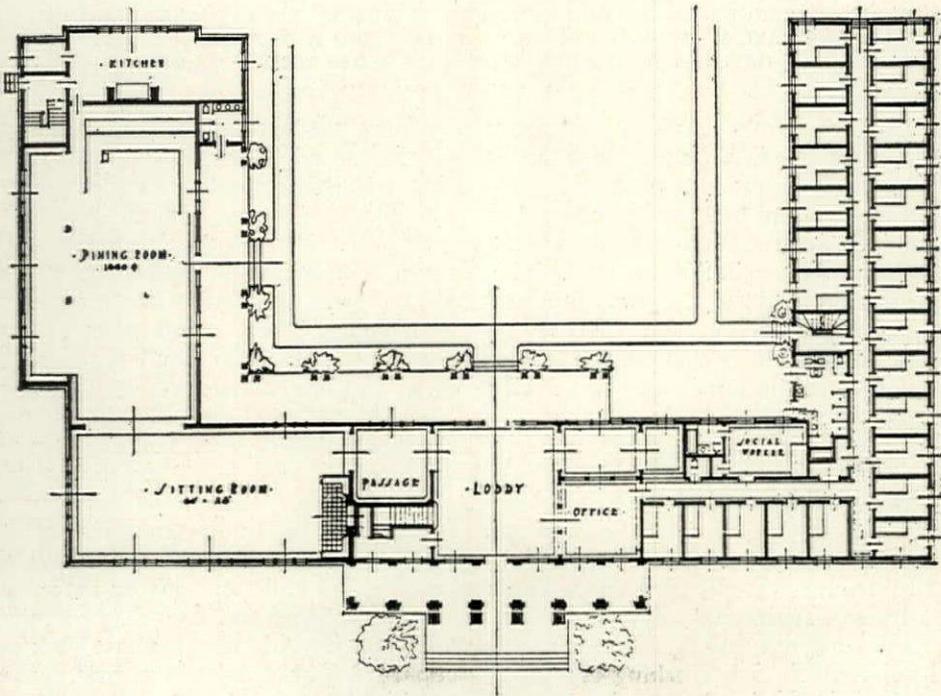
The entrance hall is attractive and homelike. Opening out of it are several parlors separated from the hall by arches. To the right is an entrance to the wing containing the recreation hall and dining room. These rooms are so arranged that they can be thrown into one for large social gatherings.

The dining room is reached also by an entrance from the porch outside. This makes it possible for people to go to lunch in the cafeteria without passing through the house. There is a lavatory, with wash bowls and toilets, adjacent to the dining room, giving an opportunity to the girls who come directly from work to wash their hands before eating. This is important from the point of cleanliness and for the sake of the girls' health.

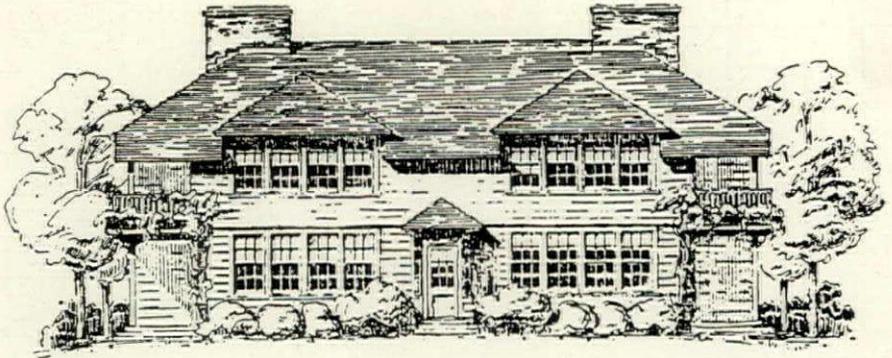
The dining room is arranged with a serving table at one end that can be used for cafeteria service at noon if desired.



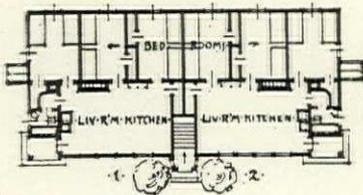
SECOND FLOOR PLAN OF TYPE "B" BUILDING.



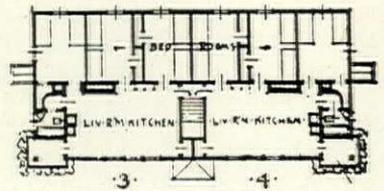
FIRST FLOOR PLAN OF TYPE "B" BUILDING.



ENTRANCE ELEVATION



FIRST FLOOR PLAN



SECOND FLOOR PLAN

TYPE "C," ARRANGED INTO FOUR APARTMENTS, EACH WITH THREE BEDROOMS, A COMBINATION LIVING ROOM AND KITCHEN, AND A BATH, IS INTENDED FOR THE USE OF FOUR GROUPS OF OLDER WOMEN OR OF NON-ENGLISH SPEAKING GIRLS.

For the other two meals a set menu will be provided, as the girls choose very unwisely if left to themselves.

The recreation hall has windows on three sides, with a stage set at one end. There is a fireplace in the side wall. This room can be used for a gymnasium and for social parties. It can also be arranged in such a way that several classes can be held at the same time in different parts of the room.

In order to get to the sleeping rooms on the first floor it is necessary to pass the office. Next to the office is a room with a private bath for the head of the house. The bedrooms are all single, eight feet by twelve. Each room has a single bed, dresser, chairs and table, and closet. Single rooms not only give the privacy and quiet which girls working every day need, but also make the management of the house much easier.

There are bedrooms for fifty-one girls on the second floor. There is also a sitting room separated from the hall only by pillars. This is for the use of the girls only. Next to this is a small sewing room, with facilities for sewing. Toilets, wash bowls and baths are grouped on each floor. There is one toilet to every ten girls, one wash bowl to every six girls, and one shower to every ten girls. There is at least one tub on each floor. Shower baths are more sanitary than tubs and there is much less difficulty in taking care of them. Each toilet, shower and tub is in a separate compartment. On each floor is a slop sink, a closet for brooms and pails and one or more linen closets. The second floor also contains a kitchenette, with a gas plate, sink and cupboard for the use of the girls. Either on this floor or in the basement a place will be provided where the girls can do

as much of their laundry work as they wish.

There are bedrooms for six girls on the third floor. There is also an infirmary and a private bath. This room has a cross draft and is in the quietest part of the house. There is a storage place for trunks on this floor. The recreation and dining room wing of the house is one story high. All sleeping rooms are removed from noise and confusion.

The type "B" building is designed for one hundred and fifty girls. It is planned to be a unit of a group in an industrial community. The building is three stories high, with adequate fire-escapes. The entrance is attractive and homelike, with the office on one side. At the left is a large living room, the furniture of which can be arranged to permit privacy in conversation. The girls have an opportunity to receive their friends here in attractive surroundings. The arrangement of the second floor of type "B" is the same as type "A." The third floor is the same as the second floor, except that the end of one wing is used for an infirmary, with seven or eight beds.

The kitchen in both type "A" and type "B" will have ranges placed back to back on a cement foundation and covered by a hood pierced by flues. The cement foundation will extend two feet in front of the range on each side and will be covered with a wooden rack for the employees to stand on. The working tables will be of hardwood, with steel tube ball base legs and wooden top bound with steel, with drawers and shelves underneath. They will be placed six feet from the range. A rack and hooks for holding cooking utensils will extend over the entire length of the working table, at the end of which there will be a small sink and running water. The refrigerator, or possibly a double battery of refrigerators, back to back, can be filled from the outside. Sinks will be placed to get direct daylight, and will be thirty-eight inches high, with wooden or galvanized iron drainboards attached with sufficient pitch toward the sink to be effective.

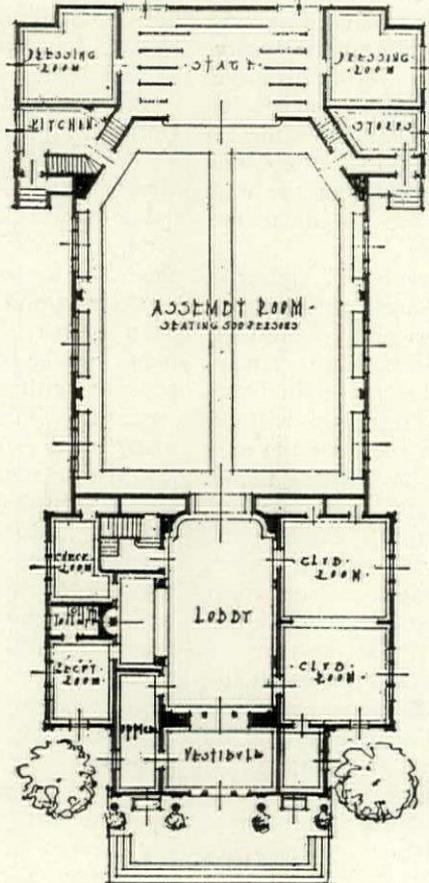
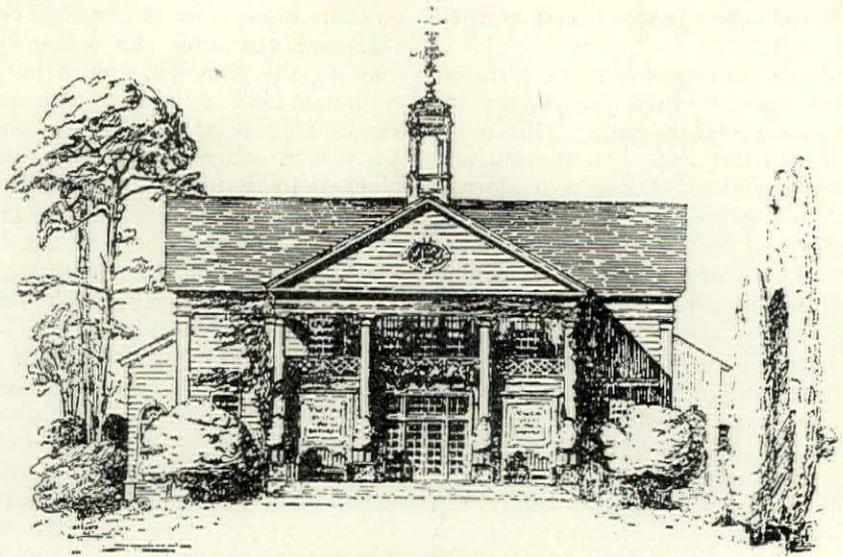
Too much emphasis cannot be placed

on recreation. No matter how comfortable and attractive the living quarters may be, the girls will not be happy and contented unless there is adequate provision for social and recreational life. Therefore the Recreation Building, planned to be the central building for a number of units of sleeping and eating quarters, contains a large assembly room that will hold about five hundred persons. There is a built-in stage at one end, with dressing rooms on either side. There is also a small kitchenette which can be used for serving light refreshments at parties. Under the stage is a storage place for chairs, so that the floor can be cleared and used for dancing and other group games. A small office and a place for checking coats are near the entrance. There is a small reception room back of the assembly hall. There are six club-rooms, four of which are on the mezzanine floor.

Where so many girls are living together in groups there is unusual opportunity for educational work of all kinds. This gives an opportunity also to make American citizens out of foreign girls, to teach them English and to give them the same advantages that the men of their families are getting in the camps.

In industrial communities the buildings will be grouped as effectively as possible with due regard to natural advantages. There can, of course, be as many units as are necessary. There will also be a number of three and four-family houses to accommodate the older women and the non-English speaking foreign girls. In all cases it is desirable that the Recreation Building should be on higher ground than the rest. In all of these buildings an attempt has been made to use a style of architecture which is distinctively American.

Type "C," the four-family house, is designed for the use of four groups, either of older women who wish to live independently, or of non-English speaking foreign girls. Each apartment has a bathroom, a large combination kitchen and living room and three bedrooms. Each bedroom is large enough for two people. The groups of people in these



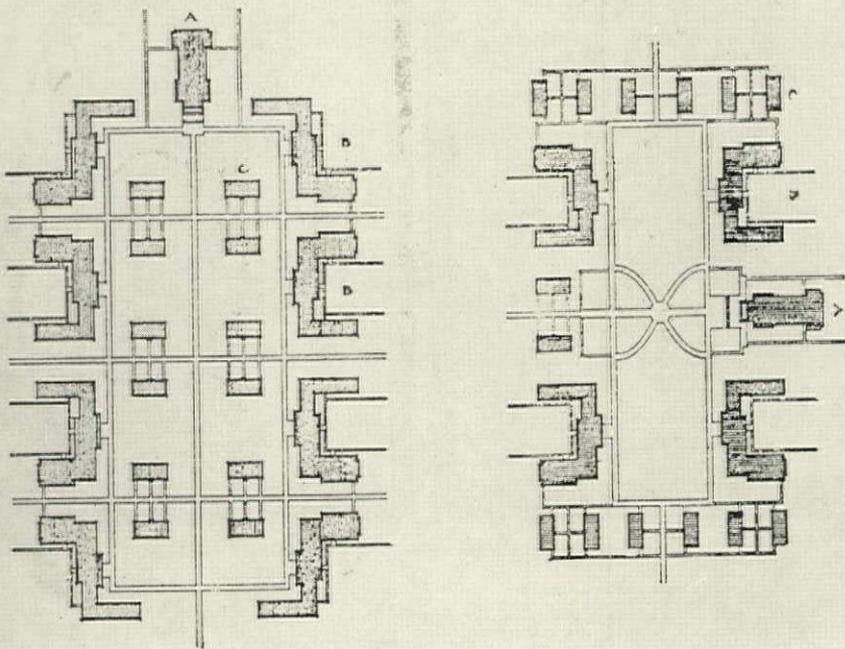
RECREATION BUILDING, INTENDED FOR USE WHERE A GROUP OF HOUSES IS PLANNED.

houses will live independently, providing for their own meals and housekeeping.

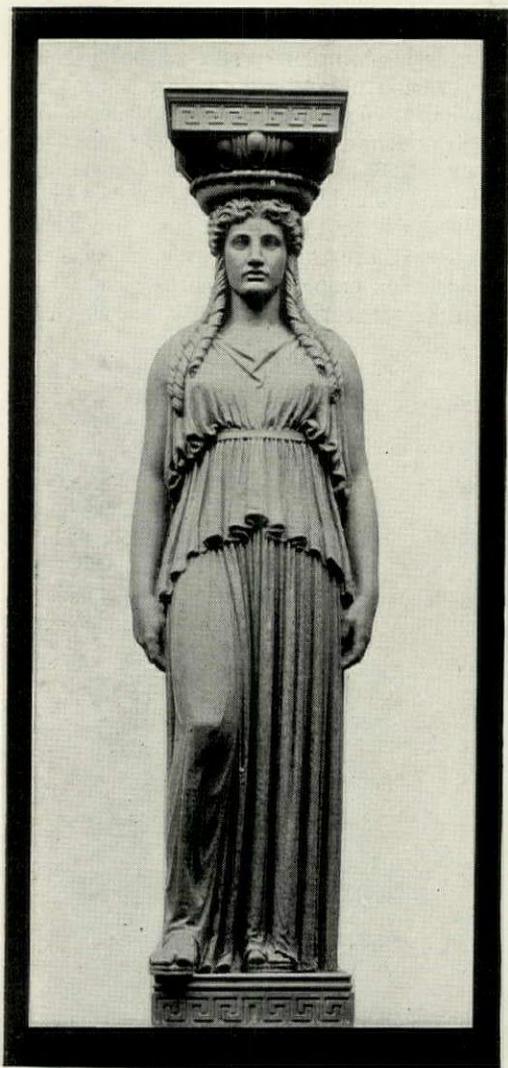
It is believed that building units of not more than one hundred and fifty girls are most successful. Larger units mean greater difficulties of management and supervision. The minimum number of a group should not be less than seventy-five. Houses holding less than this number cannot be self-supporting on the amount of board that the girls can and

should pay. It is essential that these houses be completely self-supporting.

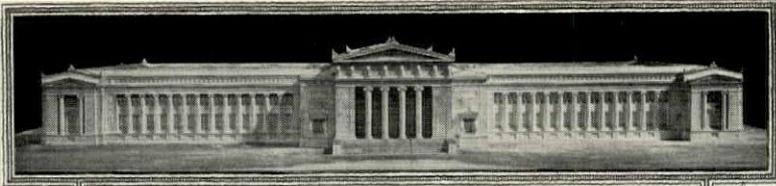
When England adopted a somewhat similar plan of housing to that now being undertaken by the Y. W. C. A., she found that she had helped to solve the labor problem, and in the munition factories, where they are housed in small groups, there is no question of restless, dissatisfied employes, and the production of those factories is greatly increased.



PLOT PLANS OF A LARGE AND A SMALL GROUP OF HOUSING FOR WOMEN WAR WORKERS.



CARYATIDS—FIELD MUSEUM OF NATURAL HISTORY, CHICAGO. HENRY HERING, SCULPTOR.



HENRY HERING'S SCULPTURE
FOR THE FIELD MUSEUM OF
NATURAL HISTORY IN CHICAGO

BY
CHARLES OVER CORNELIUS

CONCEIVED in the mind of a public-spirited citizen, and made possible of realization by his generosity, the Field Museum of Natural History in Chicago stands as a memorial to Marshall Field, its founder, and constitutes one of the chief architectural glories of the city. This great museum is destined to house extensive collections associated with the natural sciences and will function as an immense educational concordance. Easy of access from all parts of the city, overlooking the great open space of Grant Park to the north, and visible in its white majesty from far out upon the nearby lake, its site is unrivaled as a dignified and appropriate setting. The design has called forth a sustained architectural study with all that this implies, and the architects, Graham, Anderson, Probst and White, have given to the country a masterpiece in monumental building of a distinction and dignity commensurate with its purpose and origin.

The monumental sculptures created in conjunction with such a building form an essential element in its design. Their position, while not necessarily structural, is in a vital spot of the organism, esthetically considered, and the individual works themselves thus assume a responsibility for the success of the whole work altogether out of proportion to their size, since in them is the final focusing of the attention of the spectator.

The larger part of the exterior sculp-

tural decoration of the building has been concentrated about the central motif of the north façade—the great Ionic portico with its flanking bays. In these two bays caryatid porches rest upon the basement course and above are horizontal panels of low relief. Against the attic of the portico are eight figures of colossal size, which complete the sculptural decoration here. On the south façade the caryatid porches are repeated and above them are horizontal panels similar to those facing the north. The interior sculpture consists of four figures surmounting engaged columns at either end of the central hall. This, then, summarizes the decorative sculpture—the caryatids and the four relief panels, the eight attic and the four interior figures.

For the sculptural embellishment the architects commissioned one sculptor to execute the whole of this decoration—perhaps the second time on record that so extensive a task has been entrusted to the hands of one American sculptor. Henry Hering has utilized the opportunity presented him to create a group of architectural sculptures which is unsurpassed in America today. Throughout the work he has kept consciously before him the purposes for which each piece was designed, both as regards its subject and its placing upon the building, with the result that he has achieved a superlative consistency in the whole work, at the same time infusing into each figure the utmost individuality and distinction.

In the treatment of the caryatid figures there is observable a greater conventionality and a less definite expression of personality than in any others of the group. Here an actual structural problem had to be met and a nice transition from the strong foundation course was desirable. There are two types of caryatids which are to be duplicated, and while they are very similar in mass and movement, in detail they are absolutely individual. The inspiration is frankly Ionian and their dignity is as unquestionable as is their structural quality.

Above each caryatid porch the horizontal panel in relief represents one of the four main departments of the Museum—Anthropology, Zoölogy, Botany and Geology. The treatment here is very decorative, and by the use of one flying figure in each panel the same scale as that adopted in the other figures has been preserved while admitting the introduction of a definitely horizontal sense into the whole panel, contrasting effectively with the repeated verticals of the other figures and of the surrounding architecture. Interesting color is given by the wings, the drapery treatment and the floating ribbon which bears the name of the department symbolized in the figure. The length of the panel has also allowed of the introduction of vertical bands of exquisite decoration, each different in detail, though similar in general tone. The iconography of the four panels is exceptionally pleasing and the choice of symbols for each has brought into play the originality and discrimination of the sculptor.

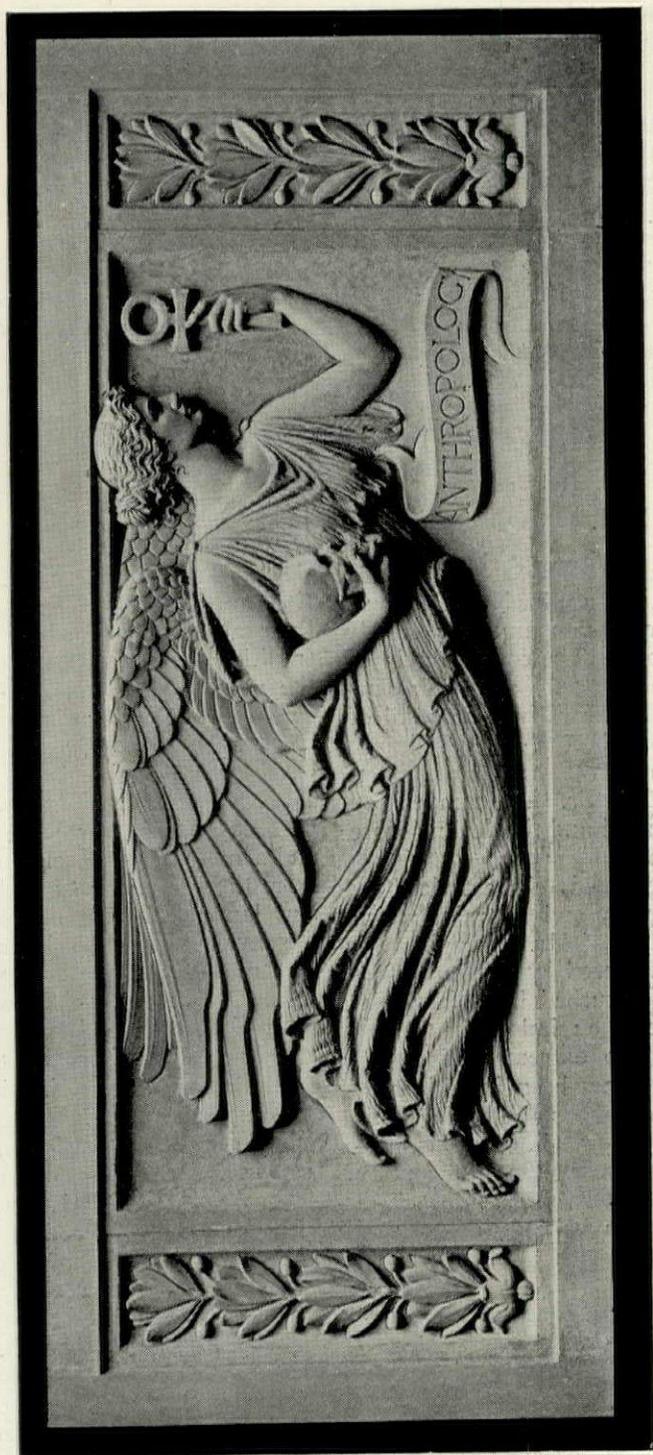
The choice of subject for the attic figures exemplifies the generalization appropriate to the decoration of such a building. The four central figures above the columns represent the elements: Fire, Earth, Air and Water; the four flanking figures typify the four points of the compass: North, South, East and West. With this choice of subject comes the necessity of giving to the figures, each so general in its conception, definite and essential qualities and certain attributes which will differentiate each from the other and at the same time preserve the

unity of the scheme. Of the attributes given to the figures their selection has been so apt and their display so nice that no discussion need be entered into to add to their clarity.

The subtlety of so large a group fairly escapes expression in words. A broad balance has been obtained for the whole by reversing the poses of the two end figures and the similarity in the poses of the four centremost figures. The light and shade have been studied for their effect in diffused light, and calculation had to be made for the position sixty-five feet above the spectator. In the placing of the figures in relation to the surrounding space, as in fact throughout most of the architecture of the building, the Greek rhythm of 1:2 has been observed.

While in the sculptor's treatment of the group there is this rhythm, this subtle balance and calculation of light and shade, there is withal a very correct uniformity. The decoration about the heads has a certain general similarity in its suggestion of a nimbus, but how infinitely varied in its detail and individual in its application! In all the figures the law of frontality is strictly observed; a knee may be bent or the head inclined, but the frontal line remains straight. The dress, although partaking more of the quality of costume than of drapery, shows in its treatment a reasoned use of the latter tendency with the Dorian chiton as a point of departure. The architectonic quality is also observable here in the insistent verticals of the folds with their suggested evolution from a columnar form. The details of costume are infinitely varied, and upon repeated examination the figures reveal great fertility of invention and richness of detail.

Much of the finest characterization has been reserved for the heads, in which the varied treatment of the eyes and mouth, the most expressive parts of the face, epitomizes the calmness or passion, the mysticism or nobility associated with each generality which the marble strives to present. The sculpturesque form in which the hair is cast in the figures of the "Four Points of the Compass" is particularly fine, and this interesting con-



ANTHROPOLOGY—LOW RELIEF PANEL FOR
FIELD MUSEUM OF NATURAL HISTORY,
CHICAGO. HENRY HERING, SCULPTOR.

ventionality serves to give strength to the neck, a point which may also be remarked with reference to the caryatid figures.

The four interior figures are placed in the great central hall of the museum. This immense room, two hundred feet long and lighted from above, is entered from either end through a large arch. Each of the arches is flanked by tall engaged columns, with entablature decoratively used, and upon each stands a symbolic figure. The symbolism of these figures makes a subjective application of the building's use and suggests the various activities whose inspiration will lie within its walls; Natural Science and the Dissemination of Knowledge flanking one archway, Record and Research the other.

These figures appear first at a great distance and are placed where they will be seen under a comparatively steady light from above. Their position is of no structural importance and their purpose is a purely decorative one. All of which facts contribute to the difference in treatment from the strictly architectural figures of the attic. The composition here is more varied and the feeling more personal.

The whole group is characterized by the eminent dignity and restraint which run throughout all of Mr. Hering's work—a dignity unfettered by academic formulae nor yet disturbed by a factitious realism. In the sane mind of the trained sculptor these two extremes of classicism and realism have been fused into an expressive whole under the spell of his own individual approach. In this particular problem there was opportunity for a variety of treatment into which has been breathed much of the spirit of ancient Greece.

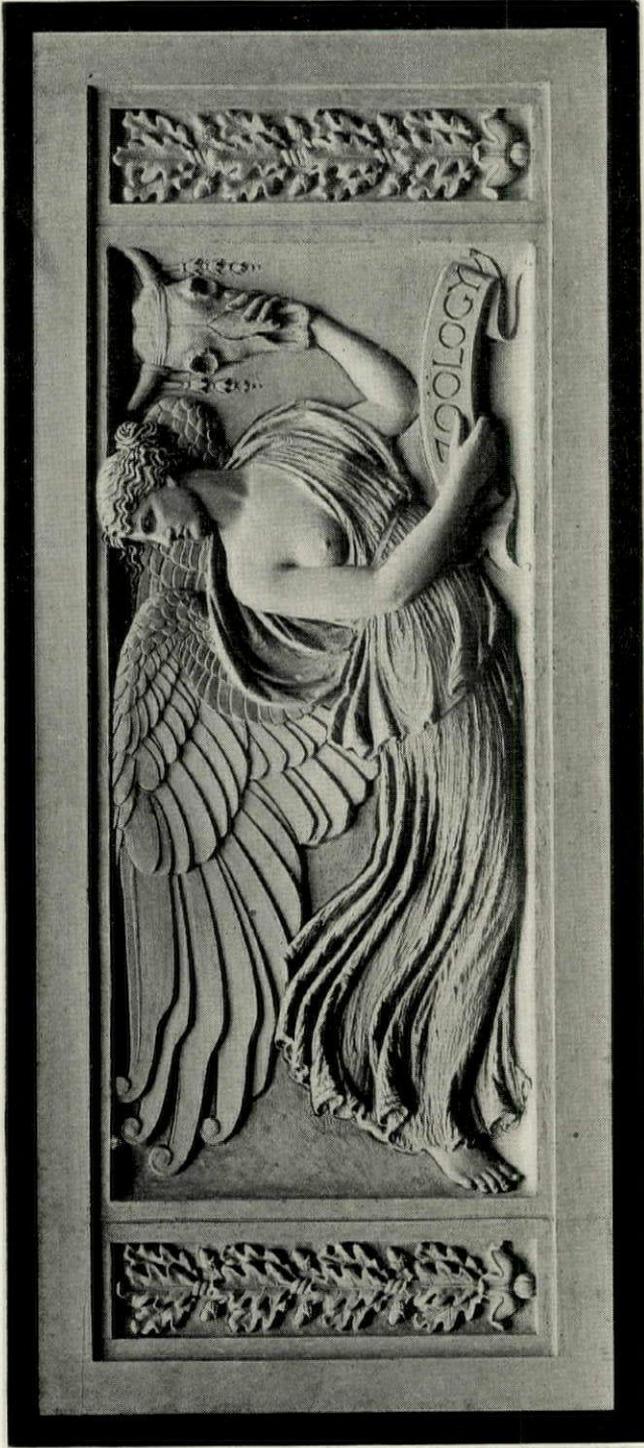
There are many who will concur in the opinion that the art of sculpture has reached and always will reach the broadest expression of its purpose when conceived and carried out with relation to architecture which it may be designed to enhance. Of the greatest sculpture which has come down to us from the

past, by far the larger part is permeated by qualities suggested, if not imposed, by the architectural design of which it formed an essential part. When the art began to be employed upon works not destined as absolute units in an architectural scheme, it is yet the presence of definite architectonic qualities which contribute largely to the high essence of the creation. The presence of such qualities may not in itself be of predominant importance, but with their removal comes an immediate tendency toward a less dignified conception, a realism, natural perchance, and by reason of its very naturalness a thing to be controlled and disciplined.

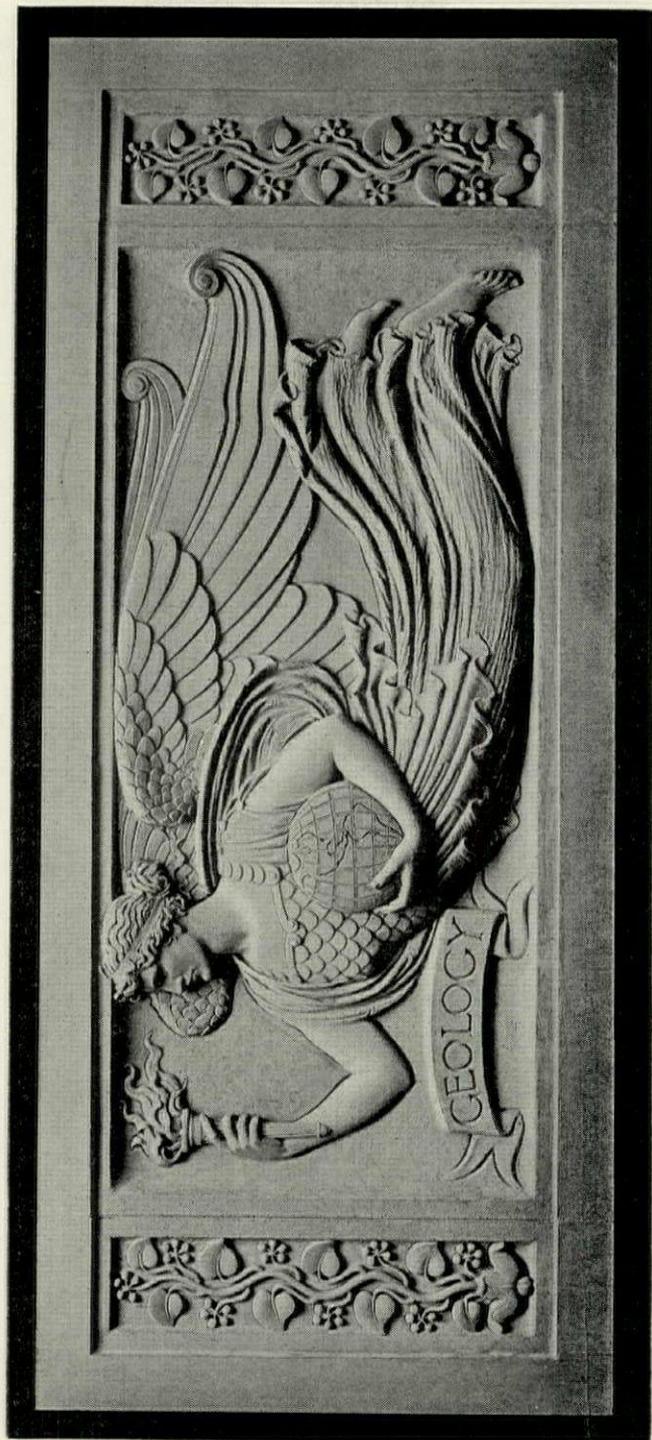
The time is not yet ripe when we may judge the relative position of the architectural sculpture of today, and particularly that of America, where traditions in art are most conspicuous by their absence, and where such various traditions as have been carried over into the new world from the old are being simultaneously followed in the works of various individuals. American sculpture has sprung from the heads and hands of a few scattered individuals almost in its present growth, for what is a century and a half in the development of an art from the first dawn of its heralding in a new land? The largest opportunity for the development of such American sculpture must lie in the category of monumental work for public or semi-public possession.

In such work there must be a greater generalization, since its impression is made upon a myriad different minds and must in each call forth some answering response, and it is just such an opportunity as this which is presented in the Field Museum.

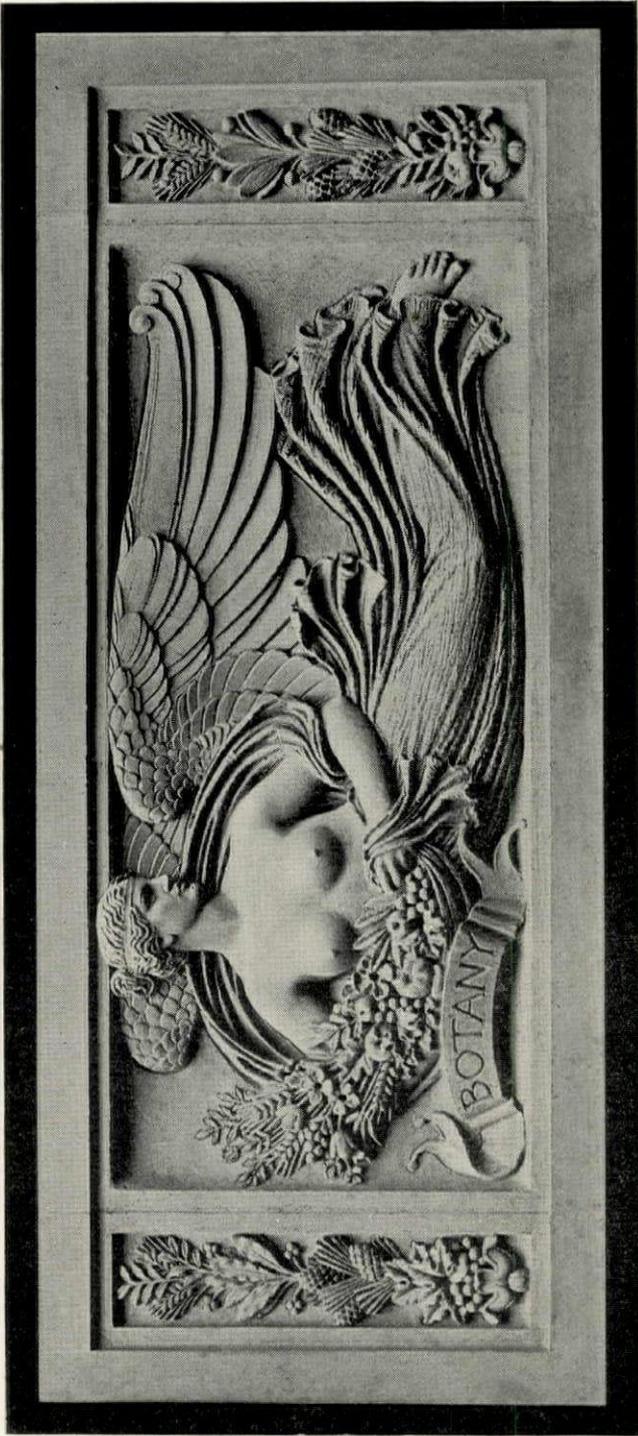
In his appreciation of this opportunity, Mr. Hering has created a distinguished group of sculptures of an inspiration sustained not only in the broad, general conception of the work, but throughout the infinite variety of the detail, a group which can only be recognized as one of the most important contributions to American sculpture.



ZOOLOGY—LOW RELIEF PANEL FOR
FIELD MUSEUM OF NATURAL HISTORY,
CHICAGO. HENRY HERING, SCULPTOR.



GEOLOGY—LOW RELIEF PANEL FOR
FIELD MUSEUM OF NATURAL HISTORY,
CHICAGO. HENRY HERING, SCULPTOR.



BOTANY—LOW RELIEF PANEL. FOR
FIELD MUSEUM OF NATURAL HISTORY,
CHICAGO. HENRY HERING, SCULPTOR.



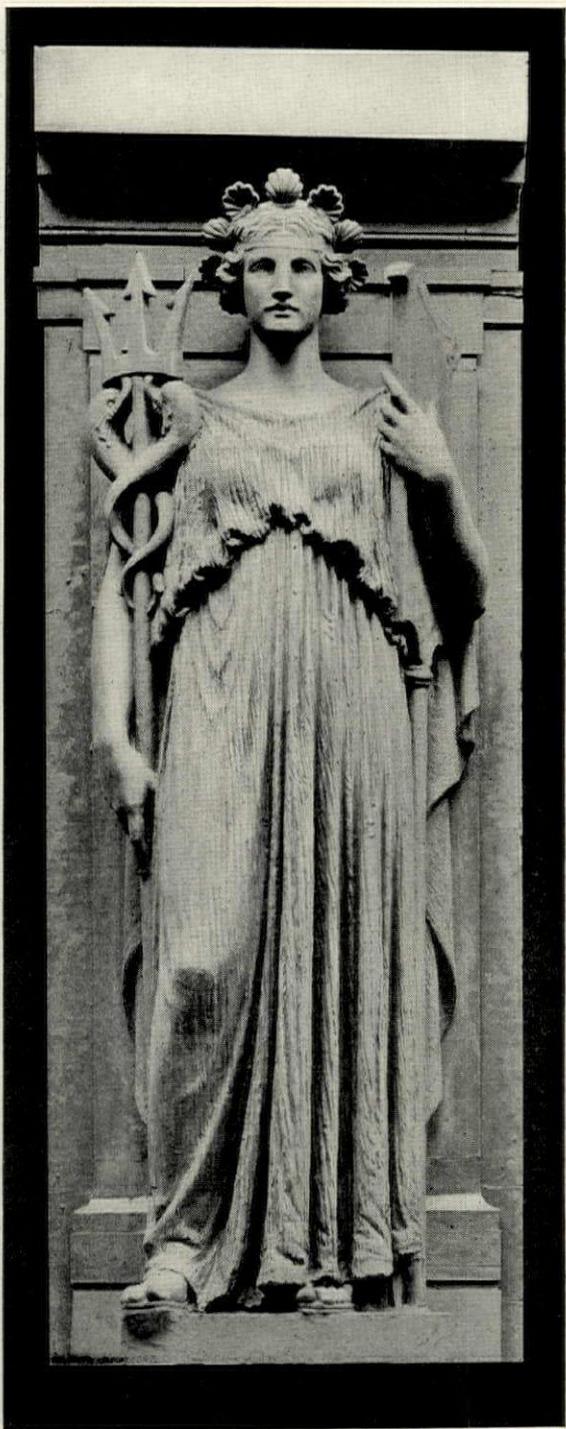
FIRE—ATTIC FIGURE FOR FIELD MUSEUM OF NATURAL HISTORY, CHICAGO. HENRY HERING, SCULPTOR.



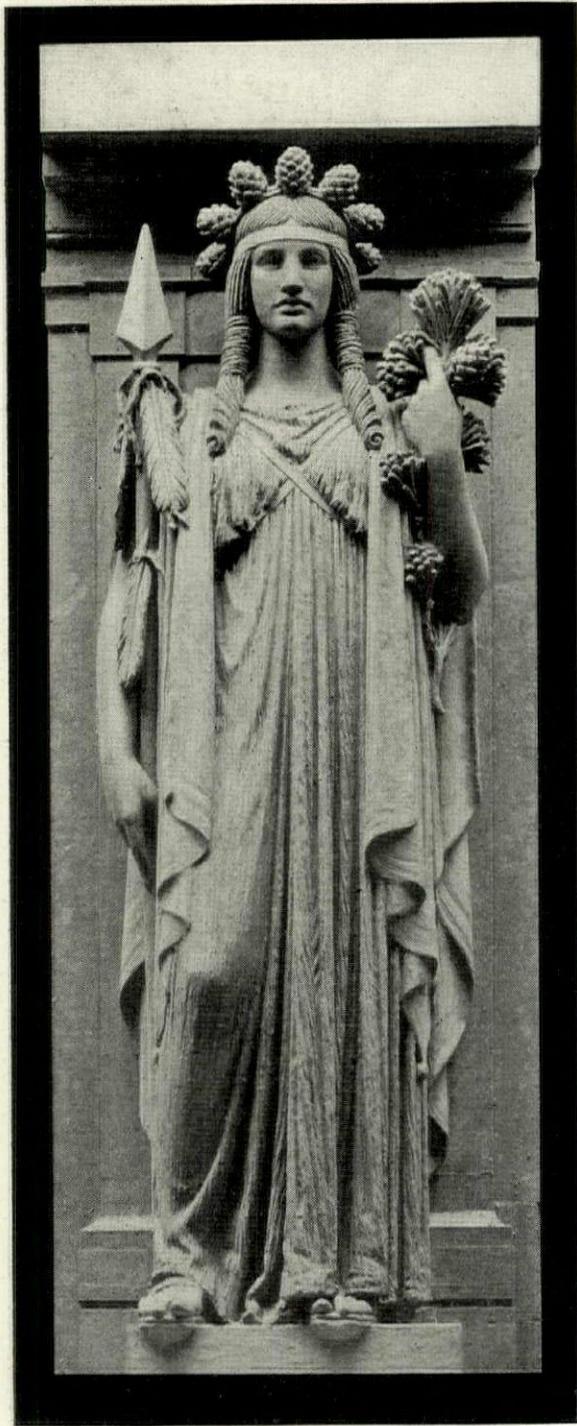
EARTH—ATTIC FIGURE FOR FIELD MUSEUM OF NATURAL HISTORY, CHICAGO. HENRY HERING, SCULPTOR.



AIR-ATTIC FIGURE FOR FIELD MUSEUM OF NATURAL HISTORY, CHICAGO. HENRY HERING SCULPTOR.



WATER—ATTIC FIGURE FOR FIELD MUSEUM OF NATURAL HISTORY, CHICAGO. HENRY HERING, SCULPTOR.



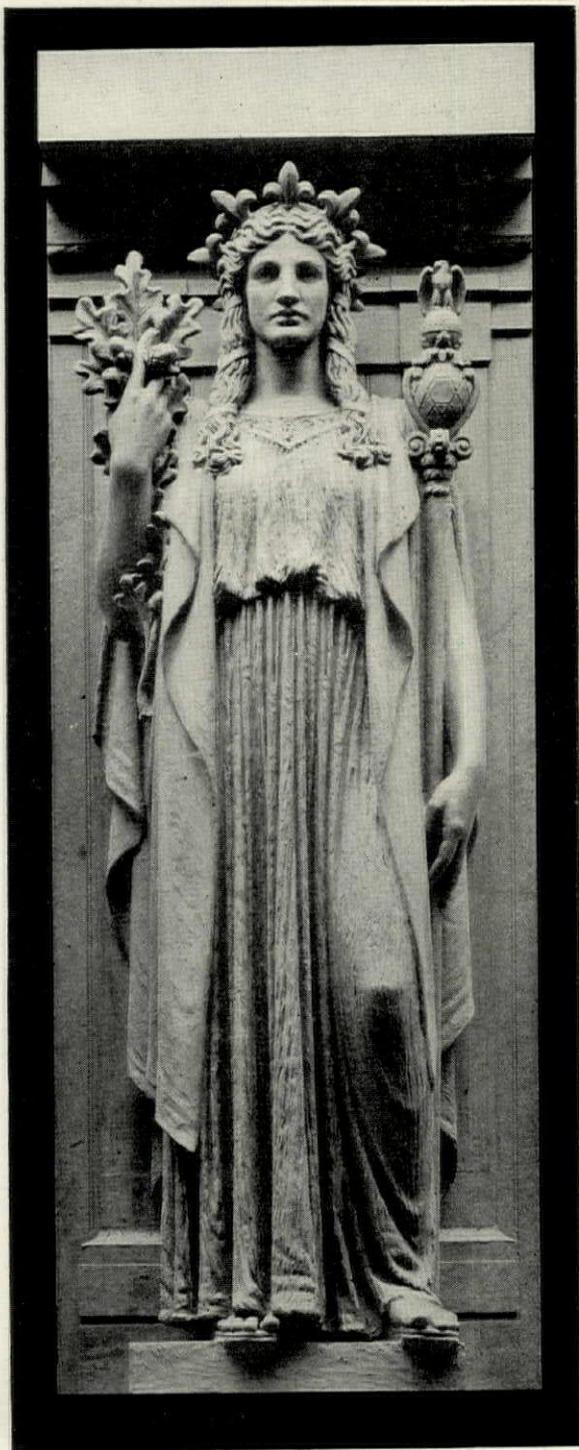
NORTH-ATTIC FIGURE FOR FIELD MUSEUM OF NATURAL HISTORY, CHICAGO. HENRY HERING, SCULPTOR.



SOUTH-ATTIC FIGURE FOR FIELD MUSEUM OF NATURAL HISTORY, CHICAGO. HENRY HERING, SCULPTOR.



EAST-ATTIC FIGURE FOR FIELD MUSEUM OF NATURAL HISTORY, CHICAGO. HENRY HERING, SCULPTOR.



WEST-ATTIC FIGURE FOR FIELD MUSEUM OF NATURAL HISTORY, CHICAGO. HENRY HERING, SCULPTOR.



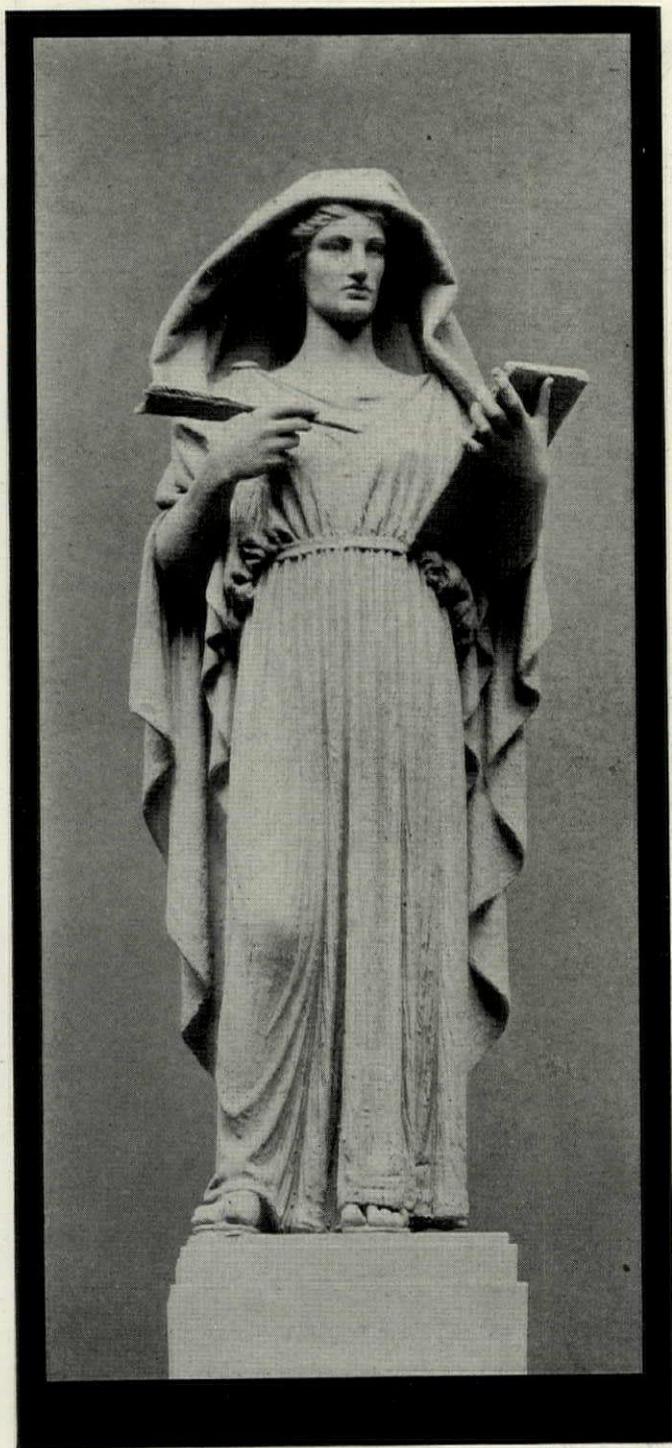
SCIENCE—FIGURE IN CENTRAL HALL OF FIELD MUSEUM OF
NATURAL HISTORY, CHICAGO. HENRY HERING, SCULPTOR.



THE DISSEMINATION OF KNOWLEDGE—FIGURE IN
CENTRAL HALL OF FIELD MUSEUM OF NATURAL
HISTORY, CHICAGO. HENRY HERING, SCULPTOR.



RESEARCH—FIGURE IN CENTRAL HALL OF FIELD MUSEUM
OF NATURAL HISTORY, CHICAGO. HENRY HERING, SCULPTOR.

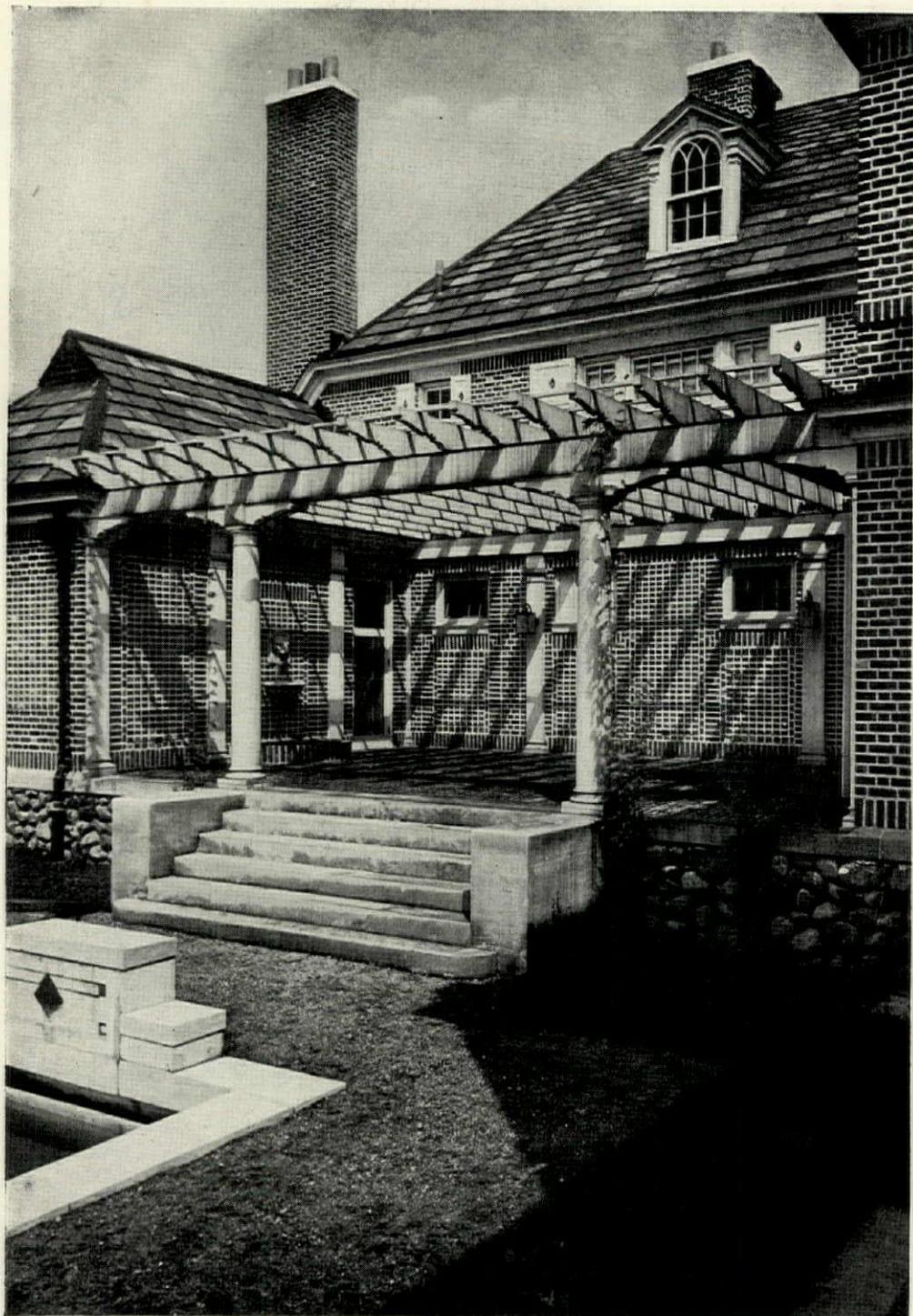


RECORD—FIGURE IN CENTRAL HALL OF FIELD MUSEUM OF
NATURAL HISTORY, CHICAGO. HENRY HERING, SCULPTOR.

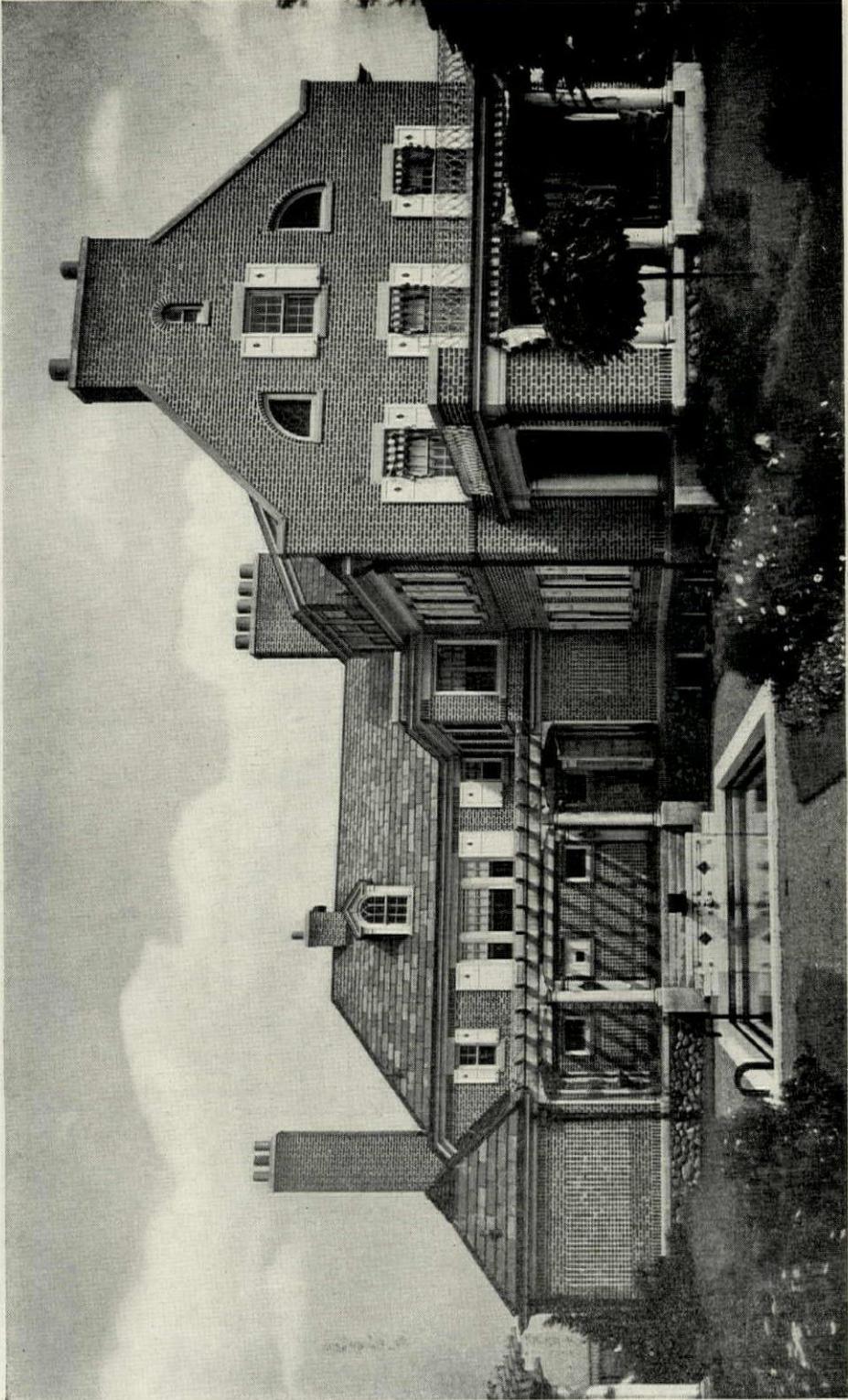
PORTFOLIO
OF
CURRENT
ARCHITECTURE



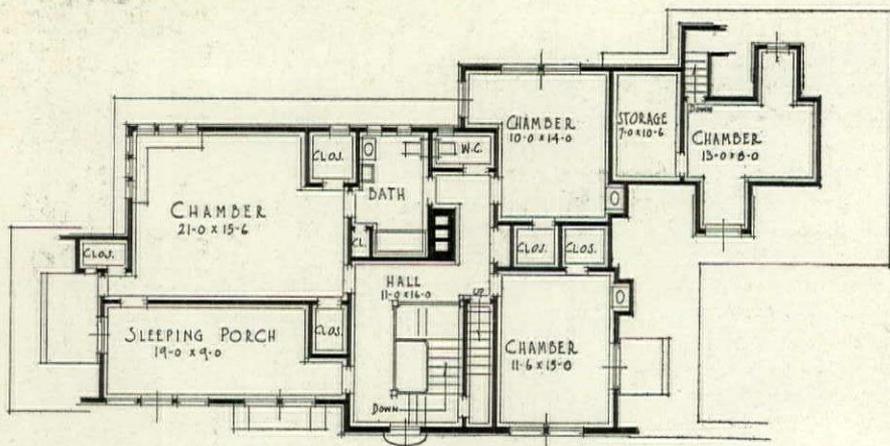
ENTRANCE FRONT—RESIDENCE OF FREDERIC
G. CARNOCHEN, ESQ., NEW CITY, N. Y. RENOVATED BY
WICK, ASPINWALL & TUCKER, ARCHITECTS.



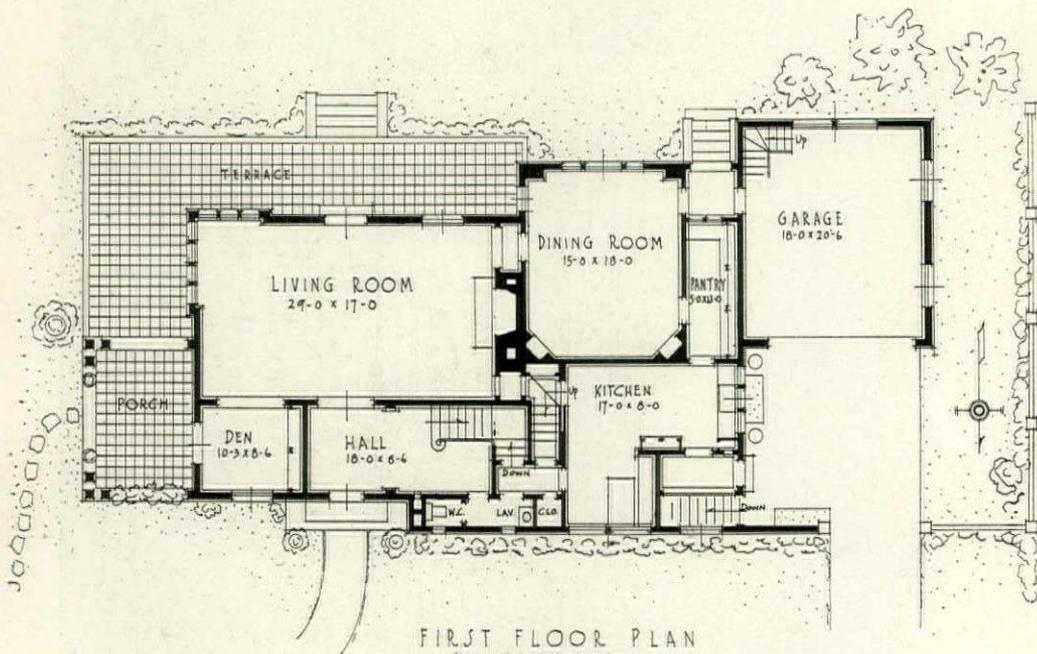
RESIDENCE OF FREDERIC G. CARNOCHEN, ESQ., NEW CITY,
N. Y. RENWICK, ASPINWALL & TUCKER, ARCHITECTS.



RESIDENCE OF FREDERIC G. CARNOCHEN, ESQ., NEW CITY,
N. Y. RENWICK, ASPINWALL & TUCKER, ARCHITECTS.



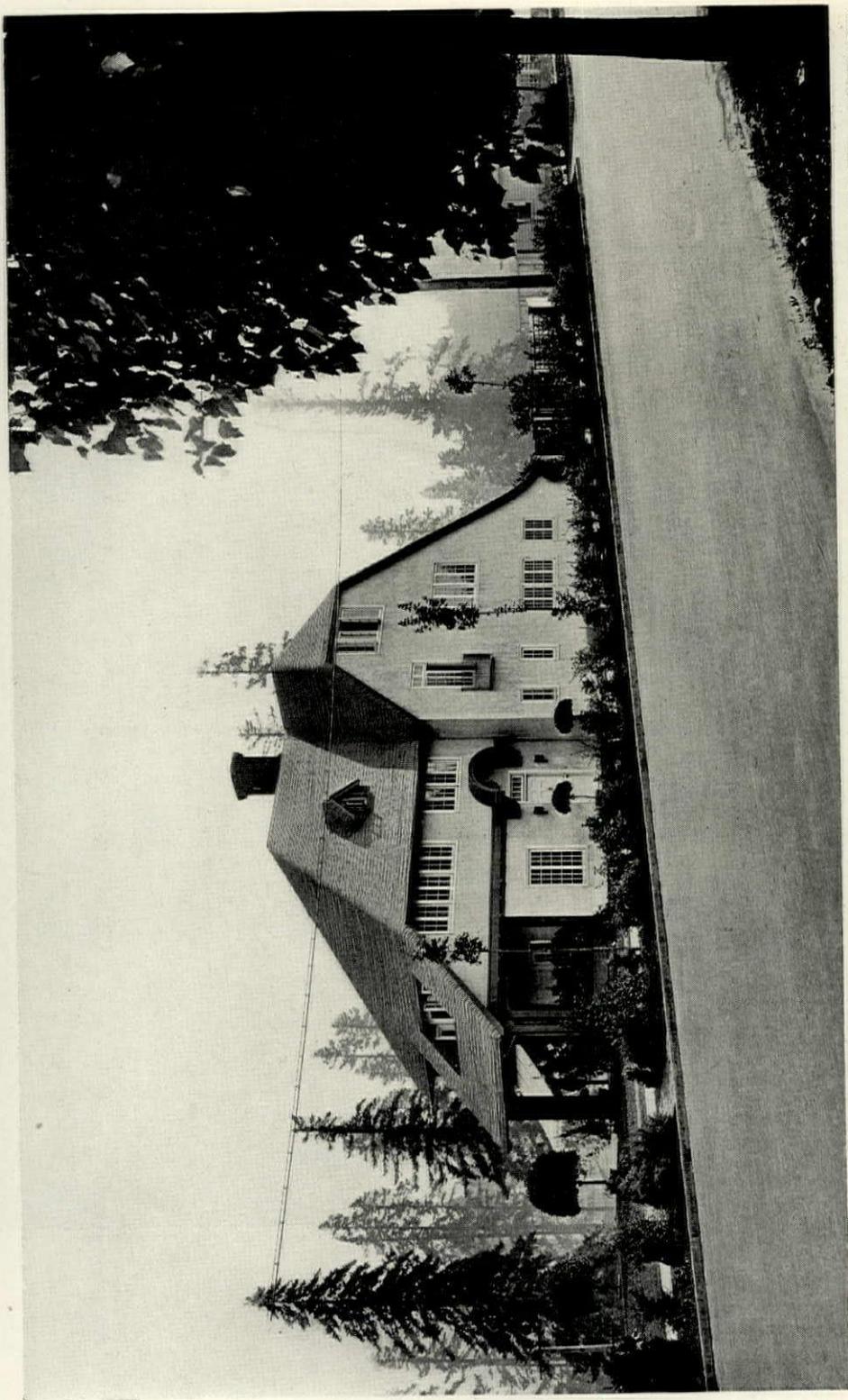
SECOND FLOOR PLAN



FIRST FLOOR PLAN



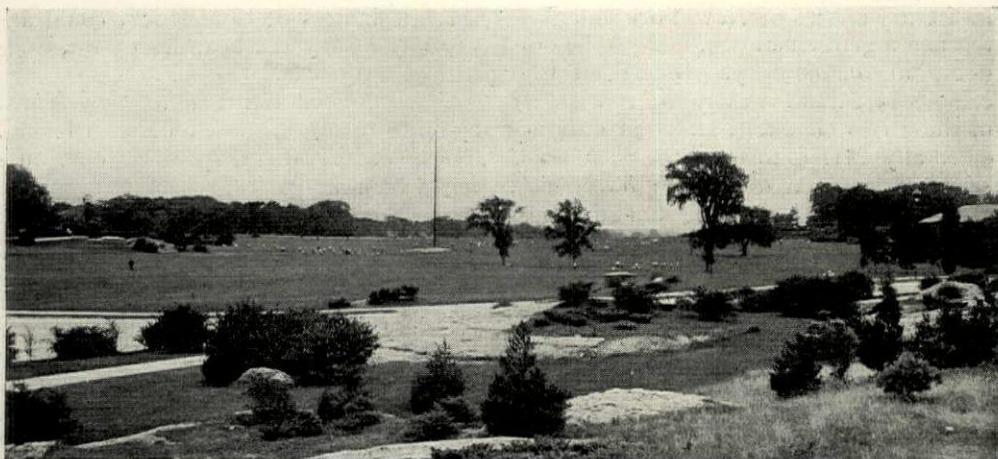
FIRST AND SECOND FLOOR PLANS—RESIDENCE OF PAUL C. MURPHY, ESQ., PORTLAND, OREGON. LAWRENCE & HOLFORD, ARCHITECTS.



RESIDENCE OF PAUL C. MURPHY, ESQ., PORTLAND,
OREGON. LAWRENCE & HOLFORD, ARCHITECTS.



STEPS TO OVERLOOK ON HOGBORNE HILL,
FRANKLIN PARK, BOSTON, MASS. FREDERIC
LAW OLMSTED, SR., LANDSCAPE ARCHITECT.



VIEW OF THE PLAYSTEAD, FRANKLIN PARK, BOSTON, MASS.

The

WORK OF OLMSTED BROTHERS

By John Taylor Boyd, Jr.

PART I

THE name of Frederic Law Olmsted means in landscape architecture what the name of Charles F. McKim means in architecture. For just as the designs of McKim—bold in conception and exquisitely perfected in details—helped determine the course of architecture in its recent quick development of twenty-five years, so also over a generation earlier the parks and grounds laid out by Olmsted set standards that are largely the basis for landscape work today. Since Olmsted's death his sons have continued in the great tradition of their father. The work of the elder Olmsted is significant not only as the effort of a powerful personality in the art of landscape architecture, but also because of his relation to the art-history of America and his contact with many of its prominent figures. American art had come near dying with the end of the period of post-Colonial art about 1825, and Olmsted was one of those to bring it to life again in the last half of the nineteenth century. As we all know, architecture itself was at a low

ebb during that time, sunk as it was in Victorianism, from which state it did not emerge until the very end of the century. That landscape architecture did not go into eclipse along with architecture and the other—what may be called the more formal—arts is not strange.

Americans have always cherished natural landscape. They have a love of wild or half-tamed nature beyond most modern peoples. It is a fact that is evident when Thoreau's landscape descriptions, which may seem somewhat trite to us, come as revelations to many a European. Among nineteenth century intellectual circles in this country the influence of Wordsworth and other contemporary English poets and of Ruskin stimulated the native characteristic. Still another proof of the American interest in natural landscape is that in this period the really great landscape works of the painter Inness were produced. Frederic Law Olmsted shared the twofold interest of his countrymen in landscape beauty, for he was at once a well-known figure

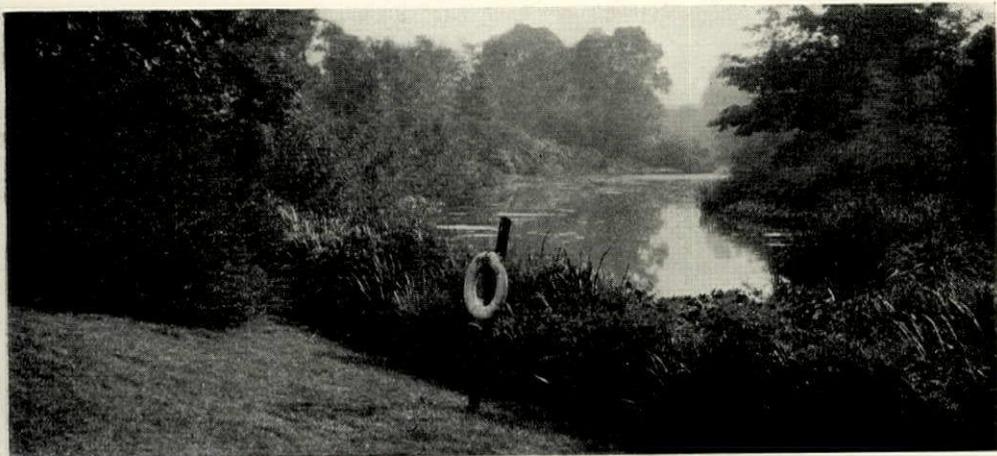
in literary circles of New York and Boston and a gentleman delighting to be outdoors in the country. Indeed, it is a curious fact that his early life ran largely in these two channels, and that only accidentally Mr. Olmsted became a landscape architect at the age of thirty-five; an active varied life giving him an almost ideal training for this profession.

He was born in Hartford, Connecticut, in 1822, of a good family of ample means. The Olmsteds were among the first settlers of this part of Connecticut, their progenitor coming from England in 1632. In the course of his education young Olmsted entered Yale, but trouble with his eyesight forced him to leave the University. He next attempted engineering. Here ill-health caused another change, this time to farming, which he mastered thoroughly through an apprenticeship on five different farms. Life outdoors brought better health to Olmsted, and he decided to try a career in business. First, it was a drygoods store in New York; then, a publishing firm, in which latter he became a partner and the London representative of the firm. Through his activity as a publisher he seemed definitely to have decided upon literature as a life work. In England he bought books for the house, and came to know many eminent men there. From his headquarters at London he made frequent trips, sometimes to Paris, but more often into the English country, where he might indulge his fondness for landscape. This was a great hobby of his, and all unconsciously by this study he laid the technical foundation for his future profession of landscape architect. Both as a youth and as a farmer Frederic Law Olmsted had tramped and studied scenery along the beautiful valley of the Connecticut around Hartford. The Connecticut flows through one of the best landscapes of the river type, with soft meadows and elm-lined shores. Beside its banks he found his taste in the love of natural landscape, and fortunately he was able to command the leisure to develop that taste. It may be guessed that this instinct was ripened in England; that an eye already trained among the hills and vales and the white, well-

set farmhouses of Connecticut could appreciate keenly the beauties of the English countrysides.

Mr. Olmsted returned to New York, again to farm, this time on Staten Island. There was another trip to Europe, during which he sent back letters to the *New York Times*. Journalism became a third pursuit to be added to publishing and farming. Olmsted came back to America again and, in the excitement of the anti-slavery agitation just before the Civil War, he made a thorough journey in the South and wrote his account of it in letters to the *New York Times*. These letters, published in a book, the "Sea-Board Slave States," are even today considered one of the few authentic records we possess of ante-bellum conditions. In them Olmsted surveyed the economic situation under slavery with the practical knowledge of a skilled farmer, the common sense of a man of affairs, and with the ripened wisdom of a man of the world and of letters, for he was all these things. He came to the conclusion that slave labor was generally so ignorant and inefficient that its economy was doubtful. Later on Olmsted made still another journey, this time to Texas, again with the result of a book.

I stress the literary activity of the elder Olmsted because, although it may not seem pertinent to his work as a landscape architect, it was really one of the chief causes of his professional success. In a direct way it was a precious preparation for the numerous reports and articles which he wrote in support of his projects. All his life he wrote copiously to persuade a sceptical public of the worth of landscape beauty; and where he could not establish the artistic value of a design, he usually could uphold its practical value. His was the work of a pioneer to a great degree, and all pioneer work needs publicity if it is to win quick acceptance. It is impossible to estimate how many years would have been lost to the growth of American landscape architecture—and how many fine park designs—if Mr. Olmsted had not known how to wield his pen so skillfully in support of his pencil. Furthermore, loving



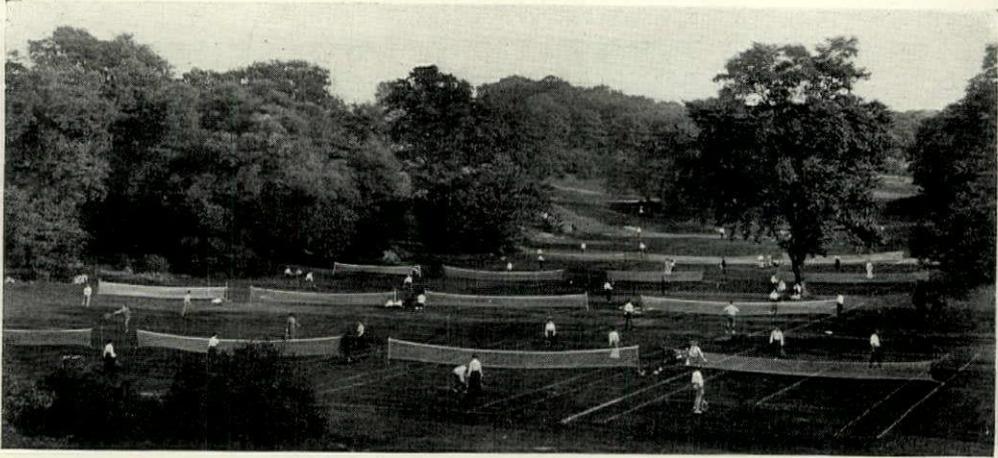
THE RIVERWAY, BOSTON PARK SYSTEM, NEAR BROOKLINE AVENUE.



LONGWOOD BRIDGE, BROOKLINE, MASS.



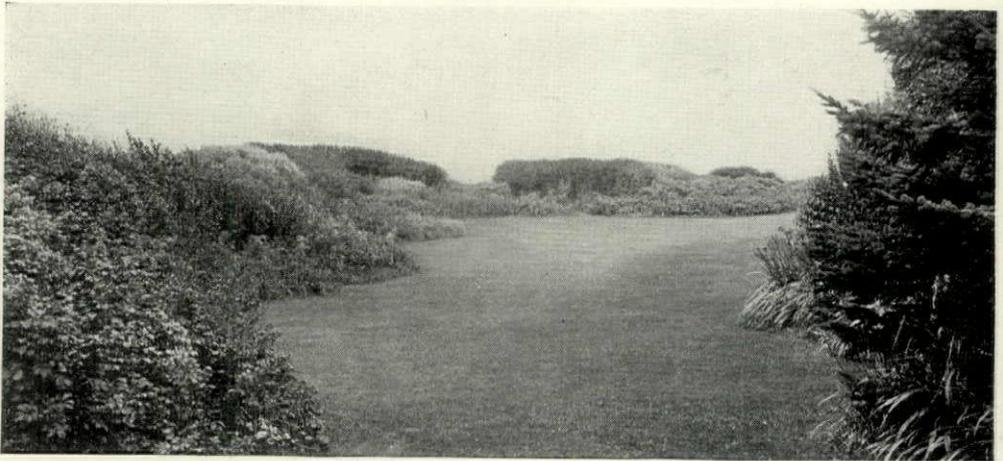
THE RIVERWAY, BOSTON PARK SYSTEM, FROM BROOKLINE SIDE.
Frederic Law Olmsted, Sr., Landscape Architect.



THE TENNIS COURTS IN ELLICOTTDALE, FRANKLIN PARK, BOSTON, MASS.



VIEW IN ELLICOTTDALE, FRANKLIN PARK, BOSTON, MASS.



EXPOSED SHORE SITE, ESTATE OF THE LATE THEODORE M. DAVIS, NEWPORT, R. I.
Frederic Law Olmsted, Sr., Landscape Architect.

the life of a literary man in New York as he did, he was always in contact with artists, writers, editors, publishers—some of the most inspiring minds of America and of England—an experience which must have broadened and enriched him. In fact, had he not gone into landscape architecture, Mr. Olmsted would doubtless have remained a literary man, probably an editor. As an amusing incident, it is related that the father of Stanford White brought his young son to Mr. Olmsted to pass on the boy's fitness to become an architect. All in all, when one realizes the variety and richness of the experience of a man like Olmsted, one may justly inquire whether the intense specialization of our modern formal professional education does not cramp us a little, and whether some such corrective, as Mr. Olmsted's life contained, would not be valuable in supplementing the narrowness of our training. It is well known that the older masters often had the benefit of a varied experience in their life work, and this experience in the cases of men like Velasquez and Rubens and Brunelleschi and Bramante must have had its share in developing their vigorous, unusual personalities.

This understanding of Mr. Olmsted's literary, journalistic and business career serves as an introduction to his professional life as an architect.

In 1857, in New York, a Superintendent of Parks was needed, and Olmsted's friends recommended him as a practical farmer for the position. He was preferred over several candidates and accepted the office. During his superintendency a competition for plans for Central Park was announced. One of the competitors was Mr. Calvert Vaux, a young London architect, who had been brought over to this country by an architect, Mr. Downing, and who had designed the Smithsonian Institution and a part of the Capitol grounds at Washington. In preparing his plans for Central Park, Vaux was troubled by its peculiar topography, so he took Mr. Olmsted as a partner in the enterprise, since the superintendent knew every foot of the ground and knew its landscape. The plan of Vaux and Olmsted was accepted

over thirty-nine competitors, and they were appointed to execute the work.

This was Olmsted's entrance into landscape architecture—his first one, for he made a quick exit. The Civil War intervened. How the parallel strikes home today to many architects who are facing the sacrifice of their profession on the altar of Mars! Olmsted was rejected for the army on account of lameness that he had incurred in an accident. However, he gave himself to war work on the Sanitary Commission until his health broke down in 1863. Then he went to California as superintendent of the Mariposa Mining Company, an ambitious scheme that failed, sending Mr. Olmsted back to New York in 1865 for another change—this time finally and fortunately to landscape architecture. But his adventurous spirit he carried with him into the new activity, for perhaps the keynote of his whole professional work was the ceaseless effort to find new fields and new outlets for his profession and to develop them to the utmost possibility.

While Olmsted was absent during the war Vaux had continued to practice architecture in company with Fred C. Smithers, another London architect, who designed the Jefferson Market Police Court in New York. Olmsted went back into the firm to remain five years, until 1870. The fruits of the partnership were Prospect Park, in Brooklyn; Morning-side Park, New York, the parks of Buffalo, two parks in South Chicago, and Washington and Jackson Parks in Chicago. These—not forgetting Central Park, his first great work—mark the beginnings of Frederic Law Olmsted's wonderful career that lasted thirty years till his retirement from the firm in 1895.

Here a clear understanding of Olmsted's purposes in landscape design becomes necessary in order to appreciate how significant his work is. First and foremost, he was truly a landscape architect—a designer of landscapes. His works are realistic and naturalistic. It was not a case of man remaking nature, casting her in an artificial mold; not the artist using freely the forms of geometry in terraces, parterres, ramps, architectur-

al gardens and sculptural details. Olmsted disliked to force anything upon nature. Especially his naturalistic designs were never improvised out of his mind as *tours de force* or as theatrical stage settings. He never, for instance, tried to create a semi-tropical landscape in a temperate climate. Instead, he purposed to develop and to modify and to smooth out the bit of earth's surface handed over to his skill, disturbing as little as possible its shapes and geological formations, and making full use of the trees and plants already there—as full use, that is, as he could and at the same time accommodate it to the necessities of the human beings who owned it. Yet even here his arrangement of buildings, gardens, lawns, roadways and paths was strictly practical and disturbed the landscape as little as possible. In other words, he fitted his design to the natural conditions of the site as simply, quietly and as harmoniously as possible, rather than fit nature to his design. Thus he aided nature to express herself. It is apparent that Olmsted was conspicuously an Anglo-Saxon in his practical wisdom and in his poetical love of outdoor nature. His was not the Latin ideal of a luminous, abstract conception, intensely humanized and geometrical, nor was it the arbitrary mechanical preconceived formula of the German. And, while he had a remarkable sense of composition it was expressed in naturalistic elements without any apparent artifice about it; and it did not contain any of the intense ideas of decoration, or of symbolism, or of exaggerated expressions of a personality that characterize much recent art.

One point should be brought out about the elder Olmsted. He was not extreme in his naturalism. He realized that man with his necessities introduces into the world orderly arrangements often in geometrical shapes; and he was not averse to yielding to this need on occasion. Therefore, in many of his designs, Mr. Olmsted allotted spaces for formal gardens or terraces, and in his parks he usually planned some one, big symmetrical architectural feature in the public monumental scale of Rome or Paris or Versailles, in the shape of an entrance

way or a gathering place. Examples of this recognition of the need of some bit of formal planning to make the change from the geometry of a city to the natural landscape of the country are the Mall in Central Park, a broad avenue or esplanade which ends in a large balustraded terrace to be decorated with tall Venetian masts, fronting on the little lake; the fine entrance to Prospect Park in Brooklyn; and the great boulevard into Franklin Park, Boston, which was never carried out. In parenthesis it might be said that Olmsted accepted such formal geometrical elements of the Latin tradition in somewhat perfunctory fashion; that his heart was not in these features and that he left their details to be worked out by others in his office.

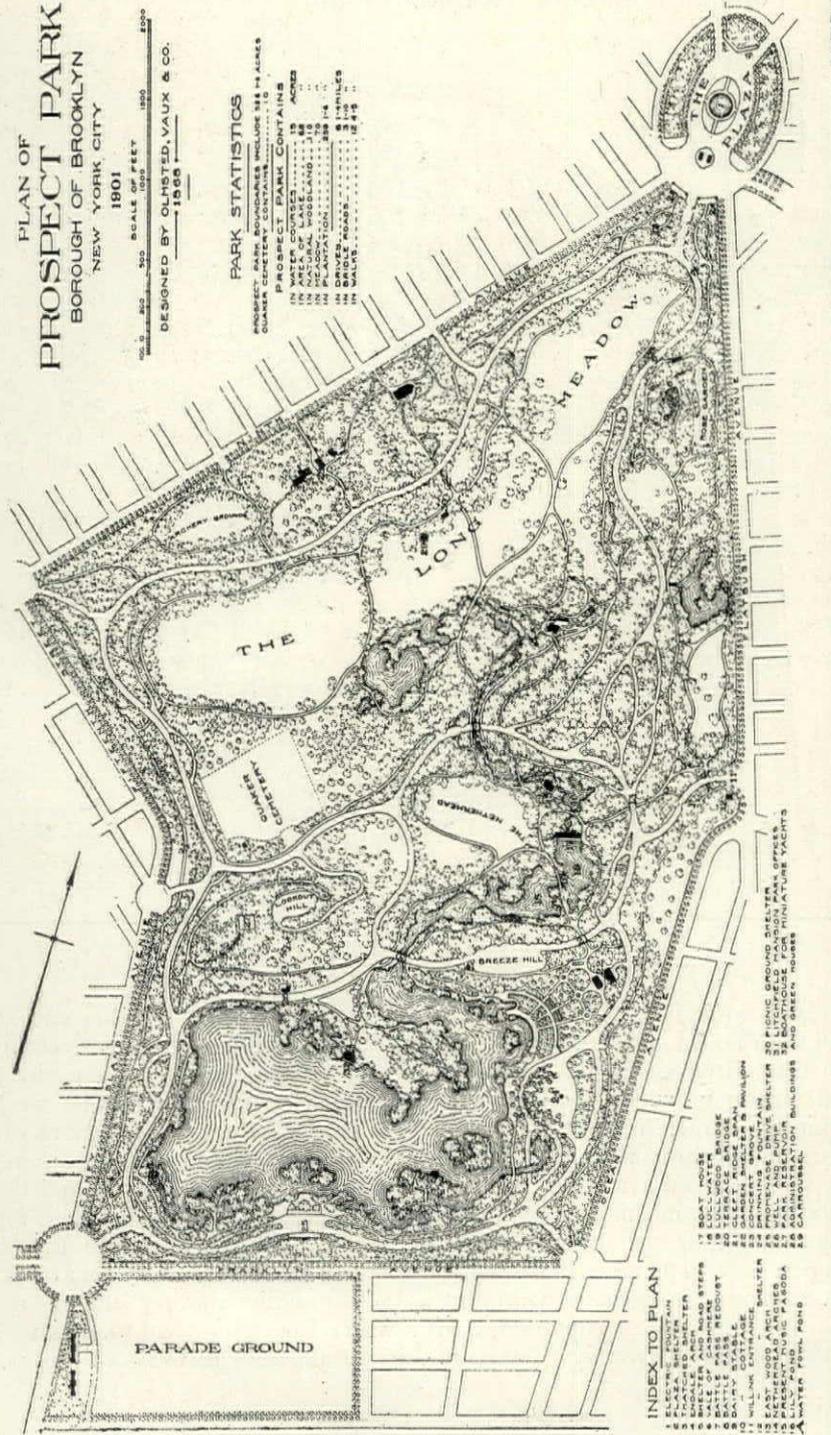
Thus it is clear that, powerful and adventurous as he was, Mr. Olmsted was closely related to the times he lived in. Both as an American and as an Anglo-Saxon of two generations ago he turned strongly to the beauty of nature's landscape. In his day the formal geometrical arts were in eclipse, and only English traditions of love of nature gave any impulse to art, increasingly vigorous as these English traditions became when transplanted to America and stimulated by the influence of Wordsworth and his English contemporaries, and by Ruskin. Mr. Olmsted was further inspired by English landscape designers and writers of the eighteenth century—the school characterized by Repton—and by the simple unconscious beauty and keen sense of form in our early American art that lay all around him where he worked along the seaboard states, especially in his own New England.

I think it is important for Americans to realize what Frederic Law Olmsted's life means in the history of their civilization. He was, with the painter Inness, one of the conspicuous few who kept art alive in Victorian times—in the period of rapid material development of the country after the Civil War. He was thus one of the links between the early Georgian work and our recent twentieth century activities. Each of these epochs—our earliest and latest ones—studied over and written about

PLAN OF
PROSPECT PARK
 BOROUGH OF BROOKLYN
 NEW YORK CITY

1901
 SCALE OF FEET
 0 50 100 150 200 250 300
 DESIGNED BY OLMSTED, VAUX & CO.
 1898

PARK STATISTICS
 PROSPECT PARK BOUNDARIES INCLUDE 184 ACRES
 QUARER CEMETERY CONTAINS 10
 PROSPECT PARK CONTAINS
 IN AREA OF LAKE 18
 IN MEADOWS 14
 IN DRIVEWAYS 14
 IN BRIDGE ROADS 14
 IN BUILDINGS 14



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PLAN OF PROSPECT PARK, BOROUGH OF BROOKLYN, NEW YORK CITY. OLMSTED, VAUX & CO., LANDSCAPE ARCHITECTS.

THE CHARACTER OF RENAISSANCE ARCHITECTURE



By

Charles H. Moore

PROFESSOR HAMLIN, in an article entitled *Renaissance Architecture and Its Critics*, contributed to this journal, a few months ago, comments on my *Character of Renaissance Architecture* in terms that call for some remark, for which I have not until now found opportunity. I write, not in order to vindicate my own thesis as such—which is a matter of no importance—but for the sake of what I regard as right understanding of the subject.

Professor Hamlin names several other writers whom, in common with me, he thinks have misconceived, and even vilified the architecture of the Renaissance; but his strictures are for the most part directed against what I have written. He begins his particular reference to me by saying (page 267):

"Professor Moore, in the Introduction to his *Character of Renaissance Architecture*, after drawing a glowing picture of the religious fervor of the Middle Ages, of which Florence's Fine Arts were an outgrowth and expression, describes the 'Neo-pagan spirit' of the Renaissance which favored and strengthened a growing indifference to moral beliefs" . . . "The animating spirit of the movement contained much that was unchristian and destructive of high ideals." . . . "Into the service of this luxurious and immoral life the Fine Arts were now called, and of the motives which animate such life they became largely the expression. They were made to 'minister to sensuous pleasure and mundane pride.' In doing this the architects and sculptors turned to the models of antiquity, of a decadent antiquity. But as it was impossible for

modern men to 'approach the ancient themes in the spirit of the ancients,' this art of the Renaissance is not wholly spontaneous and sincere; and owing to elements incompatible with the pagan spirit, it became 'an embodiment of heterogeneous ideas and conflicting aims.'

"Turning then to the individualism of Renaissance architecture, he observes that 'architecture of the highest excellence can hardly be produced by an individual working independently,' and contrasts the individuality of the Renaissance unfavorably with that of the Middle Ages, calling it 'capricious and irresponsible.'

"The Italian Renaissance architects worked like painters rather than constructors. Their use of the 'orders' is rarely based on any structural need. 'Columns and pilasters, answering to nothing in the real structure, are disposed with no thought save for agreeable lines and rhythmical spacings.' Renaissance architecture became 'a mere surface architecture, differing fundamentally from all of the great architectural systems of ancient times and of the Middle Ages.' The only wholly consistent and distinctive styles in Europe were the Greek, Byzantine, and Gothic. The introduction closes with laudation of Italian painting, which, unlike architecture, was not governed by a consciously retrospective motive. The Renaissance architecture of Italy was the product of one of those 'periods of partial aberration through which peoples sometimes pass. The noblest forms of art are not an outcome of such conditions.'"

Is Professor Hamlin prepared to deny the truth of any one of these statements? Does he not believe that moral, intellectual and social conditions give character to a people's art and qualify its merits, or that structural integrity is the necessary foundation for any architecture worthy of unqualified admiration? He does not, by reasoned argument, refute these statements; nor does he, by convincing discussion, in any way invalidate my position. Yet he speaks of fundamental "error" in my writings, and charges me with "unfair emphasis," "distortions of facts," and "unverified premises." He ought, I think, specifically and categorically, to point out where in my book he finds justification for these charges.

I suppose, from the general tenor of his remarks, that Professor Hamlin means by unfair emphasis, that I lay undue stress on rational construction as a necessary basis in design, and do not take enough account of the esthetic principle, or what is sometimes called the art, in contradistinction to the mechanism, of building. He appears to hold that there is an esthetic principle of architecture that is independent of structure.*

I believe this to be a fallacy. In living art the structural and esthetic elements cannot be separated. They are parts of one whole. Architecture, I conceive, is only construction exalted by esthetic feeling. Or, in other words, in architecture, as in a natural organism, beauty is inherent in structure—simple or complex, as the case may be—as in the Parthenon, in St. Sophia, or in the nave of Amiens.

When men work naturally they do not violate sound principles of construction, and the beauty of what they do is in proportion to the nobility of the ends

*This independence of the esthetic principle is affirmed in a recent book by Mr. Jeffrey Scott, entitled *The Architecture of Humanism*. London, 1914. But Professor Hamlin, in a former article entitled *Gothic Architecture and its Critics* (*Architectural Record* for May, 1916), endorses the principle that structural character is a primary consideration in architecture and the proper basis for critical estimates of the art. In that same article, however, he negatives the principle in what he says later in support of, what I consider, the spurious Gothic of the Middle Ages—in which the principle is violated.

they have in view and the measure and quality of their esthetic aptitudes. It is only sophistication that gives rise to architectural aberrations. Herein lies the cause of the difference as to merit between Gothic architecture in its integrity and the architecture of the Renaissance. The Gothic communal craftsman worked without sophistication, in obedience to the promptings of an exalted artistic impulse and with instinctive loyalty to structural law. The architect of the Renaissance was animated by a sophisticated ambition, which brooked no moral restraint and regarded no law of construction that stood in the way of his detached esthetic aim. The one wrought in a spirit of unconscious self-effacement; the other in a spirit of self-assertion. To maintain that works so opposed in spirit can be of equal merit appears to me shortsighted.

Professor Hamlin charges me further with "an evident hostile animus," with "sweeping characterizations," and with "special pleading." Such charges, unsupported by reasoned discussion, have no effect but to excite prejudice—which does nothing but harm, since it tends against due consideration of these questions, and thus to prevent fruitful study. He suggests, too (p. 270), that I am biased by "an atmosphere of medievalism," and remarks that he has tried in a previous article to explain "the error of an attitude which cannot recognize with equal freedom the merits of two distinct kinds of design, proceeding from different points of view, under differing conditions, to different goals." As to a prepossession in favor of medievalism, it is a gratuitous assumption for which there is no justification in the book and no foundation in fact. If I am in error, this is not the way to deal with it. The only effective way to deal with error is by reasoned argument. If Professor Hamlin would help his readers to see what he considers my mistakes and perversions of facts, let him take up, for instance, what I have written about Brunelleschi's use of the orders in the Pazzi chapel, or let him examine, point by point, my discussion of the dome of St. Peter's, or any other portions of my

book. A specific indication of my misstatements of facts and a reasoned exposition of what he thinks my errors of judgment would be more useful than his general accusations, which clear up nothing.

Professor Hamlin is himself in error. My book is not, as he would have it appear, made up of groundless allegations and prejudiced opinions. I have made no adverse criticisms without giving complete and specific analysis, and thus putting the reader in possession of the facts in each case—so that he is at liberty to form his own judgment on rational grounds. He cannot be prejudiced by anything that I say, if he takes the trouble to follow it. In this book, as in my other books, I have endeavored to make the monuments speak for themselves, and not to impose on the reader any bias of my own. This, I think, any attentive reader should see. The strong dissent and impatient resentment that the book has awakened in some quarters arises from the fact that it deals critically with a phase of architecture—the product of a sophisticated epoch—that has been sanctioned by academic authority, familiarized by custom, and to which many architects are today committed; so that it passes without question with people who give little active attention to its character. Its advocates seek to defend it as an outcome of the general emancipation from the alleged intellectual thralldom of the Middle Ages with which the Renaissance movement of the fifteenth century is credited. But this position will not bear examination. In the architectural activity of the Middle Ages—wherever, as pre-eminently in the Ile de France, conditions were favorable to progress—there was no intellectual thralldom, but the freest spirit of invention. Even in Italy, though there was less invention and a stronger force of tradition, there was no hampering bondage, as the Italian art of the fourteenth century abundantly attests. Therefore there was no need for emancipation in the sense affirmed by the partisans of the neo-classic Renaissance. What the Italians needed was only emancipation from their own medieval aberrations, by

which they had superficially denaturalized their native architecture. They had done this by engrafting on it incongruous elements borrowed from the Northern Gothic, in the same way as they were now, in the fifteenth century, borrowing the irrational features of the imperial Roman style. It is worthy of remark that the Italians were never true to themselves in architecture, save when they adhered to the pure basilican type in churches, and to the round-arched, and undisguised, wall construction in their civil and domestic building. In other words, where they built naturally they produced good architecture, and when they affected foreign or ancient methods of design they produced a mongrel art.

In his zeal to discredit me, Professor Hamlin has allowed himself to make groundless aspersions. He does not take the pains to examine carefully and mark clearly just what I have written, but querulously misconstrues it, and implies that I have said what I have not said and should not think of saying. Thus, on page 271, he remarks: "It is futile and unreasonable to find fault with the architecture of one age for not expressing its own spirit by the same means and according to the same standards as that of a preceding age." I have, of course, found no fault with the architecture of the Renaissance on any such grounds. I have criticised this architecture as not conforming to any consistent standards. Like the imperial Roman art, it is irrational and opposed in principles to all the really great historic styles. No apologies for such art will long avail with thinking men of moral sense and true esthetic feeling.

Mr. Hamlin's remarks on the preceding page, that "when . . . of two great periods of the world's thought and artistic activity, one is always and at every point disparaged in comparison with the other, and particularly when it is the later period that is so disparaged, to the denial of the supposed progress of the race, it is fair to inquire whether there may not be misplaced emphasis in the comparison made." To this I may answer that any disparagements of mine

have been supported by fair and full discussion of specified facts, with abundant illustration. Such disparagements cannot be rightly impugned by mere counter affirmations. As for the "supposed progress of the race"—which Professor Hamlin thinks enough to put the merits of Renaissance architecture beyond question—it may be said that human progress cannot be determined by what is supposed, but only by the character of what is produced. There may be progress on some lines and at the same time retrogression on others. The architecture in question appears to me, for reasons that I have abundantly given, not an architecture of progress.

Again, he remarks (p. 270): "So when they (those who question the merits of the neo-classic art) charge the Renaissance architecture with the sins of revolt against Faith and Discipline and Religion, several questions occur. Is it not true that this revolt was inevitable, given the corruption and decay of faith and true spiritual religion in the fifteenth century? If so, does not the fault lie back of the revolt in the system and age that made it inevitable? Was not that revolt a protest of liberty, and was not its consequence that freedom of the mind and soul which has made all progress possible?"

I think the answer to this is, that the idea of a general prevalence of intellectual bondage in the Middle Ages, calling for a protest of liberty in order to free the world for progress, is shortsighted and fallacious. It is true, indeed, that the church as an institution sought to enslave the minds of men to its autocratic rule, and thus in the sphere of religious thought there was thralldom in so far as the church could enforce it. There was thralldom also in the abuses of secular government, which created and maintained appalling injustices. But intellectual activity was not wholly crushed, even in these spheres—as the great communal movements attest; while in the domain of artistic craftsmanship there was never a time when the human mind was more alert, more free or more nobly productive, as the supreme Gothic art of the Ile de France demonstrates.

The architect of the Renaissance had to break no chains of intellectual bondage. He had only to keep himself free from the toils of the humanist sophistries in order to work out in freedom whatever it was in him to do. The liberty sought by the humanist of the fifteenth century was not altogether that of the truth, but liberty to transgress every moral law in the pursuit of mundane pleasures. That was the protest of liberty for which the Renaissance distinguished itself. Keeness of intellect and artistic genius were great; but, save in the art of painting, this greatness, as compared with that of earlier times, has been much exaggerated. In speculative thought it produced few men superior to Abelard, and in creative literature none so great as Dante.

The catholic idea, to which Professor Hamlin, in common with so many other apologists for the architecture of the Renaissance, appeals, needs to be more carefully considered. There are traps in the path of him who would without circumspection make this idea a guiding principle. Catholicity in matters of art does not properly mean that all things should be held of equal value, since all are equally manifestations of human thought and feeling. The catholicity which does not discriminate has no solid basis. Esthetic feeling is not the same with one man as with another, and ideas based on this feeling alone are vague and untrustworthy. The truly catholic temper is, I conceive, one which—weighing good and evil according to its lights—recognizes the good under whatever form. Thus to a catholic mind, the different genuine historic styles of architecture—as the Greek, the Byzantine, and the Gothic—will, notwithstanding their differences, be equally admired to the extent that they are seen to be equally founded on principles of architectural rectitude, of which structural veracity is the basis. This rectitude is, I believe, the touchstone by which all artistic values are to be tested. The esthetic principle is an inner thing that the human mind cannot compass, though every man feels it in his measure. Where it is manifested, the response to its appeal

differs according to individual susceptibility, which depends on temperament and experience and changes with mental and moral growth. Dogmatic affirmations with respect to beauty are therefore both unjustifiable and futile.

I may add a word concerning the remarks of Mr. Edward Lewis, quoted by Professor Hamlin on page 271. Mr. Lewis says "progress is constant," and likens it to the "sweeps of a spiral,"

some of which, he tells us, may be "long and flat, others shorter and steeper." He appears to forget that the spiral may be reversed, so as to move downward instead of upward. In other words, there may be retrogression as well as progress. It is by no means true that in human affairs "upward movement is continuous and universal." In human affairs there are, as I have said, periods of aberration.



VATICAN LIBRARY—ETCHING BY DEWITT H. FESSENDEN.

The EXPRESSIVENESS OF LIGHT



By M. Luckiesh



IN lighting, attention has been too generally directed toward the artistic grace of fixtures instead of visualizing the light effect upon the room as a whole. If the attention is focused upon effect at all, it is usually upon the purely utilitarian result. Satisfactory lighting is the result of a harmonious combination of scientific and artistic principles. The former principles should be the basis of any lighting installation, but the installation may be concealed amid the draperies of artistic exteriors. No other essential element in the home possesses possibilities so great as lighting, if outlets are well chosen, if science and art are properly harmonized in fixtures, and if the controls for the light-sources are laid out generously and judiciously.

In residences of the highest class the problem of lighting may be disposed of by placing the matter in the hands of a lighting specialist, provided one is available. However, as the full recognition of the possibilities of lighting has barely dawned, there are few competent lighting specialists. Householders of the intermediate class—by far the most numerous class—must of necessity generally be content to call upon the fixture dealer and trust in him. But how many persons distinguish between lighting effects and lighting fixtures, and how many dealers demonstrate lighting effects instead of fixtures? Dealers rarely have rooms equipped for demonstrating the lighting effects of individual fixtures, and fixture salesmen rarely qualify as lighting artists. Lighting effects must be intimately associated in harmony with the general scheme of decoration and furnishing in an interior. The salesman seldom takes the trouble to inquire concerning these,

and the householder does not know the importance of correlating lighting effects and decoration. The householder's best safeguard at present is the acquisition of a general knowledge of the possibilities of lighting and the relation of lighting to the other elements of the home.

The esthetic, or, more broadly, the psychological, aspect of lighting effects should have first attention. Light may be considered as a medium similar to pigments. Pigments in wall-coverings are obviously expressive, because the decorator is able by means of them not only to decorate an interior, but to realize a desired mood. Light has a similar expressiveness, but far superior in potentiality; for not only may a certain desired mood be realized, but with appropriate fixtures and controls this mood may be altered in a moment to suit the occasion.

Before discussing this aspect further let us make another inquiry. How much variety in lighting effects is possible in ordinary lighting installations? On pressing the switch we are greeted in most cases by the same monotonous, symmetrical distribution of light, which may account partially for the general indifference to the potentiality of lighting. Variety is the keynote of the attractiveness of nature in general and more specifically of nature's lighting. Outdoors, amid the dominating magnitude of nature, we usually reflect nature's mood, but indoors our mood desires to command. Perhaps in realization of the artificiality, and hence of the controllability, of our interior surroundings we know that it is within our power to make the setting to suit us.

Let us now resume the discussion of the elements which are essential in order

to enjoy the expressiveness of light. First, the wall-coverings should be of a light or medium value and not strongly colored, otherwise the mood of a room is largely fixed; for a redistribution of light cannot greatly alter the values. Of course it is understood that the brightness of a ceiling or wall is a function of the amount of light which falls upon it as well as of its ability to reflect light. Therefore, if the walls are of low reflecting power compared with the ceiling, a great many times more light must fall upon them than upon the ceiling in order to make them appear as bright as the ceiling. If the difference in the reflecting powers is too great, it is not practicable to rearrange the values by means of light alone. Hence medium or light shades are desirable in the wall-coverings if variety in lighting effects is to be realized.

If we have such a room lighted by means of a single central fixture, it is rarely possible to obtain variety except in intensity. Sometimes two circuits are provided, but usually these control similar units, which results merely in a change in intensity of illumination. It is a simple matter to have one circuit control outlets equipped with shades which direct the light downward, and another which controls outlets equipped with a bowl or shades which direct the light upward. Each circuit provides a distinctly different mood or expression, and the two combined provide a third one. By placing tinted lamps or colored media about the lamps which are connected in one circuit, variety in tint is introduced.

Lighting fixtures equipped with two circuits are not uncommon, and occasionally one is found which is so equipped with shades or bowls that two radically different distributions of light are obtainable. A number of different types of excellent portable lamps are also available which possess this desirable feature. It is not difficult to attain this end in lighting fixtures, but it is obvious that two circuits controlled by means of separate switches are fundamentally essential if a degree of variety in the effects is to be obtained.

One of the simplest means of obtaining

lighting of the desired flexibility is by portable lamps. The first requirement is a sufficient number of baseboard, floor, and wall outlets judiciously installed. A living room of moderate size should have from six to ten baseboard and floor outlets, so that portable lamps may be placed wherever desired. If some of these lamps are equipped with two circuits controlling upward and downward components of light respectively, it is obvious that a great variety of lighting effects can be obtained.

Wall brackets also have their place in the home, but these should be cautiously utilized. Owing to their position on the walls they are always more or less directly in view, and if the shades are too small and the candlepower of the lamps is too great a discomforting glare will be obtained. Such brackets aid in introducing the element of variety into the lighting of the home, but in general they should be considered as ornamental objects. If not depended upon for the dominant lighting, they may be of low brightness and hence easy to look at.

As the householder learns that lighting is a medium capable of determining the mood of a room and of relieving the monotony of the interior, many dark places will be converted into delightful nooks. A hallway or alcove may be made interesting through a combination of lattice and indirect lighting. For example, a lattice may be hung a foot or two from a coved ceiling and the latter may be illuminated by means of lamps concealed above the lattice. Even artificially lighted windows have been employed with pleasing results. In a dining room of a palatial home a large oval skylight of diffusing glass was placed in the ceiling. Above this glass many red, green and blue lamps were installed in separate circuits and controlled by means of rheostats hidden behind a panel in the wall. Light of any color may be obtained by mixing red, green and blue lights; hence, by means of this installation, an unlimited variety of color and intensity of illumination is obtainable, which makes it possible to adjust the lighting to suit the spirit of the occasion. Although it is

not the aim of this article to discuss the details of residence lighting, but to present a viewpoint which appears to the writer to be the fundamental one from the standpoint of psychological effects, a discussion of lighting of the dining room should further emphasize the expressiveness of light. At one time the dome which hung over the dining table was very popular, but it is no longer generally considered to be "in style." However, from the standpoint of lighting effect, this fixture can not be greatly improved upon. Of course, in lighting as well as in other elements which beautify a home, taste is a factor which eliminates the possibility of formulating specific rules. However, it is generally agreed that the dining table should be the most highly illuminated area in the dining room. There is something conducive of cheerfulness in such a distribution of light, as the semi-darkness hems in the diners and concentrates their attention upon each other and upon the festive board. There is something elemental in such a lighting which harkens back to the primitive joy of the campfire.

The "old fashioned" lighting dome, when properly designed and hung, produced this delightful effect; but neither the modern so-called semi-indirect or indirect fixtures, nor the candelabra fixtures suspended from the ceiling and unequipped with shades for directing the light downward, attain this desirable end. The shower can be made to illuminate the table properly and leave the remainder of the room in a warm glow of semi-darkness, but care must be exercised in selecting the shades in order to avoid glare. Ofttimes the simple things in lighting are very important; for example, the shades of a shower should be deep enough, and preferably should turn inward at the bottom or open end, in order to shield the lamps from view. A general principle, for the installation of dining room fixtures supported above the table, is to hang them lower than other ceiling fixtures are ordinarily hung if they are of the type which direct the dominant light downward.

In the dining room, as in other places,

the element of variety in color and distribution of light is welcome, and it is not a difficult matter to design a fixture possessing two circuits which respectively control upward and downward components. As already discussed, these two components may be used singly or simultaneously and the upward component may be tinted as desired. Wall brackets may be used for decorative effect, but it does not appear that it is desirable to depend upon them for the lighting of the table or even for furnishing a great amount of light. This also applies to cove lighting; but these and other schemes may be used as accessories with good effect.

A discussion of the possibilities of color in lighting may be presented fittingly in closing this subject, for these possibilities have barely been tapped. Of course, color has played a part in the lighting of the home through silk shades and tinted glassware, but it is not always convenient to utilize the charm of tinted light by these means. It is a simpler procedure to use tinted lamps, especially when an effect upon the room as a whole is desired.

Strongly colored light has little application in lighting the home; in fact, only the delicate tints are satisfactory for general illumination. These are well described as tints which are felt rather than seen; in other words, the householder should be conscious of them only through the subtle influence of the "atmosphere" which they provide. In general the warmer tints are the more satisfactory. There is no reason, however, why, for special occasions or in the summer time, the psychological effects of the colder tints should not be utilized. There is more or less dissatisfaction with the whiteness of modern illuminants for esthetic lighting in the home and a consequent desire to obtain illuminants of a warmer tint more nearly approaching that of the candle flame. Such an illuminant may be obtained very efficiently by tinting the bulb of the modern incandescent lamp, but an ordinary amber color will not properly simulate the color of the older illuminants. The trend in lamp

development is in the direction which will satisfy the desire for tinted light, and especially for the warm yellow light of older illuminants.

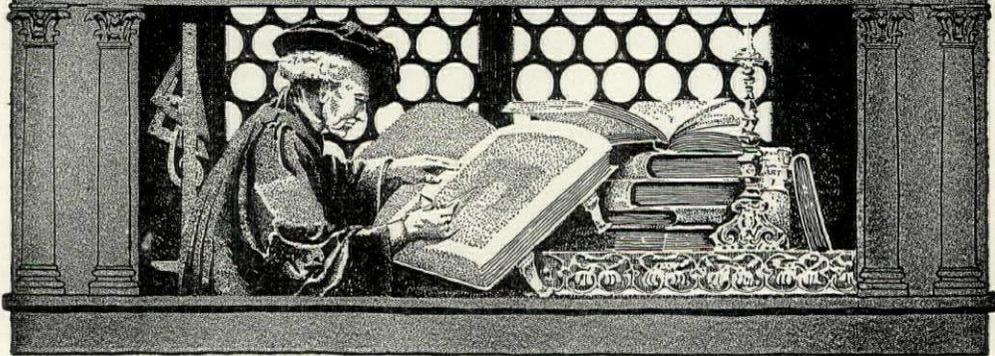
Obviously with such lamps available the householder would possess another means of injecting variety into lighting, of adapting the light to the room, of providing the appropriate effect for any occasion, and in general would be able to extract much from lighting which is ordinarily difficult or even impossible. In applying such illuminants the same principles are followed as those which guide the use of pigmentary colors. For example, only the lighter tints are satisfactory for permanent general illumination; but inasmuch as we readily become adapted to a single color, a contrasting color may be utilized as a vital spark to keep the general tint alive. Color lives through contrast and dies through lack of it, and therefore in attempting to

utilize the charm of color in lighting this important law of color should not be ignored.

To summarize this entire viewpoint of lighting, the metaphorical phrase, "painting with light," appears most appropriate. This does not include only the tinted lights, but also the distribution of light which determines the general arrangement of light and shade or values. The broadest and perhaps the simplest concept of lighting from the decorative, esthetic or psychological viewpoint is to consider light as a medium which, guided by the artistic instinct of the lighting artist, is capable of casting over an interior a magical drapery of light, shade and color of far greater potentiality and mobility than the medium employed by the decorator. Every householder capable of decorating and furnishing a home artistically is capable of extracting from light some of its potentiality.



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WAR BOOKS OF THE CATHEDRALS

By BARR FERREE

Part IV.

A GREAT wealth of information on Reims is contained in the *Almanach Matot-Braine* for 1915-1917. It is concerned with the three departments of the Marne, the Aisne and the Ardennes. Abundantly illustrated with views, portraits and maps, and including numerous articles by specialists, it is a veritable encyclopedia for this sorely tried portion of France for the period of which it treats. Albert Baudon contributes a chapter on the losses in monuments and works of art in the Marne; Camille Blondiot gives a sketch of the monuments of the Marne after the battle; E. Kalas writes of the youth of Jehan d'Orbais, the architect of the Cathedral of Reims, an interesting and successful picture; R. de Baubontal, in a chapter entitled "Reims, the martyred city," reviews the first bombardment of September 4, 1914, the occupation by the Germans, and the events of the dreadful day of September 19, when the cathedral was set afire; a valuable chapter on the former abbey of St. Remi is written by Henri Jadart, the honorary curator of the Library and Museums of Reims, whose constant writings have done so much to preserve the knowledge of his beloved city; the question of the

restoration of the cathedral is discussed by Louis Demaison; and other chapters are concerned with life in Reims during the war, Reims as a place of national pilgrimage, a list of the clergy of Reims honored in the war and other topics. In addition to many interesting chapters on adjacent towns, considerable space is given to the cathedral city of Châlons-sur-Marne, including a sketch of the churches, damaged through the war in the diocese of Châlons, by the Abbé Hurault, and the history of the hospitals of Châlons, during the German occupation in 1914, by Dr. Chevron.

A lifelike picture of experiences in Reims just before the German occupation is given by Isabelle Rimbaud in her *Dans les Remous de la Bataille*. Mme. Rimbaud's home was in the Ardennes, and the earlier chapters of her book deal with events in and around it, and illustrate, in an astonishing way, the hesitancy of the French to leave their homes even when the approach of the Germans seemed inevitable, as indeed it was. Naturally her flight with her family was attended by many hardships because of this procrastination. But once in Reims they found shelter with a friend. From this refuge Mme. Rimbaud saw much of

the beginnings of the siege of Reims, which she describes in graphic pages. She left Reims just before the cathedral took fire, but records many impressions of the first days of its demolition.

Mme. Rimbaud presents life in Reims as seen from within the city. Henri Libermann, in his book *Ce qu'a vu un Officier de Chasseurs à pied*, treats of the city from without, being engaged with the French forces from the beginning of the war, and taking part in conflicts around Reims in September, 1914. Of the many books on Reims his is the only one, as yet, dealing with events in the French army just outside the city.

A great variety of topics, literary and artistic, are discussed by Péladan in *L'Art et la Guerre*. The book, for the most part, is made up of articles contributed to various French reviews, here conveniently gathered into one volume. Arras, Reims, Soissons, Laon and Noyon, to name only the cathedral cities, are referred to, but the chapters on Reims are the most notable. The author makes the point that sufficient care was not taken to preserve either the glass or the sculptures of the cathedral, and argues that even the heavy statues should have been taken down and put into places of safety. Now that so much irreparable damage has been done, it would seem as though some effort in this direction might have been made. But no one imagined, at the outset of the war, that the Germans would take delight in destroying so great a work of art as the cathedral of Reims; and the national and city authorities were so overwhelmingly engrossed with the horrors of actual combat that it is perhaps hardly just to censure them for doing nothing. But the arguments of Péladan have not been without results, as the famous statue of Jeanne d'Arc by Paul Dubois, before the cathedral, has only recently been removed, after withstanding a bombardment of nearly four years. The sâr Péladan, the author of these papers, was a notable figure in the literary life of Paris; he died at his home near that city on June 27, 1918.

Some interesting chapters on life and events in France during the early period

of the war are contained in *Sur les Routes de la Victoire* by a Swiss journalist, William Martin. Much of the book originally appeared in *Le Journal* of Geneva. Visits to various cathedral cities are described: Bourges, Meaux, Paris, Le Puy, Reims and Verdun; but the cathedral of Reims alone receives special mention. At Le Puy he visited the camp for imprisoned German officers, a strange thing to find in this astonishingly picturesque place. He reminds his readers of the splendid cathedral at Bourges, but his greater interest is for the munition works which now completely dominate that once quiet city.

A chapter on Senlis and others on Reims forms a part of the contents of *Petites Images du Temps de Guerre* by André Warnod, embellished with numerous sketches by the author. Sermons preached in Lyons by the Abbé E. Sirech, chaplain of the Lycées of Lyons, supply the text for *Le Martyre de la Cathédrale de Reims et son Bourreau*. Chapters on Reims find their place in *Ste. Geneviève et l'Invasion Allemande en 1914* by J. Sauvêtre, Curé of the church of St. Etienne du Mont in Paris. *La Cathédrale de Reims Livrée aux flammes par les Allemands* by G. Eyssautier reproduces lectures given in Marseilles in 1914. *Une Cathédrale endormie* by G. Desdevises du Dezert is a brief discussion of the problem of the restoration of the cathedral of Reims. *Over the Threshold of War* by Major Nevil Monroe Hopkins, somewhat over-sumptuously printed, contains some facsimiles of proclamations issued by the German command in France. One of these, dated September 12, 1914, was issued at Reims, and threatened the hostages with death in the event of the least disorder.

Dr. Simonin's book, *De Verdun à Mannheim*, is very largely concerned with his experiences as a prisoner of war in Germany. As *Médecin-Inspecteur de l'Armée*, he was entitled to some special consideration as an officer of high rank; while as a former professor attached to Val de Grâce in Paris, he was regarded as a person of distinction by the Germans. He experienced, therefore, none

of the hardships of the ordinary prisoner, and the lists of foods he gives seem not unpalatable. While at Mannheim he had free access to the German newspapers, and some of the most interesting pages of his book reproduce translations of contemporary German accounts of the burning of Reims cathedral. These extracts are matters of deep interest, as little is known of the German presentation of events at Reims. Dr. Simonin was at Verdun for a short time at the beginning of the war and was then transferred to Belgium.

The most picturesque book on Reims that has yet appeared is *Reims La Cathédrale* by R. Burnand, with illustrations by Benito. The text, which is concerned with the dream of a young soldier wounded in an attack on Reims, is a mere vehicle for the illustrations. These are drawn as cartoons and reproduced in brilliant coloring—striking, strong, vigorous pictures—in many of which the cathedral is the central feature. It is interesting to compare these with the more finished illustrations of Boutet de Monvel, in his famous book *Jeanne d'Arc*, published in 1896. But the comparison should not be pushed too far. M. Benito's drawings have an appeal of their own—strong, vivid and amazing in their interest.

Verdun no longer occupies the commanding place in the daily news of the war, but the end of its war literature has by no means been reached. A very good book, for which the author disavows any originality, is Edmond Pionnier's *Verdun à la Veille de la Guerre*. It is offered as a vehicle for the illustrations after sketches by Wlodimir Konarski. But it is well to have, in inexpensive and accessible form, this excellent summary of the city just before the war

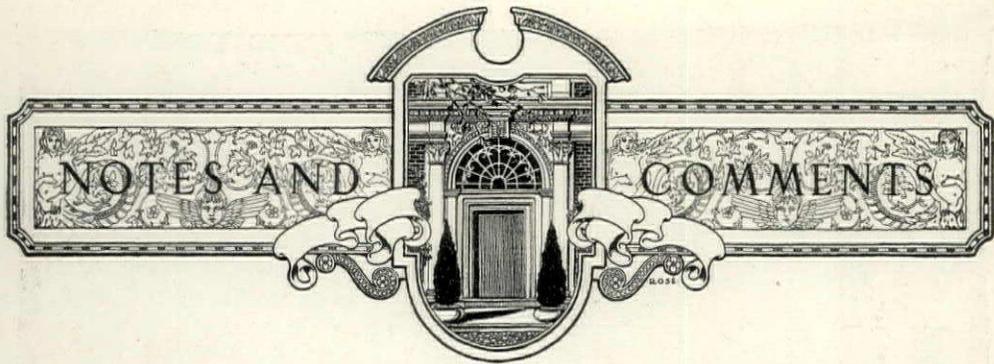
broke out. That the story may be complete it is prefaced by an account of Verdun in 1917 by Ernest Beauguitte.

The history of a battalion serving from the beginning of the war in Alsace, Lorraine, Marne, Ypres, Artois and Verdun is given by Henri René in *Jours de Gloire, Jours de Misère*. The author was wounded in Artois, but resumed his service, and concludes his book with experiences at Verdun. Days of glory, no doubt, and many of them; but bitterly hard for the soldiers, and full of misery.

Lieutenant E. Herscher saw service in the Woevre in 1915 and at Verdun in 1916. His book, *Quelques Images de la Guerre*, presents a series of incidents in the war, without attempting any chronological order. It is enriched with many reproductions of his own drawings, in some respects the most interesting part of his book. Of books in English mention may be made of *Ambulance 464* by Julien H. Bryan. Mr. Bryan was a young Princeton freshman, who entered the war when seventeen years of age, and drove an ambulance in the Verdun and Champagne sectors. His book is an intimate picture of experiences on the front.

Dans la Picardie Dévastée by Maurice Thiéry deals, for the most part, with a region of France heretofore untouched upon in these notes. It describes many places after they had been ruined by the Germans. The chapter on Noyon offers a brief paragraph on the cathedral, which is described as intact exteriorly, but gutted, Germans having carried off all the interior metal work, bells, candelabras, organ pipes and statues.

An exciting account of a visit to Soissons during the bombardment is given in *My Home in the Field of Mercy* by Mme. Frances Wilson Huard.



Architecture in Tapestry.

At more or less regular intervals architecture assumes the character of applied engineering, accepting the theory that the one standard of its construction is structural integrity. Utility becomes its watchword and, in theory at least, it eschews any decoration that is not essential to its mechanical stability. Over against this professional austerity stands always the layman, who refuses to see in architecture only the fine adjustment of stresses and strains, but insists on regarding it rather as another one of the arts of decoration. Three-dimensional decoration it is, and as such it must be dependent on mechanics and physics, but dependent on them only, not fulfilled in them. First and foremost it is decoration.

Such was the attitude of the tapestry weavers of old. To them architecture was a decoration, and they made good use of it as one of their main sources of ornamentation. To their charming and sumptuous depictions of architectural types the layman can point for proof that architecture is something more than building—that it is decoration.

In the oldest and simplest cartoons, those of the fourteenth and early fifteenth centuries, architecture was used only as a frame. Delicate pillars, sometimes quite beautifully drawn, made the setting of each scene. Sometimes they were enriched with Gothic canopied statues. Sometimes more intricate carving was attempted. But beauty was not achieved solely by elaboration. The simple and humble brick wall appears as a fine strong element in some of the earliest pieces, notably the Burgundian Sacrament tapestries of the Metropolitan Museum.

A little later in the fifteenth century

castles and forts come to play an important part in certain types of cartoons. Particularly in the great confused battle scenes, where literally scores of warriors are huddled in one grand mêlée, buildings are usual. Rather astonishing buildings they are now, little more than peaked towers, often not large enough to hold the leg of one of the warriors beside it. But sometimes really fine architectural effects are obtained with a cluster of these brown and red turrets piled up against the sky.

In some of the late century pieces, before the delicacy of the Gothic turned into the boldness of the Renaissance, architecture reaches its culmination of elegance. Slender pillars and exquisite arches again enter as frames, but this time carved and jeweled into glimmering streaks of beauty.

With the transition to the Renaissance, architecture, along with all the other elements of the design, pays its respects to the new order. Corinthian columns take the place of the Gothic, rather timidly done at first with grubby little acanthus leaves, but gaining in surety with practice until they venture almost as much elaboration as the Gothic which they supplanted.

From the simple brick wall to the fully established classic column the architecture of the tapestries has been purely decoration. Yet even as decoration it must be admitted that it has had to have respect for mechanics. For it cannot be denied that, even in wool, the early pillars, wobbly in the middle, or towers disjointed at the base, are distressing. Even woven structures must be structurally sound.

And one school of tapestry designers has relied just on structural soundness, the fine feel of stone firmly set on stone, to achieve its decorative effect. In the early seventeenth century in France stone arches of almost dramatic solidity played an im-



THE HISTORY OF CORIOLANUS. NO. 5.
PARIS: EARLY SEVENTEENTH CENTURY.

portant part in some designs. In the famous Artemesia set woven for Henry IV and Marie de Medici and in the closely related set of Coriolanus, massive masonry in dark blue is used to set the emotional key, as it were. It defines and epitomizes the nobility, importance and dignity of the actors; and it does this just by emphasis on its own qualities of bulk, weight and clean-cutness.

Perhaps the supremacy of architectural drawing in tapestry, where the justice of the presentation makes it not only a decoration but a record, is in one of the Beauvais Cathedral sets, illustrated in Jubinal's *Les Anciennes Tapisseries Historiées* (vol. II, Plates 7-12). This is a history of the founding of the principal cities of France designed and woven in the early sixteenth century. In the foregrounds are the presumed founders, with the more or less mythical story of their origin in a scroll beneath them. The backgrounds, by far the major portion of the tapestries, are given over to panoramas of the various towns. The most important cities on the fragments remaining to us are Beauvais, Paris and Reims. Beauvais is represented principally by its cathedral, very carefully drawn as it was when the tapestry was woven in 1530. It is still in the course of construction with the scaffolding in place, the transepts only half built. The Bishop's Palace is alongside the cathedral, and the Church of Nôtre Dame, since destroyed, is beyond. On this same fragment, somewhat to the left, is the village of Clermont with its cathedral, Hotel de Ville and chateau, and scattered over the plain at intervals are other less pretentious villages and buildings, all, however, drawn with great accuracy and detail.

Paris is even more fully presented. It is quite a maze of churches, castles, public buildings and private houses. In the foreground is a fine big Romanesque castle with a rose window over the drawbridge. In the centre is one of the great churches now difficult to identify. And here and there lesser churches raise their spires bearing on them a whole flock of weathercocks. But most interesting to the architect of today is the variety and charm of the roof lines of the more humble private abodes. Curved dormers and peaked end gables of different form offer suggestions not to be scorned for our cottage architecture.

In Reims the lesser buildings are not so

delightful, but particularly interesting to us under present circumstances is the careful drawing of the cathedral. It piles itself up, story on story, in the centre of the design, very little obscured by the smaller church in front of it. The only thing on the skyline that challenges its interest is the gallows dangling two corpses.

Tapestry is a flat surface, and every good tapestry designer knows that it is part of his business to keep it a flat surface. So these masses of buildings have been presented, not in bulk and perspective, but as front elevations, and as such they might well serve as models of clarity, comprehensibility and beauty to practical architects of today.

PHYLLIS ACKERMAN, PH. D.

An Architectural Propaganda.

The most potent factor in the education of an architect is, without doubt, the study of ancient work from the originals. Such study is of course possible only

to those possessing means sufficient to permit of foreign travel. Some of the schools overcome this handicap to a degree by collections of casts, and in a few of the larger cities the student has access to casts and perhaps to some original exhibits in the architectural departments of the local art museums. The collections are, however, few and far between and in most cases hopelessly inadequate.

In the meantime great sums are being invested in paintings, marbles and bronzes for the enrichment of museum collections; while architecture, the master art of them all, is overlooked entirely or perchance represented by a few portfolios of plates or a fragment or two of details. The average person's conception of an art museum, therefore, naturally seems to be a rather ornate structure containing galleries for the exhibition of paintings, sculpture and perhaps a few other objects of artistic interest. These are the exhibits which the public has learned to look for in an art museum, so most naturally these are the features to which it devotes its attention even in great institutions like the Metropolitan Museum of Art, where the so called "industrial arts" are so extensively featured. In other words, the public goes to see what it thinks it ought to see, and it has been brought up to suppose that pictures and statues constitute the *raison d'être* of an art museum.

Is it not then most desirable that the architectural profession should urge the formation of collections of architectural works illustrating the development and progress of the greatest of all arts? By thus becoming familiar with the masterpieces of the past, the public would be brought to a realization of the fact that a knowledge of the great works of architecture is as essential to culture as a knowledge of the famous works of painting and sculpture.

Interesting experiments in art propaganda have been tried recently in the West, where lecturers on art have visited the agricultural fairs, giving illustrated talks, which proved so attractive to the crowds as actually to injure the business of the amusement concessions. This eagerness to know more of the subject of art is everywhere in evidence and needs but to be properly gratified and directed to bring about a great change in the esthetic ideals of the nation.

Collections of well chosen casts from architectural subjects, to which the attention of the public could be drawn through the medium of lectures, informal talks and descriptive catalogues, would be of immense value in carrying on such a propaganda. A scale model of the Cloth Hall at Ypres, for instance, or a group of full-size plaster casts from the sculptures of Reims would prove strong attractions in any museum or exhibition, and if accompanied by photographs showing the present ruinous condition of the originals would doubtless draw great numbers of people who might otherwise never be reached.

The result of publicity would be not only an increased appreciation of the importance of architecture as a fine art, but also a raising of architectural standards, due to a more intimate acquaintance with the great work of the past on the part of both architects and laymen.

With the demolition of ancient buildings we find constant accessions of architectural treasures to the collections of the great museums, but the prices demanded for these are so great and their number so

small that the lesser institutions are rarely in position to purchase them. Consequently the logical course would seem to be the formation of collections of casts so colored and so placed as to give as nearly as possible the effect of the originals in situ. Good taste used in placing the exhibits so that a maximum of effect is obtained will make a comparatively small collection chosen with discrimination prove more impressive than a great clutter of specimens stacked up on floor and shelves.

An intelligent propaganda of architectural education, fostered by the museums as well as by the architectural profession, could not but prove of great artistic value to the country.

The world is witnessing the destruction of much of the best that the past has handed down to us and realizes as perhaps never before the tragedy of this loss. Great numbers of art treasures which have been hoarded in the collections of Europe will now of necessity be sold to meet the war's demands and a large proportion of them will come to this country where they can be made a most effective factor in this campaign of education.

Never before have conditions been so favorable for arousing a national appreciation of art, and it is to be hoped that the architectural profession will do its part.

It is a matter for congratulation to know that the French government, which is always foremost in any movement to promote knowledge of the arts, has placed the vast resources of her own collections at the disposal of all comers.

Thus, any museum desiring to secure casts of architectural subjects will find the wealth of the Trocadero and the Louvre collections of casts available for it to pick and choose from.

A verification of this generous policy is contained in a recent letter from the French Ambassador, in which he states that "Any one who wants duplicates, even when the subject is as big and expensive as one as the Limoge Jubé, can place his order with the administration of the Museum."

I. T. FRARY.