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PORTICO—HOLY ROSARY CHURCH, DAY-
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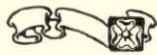
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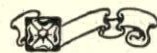
NUMBER I

JANUARY, 1919

The HOLY ROSARY CHURCH DAYTON, OHIO W. L. JAEKLE, ARCHITECT



By Leon V. Solon



THE HOLY ROSARY CHURCH, by Mr. Jaekle, raises an interesting question. This focuses itself on the genesis of a quality not unfrequently discernible in works of this type; a quality which may result either from an enthusiastic appreciation of the physical beauty of historic examples studied, or, in rare instances, from an unconscious exposition of vital social tendencies. Wherein lies the powerful appeal of Cinquecento architecture to so large a proportion of American architects? In no other style has the American architect expressed himself so fluently and so spontaneously, free from the archaeological restraint that fetters the majority of his Gothic essays, or the consciousness of mathematical precision that too often oppresses his classic dreams. The reason may lie deeper than the obvious fact that the Cinquecento happens to be a congenial vogue.

During the evolution of the main types

of architecture, social conditions existed of such force as to influence the imagination of those creating the highest types—to cause a reflection of social tendencies to shine behind the conception of the work; among other reflections can be clearly seen the extent to which the people shared, or were excluded from, the privileges of mental culture.

In the most ancient types of civilization—in Assyria, India and Egypt—architecture contrived impenetrable barriers—impressive, awe-inspiring and mysterious—to separate the mass of the nation from the jealously guarded resources of knowledge, secreted as a perquisite of caste.

With the development of the power of Greece a complete revulsion in the basic idea of access occurred, due entirely to a new state of mind, evolved through the advent of the democratic form of government. In this new social order, the pioneers of advanced and intricate phi-

losophies brought their argument to the market places, and the temples even were shorn of their mystery. The demand that all spaces in public buildings of almost every type should be accessible to the citizen now controlled the plan, and the design of the exterior underwent just as radical a spiritual change, from the air of mystery to that of frankness and freedom.

The Romans, the "nouveau riches" of antiquity, venerated senior civilizations, and might for many reasons have been attracted by the completeness of Egyptian culture and the colossal character of Egyptian art, to the extent of adopting them as models; but, as their instincts were primarily democratic, they were irresistibly drawn to the Greek type of civilization, finding in the aims of that race their own attitude toward human liberties acting as a formative influence in architecture and the arts.

After the temporary obliteration of all civilization by the Teutonic races in the early centuries of our era, culture had the opportunity to start afresh. With the evolution of the Gothic era we are enabled to observe again the result of intellectual segregation in the clerkly class, and the resultant reaction on the temperament of those whose mission it was to give architectonic expression to the beliefs and prejudices of their day. An impression had to be imparted in their greatest work, the churches, to produce a specific state of mind in the laymen entering the edifice, a state having no relation to any arising through the routine of life, the purpose being to emphasize the remoteness of spiritual objectives from mundane pursuits.

The sixteenth century brought popular revolt against this system, culminating in the social and religious upheaval, a prominent feature of which was the demand for intellectual freedom. The movement towards intellectual democracy was very strong in Italy and enlisted in its ranks the many princely patrons of art, who demonstrated their belief that opportunity should be reserved for merit and that the capacity to excel is not an attribute of caste. The ideals of the Greek republic of letters became the favorite standards; abundant evidences of intel-

lectual freedom and the right of the individual to appraise abstract values, discovered in the classic models from which inspiration was sought, produced a powerful reaction, affecting even the outward form of concrete objects.

The opening of forbidden avenues and closed doors in the sixteenth century immediately influenced architectural design in Italy, and introduced what might be described as the "plein air" treatment, in which sunshine, atmosphere and simplicity in beauty heralded a new regime, fostering the classic ideals of intellectual democracy in Hellas.

There is no reason to assume that the American architect is less sensitive to social conditions than were his professional forebears in other lands, or less capable of reflecting them in his work. Evidence accumulates rapidly in the work of many talented members of the profession that in the selection and exposition of historic styles the individual is strongly biased by abstract and intellectual properties, to the extent of endowing his building with such qualities.

The civic structures of Greece and Rome and those of the Cinquecento, despite their grandeur and dignity, surprise us with the sentiment of their nearness to our inherent sympathies; we feel they were built for men like ourselves, who had free access and part-ownership, and that the power responsible for their inception was a prerogative of a social commonwealth; in short, these buildings radiate the sense of a "right of access."

This quality is not imaginary, but exists with such clearness and force as to justify us in making a great division of all architectural treatment; it is one of the first impressions experienced by the beholder, and may be attributed to an elementary cause—the ascendancy of an intellectual democracy in a State—for which reason it is not unlikely that the early phase of the Italian Renaissance claims so many sympathetic followers among American architects.

The Church of the Holy Rosary possesses this peculiar characteristic of Cinquecento public architecture, which we designate as the "right of access" and which, like all abstract ideas associated



PERSPECTIVE VIEW—HOLY ROSARY CHURCH,
DAYTON, OHIO. W. L. JAEKLE, ARCHITECT.

with concrete objects, is difficult to locate and particularize.

The capacity for conveying an impression of invitation to unobstructed enjoyment, possessed by public buildings at various periods, appears to be the sum total of a combination of attributes and dissimilar aims. In such buildings we can discover a conviction in their designers that public edifices, being essentially for the benefit of the masses, should express ideals of social intercourse and be intelligible in their appeal, without the aid of dilettante or apologist; that spaciousness should be independent of largeness in actual measurement; and that the attainment of physical beauty is reached through the conquest of material properties, uninfluenced by intrinsic value; for, as all substances are equally responsive to the touch of their various interpreters, esthetic value lies entirely in expression.

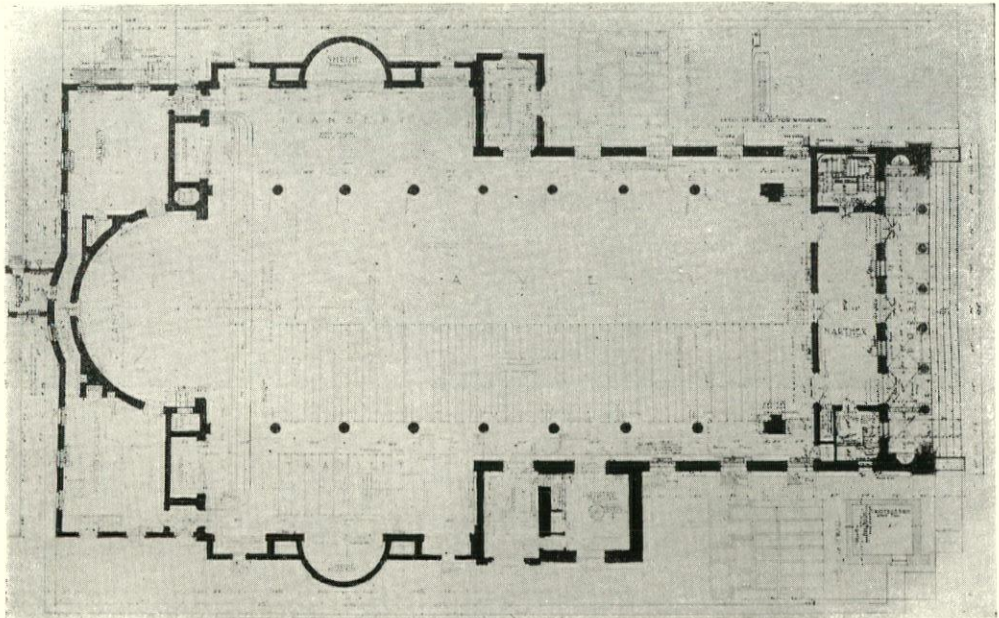
The plan of this church is well conceived and simple, with the possible criticism that the bays for the shrines might with advantage to exterior and interior have been slightly increased in size.

The exterior possesses many charms through the effective disposal of masses and spotting of shadows, which lend

themselves well to the varying perspectives. The subdivisions of the façade and the uniform scale of varied details are well adjusted and contribute an air of repose and dignity.

In his use of two contrasting tones in the structural material, Mr. Jaekle adds an interest to this edifice which recommends it to all who believe in the decorative resource available in the various methods of polychrome decoration. The majority of large buildings constructed entirely of brick, unrelieved by any other color, are monotonous and oppressive in effect. The reason for this is that the colors of fired marls are deficient in atmospheric quality, and shadows projected on this material are lacking in luminosity. This deficiency of the brick has been neutralized by Mr. Jaekle through the introduction of terra-cotta of a much lighter tone.

This method, which has frequently been resorted to, is rarely satisfactory, as most architects do not seem to appreciate that the proportion used should be decided by a rule in polychrome design. The rule is that the proportion of tone-contrast existing between the main and the accessory material determines the



FLOOR PLAN—HOLY ROSARY CHURCH, DAYTON, OHIO.

W. L. Jaekle, Architect.



DETAIL OF WEST AISLE—HOLY ROSARY CHURCH, DAYTON, OHIO.
W. L. Jaekle, Architect.

relative areas of each; in other words, as their tone values approach an equation, their areas may approach equality. This principle is understood by Mr. Jaekle, who has displayed great judgment in calculating the amount of a strongly contrasting tone value, and, in addition, has distributed and interwoven it throughout his scheme with ingenuity and success.

The impression of lightness and elegance characterizing the exterior of this church is derived to a great extent from the introduction of this lighter tone; the massiveness of the tower and the angle piers is lightened by its judicious use, without any depreciation in their apparent structural strength.

The frieze of squares and circles creates a sparkling diversion, out of all proportion to their intrinsic interest. In the pediment the six vertical bands echo the

light colored shafts of the colonnade, giving an appearance of added height and support to the pediment angle.

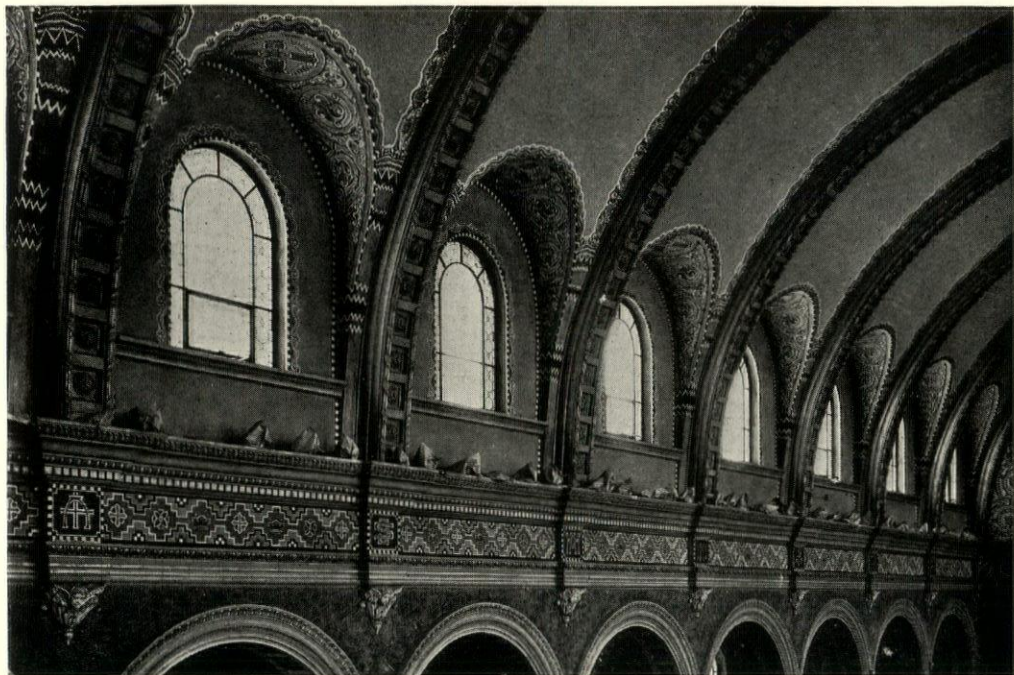
The manner in which Mr. Jaekle has used this additional color gives the impression that he has a temperament for tone-balance, which we hope he may soon have an opportunity to exercise in a more ambitious polychrome essay.

Unfortunately the heavy design of the rose-window detracts from an excellent façade, in which a sense of homogeneity in scale is well established. Data on rose-windows in sixteenth century Italian churches exist in such ample measure that we might have been spared disappointment in this spectacular item; we would have wished that this window had been inspired by some such simple design as that in the Cathedral of Atri or in the parish church of Rosciolo.

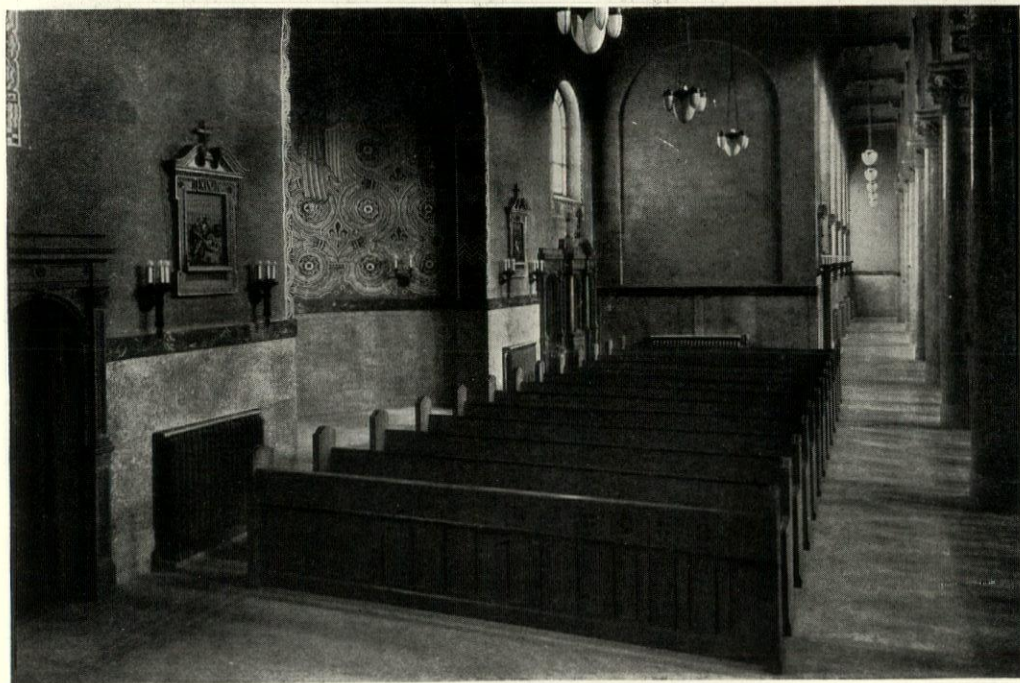
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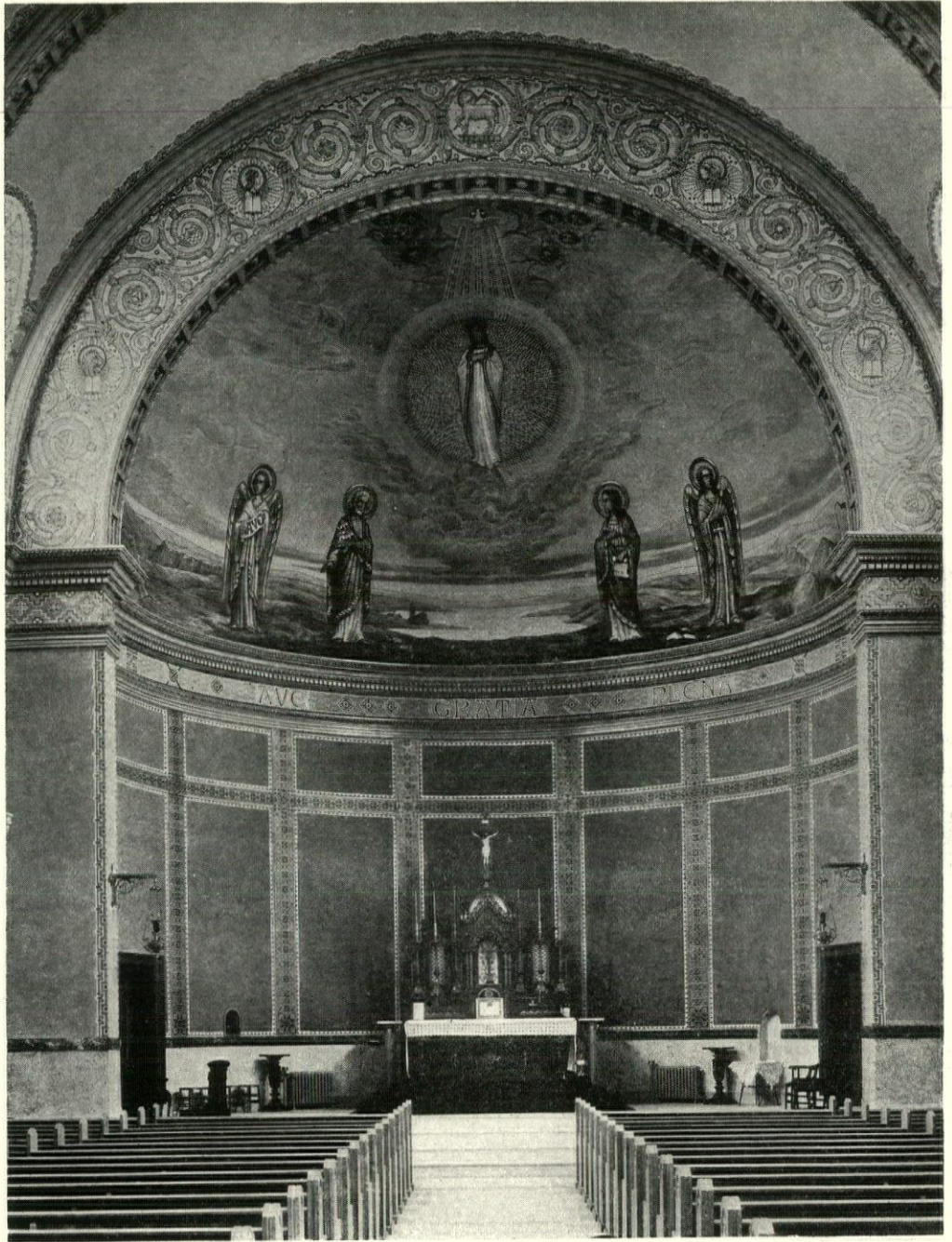
NAVE FROM SANCTUARY—HOLY ROSARY CHURCH,
DAYTON, OHIO. W. L. JAEKLE, ARCHITECT.



DETAIL OF CLERESTORY DECORATION—HOLY ROSARY CHURCH, DAYTON, OHIO.
W. L. Jaekle, Architect.



DETAIL OF EAST AISLE AND TRANSEPT—HOLY ROSARY CHURCH, DAYTON, OHIO.
W. L. Jaekle, Architect.



THE SANCTUARY—HOLY ROSARY CHURCH,
DAYTON, OHIO. W. L. JAEKLE, ARCHITECT.

hypercritical, we note that the cartouche in the pediment recalls the treatment of a later period than that influencing the main design; for although in an ancient building we accept a pot-pourri of many centuries, in a modern work slight variations react as a shock to scholarship. It is not improbable that the fascination of inspired stylistic expression in the ancient examples neutralizes our customary love of homogeneity.

The polychrome decorations of the interior are elaborate in detail but simple in conformation of mass, and we note in them with satisfaction the same reticence that marks the general scheme of architectural design. The architect has had the courage to keep large expanses undecorated, and has resisted the temptation to ornament the spandrels; no decoration could serve the *ensemble* as fully as these plain spaces.

The scroll motif on the chancel arch is designed with ingenuity, and the cornice frieze, derived from a Byzantine champleve enamel or mosaic, is well chosen; the enrichment on the penetrations over the clerestory windows is a good solution of an awkward problem. The color of the surface decoration is

carried to the structural detail, in the panels on the soffits and of the aisle arches.

The panel treatment of the apse wall behind the altar is excellent in its simple dignity; but the bourgeois little figures in the half dome are conceived and executed with a degree of inexperience rarely encountered in so prominent a position; they are travesties on the characters they represent.

The marble doorway reproduced conforms to the regulation formula, and is effectively relieved by the introduction of the darker marble in the panel; the paneling of the jambs is less well advised, as it appears to undermine the corbels, though we are aware that ample precedent exists for its use there.

In Mr. Jaekle's work a sense of responsibility is revealed that weighs on each one who appreciates the grandeur and purity of the classics, and who uses them as a foundation for an essay. Accuracy of detail is an essential but secondary consideration; the all important factor is an innate sympathy with the intellectual poise of the period chosen as inspiration and guidance; evidence of this we find in Mr. Jaekle's work.



NARTHEX VESTIBULE—HOLY ROSARY CHURCH,
DAYTON, OHIO.

SHADOWS *of the* CHÂTEAUX



By Howard Dwight Smith

CONSIDERATION of the ethnic probabilities and possibilities incident upon the debarkation of over two millions of Americans on the shores of Europe furnishes some striking and interesting thoughts. From official sources we have been assured that numbers aggregating hardly less than a fiftieth part of the population of the United States have been transported overseas, for the most part to France. From the nature of things this fraction represents an even larger proportion of the male component of our total census figures.

There is a sort of unconscious general educational stimulus given by foreign travel which is not otherwise acquired. Foreign travel, even of the somewhat constricted and unusual nature of this great troop movement, ought to soften prejudice, both religious and political, and liberalize men's minds and broaden their general vision. Not the least interesting of the resultant effects of the presence of so many of our countrymen in France will be the influence which it will have upon our architecture.

There may be some of the two millions who go from our shores totally immune, who will return unalienated or unaffected by their travels as far as language or manners and customs go, but they will be few. A stolid, timid and uncommunicative product of a Middle West farm may go through a whole army campaign and return to his native hearth without so much as having been introduced to a single foreign habit or custom.

But only the blind or mentally deficient will fail to see and appreciate atmosphere, scenery and buildings—the material environment with which the discharge of the duties surrounds them and which it is their privilege to enjoy. As none of

these classes in general qualify for overseas service, it may be assumed that our army cannot escape the pleasure of many lovely scenes and a great many beautiful and impressive buildings.

A very interesting parallel is afforded in history. When Charles VIII. of France came to the throne in 1483 he acquired among other royal emoluments the title of King of Naples. Those were times when the divinity of kings and of worldly potentates was not as much of a liability as it is today, and autocratic royalty was not confronted on all sides by "fourteen terms" or more. He proposed to enforce his claim to the crown of Naples by marching thither with an army.

The circumstances attending his march southward were quite peculiar. He was generally received by the various and detached Italian powers, city, states, etc., as a friendly ruler, a neighbor invited hospitably to enter their domain and provinces, and was welcomed royally. His personal retinue was sumptuous and impressive, his army well organized and magnificently equipped. But his own attitude was that of a conqueror as he made his way down through the peninsula, and the conduct of his army was that of victors over the population of the cities and provinces. So he left behind him a closing wake of discontentment and unfriendliness and was forced to fight his way home through territory which had welcomed him on his outward campaign.

Politically the analogy between the expedition of Charles VIII. to Naples and that of General Pershing to France is not well drawn. Politically the expedition of Charles VIII. was a rank failure. But let us consider what were some of

the far reaching effects upon France, particularly upon its art and its architecture. By the year 1500 the Renaissance in literature had nearly run its course in Italy, but the Renaissance in painting, sculpture and architecture was nearing its height. This vast French army from the king down to the meanest camp follower, fresh from their own country, which had been but recently devastated and laid barren from revolution and civil wars, saw for the first time such things as the dramatic splendor of Venice, the palatial magnificence of Florence and the stately ostentation of Rome and Naples. M. Leon Palustre in "L'Architecture de la Renaissance" points out that the gardens and paintings in general appealed to the French more than anything else. Ideas of such things were absorbed by the rank and file of the army. Potential ideas were retained by artisans who were among their number, and actual specimens of carving and painting were taken home by their officers. The king himself not only acquired ideas and choice works of art but included in his returning retinue many artists and artisans, notably painters and gardeners.

There was also a noticeable effect on the Italians themselves. In spite of the general unfriendliness engendered among them by the attitude and conduct of their royal visitor and his followers, they were measurably impressed with the wealth and affluence of a king and a country which could produce such an organization as the French army. They sensed new markets for their genius and talents. Here begin the interesting chronicles of the pilgrimages of many Italian artists and art workers to the valleys of the Seine and the Loire. Numbered among these were no less distinguished personages than the self-lauded Benvenuto Cellini, silversmith of Florence, G. Barozzi da Vignola, architect, of Rome, and Leonardo da Vinci, who forsook his native Milan to spend the last years of his life at Amboise.

The immediate subsequent effect of this general movement was felt in the valley of the Loire, where were the country places and hunting preserves of the royalty and other politically affluent per-

sons. It is just here that the rhetorical link is furnished which joins our two ideas: that of the army of Charles VIII. going to Italy and of the American army going to France. For it is a fairly well established fact now that a goodly number of concentration camps, training camps, rest camps and replacement division camps of the American Expeditionary Forces are comfortably and conveniently located in the Loire valley. That portion of France which had been made a veritable desert by the constant wars and internal feuds of the first half of the fifteenth century has fortunately been spared the experiences of devastation in the present conflict and has always been far enough from the actual battle lines to be devoted to camp purposes.

Let us consider briefly, now, what our soldiers are seeing abroad. Before reaching the Loire valley they will see masonry structures on every hand. It is remarkable how persistent are the references to this fact in letters which the soldiers are sending home. The cities and towns and villages are all of masonry; the churches, the stores, the government buildings, the small houses, the farm cottages, the barns, places where the men are billeted, sturdy and substantial structures of stone are making indelible impressions on their minds. As for the large structures which they see in the Loire valley, a discussion of these would practically embrace a résumé of the early Renaissance architecture of France. For it was in these parts that that prolific builder Francis I. (1515-1547) erected his seats at Blois and Chambord, the latter one of the largest private country establishments ever built, and made extensive additions and alterations to many of the smaller royal seats in the neighborhood. He encouraged and even demanded of his courtiers that they emulate his building propensities, and our soldiers will see at Chenonceaux and Azay-le-Rideau two magnificent examples of smaller rural seats. In this and in neighboring valleys they will see, too, such interesting and historic châteaux as those at Cheverney, Valençay, Ussé, Amboise and Chaumont, Luynes, Langeais, and even Chateaudun.

In the towns, as at Blois, Tours and Orleans, these courtiers of Francis I. erected residences or *hôtels* to accommodate their households during periods when the court was in residence in the neighboring châteaux.

The municipal authorities of that time were not slow to follow the example set, and there are town halls at Beaugency, Loches, Saumur, etc., of the period. So the architectural fascination of the Loire valley and of the valleys of the neighboring streams lies not merely in their royal castles but also in the smaller establishments which dot the country side, and in the towns. But all the buildings of the period, from castle to cottage, are "delightful in proportion, refined in detail and designed with ease, apparently hardly designed at all, as though everything came natural in that valley known as the 'Garden of France,'" from Angers to Orleans.

So in training or at rest our brothers and cousins and friends will be seeing these things. Most of them will see Paris, too, perhaps only casually in most instances, and they will be impressed with the delightful openness of the city plan and will appreciate what is the basis of Parisian civic pride. At its museums and at its historic spots their vision will be expanded and their horizon enlarged. They will be unconsciously influenced by the universal symmetry and the apparent fitness of structural endeavor and esthetic law and order. They will be impressed and unconsciously influenced by feelings of solidity and permanence and general good taste in building and not least of all by largeness of scale.

What has been briefly pointed out here with respect to the heart of France applies in a smaller measure to other places. Other parts of France and other styles than that of the châteaux will influence our soldiers, as the towering churches of an earlier period and the later cosmopolitan structures. In England a small fortunate proportion may have time enough to get an insight into

some of the joys and delights of English domestic architecture. In Italy, too, some will be happily initiated into the earth's select who know the skies and trees and villas and mountains as does Maxfield Parrish. It is to be hoped that the sojourn of our forces in German territory will be so brief as not to obliterate previous impressions nor to suffer them to be even unconsciously influenced by contact with some of the salient historic and modern examples of the architecture of Kultur.

When this fiftieth part of our population returns to these shores they are going to be greater lovers of our republic, they will return as citizens of the world and better citizens of their own country; but in many ways they are going to seek and to demand better and greater things. They will leaven the whole American aggregate and a great deal more effectually than has been possible by the fortunate few who have heretofore been educated by foreign travel.

Architects are going to find their clients demanding certain things which heretofore have meant nothing to them. They will be demanding work which has a certain spirit of historic significance.

Architects will have less of a struggle to attain ideals with which they have been inspired and it will not be such a hopeless task to lead the thoughts of the average layman along artistic as well as practical lines.

Architects will not be ridiculed when they discriminately suggest ideals in architecture which have a distinct basis in sound continental ideas.

The sojourn of our soldiers in the Loire valley may not result in the institution of a style or a period which the textbooks of architectural history will catalogue as the "château revival," although worse could happen. It is going to be more far-reaching in its effects. It is going to give impetus and inspiration to the artistic temperament of the people, and the good architect must and will keep a few paces ahead of it.

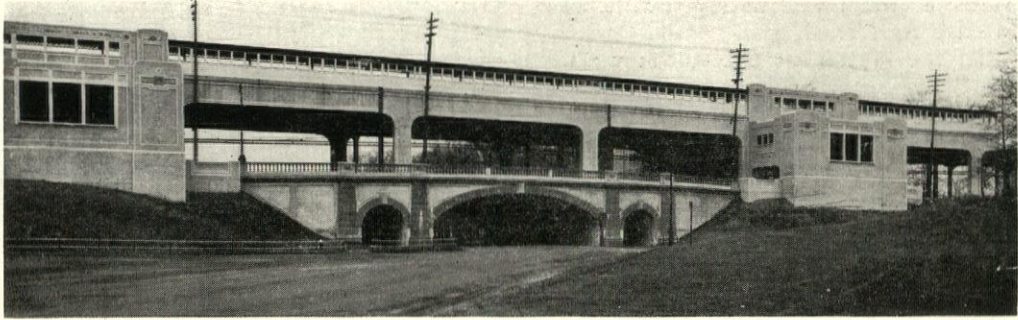


FIG. 1. MOSHOLU PARKWAY STATION, JEROME AVENUE LINE.

ARCHITECTURAL TREATMENT OF STATIONS ON THE DUAL SYSTEM OF RAPID TRANSIT IN NEW YORK CITY



By S. J. Vickers

THE new subway system for the City of New York, which is now being completed by the Public Service Commission for the First District, is known as the Dual System of Rapid Transit. It ties in with the original subway lines, uniting all of the boroughs, save Richmond, by utilizing all four of the great bridges, one tunnel under the Harlem, and six tunnels under the East River. This grand system consists of about six hundred miles of single track; has a capacity of 3,000,000,000 passengers per annum and will cost \$350,000,000. It is by far the most extensive city railroad system in the world.

The object of this article is, however, not to describe the magnitude of the system, its varied and difficult engineering

problems, nor its many practical questions incidental to operation, but rather to deal with the problem of the decoration or finish of the subway stations and to present certain elevated structures which have received special treatment.

THE SUBWAY STRUCTURE.

In the so-called side platform subway station the entrances run directly down to the wing of the platform which contains the control. All of the deeper stations are supplied with mezzanines. Certain stations have mezzanines at either end, and several of the important express stations have continuous mezzanines with a series of stairways running down to the platforms. It is the decoration of these mezzanines and of the side

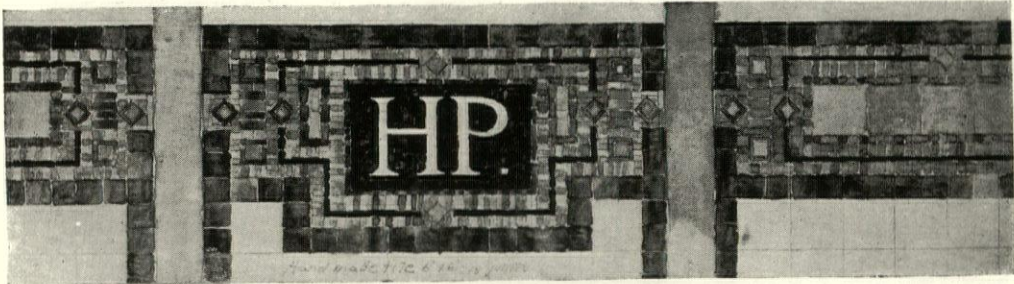


FIG. 2. TILE AND MOSAIC BAND—HUNTS POINT ROAD STATION, WESTCHESTER AVENUE LINE.

walls at the platform level with which we are concerned.

In the matter of decoration we were confronted with the problem of finishing the rough wall surface with materials which would be appropriate, durable, sanitary and easily cleaned. We wished the station to have an air of simplicity which would give an impression of light and cheerfulness to the city's millions of daily passengers.

Many of the stations are irregular by reason of the structures which they support. A huge column rises from the platform to support an equally huge girder in the ceiling; a depressed bay is necessary to give room for a water main above; a break is necessary in the side wall to accommodate the house sewer. Massive walls of concrete and steel on every side give evidence of great strength and utility. We felt that any attempt to hide the structure or conceal its strength would be wrong; we also felt that the decoration must have an element of severeness and restraint. Consequently no attempt was made to decorate the ceilings, which are plastered with cement mortar directly to the concrete.

Hollow tile is fitted in the arches of the side walls between the columns forming the backing for the wall decorations, which consist of a low cement base and a

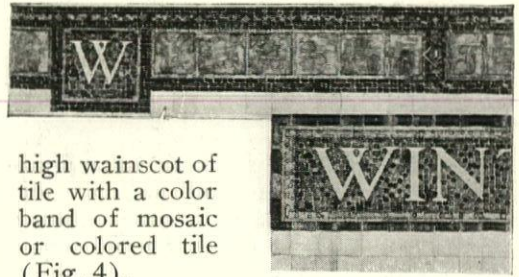


FIG. 3.

high wainscot of tile with a color band of mosaic or colored tile (Fig. 4).

In the tile field is inserted at intervals the station name tablets at a height to be easily read from the train. A white glazed tile with porous back of different units, 3 by 6 inches, $4\frac{1}{4}$ by $4\frac{1}{4}$ inches and 6 by 6 inches, has been used in general to make up the field of the wainscot. In certain stations a combination of alternate courses of 3 by 6 inches and 6 by 6 inches was used with pleasing effect.

Walls composed of the larger units are much more effective than those on which the ordinary 3 by 6 inch tile is used. However, 6 by 6 inch tile is the practical limit, as units of greater size are expensive and often difficult to obtain.

At the entrances, where the walls are exposed to the weather, a hand made weatherproof tile is used. This tile has a hard burned, semi-vitreous body and is laid with a generous joint.

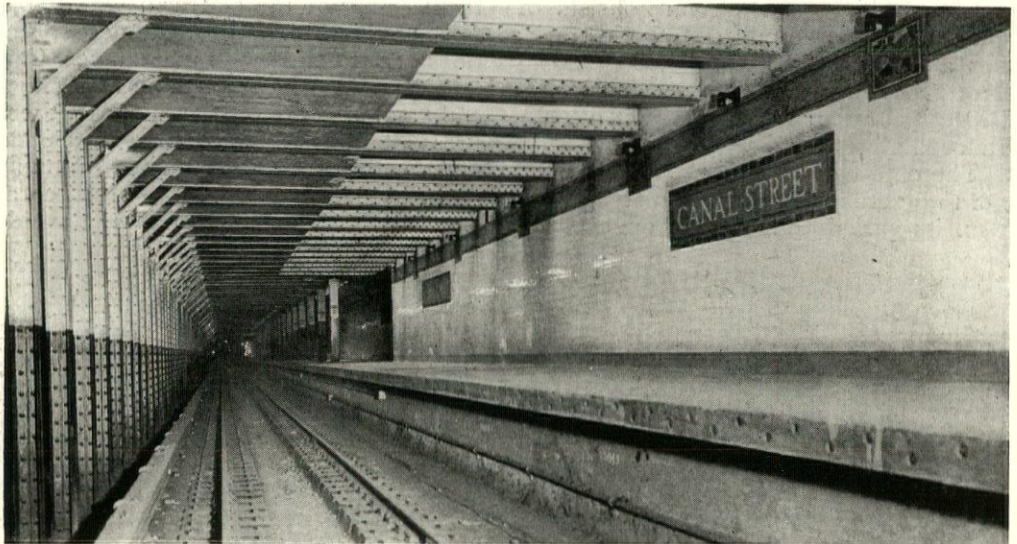


FIG. 4. VIEW OF TYPICAL SUBWAY STATION, SHOWING FINISH OF WALL AT PLATFORM LEVEL.

The band forming the upper member of the wainscot is designed to give a note of color and brightness to the grim structure of concrete and steel. It is composed of mosaic or a combination of mosaic and colored tile, with plaques opposite the platform columns (about fifteen feet on centers) containing the initial letter or street number of the stations to assist the passenger in the approaching train to determine the station name (Figs. 2 and 3).

In several of the stations historic plaques are used in the bands instead of initial letters. The Canal Street plaque (Fig. 4) shows the old stone bridge with an arch spanning the creek which in other days wended its way westward to the Hudson.

The new Borough Hall Station (Fig. 4) has a band of hand-made colored tile with a mosaic field. Its plaque represents the tower of Brooklyn's Borough Hall.

The station name tablets are spaced about forty-five feet apart in the tile field, just below the band, with a dark mosaic background and colored tile border that they may easily be seen by passengers on the trains.

The side walls of express stations facing the platforms have columns spaced 5 feet on centers between which the tile is fitted (Fig. 2). A band of color runs around the white, forming a series of panels tied together with the continuous upper band, all of which is kept flush with the steel.

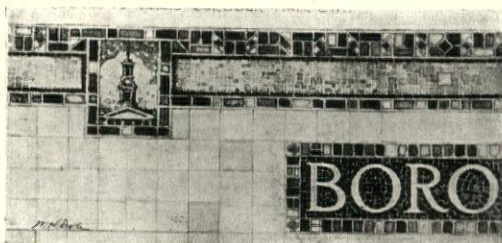


FIG. 5. COLORED TILE BAND WITH MOSAIC FIELD.

For the sake of sanitation, appearance, and economy in maintenance, surfaces so far as possible are kept plain.

Paneling, string courses, moldings and dust catching ledges are avoided. Intersections of walls are fitted with "bull-noses" or re-entrant angles with special pieces at corners of openings. Grilles and railings are of plain square bars; doors are of steel and without panels; ticket booths and newsstands are of steel or masonry. In short, the entire design of the station is severe, and the materials are so handled that they may be in keeping with the structure which they furnish or decorate.

ELEVATED STATIONS.

The construction of an elevated line is cheap and easy in comparison with the difficult subway work.

Because of the cost of special steel work we have not been able to design anything in steel but straightforward utilitarian structures composed of standard shapes.

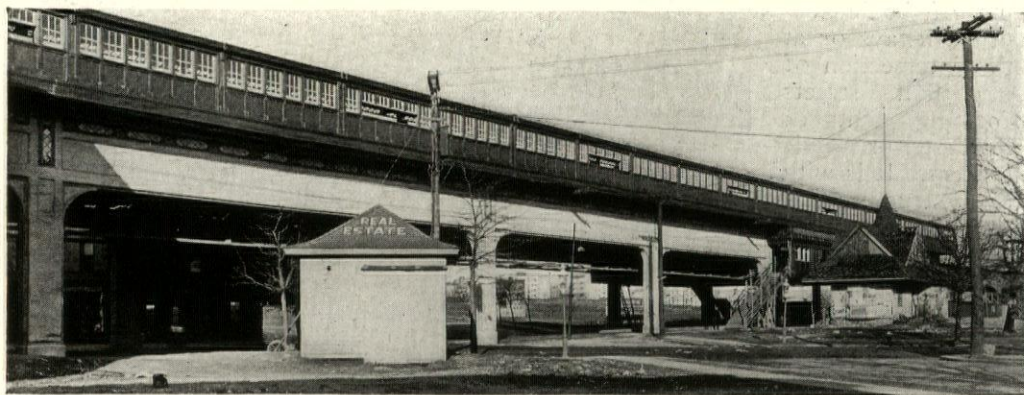


FIG. 6. FORT HAMILTON PARKWAY STATION, NEW UTRECHT AVENUE LINE, BROOKLYN.

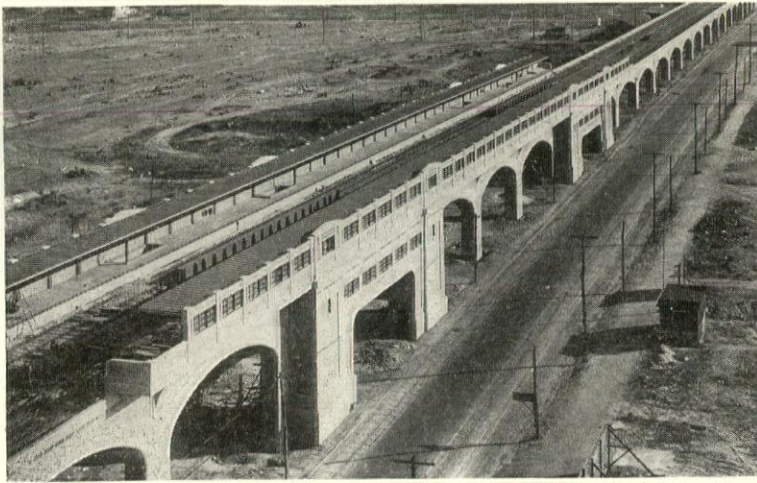


FIG. 7. QUEENS BOULEVARD STRUCTURE, WITH RAWSON STREET STATION IN FOREGROUND.

Paris and Berlin have elaborate elevated steel structures, but in those cities the difference of cost between standard and special shapes is much less than in this country, where the scale of wages is high. We have, however, made an effort to use the standard shape to the best advantage. At the station a decided improvement has been made by substituting the mezzanine for the ticket house at the platform level. The result is that the station is a long, low, orderly structure which is not displeasing.

It is, however, the policy of the Commission to supply special structures at the crossing of boulevards or parkways or at the intersection of important streets forming points of interest or civic centers. It is with these structure that we are now concerned.

The problem at Mosholu Parkway was to erect a station (Fig. 1) over the concrete bridge which spans the boulevard connect-

ing Van Cortlandt and Bronx Parks. It is a steel frame covered with concrete, with enclosures at either end of the bridge which contain stairways leading up to the mezzanines, where the controls are located. Windscreens are provided, continuous with the platforms. There are tile inserts in the concrete of the stair enclosures and in the pylons of the windscreens.

Fort Hamilton Parkway station in Brooklyn (Fig. 6) crosses the avenue for which it was named. Here the windscreen overhangs the column and girder line. The soffit of the overhang is composed of continuous panels of tile. There is a frieze of inlaid colored tile on the face of the girder with plaques at the columns.

QUEENS BOULEVARD STRUCTURE.

The most unusual piece of construction with which we have been concerned

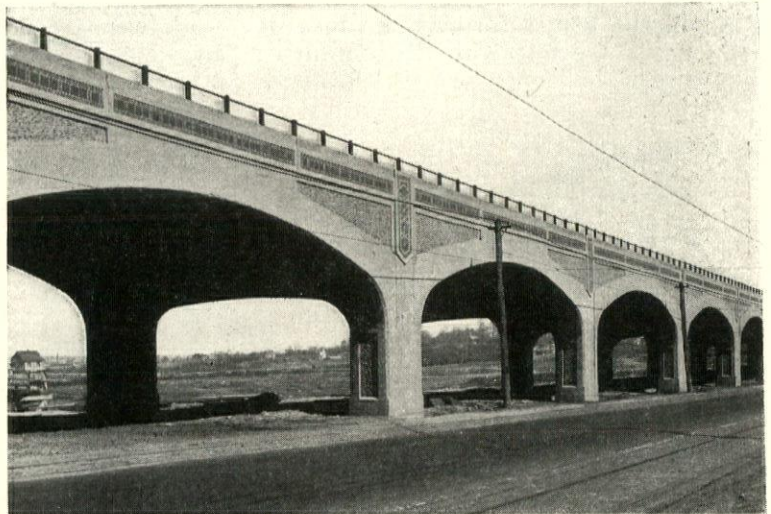


FIG. 8. QUEENS BOULEVARD STRUCTURE, BETWEEN STATIONS, SHOWING INLAID COLORED TILE.

is that erected for a distance of four-fifths of a mile in the broad avenue known as Queens Boulevard in the Borough of Queens (Figs. 7 and 8).

When the avenue is complete there will be a drive and a strip of parkway on either side of the structure, with the trolleys underneath. This structure has large reinforced 65-foot longitudinal and 35-foot cross arches. The form of the vault supported by the arches is a dome. A continuous band of tile on either side with large plaques at the columns give the huge structure a touch of grateful color.

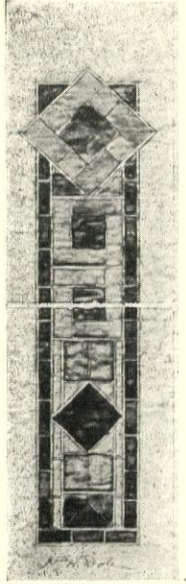


FIG. 9.

SURFACE TREATMENT OF CONCRETE.

On all of these stations the concrete dressing was done with pneumatic tools. The four-pointed tool was used. Bands varying from two inches to four inches were usually left around panels and corners which were rubbed smooth, giving a frame or setting to the regular work. On certain work with big surfaces, a wider band was left, and this was hand-tooled with lines at right angles to the corners, about three-fourths of an inch apart. These are practical ways of finishing corners or arrises, as it is impossible to dress them with a pneumatic tool without chipping and forming more or less irregular lines.

The contractors were required to dress away any unevenness caused by the bulging of the forms, bringing the surface to even planes in which all the cement skin was removed and the gravel lying near the surfaces chipped or cracked to give a sparkling effect. By the removal of a considerable portion of the surface most of the board marks disappeared. It is a curious fact, however, that a few board marks will remain although the entire surface is dressed to a plane; this

is probably caused by the fine sediment collecting about the joints of the boards.

DESIGNING IN CONCRETE.

Some one has said of the painter that his one compelling purpose is in all fidelity and singleness of aim to translate the impression received. To produce a successful structure in concrete the designer should perhaps have a vision of bigness and simplicity. He should strive to disremember his schooling, "which doth make cowards of us all," to cleanse his mind of such architectural forms as cornices, string courses, dentils, modillions, keystones and voussoirs, and to draw on those more valuable acquisitions which enrich the mind after years of work and study—a sense of fitness and proportion, a sympathy for broad surfaces and an apprehension of simplicity; then will he arrive, if he be able to add to this quality something of the pith and vigor with which the Master Dramatist clothed Macbeth, who, defying his opponent, the sinister threat of Birnam Wood and that unusual and unorthodox handicap of being born of no woman, stood stanch and bid the stout McDuff "lay on!"

We may not applaud the character of this ambitious canny Scot as do we that of the noble Caesar, who preferred men about him that were fat; or the gentle Cordelia, whose voice was ever soft, gentle and low, an excellent thing in woman. These characters though differing widely endure through the ages simply because of the manner of presentation. Just so the material, be it rough or rich or fine, in the hand of the artist becomes a thing of beauty. The rough stone wall, the lofty gilded marble hall, the painting in milady's boudoir are ugly or commonplace or things of beauty, depending upon the presentation.

The designer in concrete should there-

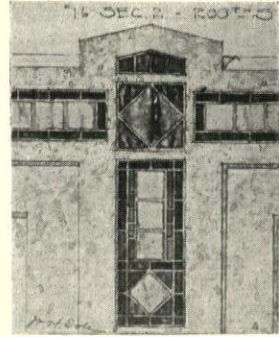


FIG. 10.

fore omit forms which in that material become meaningless, striving rather for large surfaces, enriched, unbroken, and hence unspoiled.

INLAID COLORED TILE AS A DECORATION.

Colored tile, it would seem, is a most appropriate enrichment for a concrete surface (Figs. 9 and 10).

Back in the dim past the children of the Nile not only enriched the entire bulky column and capitol but covered large areas of wall surface of the stately impressive halls and temples of their kings and gods.

Something of this was in some way handed down to the artistic Greek, who enriched the entablature, the pediment and the capitol of his column with brilliant color.

The Moor covered the wall surfaces of his mosque and slender soaring minaret with colorful geometric patterns and interlacing bars, giving much of the rich effect indeed by the use of colored tile.

Since the days of the Renaissance, however, architecture has depended upon form rather than upon color for exterior enrichment. Effects have been gained by the arrangement of architectural motives enriched by carving and sculpture without the aid of color.

Now the use of these forms in a plastic material such as concrete is not practical or appropriate. It is much better to design simply, omitting "not the sweet benefits of time" but much of the detail characteristic of stone work. If a little color be needed, enrich the rough and rigid surface with bands or plaques of tile. It may be had in any color or formed in shapes or patterns to suit the most fastidious designer's fancy. It may be used with restraint to soften a façade even as a piece of tapestry tempers a wall of stone, or if it be desired to emphasize any feature a plaque of joyous

brilliant color may be placed which will shine resplendent like a rich jewel roughly set.

COLOR IN ARCHITECTURE.

In a recent article appearing in the *Record* the writer predicts a golden age in which color will again come into architecture because life will be joyous and joy demands warmth and brightness and color.

If this be realized it seems safe to predict that the colorful products of baked clay will be employed to add grace and charm and beauty to the arch, the vault and the lunette of the interior and to our gray and overburdened exteriors, which will take on light; and there will be color in our domes and heaven pointing spires.

Perchance in this golden age the predicted new style of architecture representing clarified American ideals shall have been realized.

The crowning glory of the Acropolis; the pomp and splendor of the Eternal City; the intricate and colorful surface decorations bequeathed by the Moors; the rich and soaring vaults and spires of the master-builders of medieval days; the revival of classic forms, giving expression to the noble palaces of the Renaissance! Shall all of these be thrust into the witch's caldron there to boil and bubble until the "yeasty waves confound and swallow navigation up"?

What shall be brought forth we know not. It will be unlike any of these, for each represents the separate, inherent aspirations of its creator, hence the infinite variety. Yet may it be tempered by the past "like the calm rose of a lute." May it be filled with wonder, joy and fancy. May it be conceived in strength and power, standing forth like a prophet of old proclaiming calmly from a lofty height great and universal truths.



THE OLD PALMER HOMESTEAD.

The UNITED STATES HOUSING CORPORATION

Project No. 59 at Bath, Maine

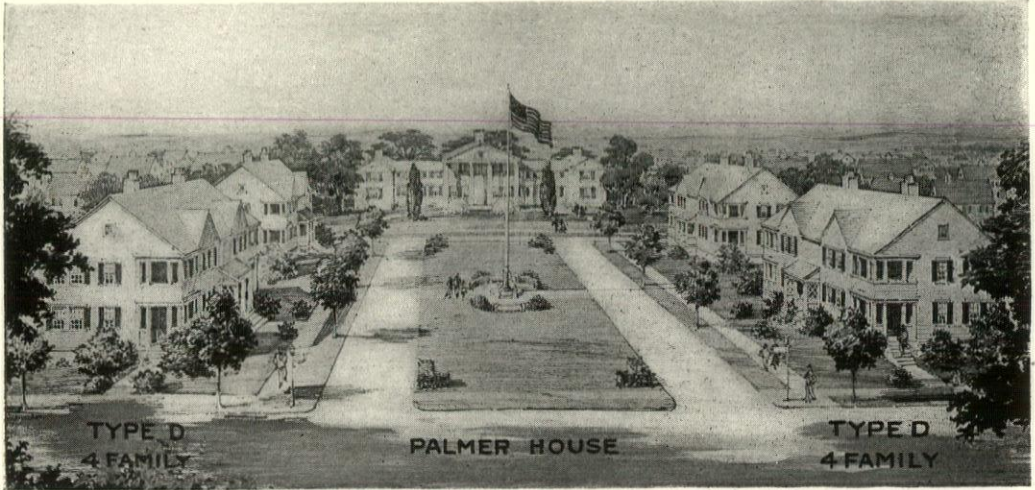
AT the time the shipbuilding activities of the Government began to assume tangible form, the growing need of houses for the ship workers at Bath, Maine, caused the United States Housing Corporation to take active steps to relieve the situation. When it was found that the problem could be solved in no other way than by the construction of houses, the work was entrusted to Parker, Thomas & Rice, architects; Loring Underwood, town planner; and Weston & Sampson, engineers; all of Boston.

The site selected is a tract of approximately twenty-four acres, commonly known as the "Palmer Farm." Only half of the area is being developed at this time, but as needs arise new streets can be built without interfering with the

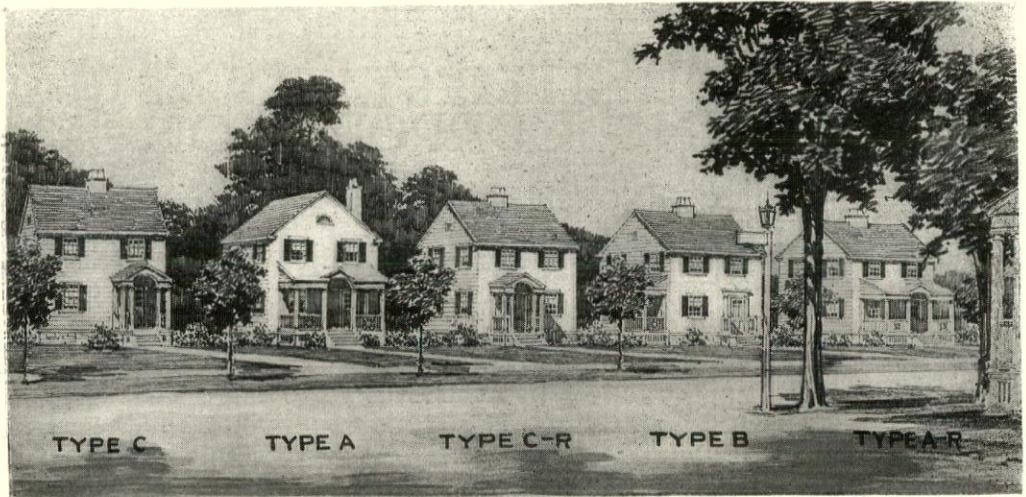
present arrangement. In the meantime the undeveloped part will serve as a natural park and playground.

One of the attractive features of the development is the use made of the old Palmer house. The architects have very wisely used this well preserved and very interesting old homestead as a source of inspiration for the style of the smaller houses that have been planned to be grouped about it as a new community. Facing the old house there is to be a small rectangular green to be known as "Flaherty Park," in honor of the first Bath boy to lose his life in the war. From the park new streets communicate with existing thoroughfares that lead to the ship works.

The size of the house lots will vary from forty by eighty feet to forty-seven

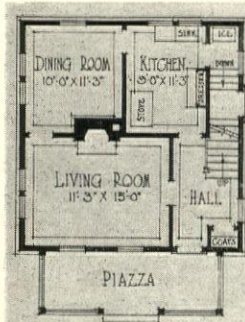


VIEW LOOKING TOWARD OLD PALMER HOMESTEAD AND SHOWING FLAHERTY PARK,
NAMED AFTER FIRST BATH BOY TO LOSE HIS LIFE IN THE WAR.

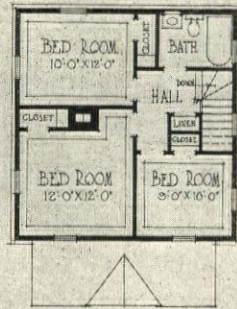


VIEW DOWN ANDREWS ROAD.

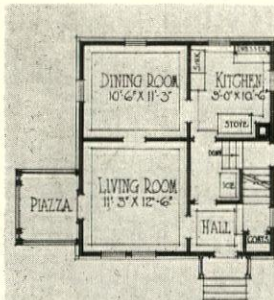
Varied exteriors obtained by the use of four types
of floor plans.—U. S. Housing Corporation Project
No. 59, at Bath, Maine.



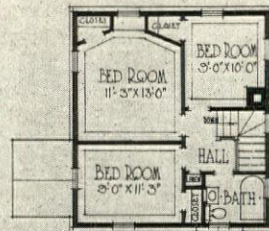
FIRST FLOOR PLAN
TYPE 'A' HOUSE



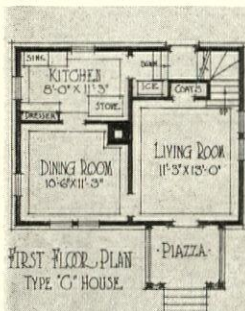
SECOND FLOOR PLAN
TYPE 'A' HOUSE



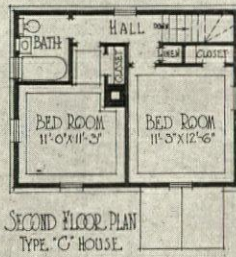
FIRST FLOOR PLAN
TYPE 'B' HOUSE



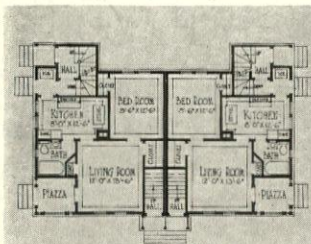
SECOND FLOOR PLAN
TYPE 'B' HOUSE



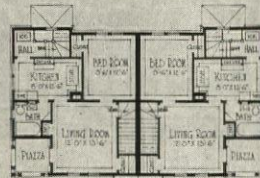
FIRST FLOOR PLAN
TYPE 'C' HOUSE



SECOND FLOOR PLAN
TYPE 'C' HOUSE



FIRST FLOOR PLAN
TYPE 'D' HOUSE



SECOND FLOOR PLAN
TYPE 'D' HOUSE

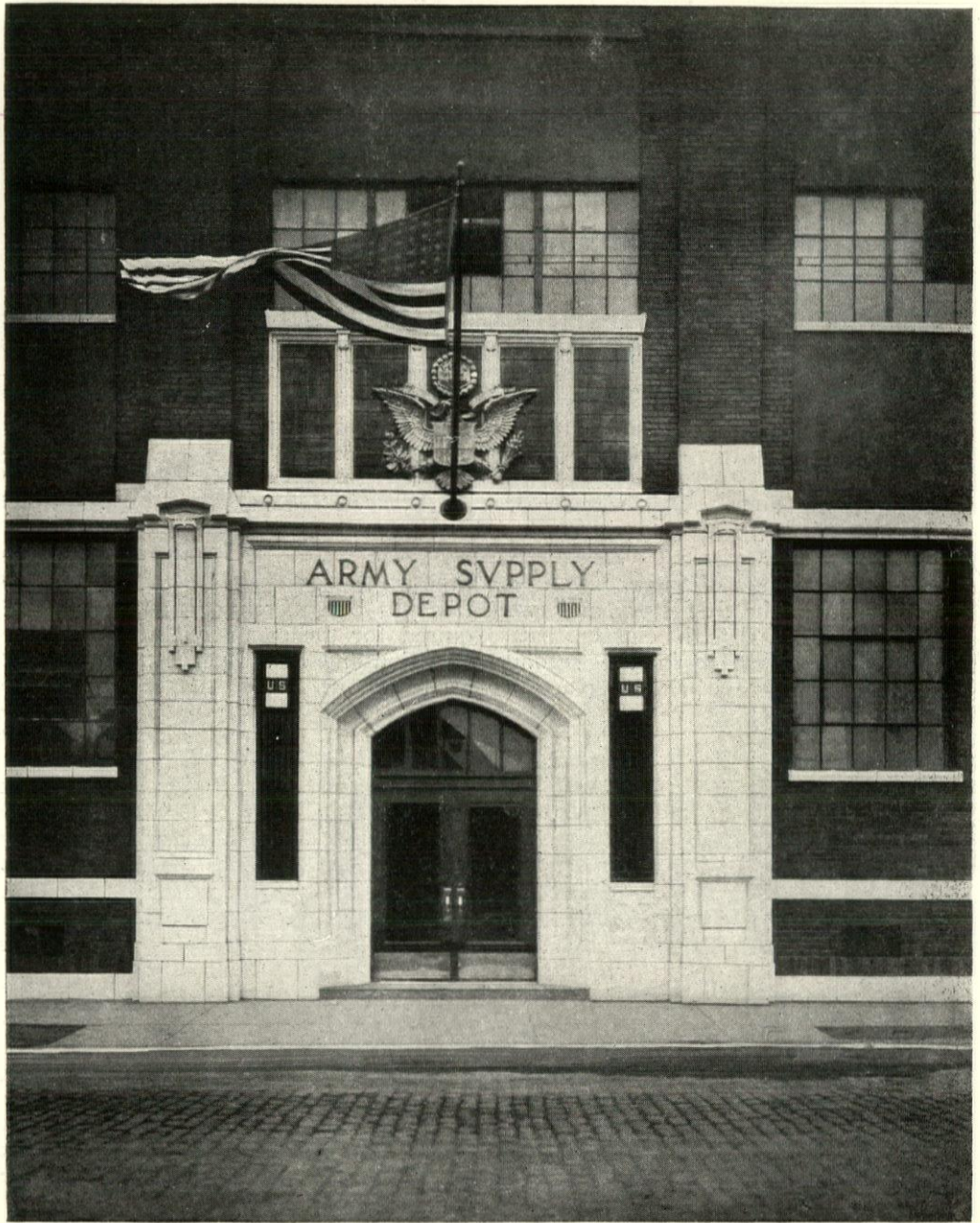
THE FOUR TYPES
OF FLOOR PLANS.

by one hundred feet, and the houses are so arranged that no two will be closer than sixteen feet from side to side. From rear to rear there will be approximately sixty feet, thus allowing generous space for gardens.

As befits the traditions of Bath, the houses are to be of wood. Although only four types of plans are used, a skillful arrangement of porches and minor details will prevent monotony and will produce a harmonious and distinctly American appearance. All of the houses will be two stories high, simple in plan and design. Roof surfaces are unbroken. The houses will be clapboarded and painted and roofed with asphalt shingles. The inside finish will be of North Carolina pine, painted. All floors will be double and the top flooring will be of oak. All houses will have cellars under their entire area. Each single house will have a living room, a dining room and a small kitchen in the first story and two or three bedrooms with closets, bath room and linen closet in the second story. There will be a brick fireplace in

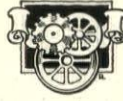
the living room of some of the houses. The stairs to the second floor lead generally from a small hall provided with a coat closet. All principal rooms have windows on two sides, except in type D (four-family houses.) Each kitchen will be equipped with a coal-burning range, gas heater, sink and wash trays. The heating will be done by hot-air furnaces. Electric wiring and light fixtures are also furnished.

The result promises to be a well ordered and charming New England village of attractive houses. The construction throughout is of a substantial character that undoubtedly will cause the houses to be sought by private investors at such time as the Government may decide to transfer its interests. With the armistice in operation and a victorious peace in sight, the housing situation at Bath is in no way changed from its wartime urgency, due to the fact that additions to our merchant marine are required for the commerce of the reconstruction and of the peaceful times that are to follow.



ENTRANCE—CHICAGO INTERIOR PERMANENT STORAGE WAREHOUSES. S. SCOTT JOY, ARCHITECT. GEORGE C. NIMMONS & COMPANY, SUPERVISING ARCHITECTS FOR UNITED STATES GOVERNMENT.

MODERN INDUSTRIAL PLANTS



By George C. Nimmons

PART III.—PLANS AND DESIGNS.

AMONG the essential requirements for the successful operation of any industrial plant are the plans and designs for the buildings. Assuming that a proper site (with the needed transportation, room for expansion, accessibility for employes and materials, and the other requirements described in Part II of this series) has been obtained, the next step in the establishment of the plant is the making of the plans and designs for the buildings.

Mistakes in the management or operation of a plant can usually be corrected without material disturbance to the business; but mistakes in the plan, arrangement or design of the buildings require, as a rule, a "major operation," in order to put the plant in a healthy, growing and efficient state of development. The plan and design of the buildings fix to a certain extent the character of the future business, just as certainly as the mould determines the casting when the metal is poured. The plan and design for each building should therefore be made perfect before beginning its construction. The work shop, or the plant, is the master tool, as is well said in the A. W. Shaw Company's "Factory Management" series.

In nearly every manufacturing industry the making of the product involves several distinct processes, which should be separated from each other into different rooms, departments or buildings. The raw material may be a single substance or it may consist of a number of substances that require various kinds of preparation before they can be incorporated into the make-up of the product. In fact, the complete operation of a single plant may be so complicated that its various processes of manufacture ex-

tend out from the main flow of production like the tributaries of a great river. However, the flow of production must not be allowed to wind or to bend from its direct course, and there must be no obstacles to retard its progress.

The parts of the building, therefore, should be so arranged that, in the manufacture of the product, the raw material is made to travel logically and directly through the plant from one process to another, without lost motion, needless handling or delay, till it reaches its finished state ready for the market. Whether the material travels in this direct course depends entirely on whether the rooms or departments of the plant have been arranged so as to make direct travel possible.

Imperative and essential as this requirement is, it is surprising how many plants there are in which the production flow is interrupted by the arrangement of the building. Not infrequently the material is passed up and down several times from one story of a building to another before the product is completed; in one extreme instance the material passed up and down four times from the first to the fourth floor, although, if the building had been properly arranged, the material would have traveled only once from the fourth to the first floor.

Where a plant consists of several buildings the arrangement of the different buildings and the utilization of the spaces between them are just as important in controlling the flow of production as are the different parts of a single building.

When the flow of production is unnecessarily interrupted it makes a gap in the manufacturing process. As a result of such gaps materials accumulate there,

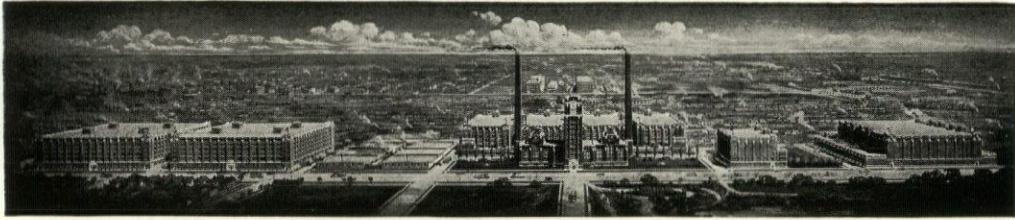
occupy valuable floor space, cause delay in their completion, increase the danger of breakage, and may require a considerably larger force of operatives in some departments than would otherwise be necessary. Interruptions of this nature readily add five or ten per cent., or even more, to the cost of production; and the increased cost is the more regrettable as the wasted money does no one any good.

It is a curious fact that much more ingenuity has been exercised in the planning of machinery to reduce waste than has been exercised in the planning of buildings to accomplish the same end. When the great advantage of well planned and properly designed buildings is so vital to success, why is it that so many buildings should exist which, by their plan and arrangement, hinder the direct flow of production, do not lend themselves to the best quality of workmanship or in other ways handicap the business? The answer is that probably a majority of industrial buildings are planned and designed by the owners themselves or by some operating superintendent of the plant. This is usually done on the theory that each owner or his head operating man knows the business best and that from this direct knowledge the best plan and design for the building are bound to follow. However, unless the owner or the operating superintendent is a skilled designer of buildings, he cannot possibly make the best plan and design. He is apt to stop his study of the problem at the completion of the first sketch, thinking that, since he knows his own requirements so well, his first sketch must of necessity be the logical solution of his problem. The first sketch is hardly ever the best solution of a problem, and, besides, it does not follow at all that in the hands of an unskilled planner of buildings the best plan will evolve itself out of a thorough knowledge of requirements. The sketch of a manufacturer not experienced in the planning of buildings, whether it be his first sketch or the latest of many, is usually child's play compared to one by a skilled designer. The ability to plan and design buildings comes not alone from inherited aptitude nor from a mechanical or engineering knowledge of industrial

processes, but mostly from a special development of mental faculties which enables the trained designer to visualize a variety of ways of solving a problem, to use one or many of innumerable resources familiar to his experience for overcoming obstacles, to investigate untried groupings and arrangements of buildings, to create, like the inventor, some special layout or design of construction that will eliminate former waste of production and assist in the reduction of manufacturing cost.

In its larger features a building plan often appears simple and easy to make. That is the chief reason, no doubt, why many people imagine they are pretty good architects even though they have no training or experience. Possibly the requirements of a plant involve only a few manufacturing departments, a storage space, receiving and shipping facilities; yet the wrong placing or spacing of elevators, stairways, working areas, receiving and shipping departments, or the failure to secure proper light at critical points, sufficient carrying capacity or stiffness of construction, may handicap the plant as long as it exists. The most usual omission in the work of an amateur planner, however, is failure both to conceive the possibilities of his building site and to provide for improved manufacturing methods. The chances are overwhelmingly against an inexperienced planner of buildings in his effort to make a building that will be a "master tool."

In preparing to build a new plant, the first thing for the owner to do is to decide upon the approximate locality in which to build, to make a general program defining the nature and extent of the improvements contemplated, and then to select an architect before the building site is decided upon, so as to make sure under his guidance that the site to be chosen has all the essentials and advantages required for the particular needs of the proposed building improvements. An owner should never hesitate to bring the architect into touch with a building enterprise at its very inception. No matter if the whole project is abandoned before any plans are made, there is no harm done, as the professional charges for the architect's services up to that



CHICAGO INTERIOR PERMANENT STORAGE WAREHOUSES AND COLD STORAGE PLANT.

Erected for

THE UNITED STATES GOVERNMENT

in the Central Manufacturing District of Chicago,

H. E. Poronto, District Manager.

In charge of

Major S. L. Nelson, Constructing Quartermaster.

S. Scott Joy, Architect for the entire project.

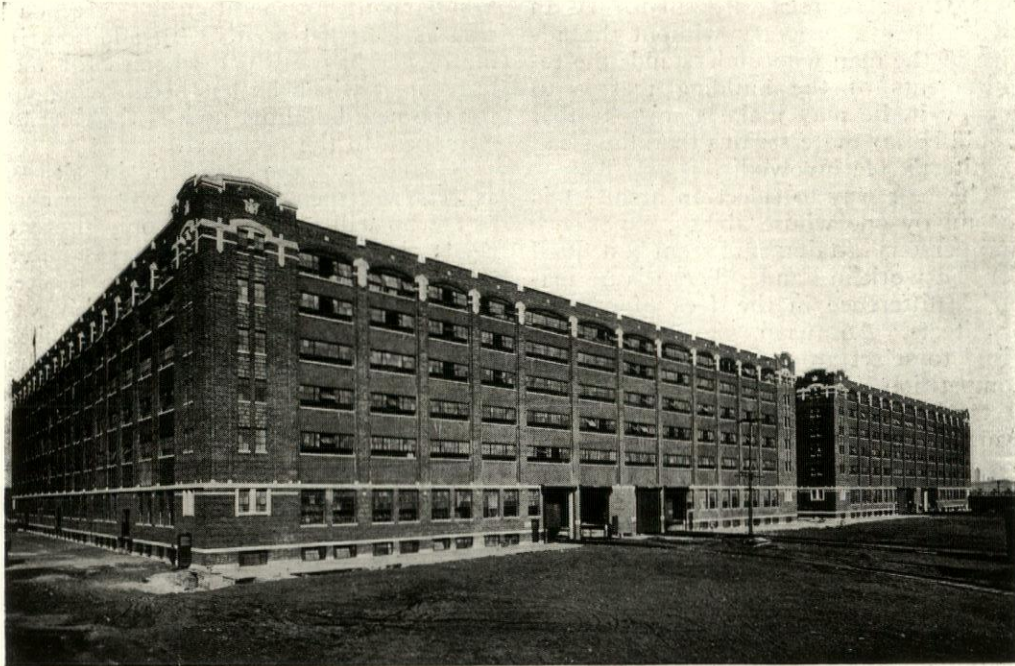
George C. Nimmons & Co.,

Supervising Architects for the Permanent Warehouses for the Government.

Gardner & Lindberg,

Supervising Engineers for the New Cold Storage Building for the Government.

The Quartermaster Headquarters of this district, in charge of Brigadier General A. D. Kniskern, are in the top of the two large warehouse buildings at the left which, together with the one-story temporary warehouses, were erected after war was declared by the United States. The power plant, in the center, with the tower, the warehouse back of that and the first cold storage building to the right, were already built when the war began, and are rented by the Government. The remaining large cold storage building on the right is in process of construction. Food, clothing and supplies for soldiers are collected, stored and shipped from this plant.



CHICAGO INTERIOR PERMANENT STORAGE WAREHOUSES OF THE UNITED STATES GOVERNMENT, BUILT BY THE CENTRAL MANUFACTURING DISTRICT OF CHICAGO.

These buildings are at the left of the general view above. Together they are 600 feet long by 324 feet deep. Reinforced concrete construction. Total area of floors 1,260,000 square feet. Construction started March 1. Occupation of part of the basement with Quartermaster supplies June 12. July 20 three elevators in operation and various spaces throughout the building available for storage. By August 15 almost the entire storage part of the building was ready for occupancy.



FREIGHT STATION AND LOFT ERECTED FOR MONTGOMERY WARD & CO. BY THE CENTRAL MANUFACTURING DISTRICT.

S. Scott Joy, Architect.

This building was taken over by the Government and is the large building shown behind the Power Station in the general view of the Government Buildings.

time would be relatively small. If an owner buys a property without the advice of the man who understands the requirements of the building that is to occupy it, he may make a mistake that would be far more serious than the small architect's fee involved.

The best way to select an architect is to employ one whose ability, experience and personal attainments seem best fitted for the work in hand. There is no material difference in the fees of capable architects. An owner who has been advised to select an architect by holding a competition among a number of architects has been poorly advised. The American Institute of Architects has had a standing committee on competitions for over forty years; on the strength of its accumulated records, this committee advises against architectural competitions because it has found that as a rule they neither procure the best man for the job nor the best plan and design for the building.

After selecting his architect the owner should give him a list or diagram of all the requirements of his business and allow the architect and his men free access to the old plant so as to become perfectly

familiar with its operation, its defects as well as its good points. In addition, if the owner has any pet schemes for improvement which he has been saving up for the new building, now is the time to give them to the architect.

A study of the problem in all its aspects will then be made by the architect, who will consider not only present needs but provisions for reasonable growth and development in the future. After the architect has thoroughly digested the project he will submit sketches showing a comprehensive layout of the immediately proposed and future plant. There will likely be many sketches, as layout sketches are readily made by an architect; there will probably be one representing every possible way that the plant can be laid out on the property in question.

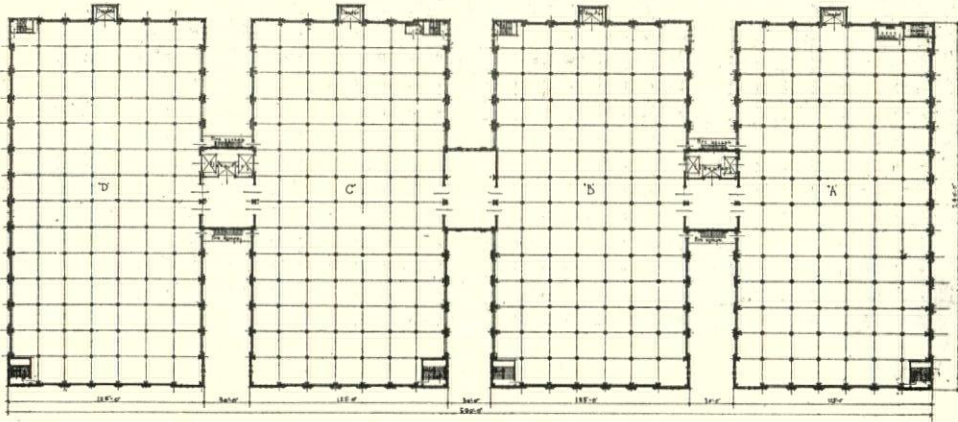
By making a sketch to represent each of the different ways in which the plant might be built to accommodate the business, it is possible to compare the various ways of providing for the operation of the plant, to criticise intelligently the good and the bad points of each scheme, to select the desirable features from this plan and that, and to build up a final

plan for approval that will represent the best results of the architect's skill and experience in planning and arranging and the owner's knowledge of the requirements of his own business.

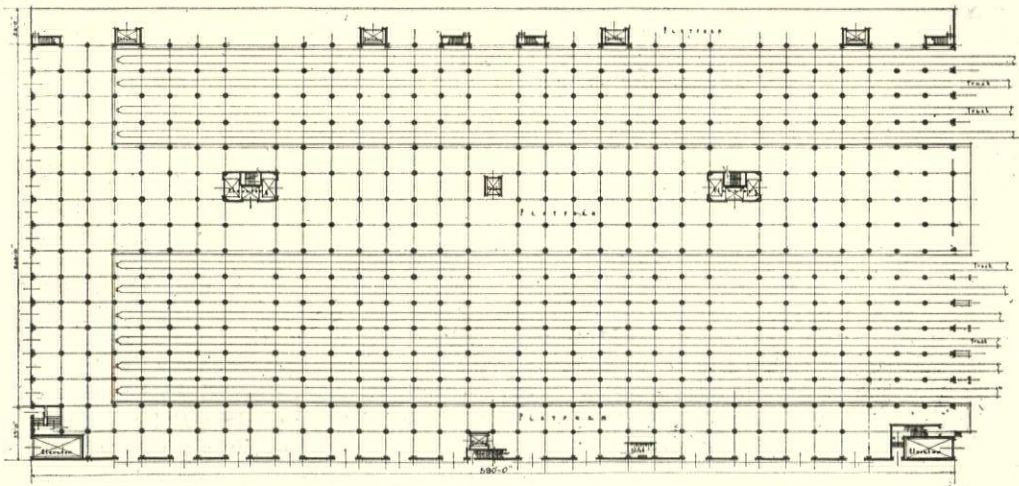
After this the complete working drawing and specifications will be made by the architect, bids taken from contractors, or a contractor selected directly, and the contract or contracts let. One big relief from anxiety to an owner, if the work is in the hands of a competent architect, is

that the drawings and specifications will be complete. All the study which the architect has put on the preliminary sketches and on the requirements of the owner results not only in securing the best plan and arrangement for the buildings, but also enables him to put in the original contract everything needed, thereby avoiding changes and expensive "extras" after the work is started.

When the contract is let, the architect and his men supervise the work of con-

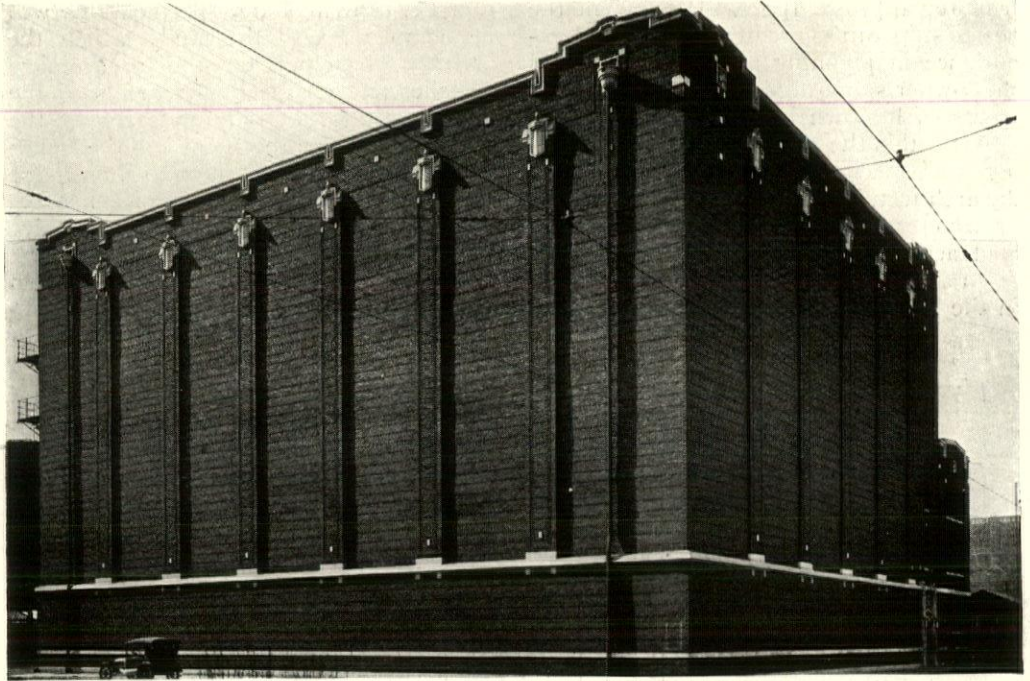


TYPICAL FLOOR PLAN
SCALE 1/8" = 1'-0"



FREIGHT STATION AND LOFT FLOOR PLAN
SCALE 1/8" = 1'-0"

FREIGHT STATION AND LOFT ERECTED FOR MONTGOMERY WARD & CO. BY THE CENTRAL MANUFACTURING DISTRICT.
S. Scott Joy, Architect.



COLD STORAGE PLANT BUILT BY THE CENTRAL MANUFACTURING DISTRICT FOR THE WHITE CITY COLD STORAGE COMPANY.

S. Scott Joy, Architect.

This building was taken over by the Government and is the first to the right in the general view of the Government Buildings.

struction, issue vouchers and certificates for payment and turn the building over to the owner at its completion.

In connection with the making of the first sketches of the plant, there is a convenient way of showing just how materials and goods are to be handled in the different processes of manufacture. This is called "routing" and is expressed on drawings by lines and arrows, sometimes in several colors, which indicate the way the materials and goods travel or are moved in their manufacture. It is sometimes helpful to make a perspective of the whole plant with the walls removed, thereby exposing the different stories, where dotted lines or other graphic signs show how materials and goods are moved in the flow of production.

DISCUSSION OF THE CHARACTER AND COST OF THE DIFFERENT KINDS OF CONSTRUCTION.

The selection of the most suitable type

of construction involves the consideration of the various kinds of modern building construction.

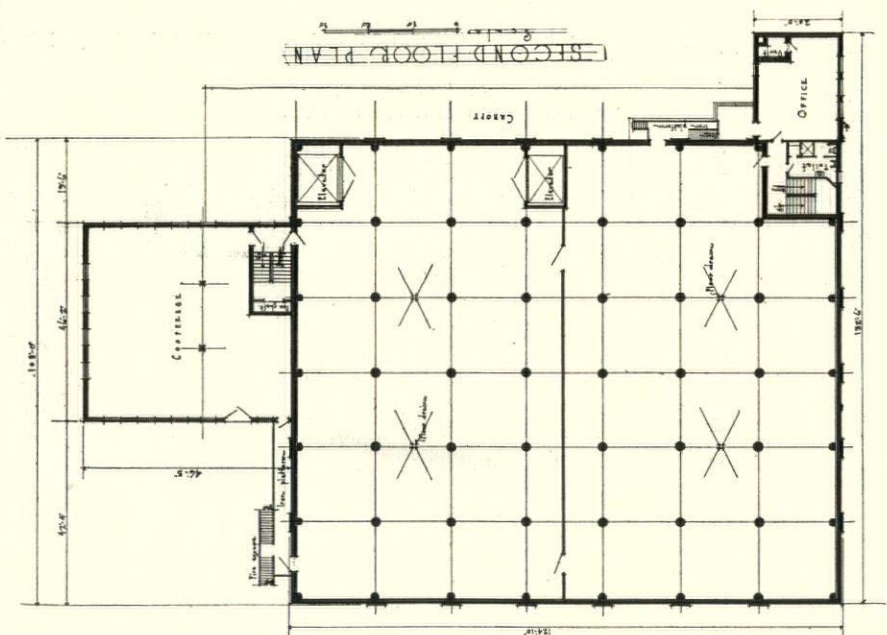
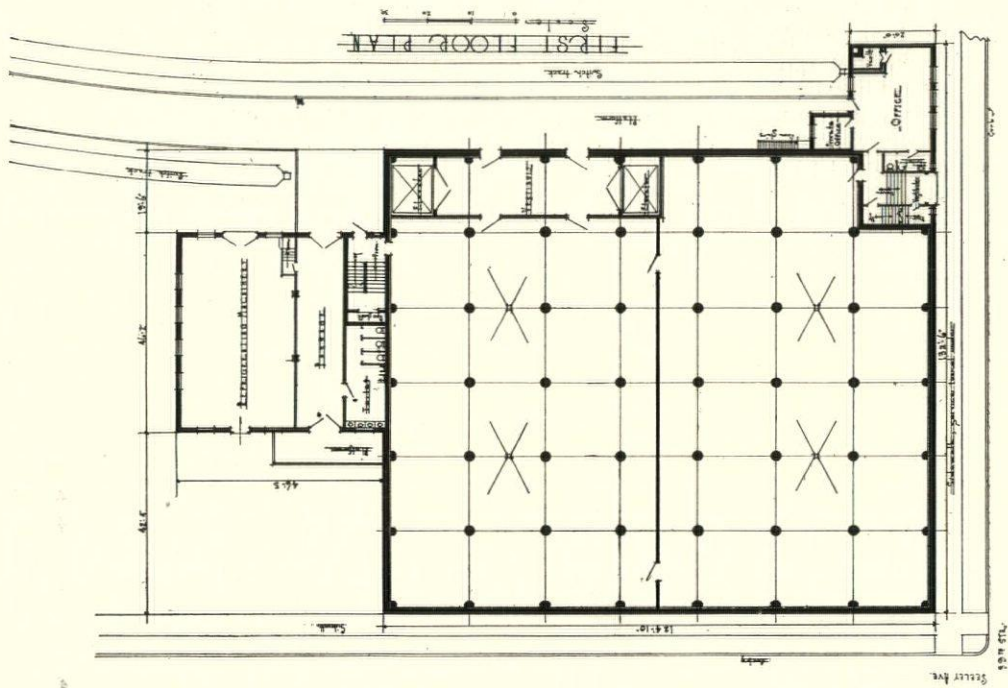
The distinguishing features of the different kinds now in use are as follows:
Frame Construction: Outside walls, floors, posts and roof of wood.

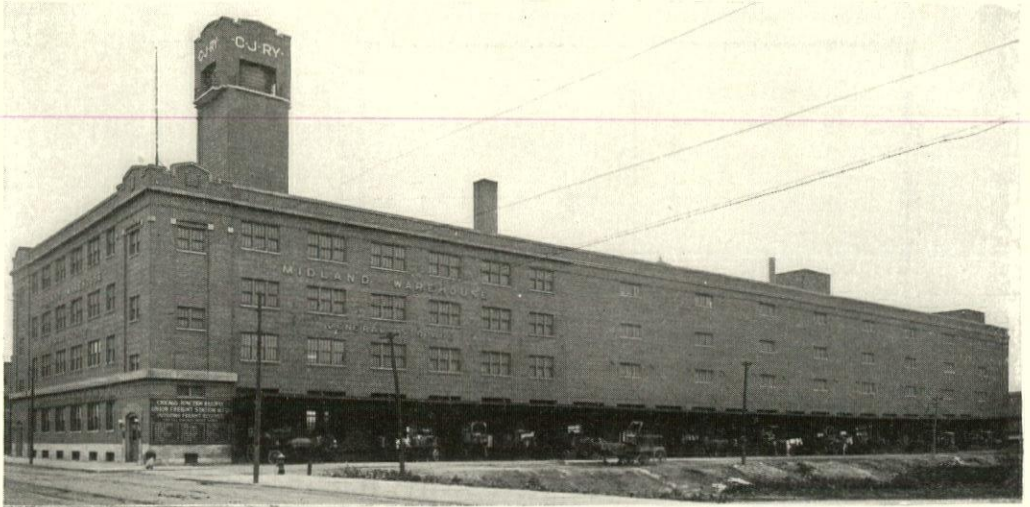
Ordinary Construction: Outside walls of masonry; floors, posts and roof of wood of thin dimensions, less than those required by insurance companies for mill construction.

Mill Construction: Outside walls of masonry, floors of wood at least three and a half inches thick, roof two and a half inches thick, posts wood at least ten by ten inches or of metal fireproofed, and all floor joists or girders at least seventy-two square inches in area or of metal fireproofed.

Slow Burning Construction: Usually of wood similar to mill construction, but with the underside of floor joists and girders protected by metal lath and plaster and an inch and a half of mortar or

COLD STORAGE PLANT BUILT BY THE CENTRAL
 MANUFACTURING DISTRICT FOR THE WHITE CITY
 STORAGE COMPANY. S. SCOTT JOY, ARCHITECT.





MIDLAND WAREHOUSE, CHICAGO.
S. Scott Joy, Architect.

incombustible material above the rough floor.

Reinforced Concrete: The vertical supports, floors and roof of concrete reinforced with steel; outside walls usually of brick or concrete or a combination of both.

Steel Skeleton Fireproof: The vertical supports, the joists and girders of structural steel shapes, with the floor spaces between filled with hollow fireproofing tile or other similar material and the outside walls closed in with masonry supported by steel skeleton.

In addition to these main distinguishing features there are special requirements for each type concerning fire walls, stairway and elevator enclosures and various other details.

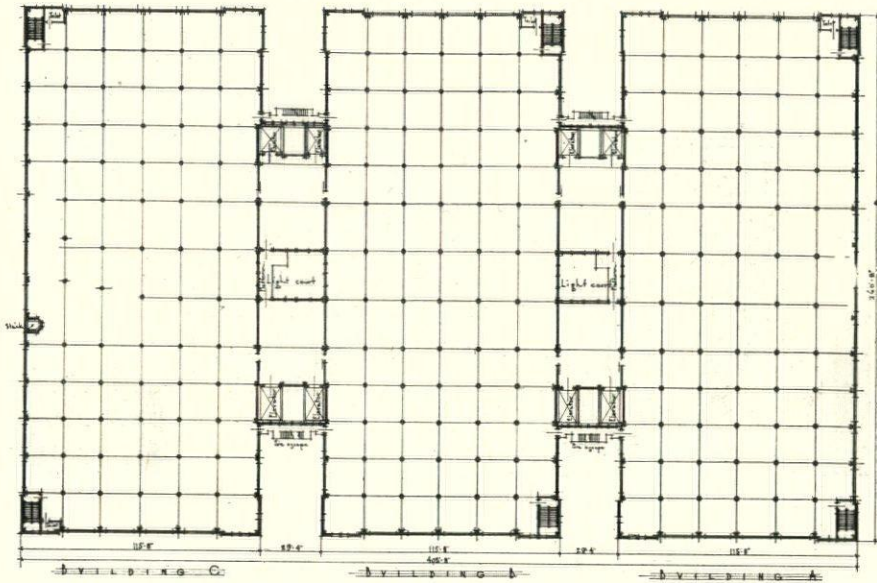
There are also mixed types of construction not defined in the above classification which should be mentioned, such as large steel skeleton shops and foundries that are sometimes enclosed only with sheet metal, and extensive one-story saw-tooth skylight buildings that may possibly have tile walls and steel or timber roof trusses.

In selecting the type of construction for a great majority of industrial plants, the choice would usually fall among the types of mill construction, reinforced concrete and steel skeleton fireproof, or

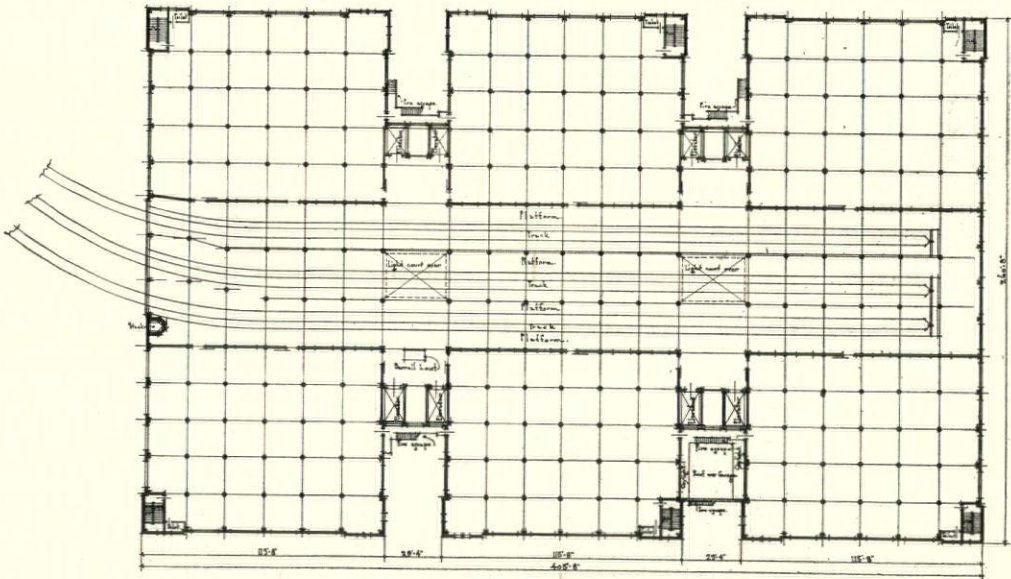
in some cases a combination of two of these.

No one, if it is possible to avoid it, should build an industrial plant of frame or ordinary construction, because of its temporary nature and the high cost of fire insurance.

Mill construction is a form of heavy timber and plant construction that was at first most extensively used by textile mills of this country. It has been adopted by all sorts of industries and often increased in height up to seven or eight stories, which in recent years has been fixed by most city building departments as the limit of height beyond which such buildings must not be built. This kind of construction is entirely practical and serviceable, but lacks the feature of stiffness at the joints between one story and another which the more modern systems of concrete and steel skeleton construction so well provide. In mill buildings, rigidity or resistance to moving or leaning over sideways must be secured entirely by the bulk or weight of the outside piers and walls, because the columns have loose joints at every floor and the girders and beams rest on piers and walls, with no anchorage or bracing that would materially resist the pushing of such a building over sideways. The old idea was that all timbers should only be

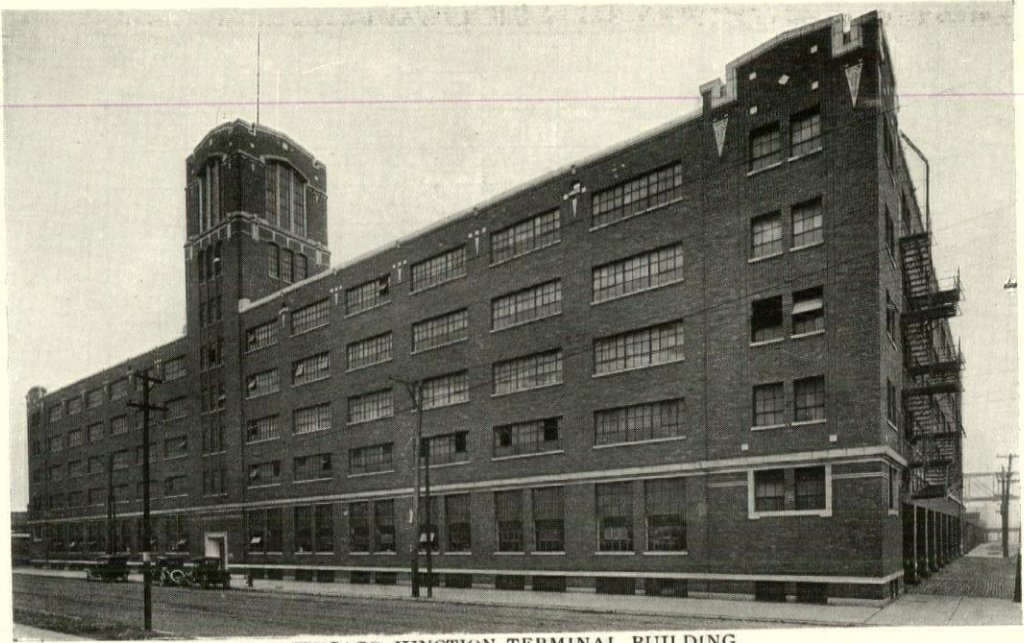


TYPICAL FLOOR PLAN
Scale: 1/4" = 1'-0"



SECOND FLOOR PLAN
Scale: 1/4" = 1'-0"

MIDLAND WAREHOUSE, CHICAGO.
S. SCOTT JOY, ARCHITECT.



CHICAGO JUNCTION TERMINAL BUILDING.
S. Scott Joy, Architect.

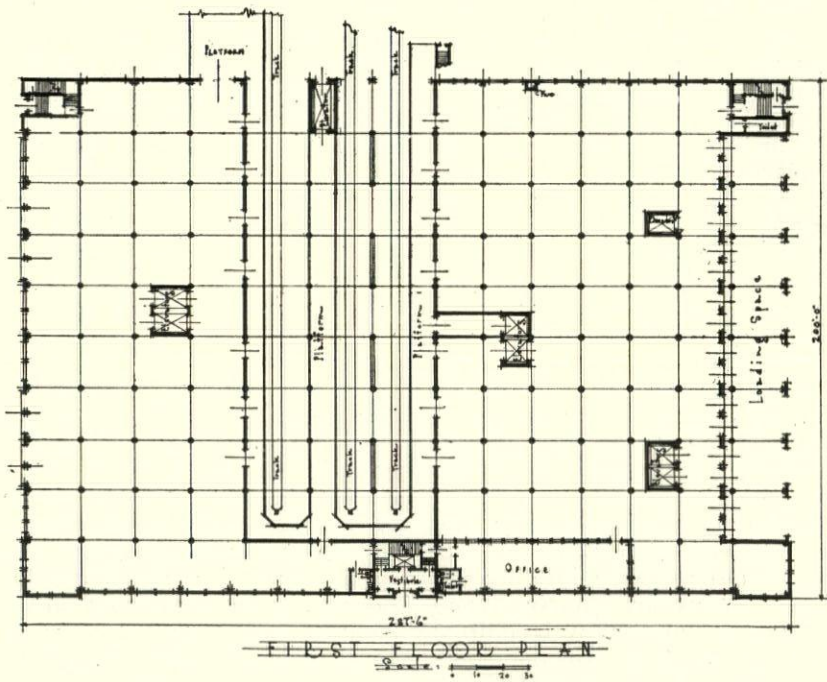
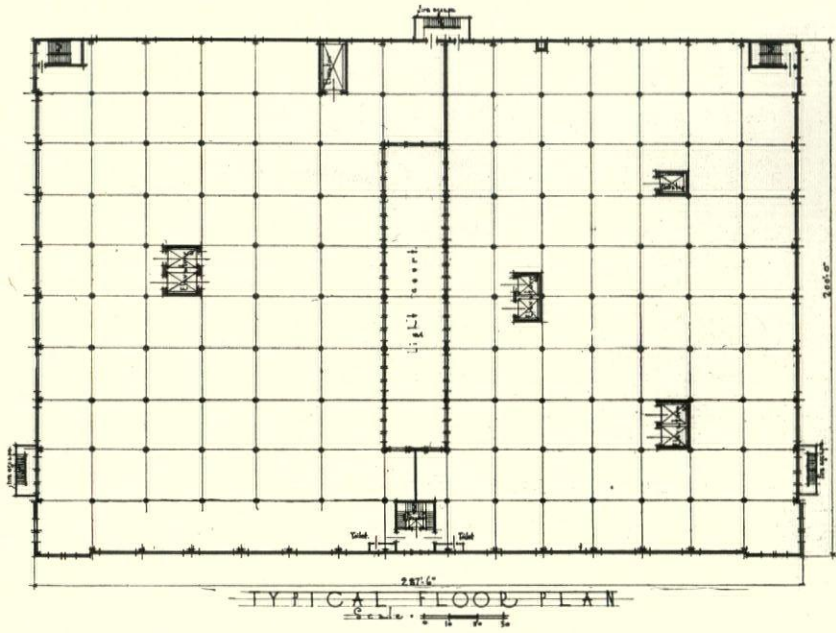
so anchored in the walls that they could fall out readily in a fire without pulling the walls down. This method of construction prevents bracing against lateral movement. The three kinds of mill construction usually employed are:

First, the construction consisting of girders and joists to support the plank floors where the joists are placed entirely on top of the girders, thus making large open spaces above the girders throughout the ceiling of each story.

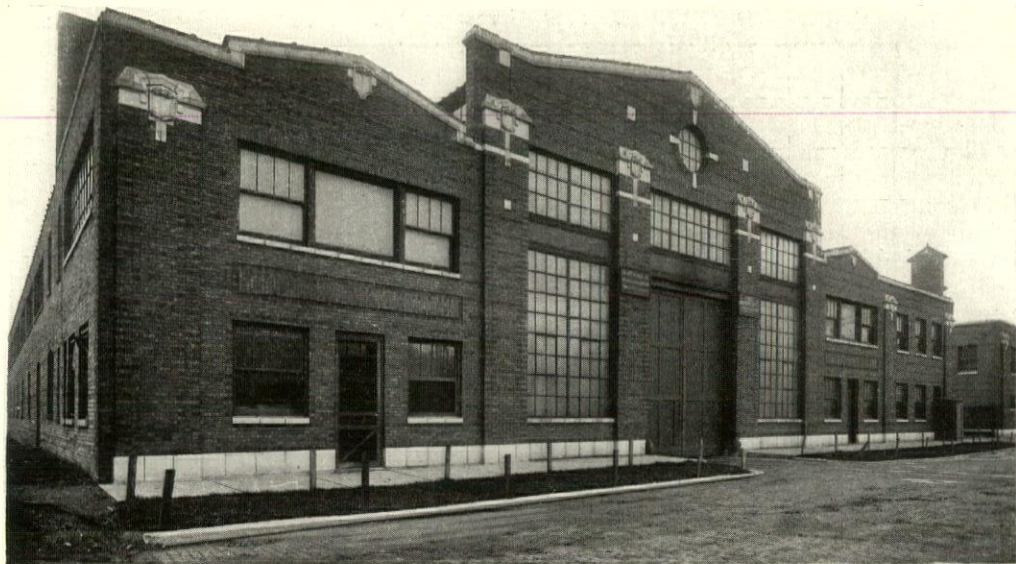
Second, the same construction where the top of the joists are placed flush or level with the top of the girder and supported by iron stirrups or brackets attached to the girders. This method avoids the great dust catching spaces above the girder, saves all the head room of the depth of the joist in every story and reduces the cost of the building by eliminating usually fourteen or sixteen inches of height in all walls, columns and partitions of every story. An objection to it was once raised by the insurance authorities on account of the unprotected metal supports of the joists. Experience, however, has since proved that the liability to failure of these metal supports in a fire is remote; and while there is a

penalty still imposed in the insurance, it is so slight as not to be material when compared to the advantages to be gained.

Third, the construction where the joists are omitted and the floors made thick enough to span directly across from one girder to another. The floors in such instances are constructed in two ways. First, a laminated floor in which thin pieces of wood, one, two or three inches thick by a depth of from five to eight inches, are nailed together sideways so as to make a solid slab of wood of sufficient thickness and strength to carry the load from one row of columns to another. One slight trouble from this construction is that after the building is finished and begins to dry out, the pieces of the floor slabs shrink and sometimes allow considerable dust and dirt to fall which had become wedged in these cracks during construction. This objection, however, has not been found sufficiently great to prevent the adoption of this style of construction in many buildings. The other style of constructing the thick floor slabs which span directly from one girder to another is the splined floor construction. This is made out of heavy plank, about eight inches wide and four



CHICAGO JUNCTION TERMINAL BUILDING. S. SCOTT JOY, ARCHITECT.



JAMES M. TAFT MACHINE SHOP, CHICAGO.
S. Scott Joy, Architect.

or more inches thick, according to the strength required. On each side of each piece of this floor plank is a groove about an inch wide and an inch deep, into which the spline or piece of wood about one inch thick and two inches wide, is placed and forms a union with the next piece just as a tongue does on the ordinary piece of flooring. Each piece of this heavy flooring is spiked by one spike ten inches or more in length through its center into the girder. It may also be toe-nailed to the girder first with small spikes so as to drive it up before the big spike is driven. This method has the advantage of preventing the dust and mortar from going through which was deposited on top during the building operations and it also has the advantage of being rapidly constructed during building operations.

In considering the cost of the two types of mill construction above described, it should be taken into account that no floor joists are employed and that therefore this lumber can be utilized to increase the thickness of the floors without adding any material additional expense on account of the extra thickness of the floors.

Both of the above methods of construction of heavy wood floor slabs, spanning

usually about fourteen to sixteen feet between girders, will carry easily a live load of one hundred and fifty pounds, and even more than double this amount if desired, provided the posts are properly spaced and the construction is made extremely thick and heavy. One characteristic of this kind of construction should be reckoned with; that is, that in the middle of the span the floors are more flexible than in other kinds of construction, and consequently rapidly revolving machinery might set up a vibration in the floors that would be objectionable. The spaces over the girders, of course, are as stiff and rigid as such spaces are in any kind of mill construction.

Concrete construction is now usually built in two ways. First, the flat slab construction where there are no girders or floor joists, but where there is a head or cap at the top of each column that carries the entire load of the floors. The floor slabs in such cases are generally eight or nine inches in thickness and the spans between posts from eighteen to twenty-five feet. It is desirable, if possible, to have the spans between columns the same in each direction. Such floor construction has the advantage of perfectly smooth ceilings and absence of

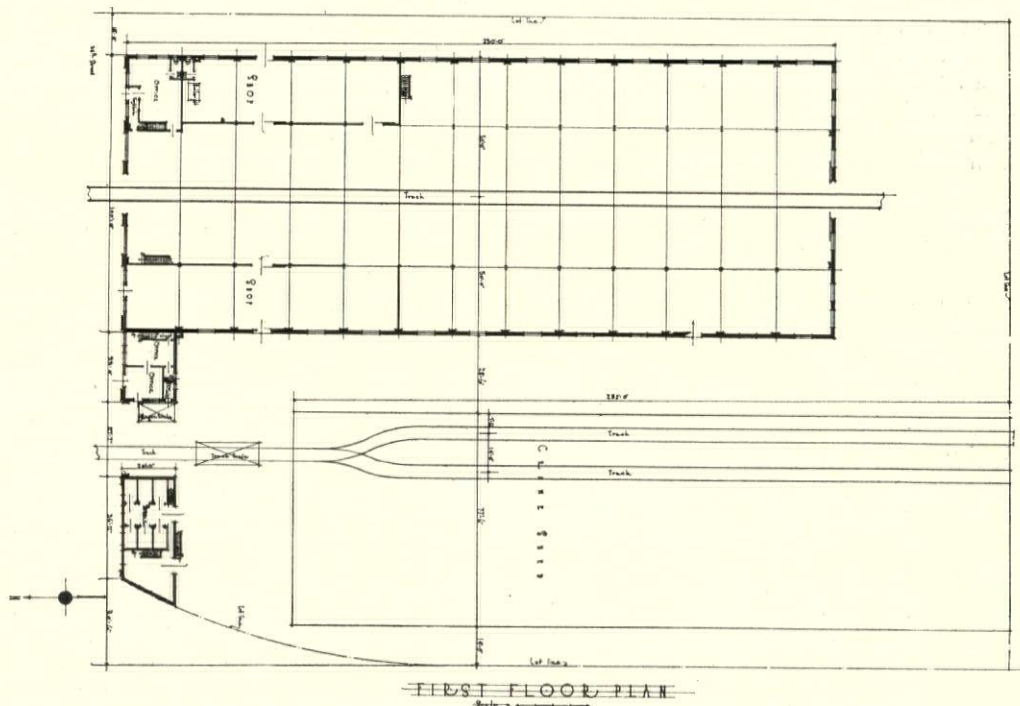
projecting girders or beams to intercept the light, the running of pipes, etc. The second form of construction is that where the floor is supported by means of beams and girders just like the corresponding familiar type of mill construction. The floor slabs in this case are usually thin, about four inches or more.

Both of the above types of construction are capable of sustaining great loads, but they are not so economical for light floor loads as is wood construction, that is, the difference in cost between mill and concrete construction increases rapidly in favor of mill construction as the floor load is diminished. The alteration or moving of partition walls in such a building is easily accomplished because they are carried or supported independently by each floor; cutting holes through floors of any material size is of course more difficult than in mill construction, but the coming of pneumatic tools and the acetylene flame for burning steel has made this operation much less expensive and troublesome than it formerly

was and has even made practicable the entire wrecking and removal of a concrete building.

Prior to the war, the cost of a concrete building was sometimes no more than that of a mill constructed building, if the loads which the floors were to carry were heavy; that is, over 150 pounds or upwards per square foot. In other cases, the difference between concrete and mill construction was not often more than five to ten per cent. excess cost for the concrete building.

The distance between posts in a mill building must necessarily be less than that in a concrete building, for the reason that timbers cannot be secured of sufficient size to carry the loads imposed by wide spans. If steel girders are resorted to in mill building, then metal columns are almost a necessity; and the cost will be increased beyond that of a concrete building. The mill building is subject to dry rot and decay in its structural parts; also to checking and splitting of the large timbers, which necessitates



JAMES M. TAFT MACHINE SHOP, CHICAGO.
S. Scott Joy, Architect.

renewals never required in the concrete building. The durability of the concrete building is probably greater than we have yet had an opportunity to determine. The allowable areas between fire walls are much greater in concrete than in mill buildings as defined by most building ordinances.

The fire insurance rate on a mill building constructed according to fire insurance requirements and equipped with a sprinkler system is very little higher as a rule than it is on a concrete building. The relative cost of materials in different localities, depending upon the distance of shipment, is of course a feature that affects the price primarily. The concrete building, however, is the more durable and consequently a better asset for the property; it will not feed the flames in a great fire with the material contained in its structure; its floors are waterproof if properly built so that heavy water damage does not take place; it is stiffer and stronger in construction; it has all the adaptability of uses for ordinary industry and it requires less cost maintenance than the mill building. These are the principal advantages in favor of reinforced concrete construction. Unless there are special reasons which may grow out of the nature of the site or the requirements of the business, the best proposition for an industrial plant is reinforced concrete. Reinforced concrete does not necessarily mean unsightly concrete walls and supports. These may be veneered with brick, terra cotta or whatever material desired. Although brick may be used in the outside piers, it is never a good plan to rest concrete beams, girders or floor slabs directly on self-sustaining masonry piers or walls. The stiffness and strength of a concrete structure are by such means largely taken away, and it has been found that almost every concrete building should be designed so as to have a reinforced concrete skeleton structure in the outside walls and fire walls just the same as is employed in the ordinary steel skeleton fireproof construction.

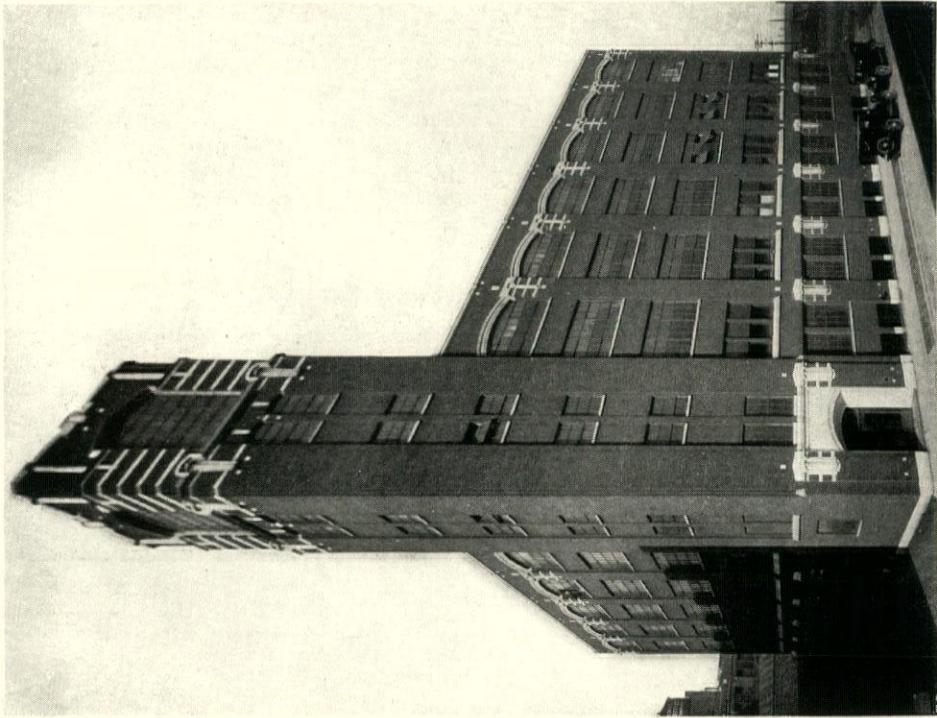
Some buildings have been built with a steel skeleton like that of an office building, with reinforced concrete between the

beams. This is good construction, but its cost far exceeds that of a reinforced concrete structure; and unless the building goes too high in the air, it is a waste of money to employ structural steel in this way. Although concrete buildings are built as high as sixteen stories, the columns in such structures in the lower stories naturally become so large in size that they are an obstruction and a waste of floor space. In buildings even eight, ten or twelve stories high, metal columns, at normal prices, can often be utilized in the lower stories to good advantage.

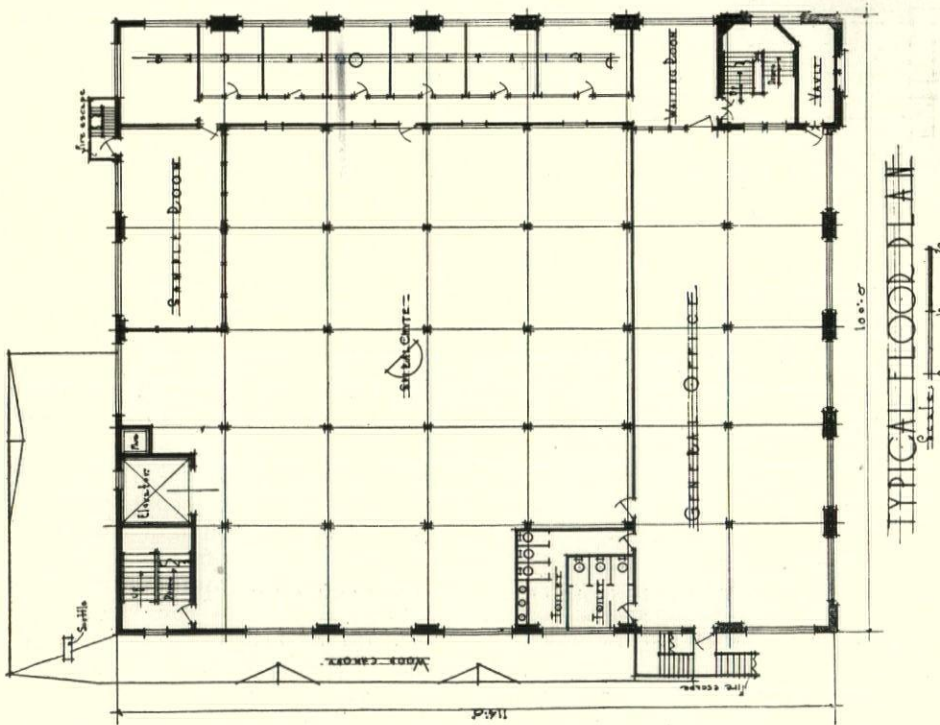
In the early history of concrete construction, there was a series of most lamentable accidents. These were due to causes which those properly experienced with concrete now know how to avoid. There is no longer any question of experiment in designing or erecting concrete buildings. It is entirely a matter of science and mathematics in design, the safety of which can be proved and checked; and the erection can be done by methods largely mechanical that are safe and sure. However, no one in erecting a concrete building should ever overlook the fact that his responsibility is greater than it would be with any other type of construction. It requires the most constant, intelligent and faithful supervision in every detail from start to finish.

Concrete construction is most interesting when you think of what happens when it is made. Its ingredients, a pile of sand, stone and a little cement, with a few bars of steel, as they lie on the ground, are apparently the most inconsistent things in the world to combine for great strength; yet when they are mixed with a little water, a transformation takes place that seems to accomplish in a few days, what nature required thousands of years to do when she made her rocks, only man's concrete rock has steel ribs in it at the right points to give it a strength many times that of nature's.

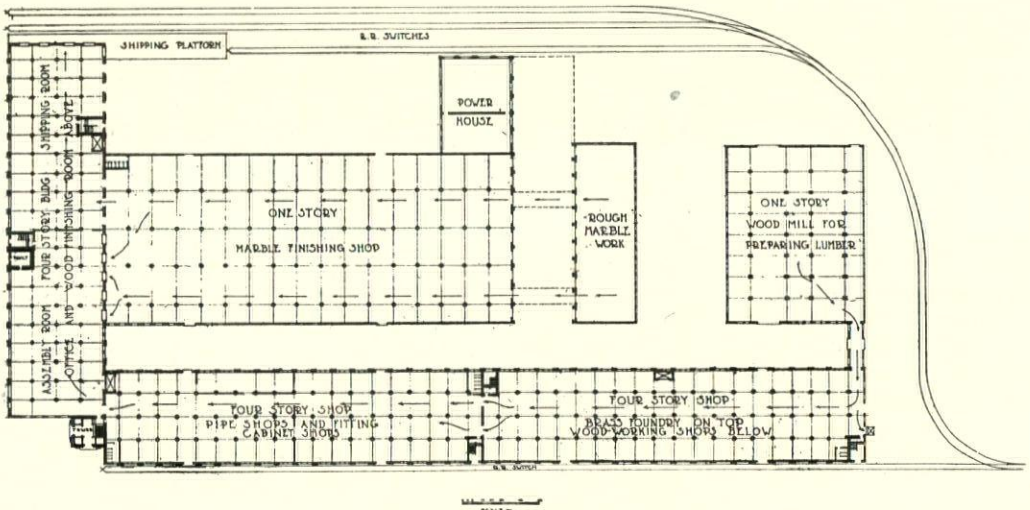
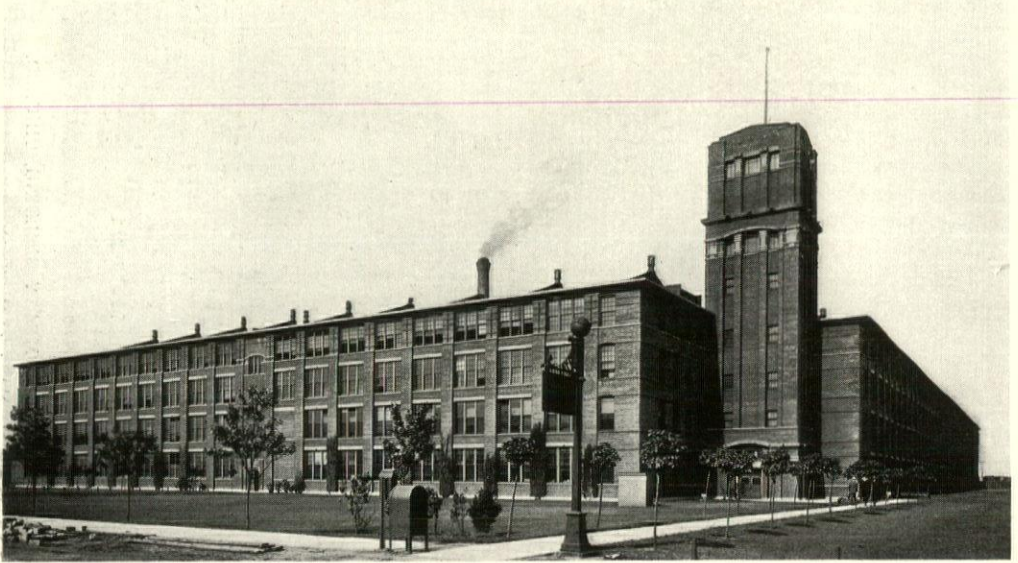
The last type of building construction mentioned above is the steel skeleton, where the supports of the building are made of the larger steel structural shapes, such as "I" beams, channels, angle irons, "Z" bars and plates, fabricated into vari-



NORTHERN JOBBING COMPANY BUILDING, CHICAGO.
S. Scott Joy, Architect.



NORTHERN JOBBING COMPANY BUILDING, CHICAGO.
S. Scott Joy, Architect.



PLANT OF THE LIQUID CARBONIC COMPANY, CHICAGO.

Nimmons & Fellows, Architects.

Soda water fountains are the principal product of this plant. The travel of materials and the general flow of production are indicated by the arrows. The rough lumber is cut into required sizes in the wood mill on the right and from there it is fed into the right hand end of the long four-story building, where it is transformed into counters and all the other wood parts of a fountain, while it travels to the left together with all the fittings, brass and nickel parts, which move along towards the assembling and shipping room, where they are joined by the marble and onyx parts from the marble shop.

ous kinds of columns to support the floors which consist of a system of "I" beams, girders and channels filled in between with fireproofing tile or a similar substance, and provided in the outside walls with brackets and shelving to support the brick, terra cotta or other material which encloses the building.

This type of construction is the most wonderful of our age and has not only produced a revolution in building methods, but has also played havoc with all former theories and principles of the architectural design of buildings. The material and the manner in which it is used are so strong and powerful that this mode of construction has upset all the former ideas and standards of the relation between the size of supports and the load which they carry.

Most office buildings, hotels, theatres and other important buildings in the center of American cities are of this construction. It is excellent for industrial buildings; and as a rule there is no objection whatever to its use for such purpose, except that its cost is materially greater than that of reinforced concrete and that its floors, as usually constructed, allow water to go through them like a sieve, which in case of a fire or a premature discharge of sprinkler heads may cause serious damage all the way to the basement.

In laying out an industrial plant the apparently simple and innocent operation of spacing columns of support has much more of an important part to play in the operation of the plant than may at first appear. If the plant is to be laid out on a city site where the scarcity of ground permits little or no unoccupied space, the dimensions of the property may influence the spacing of columns to some extent by not being of the exact dimensions required for dividing up exactly into the number of column spaces at the span desired. This may often be overcome by adopting the spans desired for the great majority of the cases, and changing one or more spans at such places as elevators, stairways or outside walls, where a difference in spans might not at all interfere with the production. Econ-

omy of construction demands that the length of spans shall be regulated according to the materials used. Mill construction, if the building is small and the timbers and planks are to be taken from stock, should have the spans of posts such as to accommodate stock sizes which run in even numbers of feet. For the ordinary mill building, material is usually taken direct from the forest and cut up into sizes required so that any dimensions can be utilized with economy so long as they are not too large or too long. Mill construction spans must, on account of the nature of the material, be shorter than those of concrete.

The most important considerations, however, in determining spans are the requirements of the business, the size and kind of machinery equipment employed, and the kind of lighting to be supplied. The spacing of columns makes a great difference also in the amount of light obtained through the outside windows. The shorter the spans, the less glass area can be placed in the outside walls and the darker the interior of the work shop will be.

In the Architects and Builders Journal (England, 1915) in a report on data gathered from eighty thousand factories as to the cause of accidents to employes, it was found that the majority of them were due to the lack of light.

The Journal of the Royal Institute of British Architects also gives an account of calculations of the loss sustained in a factory when the efficiency of the workmen was affected to the extent of ten per cent. by reason of lack of proper lighting.

One would not have to go very far among American factories to find instances where the employes' efficiency at times was affected to this extent, from the lack either of natural lighting or of artificial lighting. In plants where the payrolls amount to hundreds of thousands annually, the saving in production costs that could be made by proper lighting would pay for a lot of windows and a lot of good talent to place them in the parts of the plant where they would do the most good.



VIEW SHOWING NATURAL BEAUTY OF
THE SITE OF UNION PARK GARDENS.

UNION PARK GARDENS

A MODEL GARDEN SUBURB FOR
SHIPWORKERS *at* WILMINGTON, DEL.

*Built for the United States Shipping Board,
— Emergency Fleet Corporation —*



BALLINGER & PERROT, ARCHITECTS & ENGINEERS
JOHN NOLEN, TOWN PLANNER

By William E. Groben

THE influx of shipworkers to carry out the shipbuilding program of the Emergency Fleet Corporation overtaxed and exhausted Wilmington's housing facilities. When it became evident that such facilities were inadequate; that because of the advance in cost of labor and materials and the uncertainty of supplies for construction work, the erection of new homes was not keeping pace with the rapid expansion of existing shipyards, and that no provision was being made for accommodating additional workmen for the proposed new shipyards, the Liberty Land Company of Wilmington was organized to meet the housing requirements. After obtaining options upon several available and convenient sites, the company conferred with the Emergency Fleet Corporation, and, as a result, the Union Park Gardens development, one of the many housing projects now in course of construction, was undertaken.

The site is relatively high, at an elevation considerably above the main business district of Wilmington, one of the most active industrial centers south of Philadelphia, situated on the Delaware River, and having an estimated population of 110,000. It is located at the intersection of Union street and Lancaster avenue, on the outskirts of Wilmington, partly within and partly without the city, and comprises about fifty-eight acres of beautiful rolling farmland, one portion of which, adjoining the woodland section to the south, at present reserved as

parkland, is heavily wooded with magnificent trees. A brook, a special feature of the plan, flows through the tract. To the south is the parkland just mentioned, with Lancaster avenue and Union street on the north and east respectively, the latter being the main highway to Baltimore and Washington; on the west is Cathedral Cemetery.

A matter of particular interest and worthy of special mention is the purchase of adjacent property for the protection of the land values created by this new development. Beyond the original limits of the tracts and on the north side of Lancaster avenue were a number of disreputable shacks and negro hovels, while on the east side of Union street the land was unimproved by buildings of any sort. These two tracts were purchased because of their vital importance to the project and the limits of the tract were accordingly extended to include them. This procedure enables the Liberty Land Company to secure and maintain the increased property values which are being created by this new development, and, at the same time, to prevent the speculative land operator and builder from depreciating the character and quality of the new project by the erection of cheap and unsightly rows of houses or stores, which would unquestionably have occurred. As a result the architects have been able to design the buildings, etc., on both sides of Lancaster avenue and Union street, thereby insuring their uniformity in appearance.

The opportunities offered by the natural advantages of the site and its unusual surroundings have been fully appreciated and utilized to create an American Garden Suburb of exceptional merit. The site is connected with Wilmington proper and its shopping district by two trolley lines, one on Union street and one on Lancaster avenue, the latter giving direct transportation to and from the shipyards of the Pusey and Jones Company, the Harlan plant of the Bethlehem Shipbuilding Corporation, and the American Car and Foundry Company, all of which may be reached in ten minutes.

PLAN ARRANGEMENT.

The town plan of Union Park Gardens, the conception of John Nolen, has been arranged to form part of the city of Wilmington, which it adjoins, by continuing some of the present city streets through the tract.

The plans include all the essentials of a thoroughly organized garden suburb. In addition to the houses and apartments, there are to be a Community building, a school, and a requisite number of stores to meet immediate local needs. The already existing police and fire stations of Wilmington, just beyond the limits of Union Park Gardens, eliminates the necessity of providing for such service. Likewise, because of the present park bordering the tract on the south, no consideration had to be given to the reservation of extensive park areas. A large, modern and completely organized public school, less than a quarter of a mile distant, materially aided in solving the educational problem for the development itself.

In determining the general plan arrangement, the Communal building, apartments, stores, and public garage were located on Union Street and Lancaster avenue, in and about the vicinity of their intersection, the garage being placed at the rear of the stores. This scheme was the obviously logical arrangement, because of the proximity to Wilmington proper, and the fact of existing traction lines on both these thoroughfares; thereby keeping heavy traffic from other streets in the devel-

opment and producing residential privacy for the houses themselves. Aside from the fact that the majority of the group houses have been located as conveniently as possible to the traction service, there has been a judicious placing of two-family houses in the most desirable locations, namely, on Grant avenue and at the southern end of the tract among the trees, and near the park.

PLOT AND STREET LAYOUT.

By introducing curved thoroughfares to avoid excessive cut and fill; by connecting with only the principal adjacent and already established streets, and by dividing the tract into blocks of varying sizes and shapes, so that none would be either too long or too wide, Mr. Nolen, the town planner, has succeeded in evolving an extremely ingenious and practical plan, in spite of having to conform, in a great measure, to the existing old-fashioned, checker-board street layout of the city of Wilmington. By limiting the curved element to the longer, main thoroughfares only, a modern and scientific layout has been obtained which presents sufficient opportunity for variety in treatment, due to the resulting irregularity of blocks and plots, without either complicating the simplicity of the plan or unduly increasing the practical difficulties in the surveying of streets and building lots, an objection frequently advanced against the use of curved lines.

Grant avenue, already partly constructed, which, when finally completed, will connect Wilmington's system of public parks, enters Union Park Gardens at the Village Green, and continues through the development and the park beyond. It is a broad, curving thoroughfare, averaging one hundred and twenty-five feet in width, following the course of the stream previously referred to, which gives it the charming effect of varied vistas. The roadways proper are on either side, with an intervening space, beautified by a pool and spillway spanned by a rustic bridge. Minor public open spaces, with suitable approaches, have been created at the intersection of the more important thoroughfares to produce a variety of view-

nature already has supplied with lavish hand. However, one would not expect to get so near to nature on the grounds about Wadsworth Hall as one would in those surrounding the House in the Woods. This entrance leads one to expect a somewhat formal type of gardening such as is found often in public parks and cemeteries. Indeed, the rather funereal cast of the top stones of the pillars lends a somber touch to what otherwise is splendidly in keeping with the dignified atmosphere of the place. However, one cannot repress a thought as to how out of place this entrance would be as an approach to the House in the Woods and how lacking in harmony the other would be as a means of introduction to Wadsworth Hall.

Before the pergola entrance to Green Gables one must needs pause to draw a long breath. In conception it borders on the ornate, if not, indeed, upon the elaborate; yet its story is straightforward and to the point. It speaks of a place where embellishment is the rule and where simplicity receives scant consideration. And this, in truth, is the keynote of all that one finds, just as it is the chief feature of the entrance in question. In this entrance the liberal use of vines and foliage constitute its real effectiveness. Without them one would find the lines harsh and lacking in appeal. As it is, the vines are just enough but not too much to mask the angular effect of the concrete. Plants spring from unsuspected footholds and blossoms add their colorings to the green of the paneled name plates and the rafters overhead. The art glass of the decorative lamps adds its bit also to the color scheme. The anticipations aroused by this entrance do not fail of fulfilment as one passes on into the estate. Scarcely fifty rods beyond, one spies a little structure of bungalow design,

with art glass windows and an oak door bearing a burnished knob.

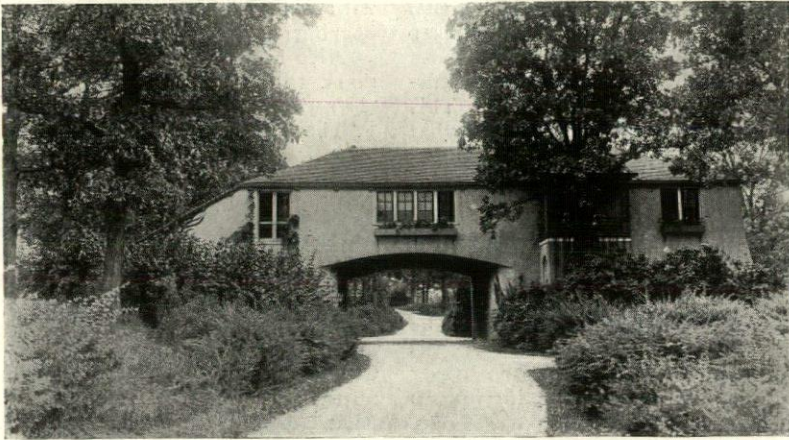
"Nice little cottage!" one ventures to remark to a man operating a lawn mower. "For the help, I suppose?"

"That!" he replies, with a glance in its direction. "No. That's the chicken coop."

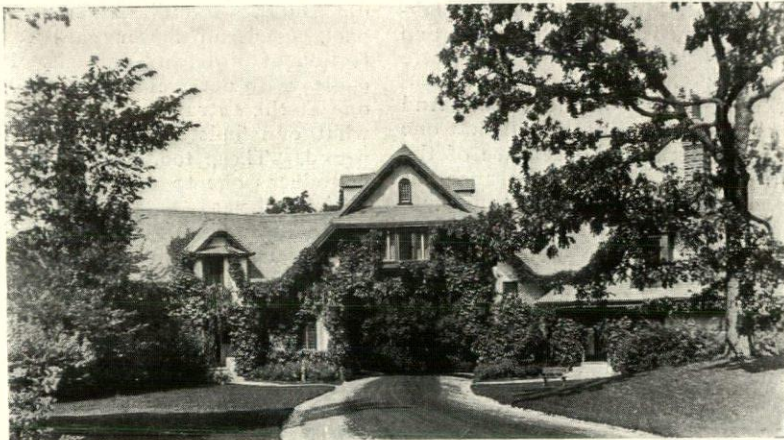
The entrance to Riverbank is so simple, despite its ornamental birds, that one might pass it by were it not for the story which it too has to tell. For one thing it will be noticed there are no gates attached to these massive concrete posts. Nor does one find any sign tucked away near by reminding one that these are "Private Grounds" or that "No Trespassing" is permitted. To the initiated this is significant. Riverbank is never closed to the public. Its many novel features are available for the enjoyment of everyone. These comprise a variety of things ranging from an old Dutch windmill, a Grecian swimming pool, wonderful flower gardens and a collection of birds and animals. Possibly the eagles with outstretched wings which greet one at the entrance are more indicative of what one finds than one might have suspected. Then, too, the name "Riverbank" introduces one to a quietly flowing stream a hundred yards away.

The utilization of the keeper's lodge as an entrance archway is not a common way of introducing one to a country place. Such an entrance, however, lends itself to splendid effects and no doubt possesses certain advantages. Beyond such an entrance one would expect to find not only an elaborate mansion but well appointed barns for blooded horseflesh and fancy, registered dairy cows. Farming de luxe can well be imagined to be the hobby of one who must needs drive through the side of a house to gain access to his broad acres.

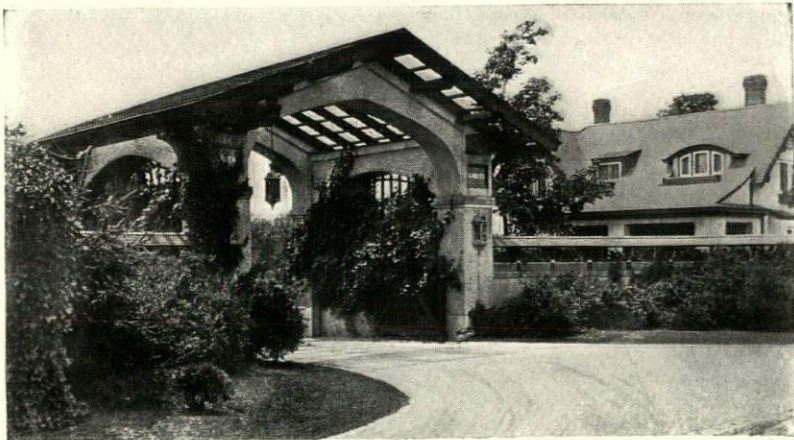
ORIN CROOKER.



ESTATE OF MR. JOHN ROBERTS, BARRINGTON, ILL.



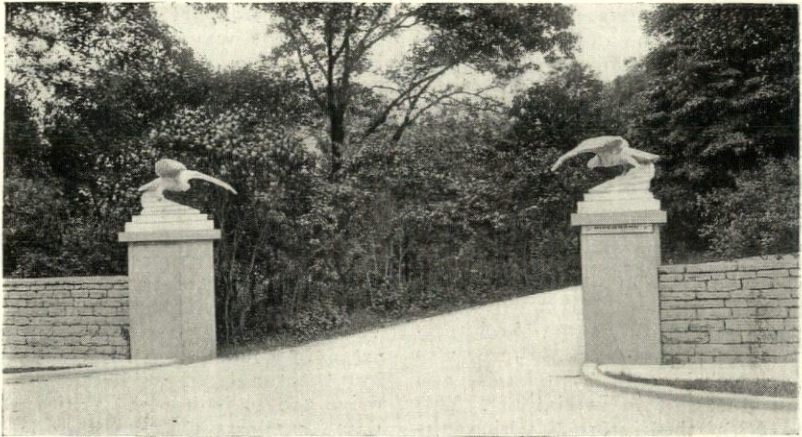
ESTATE OF THE LATE J. H. MOORE, LAKE GENEVA, WIS.



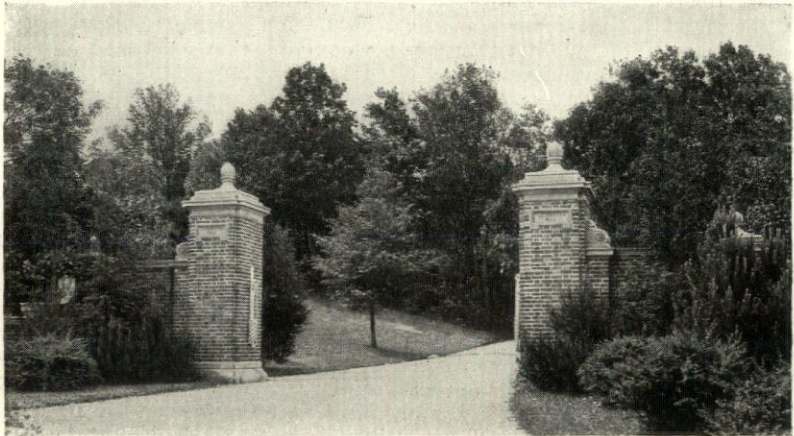
GREEN GABLES, LAKE GENEVA, WIS.



HOUSE IN THE WOODS, LAKE GENEVA, WIS.



RIVERBANK, GENEVA, ILL.



WADSWORTH HALL, LAKE GENEVA, WIS.

Next in importance to the training schools for the designers of the future is the duty of the possessors of art collections to render these available to manufacturers and designers for the purposes of study and inspiration. The creation of a new Department of Industrial Art at the Metropolitan Museum of Art cannot but fill a most essential position in the general scheme outlined above. This department will form a clearing house for ideas of use in the industrial arts. The members of the department are at the service of manufacturers, decorators and architects to facilitate their access to the store of material deposited in the Museum. The large collection of fine examples of furniture-making of the past may be measured, drawn and used as the basis of new designs, as well as the collection of textiles with its representative weaves from the earliest times to the present day. The hundreds of photographs and lantern slides and the finely selected books of the library will be chosen to suit individual needs. Seminars are regularly held for the discussion of problems currently confronting trades people and designers, and the close relation which the new department will maintain, both to the current trends of industrial design and to the material which lies ready to serve as inspiration for present-day needs, will prove of constantly increasing usefulness.

In the last exhibition of the Architectural League of New York, there was noticeable a much increased emphasis upon domestic products in industrial art. This is in line with the interest which the League is showing in its discussion of the problems common to architects and manufacturers, and the League exhibitions will be one of the most potent factors in the educational campaign of publicity in behalf of better American manufactures.

The position of American architects in the past has been open to the objection that their realization of the country's failure to produce objects for general household use of a high quality of design and craftsmanship has usually been expressed in a mere carping criticism. Now comes the opportunity for positive action by the requisitioning of American made furniture, textiles, wall papers and ceramics wherever these reach a certain standard of excellence and by a frank and open condemnation of such of those as do not attain a desirable standard of utility and beauty.

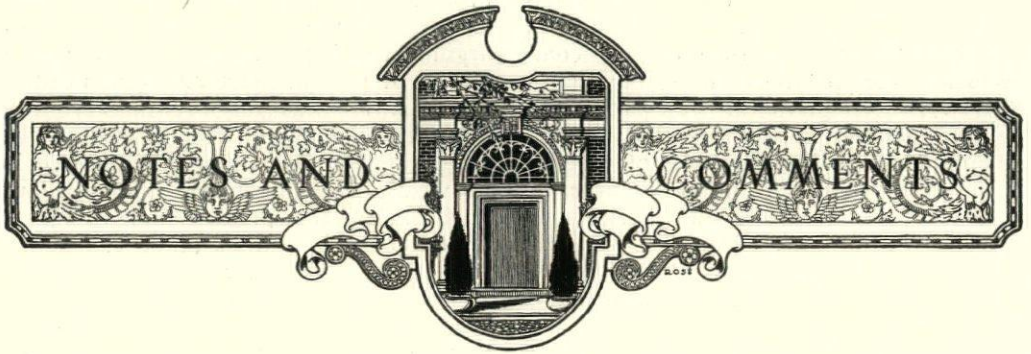
CHARLES OVER CORNLIUS.

The Personality of the Entrance Gate.

The initial approach to the country estate or the summer home should be in harmony with the atmosphere of the place to which it offers access. It should be something more than a mere architectural ornament mounting a name plate. Like an outstretched hand of greeting, from which radiates the personality of a welcoming host, the entrance gate should hold some definite suggestion of the character of the environment to which it opens the way. The name of the country place, if it has been well chosen, is often of assistance in conveying this desired impression. But even the most appropriate name must be given a proper setting to make it effective as an aid to proper introduction. To this end art may be summoned to one's assistance, for art is ever ready to lend help in the way of giving expression to such an illusive and intangible thing as "atmosphere." After art has spoken, her idea may be wrought out through a variety of structural mediums.

As an example of the effective and pleasing introduction which an entrance way may hold for those who have occasion to pass through it may be cited by the simple though artistic concrete posts and the attractive gates pictured herewith which mark the approach to the House in the Woods. Not only are the lines of the concrete in keeping with their surroundings, but the tangle of wildwood and the leafy drive are so in harmony with all that the name suggests that nothing is left to be desired in the way of a fitting introduction to this summer home. Before one has come upon it the mind has visioned a habitation sequestered amid a natural woodland that shelters native birds and small denizens of the forest. This entrance speaks of simplicity and of an atmosphere in which one can draw close to nature in her varying moods.

The entrance of Wadsworth Hall speaks of other things. This approach is well designed, attractive and fairly simple in comparison with many others. There is about it much of the same dignity and stateliness which the name, from its English borrowings, implies. The glimpse through the open gate suggests stretches of closely cropped lawns and an abundance of carefully tended shrubbery. One knows full well that the landscape gardener has been called upon to do his utmost and that the touch of his genius has been added to what



Recent Developments in the Industrial and Decorative Arts.

There has been, in America, a remarkable quickening of popular education in all its branches. In none of these has progress been more notable than in the development of a historical background for the appreciation of the principles of good art. An immediate opportunity for the exercise of such appreciation lies in the realm of industrial art, whose means and methods are applied to the objective surroundings of daily life.

With a success which cannot be questioned a continuous effort has been made for years, through schools, museums and current publications, to raise the standard of taste of the consuming section of the public. The next step would naturally be to assist the producer in his task of supplying the resulting discriminating demand.

The world war gave a tremendous impetus to the situation by crystallizing the patriotic determination to make domestic products equal to those from abroad, whose usual channels of import had been restricted or obstructed. When once the manufacturer was convinced that a high standard of design and craftsmanship forms an unassailable business asset, the battle may be said to have been won. This past year presents many evidences of results obtained as well as of new efforts being made by the various branches of the educational system.

Perhaps the most striking testimony to the success of the campaign for the education of taste lies in the recent organization of the National Association of Decorative Arts and Industries, which aims to include the large number of existing asso-

ciations allied with the industrial arts. In this federation the producer and the consumer meet and share the high aim of the united group; for not only are the great manufacturers included, but the consumer, whether interested individual or decorator, the distributor of manufactured products, whether wholesaler or retailer, and the great educational influences of the publishers, schools, art museums, libraries and women's clubs, are all found within its membership. Through the agency of these various groups the National Association of Decorative Arts and Industries should be able to exert a marked influence upon the home environment of the nation, an influence whose ultimate aim is the creation of ideals which, arising from constant response to stimuli intellectual and aesthetic, make for increased happiness and development of character.

The war, in emphasizing our former dependence upon European designers, has led us to take stock of our own lack of opportunities for training our people in this line. In direct response to this need is the establishment of certain new courses at Columbia University in the Department of Extension Teaching. These courses in Decorative Design, open to both men and women, are modeled upon the method of Beaux Arts teaching of architectural design, which has proved the best system in practice thus far. The problems and sketches of the courses are issued and criticised at stated times, and are judged by a jury of qualified practitioners. The work is, of course, competitive; and the three courses offered in elementary, intermediate and advanced design correspond approximately to Class B problems (elements and projects) and Class A projects of the Beaux Arts Institute of Design.

ally selected for the magazine articles, amplifying those types of ancient manufacture which daily provide stimulation to industrial activity of the most commendable order; these might have replaced the chapters on wall-paper and leather, which, in spite of the author's excuse for their inclusion, can only be regarded as "padding" in a volume on textiles. As a whole, this work is an excellent scrapbook of varied patterns, which should prove stimulating to those who digress with open minds, inviting chance inspiration.

Modern civilization is rapidly evolving a novel system of development, which consists in the segregation of its component activities; consequently, digressions of a heterogeneous nature are obstructions to progress rather than contributions. An accumulation of well-known facts and elementary knowledge, such as has been culled by Mr. Hunter, has its place in a magazine article, but one hardly expects to encounter such material in a pretentious tome. Data are credentials presented in justification of a deduction, an analysis, or a theory formulated; their presentation unaccompanied by any of these is an equivalent to an assortment of numerals in lieu of a subtle calculation. An old tale is doubly excused if it elucidates an intricate point, but antiquity has its limitation as a recommendation.

As the text presents no novel aspect, we acknowledge our obligation to some of the illustrations, which enlighten us as to the enormous progress made by American weavers in the field of decorative discrimination. These men have made a handsome response to the growing demand for purity in style and technical accuracy, which has existed in recent years, due to the great strides made in American domestic architecture and decoration.

This demand dates from the moment when producers realized that certain decorative treatment possessed the power to create a considerable appreciation in the value of material, and that decorative merit was not an indeterminate quantity, but one gauged by rigidly fixed standards.

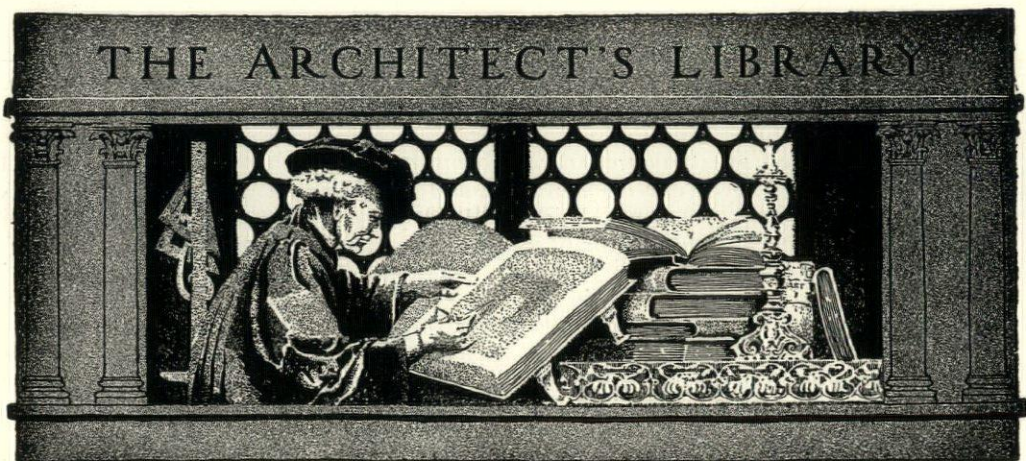
So these textile manufacturers approached the intricate subject of decoration with the same logical process of argument as is practiced in determining a course of policy; mastery of all needful technicalities was the preliminary step, regarded as a phase of equipment. The utilization of this technical resource in the field of decoration was a tremendous problem, as the professional designers were too few in number and insufficiently trained for the great work.

With sound common sense, the safe road to experience in decorative interpretation was seen to lie in making exact reproductions of the masterpieces of the weaver's art, in which the accomplishment of the designer wrought beauty from technical ingenuity. The modern weaves of ancient design reproduced in numbers in this volume convince us that when the American designer has attained the same proficiency and excellence in his work as the American manufacturer has we shall witness the dawn of an era for decorative textiles which will rank high in the world's history of applied arts; it is to be hoped that the energy now directed towards practical art education may adjust the disparity in skill existing at present between manufacturer and designer.

The term "Decorative Textiles" is fraught with enormous significance, and should have cast broad lights to illumine the way of an earnest body of men seeking guidance. These men, representing vast interests and great markets, now know that there is a virility in art capable of generating great commercial activity; they would harness that power through acquaintance with the standards whereby its works are judged, the signs that denote its presence, and the impulse from which it proceeds; for such men, a mere itemized list of the details depicted in pattern does not serve—the subject of decorative textiles cannot be rated so lightly.

The publishers are to be complimented on the manner in which this book has been printed and edited; it is a handsome specimen of typography.

L. V. S.



TWICE TOLD TALES

DECORATIVE TEXTILES,* by George Leland Hunter, is practically a reprint of articles on various subjects which appeared recently in a magazine devoted to the furnishing trades. Many excellent and scholarly publications have been issued under similar circumstances; needless to say, in such cases the book was the original objective in the author's plan, and the magazine articles the secondary one; in Mr. Hunter's case there is little doubt that this essential condition is reversed.

Subjects arranged for monthly digestion by a mixed public must necessarily be built on pseudo "popular" lines; the statement made by the author in the preface that "it will be found invaluable not only to those who study and teach in schools and colleges, but also to those who read for personal culture and domestic practice," removes the suspicion of any attempt on his part to scale the rugged heights of scholarship.

The text is a compilation and condensation of easily accessible facts, taken

from standard works; no effort has apparently been made to gather new evidence from the abundant and untouched material existing in forgotten and unsuspected quarters, which the "flair" of the scholar unearths to the delight of the reader, who thereby enjoys the exhilarating sensation proceeding from contact with that which is rare.

With truly Elizabethan humor, the author advises us that "the main text of my book is of course Texture"; that is naturally a great disappointment to all who, attracted by the title, expect enlightenment regarding the decorative element in textiles, compared with which texture is secondary and subordinate, and concerns the mechanic rather than the designer.

The book is lavishly illustrated with innumerable half-tones and twenty-seven fine color-plates, the majority of which we recognize as old acquaintances. These cover an enormous range in time, country and subject, with the inevitable disadvantage that in few instances are there sufficient examples of a period or style to give any latitude of choice to a designer seeking data for a specific purpose.

Assuming that practical utility figured in the argument for this volume's existence, it is to be regretted that additional examples were not added to those origin-

**Decorative Textiles*, by George Leland Hunter. An illustrative book on coverings for furniture, walls and floors, including damasks, brocades and velvets, tapestries, laces, embroideries, chintzes, cretonnes, drapery and furniture trimmings, wall paper, carpets and rugs, tooled and illuminated leathers. With 580 illustrations, 27 plates in color. 9½x12¾ in. Printed by the Dean-Hicks Co. at the Good Furniture Magazine Press, Grand Rapids, Mich. Philadelphia and London: J. B. Lippincott Co. \$15 net.

furniture in the homes of the period, and one of the most imposing. It was always a thing of dignity. Large, sometimes monumental in their proportions, and richly carved or inlaid, these cabinets often displayed great magnificence and artistic skill. They were decidedly architectural in form, sometimes being designed with the steps and columns of a temple. Their chief charm lies in the perfection of their proportions and in the beauty of the ornament. At first they were a bit stiff and overwhelming, but those of the sixteenth century exhibit considerable grace and variety. Toward the end of the period they became over-elaborate and even bizarre.

Of the chairs, not all are worthy of equal commendation. The conventional forms of high-backed chair, usually with horizontal carved slats in the back, were often stiff but stately, handsome in their carving, with flat, square seats and arms. They lack something of grace and could scarcely have been considered comfortable. At the best they are examples of splendid workmanship; at the worst they are little more than commonplace in the matter of design. It is the curule form, often referred to by dealers as the Savonarola or Dante chair, which recommends itself to us more strongly because of its beauty of line. It was a smaller, more comfortable chair, fashioned on the Roman model in the form of a curved X, and was frequently constructed as a folding chair. Its curves are graceful, its proportions pleasing, and it displays a genuine feeling for design as applied to usefulness. Of the stiff-backed Mansi or anteroom chair, usually standing on console supports that look as though they belonged to a table, I can say little that is complimentary. It was a product of the late Renaissance and was neither comfortable nor graceful. Its chief interest is historic; as a contribution to the furniture styles of the period I cannot think that it did its originators especial credit.

Of the tables, the best have happily survived. The typical form is oblong, supported at the ends by solid carved and shaped supports or consoles, often terminating in large claw or scroll feet,

and usually connected by a heavy stretcher or lower shelf, upon which smaller supports sometimes rest in the form of an arcade. This form is pretentious but successful, the proportions being irreproachable and the whole well adapted to use. It is massive but graceful, the ornamentation being applied with a fine calculation for effect.

Some of the finest work of the period is to be found in the coffer and chests, particularly the cassoni or marriage chests. They are of various forms, having both curved and vertical outlines in the sides and ends, but nearly always exquisitely proportioned and ornamented. Some are carved with scrolls and figures; others are painted and gilded, or ornamented with intarsia and fine gesso work. Often they are masterpieces of workmanship. To a limited extent the same comments may be applied to the higher, narrower form called the bahut.

Existing examples of the beds of the period are rare. Though heavy according to our modern point of view, they were lighter and better than anything that had gone before. Well designed columns supported a canopy of wood, brocade, or tapestry, and the effect was stately and often graceful.

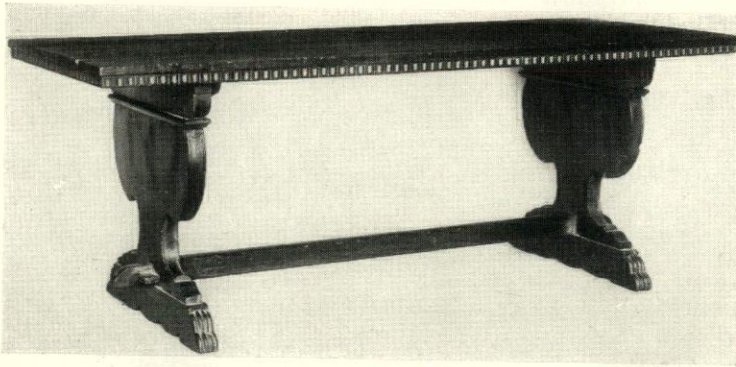
Elaborately carved buffets and credences often display the finest workmanship and the most delightful lines. Later forms, though they added greater variety to the home furnishings, were generally less admirable in their workmanship—serving tables and sideboards, chests of drawers and dressers for the bedroom, couches, bookcases, and writing tables or desks. Mirrors, wall brackets, screens, and other miscellaneous objects were as often bad as good in design.

In short, the student of Italian Renaissance furniture must approach his subject with a discriminating eye. In some of the chairs, tables, cabinets, and chests he will find forms and ornamentation that have never been surpassed in any age. And when it is remembered that these craftsmen of the Renaissance were hewing new paths, were pioneers in their craft, the homage of posterity must be accorded them.

acanthus, the scroll, the cartouche or pierced shield, and fanciful half-human forms. Much of the arrangement of these details was new at the time, not merely borders, cornices, pediments, and friezes, after the Greek manner, but variously arranged panels cleverly filled with delicate bas-relief work. Symmetry and balance were guiding principles in the arrangements. Then the carving became more and more intricate, in both high and low relief, and finally fantastic, un-

lions were used to enrich cabinets and caskets. Painting, gilding, and veneering were all employed, the carving on furniture being sometimes picked out with gold, producing a sumptuous effect. Some pieces were ornamented with stucco or covered with colored and gilded gesso.

During the sixteenth century the Italian metal workers were at the height of their powers, and coffers, chests, and other pieces of furniture were mounted



REPRODUCTION OF A SIXTEENTH CENTURY TABLE WITH CHARACTERISTIC LYRE-SHAPED END SUPPORTS.

til the baroque tendency became predominant and Italy handed over the scepter of furniture design to France.

Some of this Renaissance furniture was also enriched with inlay. Ivory and bone, sometimes engraved, let into ebony, walnut, and rosewood, had been popular for more than a century in Venice. Toward the end of the fourteenth century Italian cabinet-makers began copying marble mosaics by means of inlays of natural and dyed woods, scorched and etched with hot sand and iron, and polished with oils. This form of inlay, at first a specialty of the Certosan monks, was called intarsia. All sorts of designs were wrought in this medium, at first geometrical and floral in type, and later elaborately pictorial. Remarkable skill in workmanship was displayed. Some of the patterns were picked out with ivory and mother-of-pearl and lined with metal threads. Ivory was also carved and applied in bas-relief or inlaid in elaborate arabesques. Tortoise-shell, brass, mother-of-pearl, and even silver medal-

with wonderfully wrought steel, iron, brass, and bronze. In the same century pietra-dura became the fashion—an inlay of highly polished agates, rare marbles, hard pebbles, lapis-lazuli, and other stones.

It would be instructive, of course, to enumerate and describe the various forms and types of furniture produced during this period, but that sort of information is to be found in any good book on furniture. My purpose is not to present a catalogue of Italian Renaissance furniture, but rather to treat the subject critically and appreciatively.

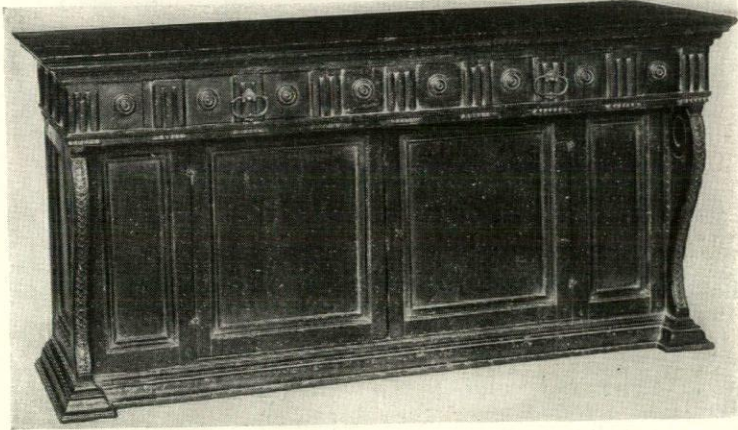
If approached in the proper way, an examination of the examples of Italian Renaissance furniture in one of our large museums, at one of the occasional auction sales of antiques, or in the form of the sort of accurate reproductions to which I have referred, should give the studious person an understanding of its faults and merits.

Take, for example, the cabinet, which was one of the most important pieces of

his work deserves its place among the masterpieces of all time.

Carved woodwork became the vogue in interiors, and the furniture styles followed this lead. The furniture was nearly as architectural in type at first as that of the Gothic period, and followed architectural lines. Columns and pilasters were a feature. Cabinets and paneling took on the forms of temples and palaces, the fronts of cupboards and presses often representing temple façades. Then the furniture designers introduced new forms and a greater individuality. The furni-

fullest expression. In this matter of ornament, carving assumed the leading place, and some of it was masterly. The standard of workmanship was high. In type, it varied widely. Some of it was chastely classic, some architecturally stately, some voluptuously ornate. But in the best examples it was superbly executed, admirably placed, and calculated to ornament and not obscure the form. The cabinet-makers of the Italian Renaissance, with their impulse toward finely wrought carving, partially abandoned the coarse-grained oak, which was the



REPRODUCTION OF A SIXTEENTH CENTURY SIDE TABLE FROM THE DAVANZATI PALACE.
USED ORIGINALLY AS A WRITING TABLE.

ture became more movable and was less stiffly placed in the rooms.

The wealthy nobles of Florence, Milan, Rome, Venice, and other cities began to desire more sumptuous furnishings for their homes, and elaborate and handsome chests, cabinets, tables, chairs, beds, and other furniture were made for them. In general, the style of this furniture was palatial rather than domestic in character. Florence led in vivacious but dignified treatment of classic details. Sense of line and proportion were innate in the Florentine school, and even color was subordinated to form, though the wealth of ornamental detail was not to be suppressed. Venetian furniture was, if anything, even more richly elaborate.

Form was considered of primary importance, but it was in the ornamentation that the Renaissance spirit found its

commonest material of the Gothic period, and began using walnut, chestnut, and other woods.

The decorative styles lagged somewhat behind the architecture, and Gothic details persisted more or less until the true classic revival of the sixteenth century. The lives of the saints came to play a less prominent part in the carving, and the pagan element crept in. Mythological, allegorical, and historical subjects became popular, and that skillful combination of purely decorative scroll-work and pictorial form which we have come to associate with the Renaissance style. Centaurs and other human and animal forms were employed as part of an elaborate system of scrolls and acanthus ornamentation. Many of the details were of classic derivation and included the fret, the arabesque, the anthemion, the

not only for that time but for all time, and hence worth reviving today. It is worthy of our painstaking study, that we may gain an inkling of those principles of form and decoration which governed him, and so help us to appreciate and to design good furniture in our day.

Long ago men learned that certain intervals in music, which compose the scale, and certain rhythms produce the most pleasing effects upon the human ear, and no modern composer, however great his genius, can afford to disregard the rules thus painfully learned. Just so no decorative designer can hope to succeed if he fails to comprehend and to feel those principles of proportion and arrangement of ornament which experience has shown to produce the most pleasing effect upon the eye. It was this feeling for proportion and design which guided the craftsmen of the Renaissance and which makes their work worth reviving, copying, and studying.

Symmetry, balance, and perfect proportion distinguished the best of the furniture of the Italian Renaissance. The sense of proportion, like an ear for music or an eye for color harmony, is a faculty partly inborn, partly cultivated. Proportion, like music, is governed by mathematical rules, yet in creative work it is a thing to be felt rather than taught and its manifestations are not easily described. The Renaissance craftsman felt it and manifested it and the proportions of his work are capable of setting up pleasurable reactions in those of us whose power of appreciation is alive to

that sort of thing. Study a fine piece of Renaissance furniture and you will observe that there is an intentional relation among the different dimensions.

Next to his sense of proportion the old Italian craftsman possessed an eye for design. He had an instinct for dividing his spaces in a manner calculated to produce the effect of grace and to embellish them with just the right amount and character of ornament. This ornament varied widely from the chaste to the lavish, but it was seldom stiff or crude on the one hand or overdone on the other.

I am speaking, of course, of the most representative pieces of the period, for not all Renaissance furniture was good. There were poor workmen in those days, as in ours, and designs were executed which lacked the merit which I have attributed to the period as a whole. That is why it is worth our while to cultivate our powers of selective discrimination.

Finally, the best Renaissance craftsmen, like true craftsmen of any period, were painstaking in their

work. The perfection of their workmanship, in construction, carving, and inlay, has seldom if ever been surpassed.

They took their work seriously, those Renaissance furniture makers. Cabinet-making became an honored craft; it was raised to the plane of an art. The furniture designer of the period was the peer of della Robbia and Brunelleschi, Palladio and da Vinci, Michael Angelo and Titian, Cellini and Ghiberti. The creative art impulse stirred in him, as in them, and



REPRODUCTION OF A SIXTEENTH CENTURY CHAIR, WITH CARVED COAT OF ARMS OF THE VITELLI FAMILY, FROM THE DAVANZATI PALACE.

field of endeavor. There was a veritable outburst of intellectual energy, from which sprang discoveries, inventions, and the development and dissemination of ideas. These are the facts. The ultimate causes must be explained by the historian and the psychologist.

"During that period," says John Addington Symonds, "the entire nation (Italy) seemed to be endowed with an instinct for the beautiful and with the capacity for producing it in every form."

Another writer has termed this awakening "an exhibition of emancipated modern genius fired and illuminated by the masterpieces of the past." It was a natural, joyous, free feeling, almost childlike in its spontaneity, expressed in every field, a liberation of ideas marked by originality guided but untrammelled by the traditions of antiquity. The creative impulse was supreme; it was a Golden Age of achievement.

Straight back to the godlike Greek they went for the source of much of their inspiration, with an instinct as true as that of the homing bee. Roman and Pompeian were drawn upon for what they could offer of beauty in detail and arrangement, but the Renaissance designer copied nothing slavishly. He was sure of his ground and he was not afraid to trust to his own invention. Nevertheless, the work of the Renaissance was not due to any mere demand for novelty—the thing which has marked most periods of decadence. The Renaissance craftsmen builded upon secure foundations—the experience of their predecessors, a thorough understanding of the fundamental principles of design, and a native

instinct for the beautiful—the thing we vaguely term good taste.

Incidentally, there is an important lesson for us moderns in the steadiness with which the Renaissance designers, until the period of the baroque Decadenza in the seventeenth century, held fast to tried and true principles. When these principles are forgotten, and man cuts loose in the search for something different, he comes to grief. It was so in the extravagant Louis XV period, in the latter

years of Chippendale and of Sheraton; during the Victorian era, and in the craze for Mission and Art Nouveau to which we succumbed a few years ago. The periods of decorative improvement have always been those of classic revivals—the Renaissance, the Louis XVI, and the Georgian. There are, happily, indications today of an American tendency to learn this lesson.

Thomas Harwick, the biographer of Sir William Cham-

bers, put this very succinctly in referring to Chambers' "Treatise on the Decorative Part of Civil Architecture." "The truths it inculcates," said he, "and the proportion and forms it recommends, the result of long experience and repeated observation of structures which have stood the test of centuries, cannot fail to impress upon every mind that there is a criterion of taste in architecture as well as in the other liberal arts—that genius is consistent with rules—and that novelty is not necessarily an improvement."

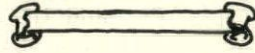
This "criterion of taste" the Renaissance designer possessed to a remarkable degree, considering his antecedents, and its application to the furniture he wrought is what made that furniture noteworthy,



REPRODUCTION OF A SIXTEENTH CENTURY DANTE CHAIR FROM THE DAVANZATI PALACE.

The FURNITURE OF THE ITALIAN RENAISSANCE

AN APPRECIATION



By Walter A. Dyer

NOT long since I had the pleasure of inspecting a selection of modern American reproductions of old English and Italian furniture on view in a Fifth Avenue art gallery in New York. It was significant, in the first place, that it should be found in so exclusive a fine-arts environment. It reflected an increasing power of appreciation on the part of an influential, if small, section of the American public. In the second place, the exhibit was remarkable in several particulars. These pieces were something quite different from those reproductions, so-called, with which an easily cajoled public is edified in the department stores. They were carefully wrought copies of genuine antiques, made by skilled Italian workmen under enlightened American guidance. They were perfect reproductions, down to the last dent and worm-hole, finished thus not with the intent to deceive but in order to reproduce faithfully and sincerely the feeling, spirit, and decorative effect of the time-softened originals. As examples of craftsmanship they deserved the highest commendation.

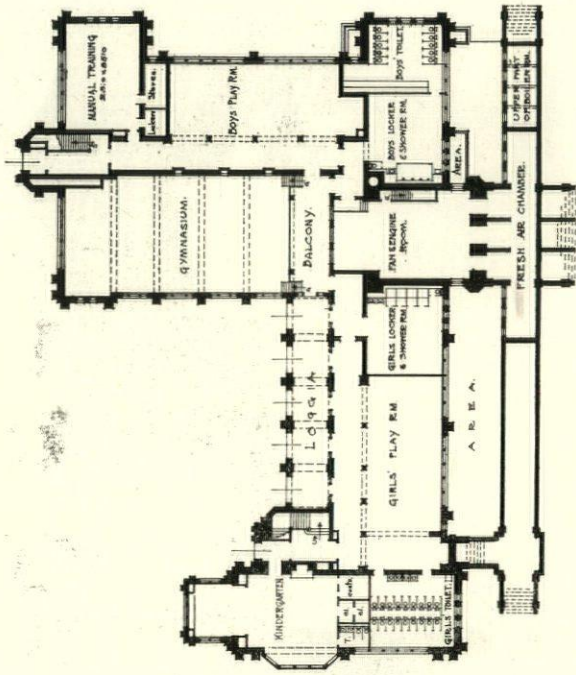
All this, however, might have been set down to mere tricks of the trade if a loftier vision had not been manifest in the selection of the originals copied. One could not but feel that the whole problem had been approached with the loving but critical attitude of the connoisseur, who through study had learned to pick the wheat from the chaff. My first feeling of admiration for the workmanship was superseded by a newly stimulated interest in the significance of the designs themselves. A new train of thought was started and a desire to learn why these finest products of the craftsman of

sixteenth-century Italy should produce reactions of admiring pleasure which the bulk of furniture designs are powerless to arouse. Whence came the impulse which enabled those old craftsmen to fashion things better than their predecessors or followers, and in what respects were they better?

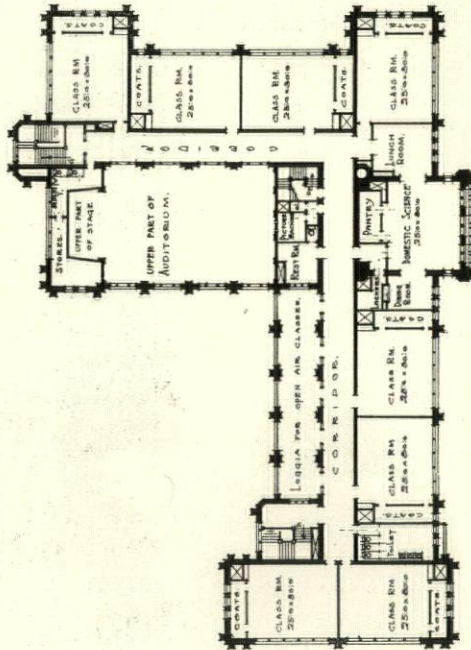
It is a wonderful thing, when you stop to think of it, that a group of men, living in a particular place at a particular time, should have been able to make such a commonplace thing as the building of chairs and tables blossom into one of the arts. It has not been done before, and all that we have accomplished since in this field has been but a development or refinement due to the adaptation of the things of the past to the requirements of an ever more complex life. In some way there was born in those men a sense of proportion and decorative beauty, as in the contemporary painters, such as had existed in a simpler degree among the ancient Greeks. It is a thing that comes but once in a human cycle and it can be only partially explained.

The Renaissance, to sketch briefly the situation, was a period marked by the revival of learning, a general emergence from the conditions of the Dark Ages, and new life in all branches of culture and art. This revival of learning produced a new interest in Greek and Roman antiquities. Peace, following long wars, reigned in Italy during this period and made it possible for the nobles and men of wealth to become patrons of the arts.

The Renaissance movement was European in scope, but it had its beginning, focus, and highest development in Italy. New life was injected into almost every

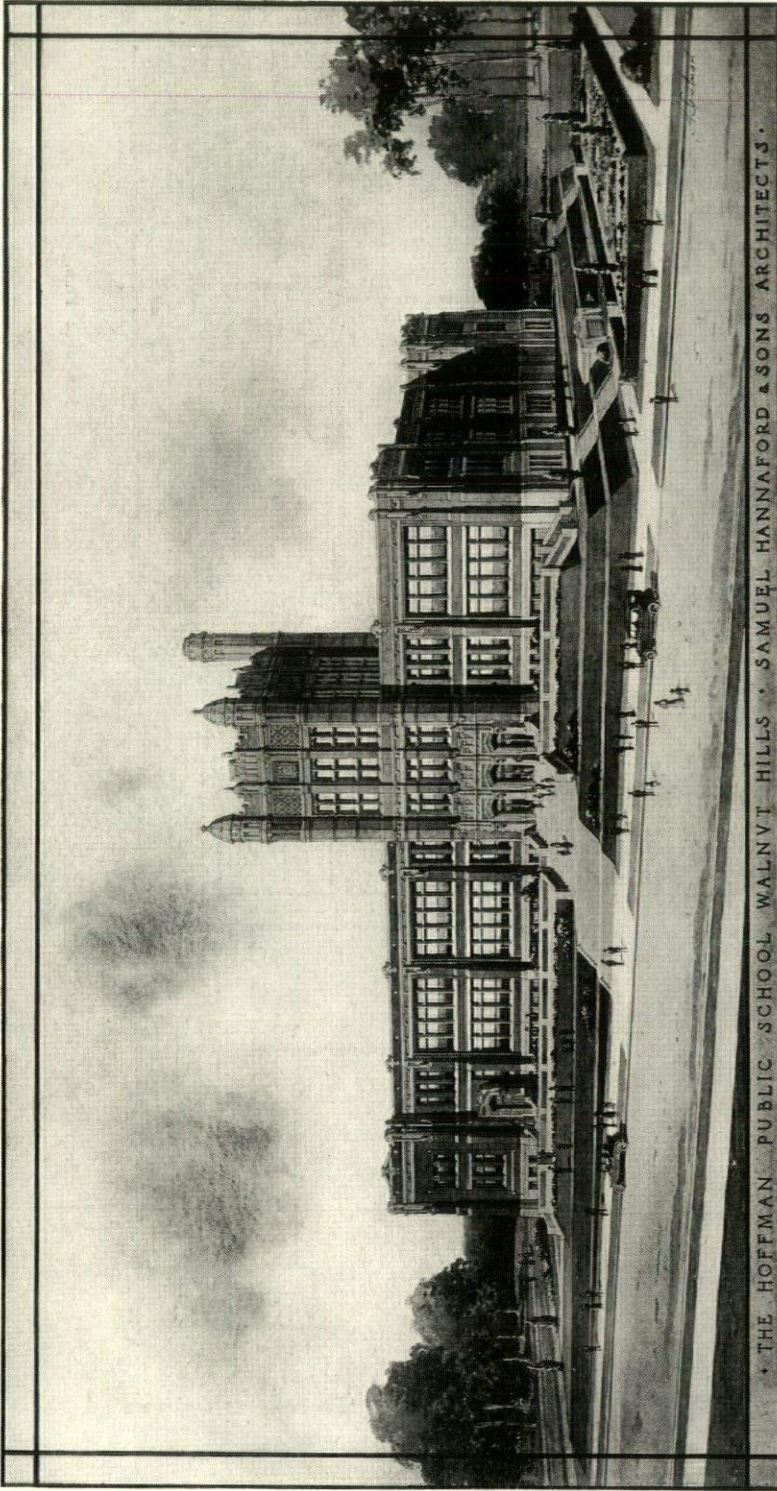


Basement Plan.



Second Floor Plan.

THE HOFFMAN PUBLIC SCHOOL, CINCINNATI, OHIO.
 Samuel Hannaford & Sons, Architects.



* THE HOFFMAN PUBLIC SCHOOL WALNUT HILLS • SAMUEL HANNAFORD & SONS ARCHITECTS.

THE HOFFMAN PUBLIC SCHOOL, CINCINNATI, OHIO.
SAMUEL HANNAFORD & SONS, ARCHITECTS.



LIVING HALL—RESIDENCE OF FREDERIC G. CARNOCHEN, ESQ., NEW CITY, N. Y.
Renwick, Aspinwall & Tucker, Architects.



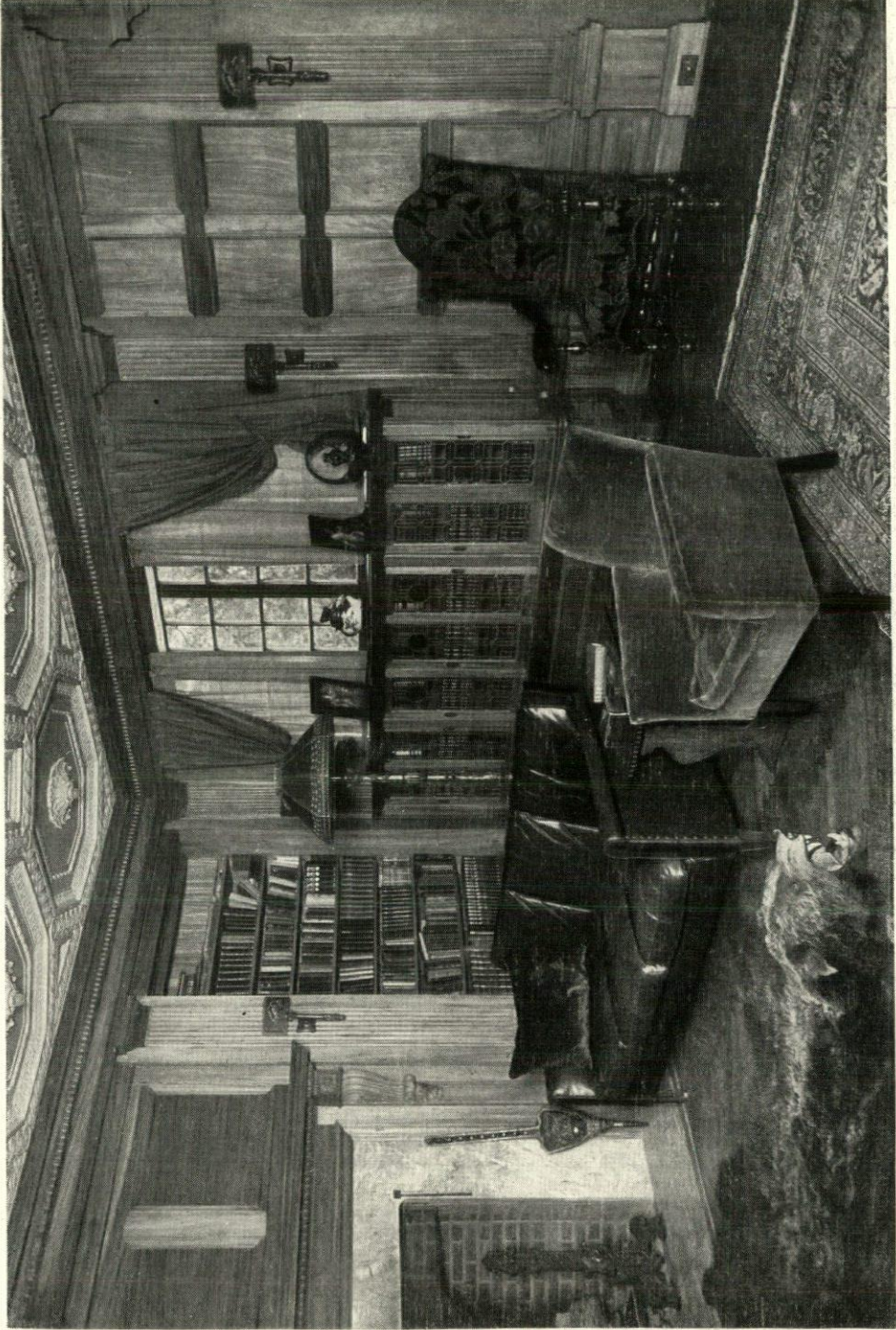
DINING ROOM—RESIDENCE OF FREDERIC G. CARNOCHEN, ESQ., NEW CITY, N. Y.
Renwick, Aspinwall & Tucker, Architects.



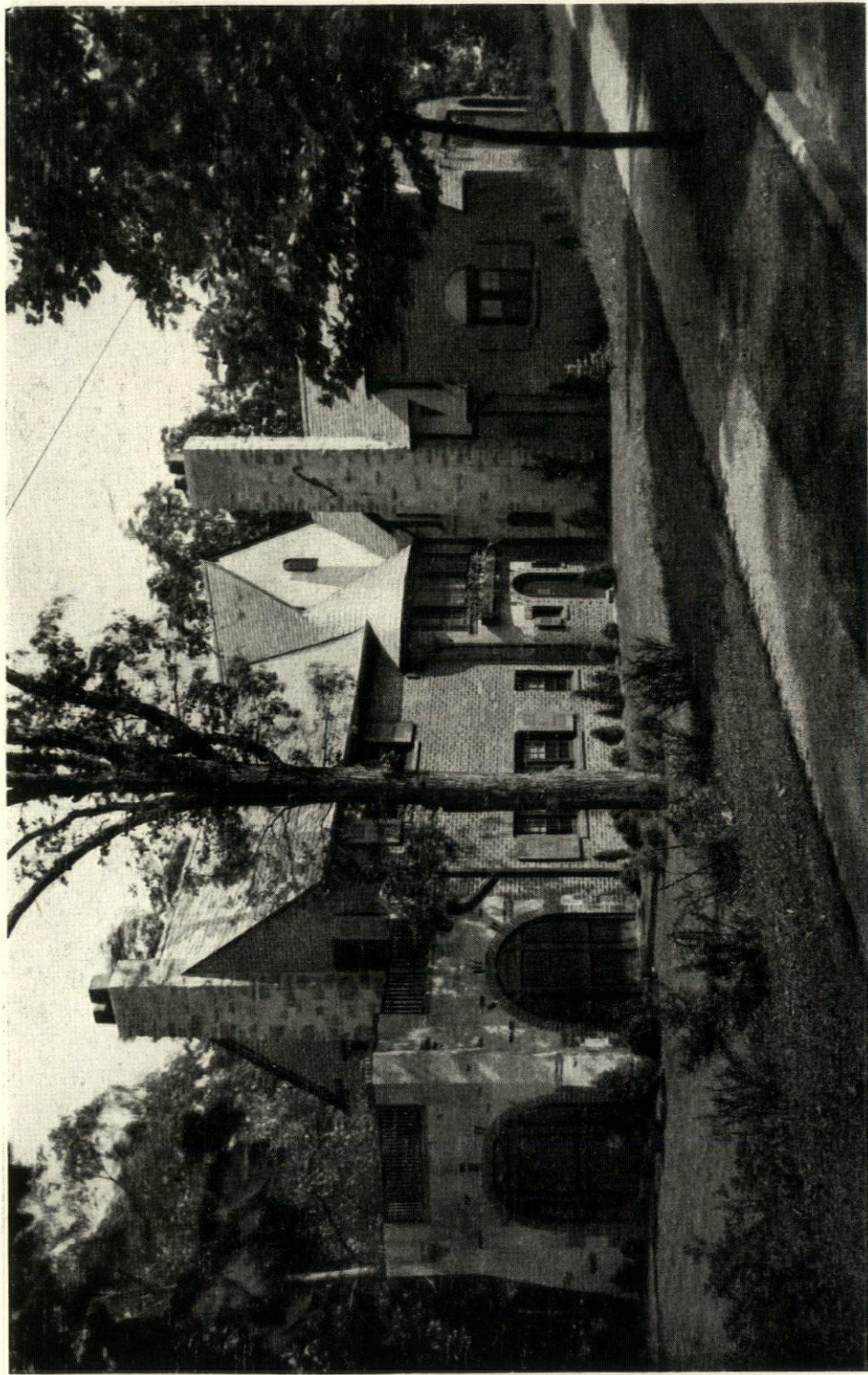
FIREPLACE IN LIVING HALL—RESIDENCE OF
FREDERIC G. CARNOCHEN, ESQ., NEW CITY, N. Y.
RENWICK, ASPINWALL & TUCKER, ARCHITECTS.



MAIN STAIRWAY—RESIDENCE OF FREDERIC
G. CARNOCHEN, ESQ., NEW CITY, N. Y. REN-
WICK, ASPINWALL & TUCKER, ARCHITECTS.
(Exterior views of this house shown in November.)



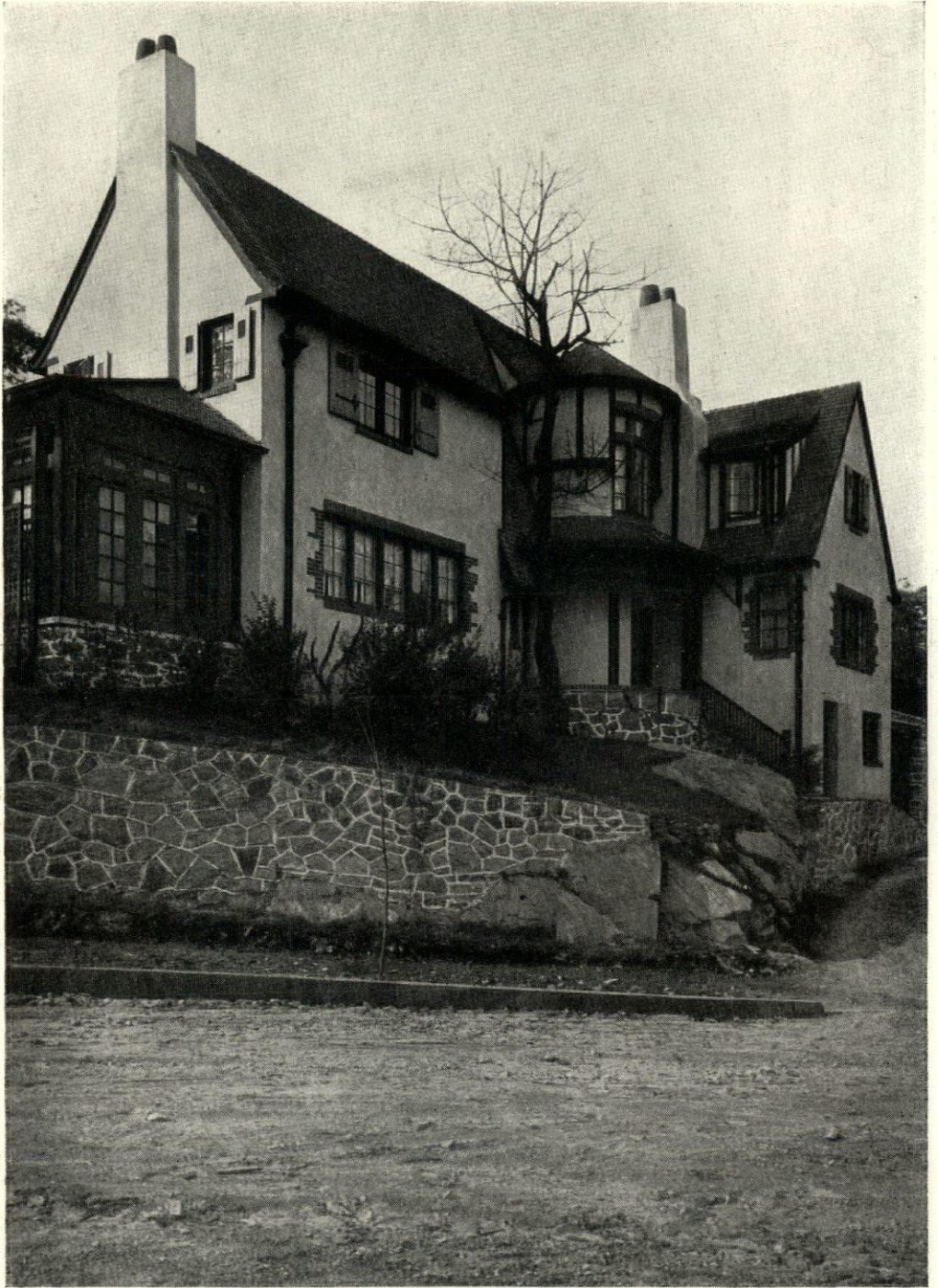
LIVING ROOM—HOUSE OF EDWARD C.
DELAFIELD, ESQ., RIVERDALE-ON-HUDSON,
N. Y. DWIGHT J. BAUM, ARCHITECT.



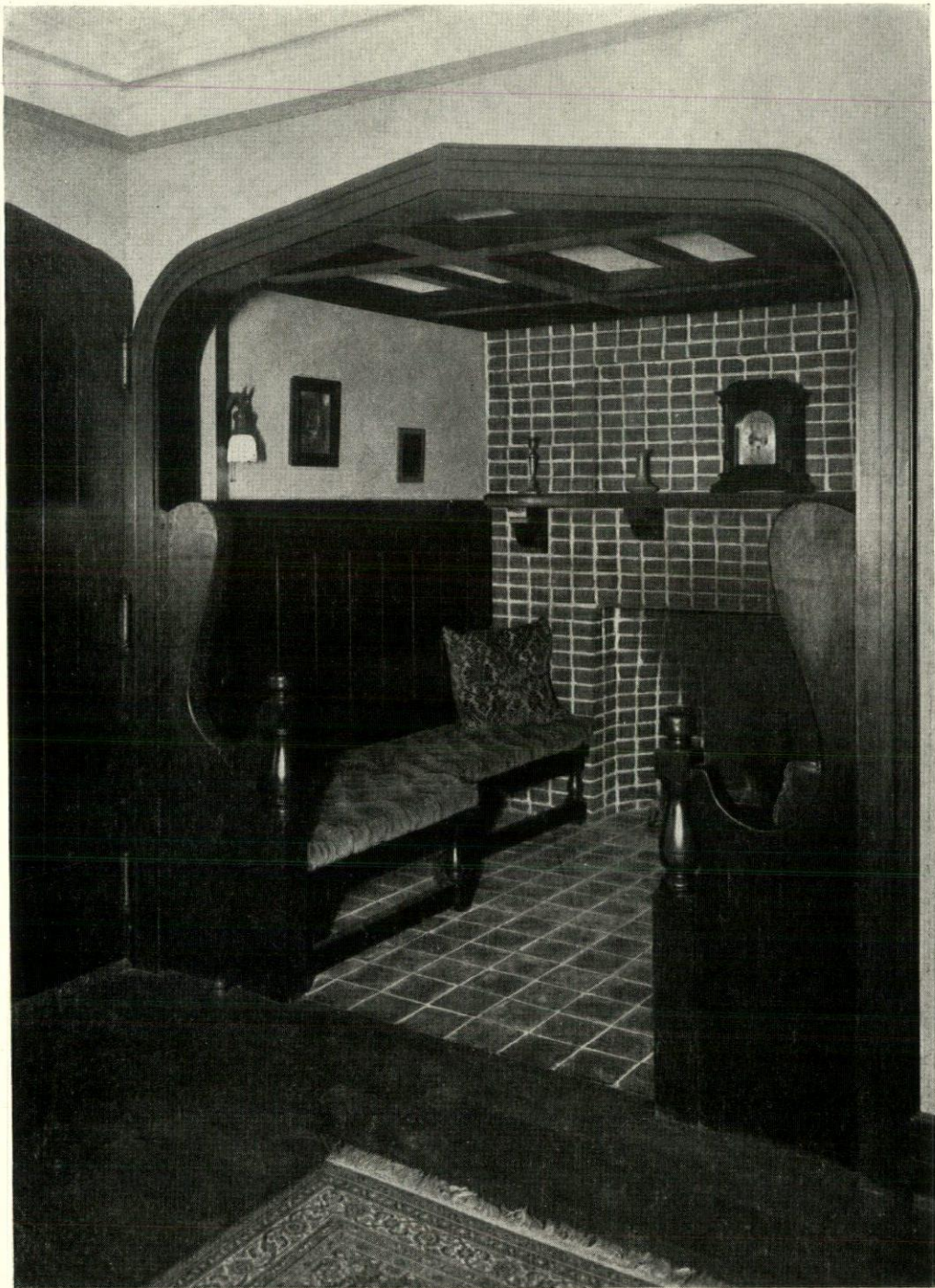
RESIDENCE OF MRS. O. ZENKE, FIELDSTON,
N. Y. CITY. DWIGHT J. BAUM, ARCHITECT.



HOUSE OF O. L. SCHWENKE, JR., ESQ., BAY
SHORE, L. I. DWIGHT J. BAUM, ARCHITECT.



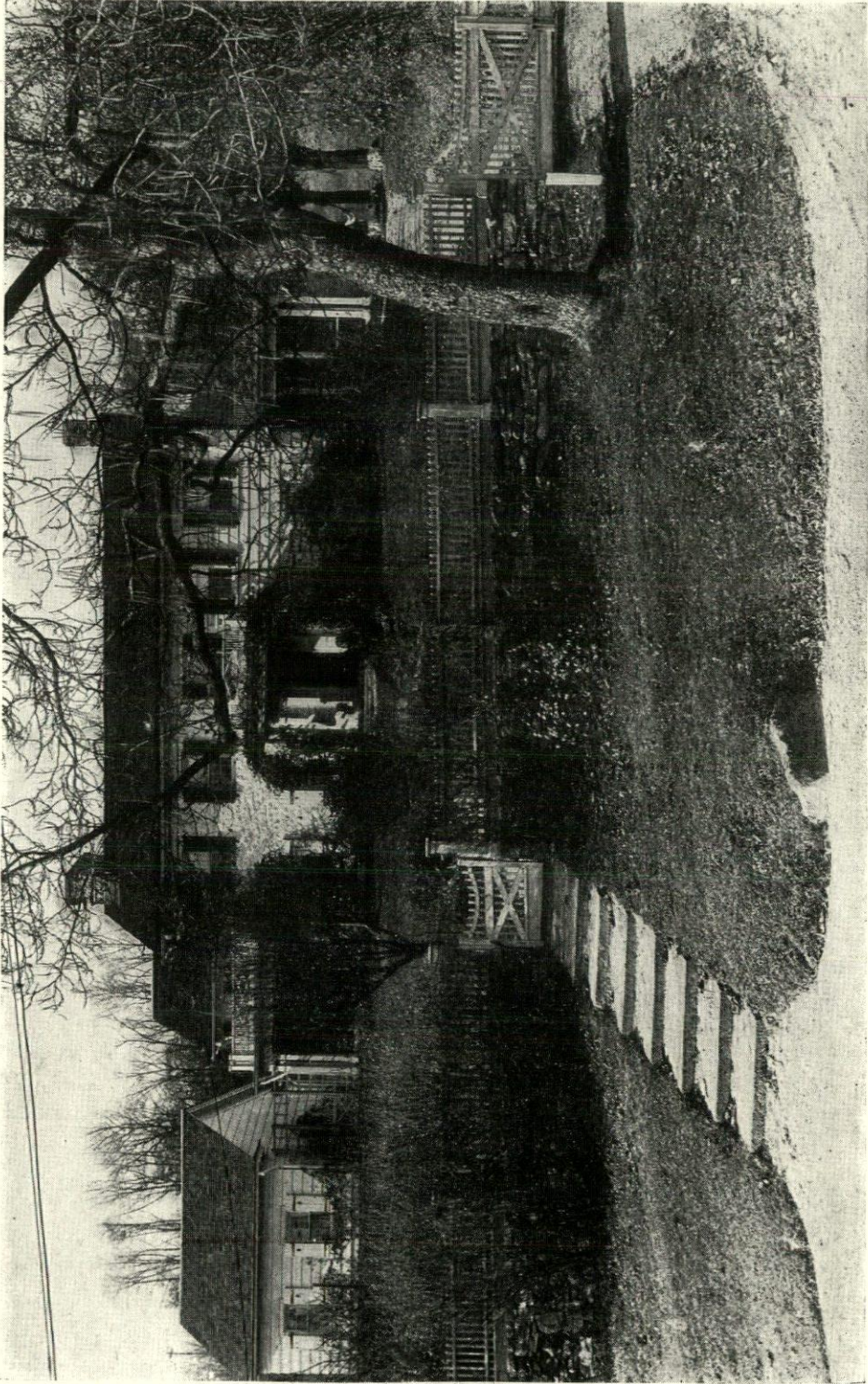
REAR ELEVATION—HOUSE OF ARTHUR ELLIOT, ESQ.,
FIELDSTON, N. Y. CITY. DWIGHT J. BAUM, ARCHITECT.



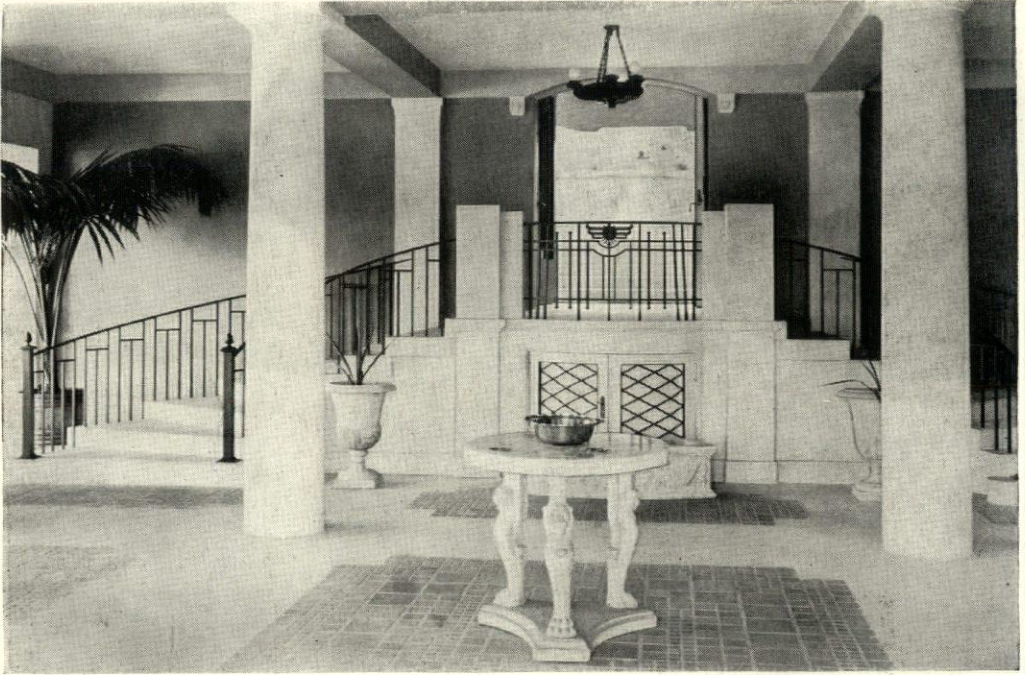
DINING ROOM NOOK—HOUSE OF VIRGIL
V. McNITT, ESQ., RIVERDALE-ON-HUDSON,
N. Y. DWIGHT J. BAUM, ARCHITECT.



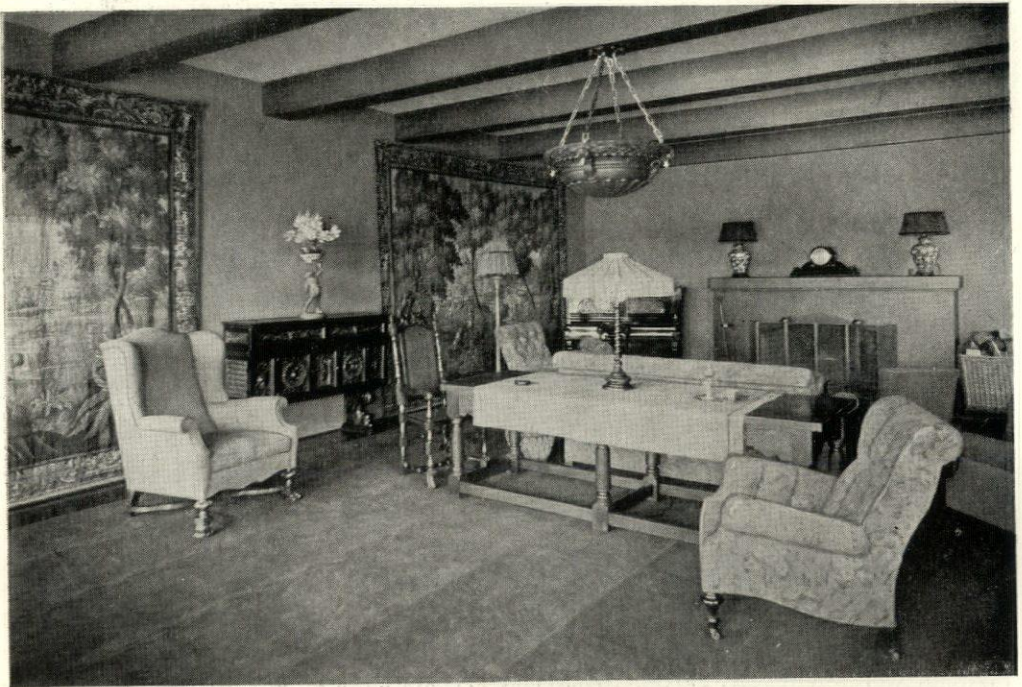
WEST FRONT—HOUSE OF W. R. SKILLMAN, ESQ., OLD ALBANY
POST ROAD, NEW YORK CITY. DWIGHT J. BAUM, ARCHITECT.



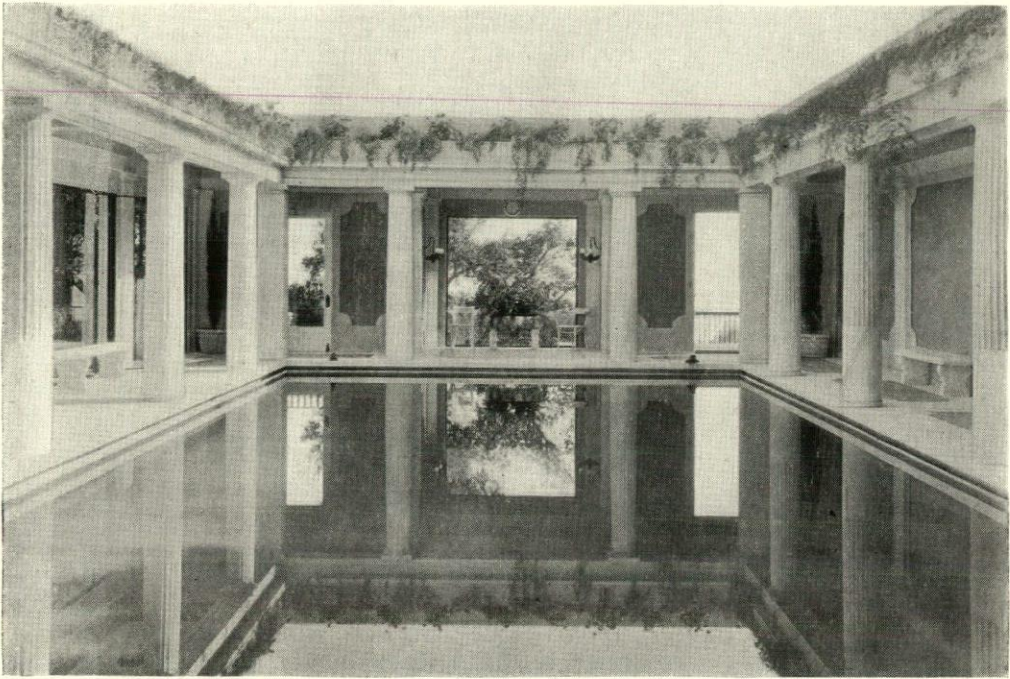
EAST FRONT—HOUSE OF W. R. SKILLMAN, ESQ., OLD ALBANY
POST ROAD, NEW YORK CITY. DWIGHT J. BAUM, ARCHITECT.



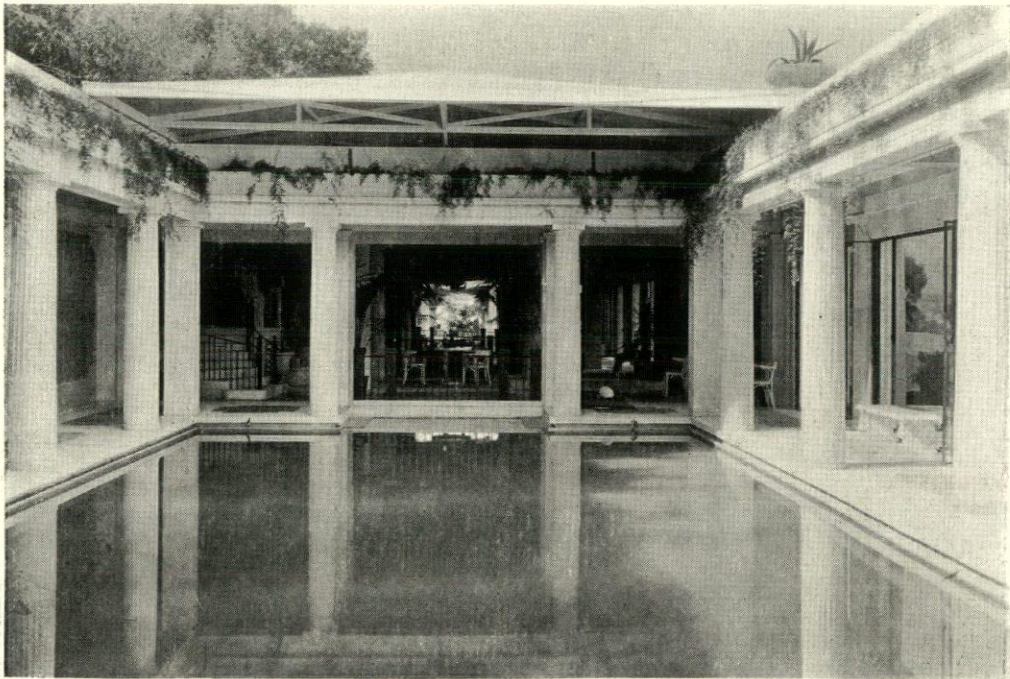
ENTRANCE TO FOYER OF SWIMMING POOL—ESTATE OF GEORGE O. KNAPP, ESQ., SANTA BARBARA, CAL.
Francis T. Underhill, Architect.



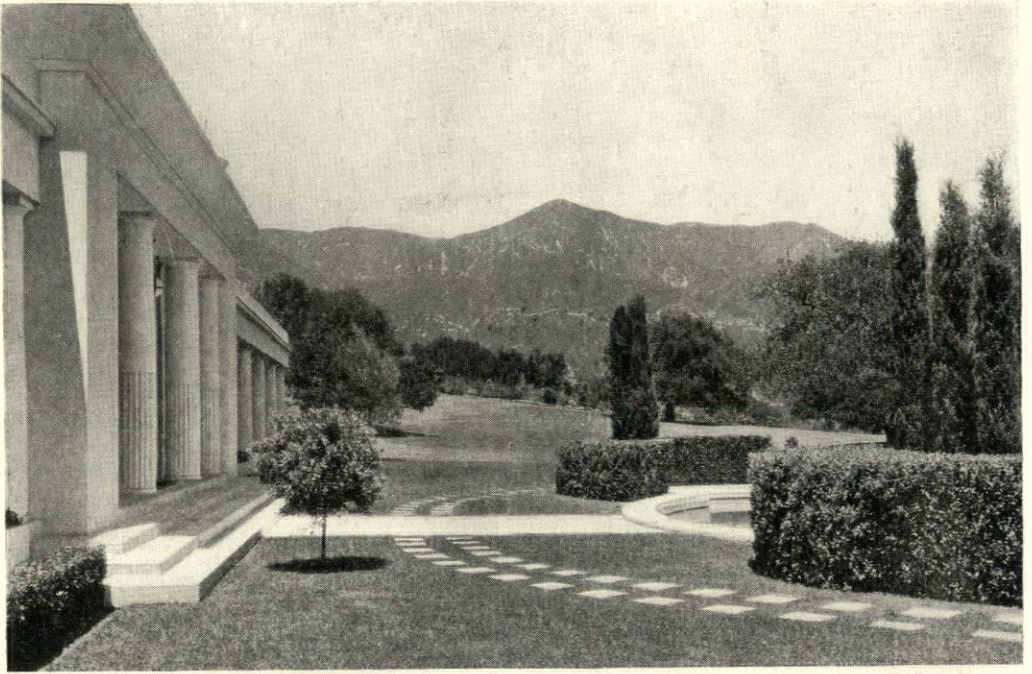
LOUNGE AND SMOKING ROOM OF SWIMMING POOL—ESTATE OF GEORGE O. KNAPP, ESQ., SANTA BARBARA, CAL.
Francis T. Underhill, Architect.



SWIMMING POOL—ESTATE OF GEORGE O. KNAPP, ESQ., SANTA BARBARA, CAL.
Francis T. Underhill, Architect.



VIEW SHOWING ELECTRICALLY CONTROLLED SLIDING ROOF OVER SWIMMING POOL, MOVING
ON A TRACK—ESTATE OF GEORGE O. KNAPP, ESQ., SANTA BARBARA, CAL.
Francis T. Underhill, Architect.



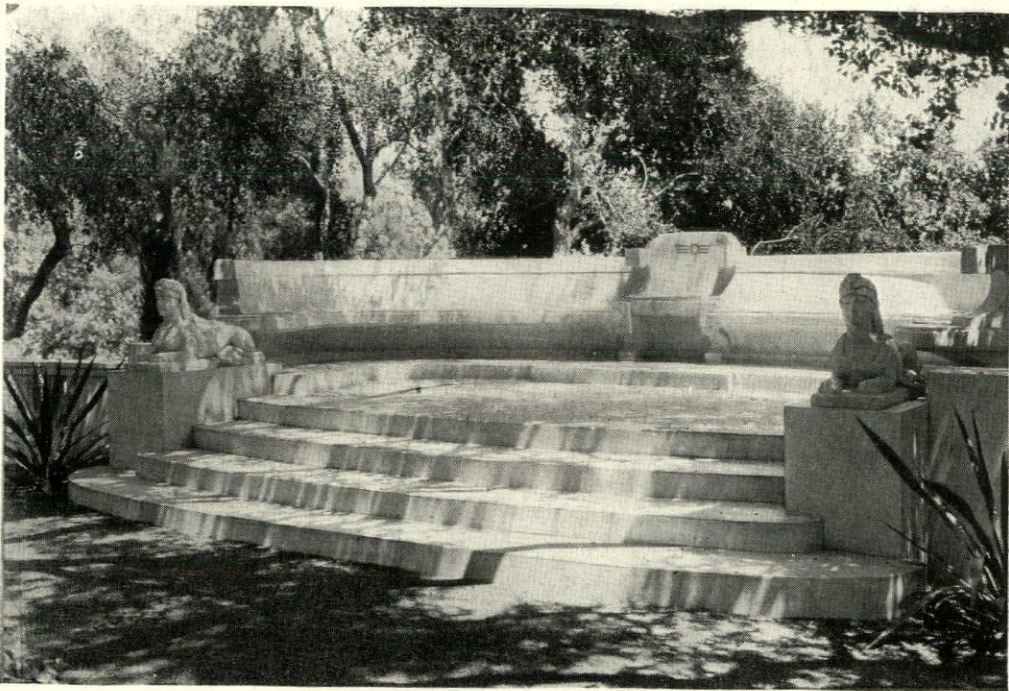
ENTRANCE TO SWIMMING POOL, WITH SANTA INEZ MOUNTAINS IN DISTANCE—ESTATE OF GEORGE O. KNAPP, ESQ., SANTA BARBARA, CAL.
Francis T. Underhill, Architect.



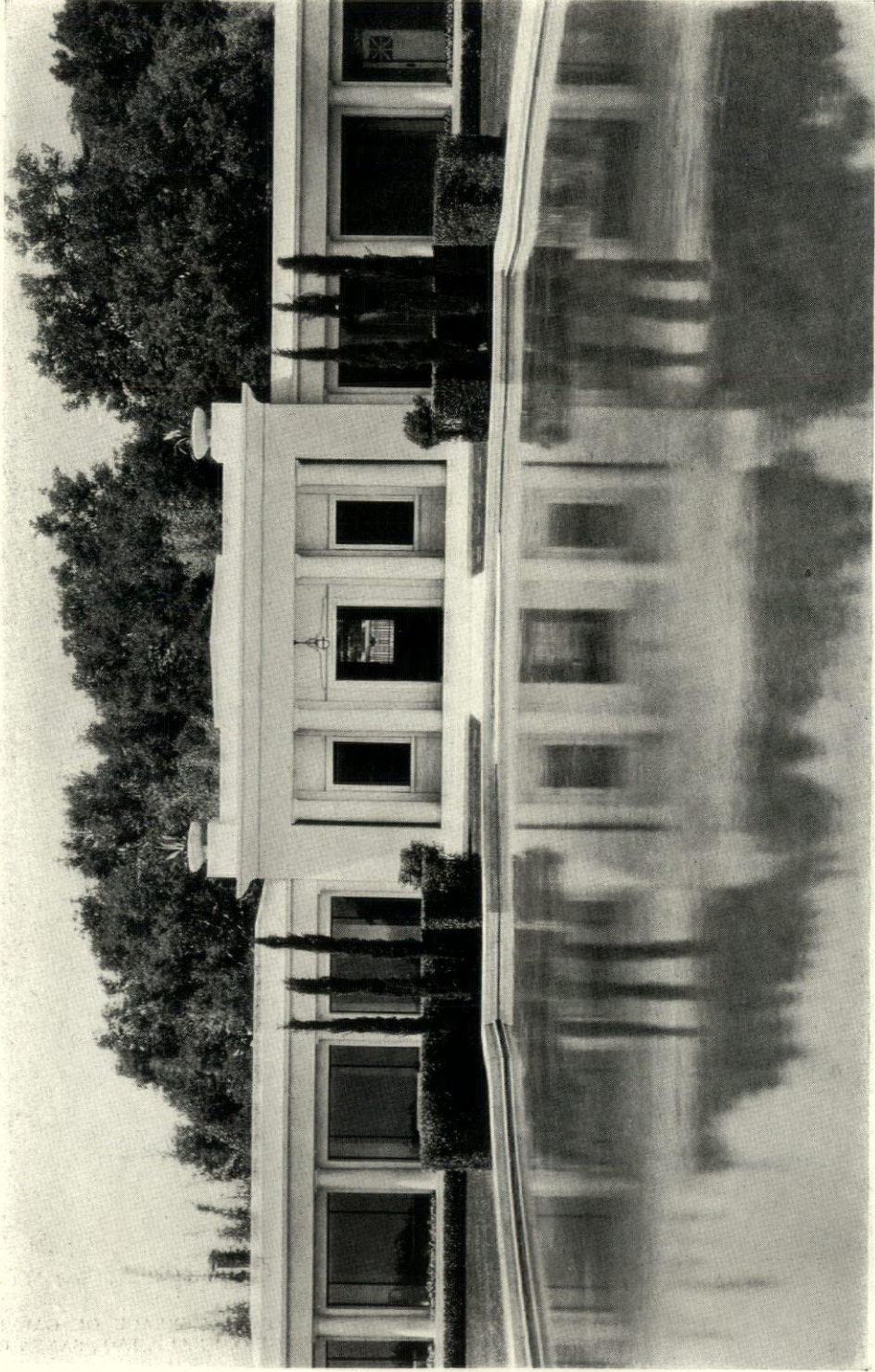
ENTRANCE TO SWIMMING POOL—ESTATE OF GEORGE O. KNAPP, ESQ., SANTA BARBARA, CAL.
Francis T. Underhill, Architect.



ENTRANCE TO LOWER TERRACE OF GARDEN—ESTATE OF GEORGE O. KNAPP, ESQ., SANTA BARBARA, CAL.
Francis T. Underhill, Architect.



FORMAL SEAT IN LOWER TERRACE OF GARDEN—ESTATE OF GEORGE O. KNAPP, ESQ., SANTA BARBARA, CAL.
Francis T. Underhill, Architect.



SWIMMING POOL IN GARDEN—ESTATE OF
GEORGE O. KNAPP, ESQ., SANTA BARBARA,
CAL. FRANCIS T. UNDERHILL, ARCHITECT.

PORTFOLIO
OF
CURRENT
ARCHITECTURE



ENTRANCE TO LOWER TERRACE OF GARDEN—
ESTATE OF GEORGE O. KNAPP, ESQ., SANTA BAR-
BARA, CAL. FRANCIS T. UNDERHILL, ARCHITECT.

trust and to operate them as community investments for the benefit of the community as a whole. Since no advantage is to be taken of the profit resulting from the increase of land values due to the development of the communities themselves, the rentals, like tax valuations, must be adjusted periodically, and the surplus income from rentals used to pay the interest on and the amortization of the Government loans, thereby reimbursing the latter and enabling the communities to conserve the unearned increment of land values and to gradually purchase the land and houses at the original cost. The unearned increment is thus conserved by making it safe from private exploitation.

Instead of giving the tenants the advantage of this increment in the form of reduced rents, a better method consists of charging normal rents, corresponding to the rates charged for equal accommodations by private landlords in the vicinity. To make this possible, and to avoid increasing rents to meet the former charges, it will be necessary for the Government to write off, as a war expenditure, the excess cost of construction during war times as against pre-war construction prices. Abnormal rents not only compel the workmen to demand higher wages to meet the higher rents, thereby causing restlessness and discontent on the part of labor resulting in increased

labor "turnover," but also enables private landlords to profiteer by raising the rents of their properties. To charge lower rents than demanded by private landlords elsewhere operates to discourage private construction, which is not only badly needed at present but will be more so in the future. It gives also the wage scale an unequal value depending on whether or not a workman is fortunate enough to secure a house within one of the Government developments.

CONCLUSION.

In the past, scientifically planned industrial developments constructed along the most practical and economical lines have failed to achieve ultimate success because they have lacked the application of scientific method in the maintenance of health, efficiency and amenity. If the promoters of this development continue to display the same careful administration after its completion as has distinguished it throughout the constructive stages, namely, by instituting a policy of control by which to regulate and protect the community's interest and welfare, it is safe to predict that the city of Wilmington will have every reason to feel proud in having taken advantage of the unusual opportunity presented to make of Union Park Gardens an inspiration for similar undertakings elsewhere.

basement, except space for an engine and boiler room, etc. It is a very attractive one-story building, designed to harmonize with the architecture of the remainder of the development, and is located with streets on three sides and the village green on the fourth, at the entrance to Union Park Gardens.

SOCIAL WELFARE AND MEDICAL DEPARTMENTS.

The proposed policy of the management to establish social service and medical departments for the benefit of the community is, indeed, a commendable advance in connection with industrial developments. The social service feature, under the direction of a competent welfare worker, will undoubtedly prove of invaluable assistance in raising the moral standard and method of living by instructing in matters of education, health, home hygiene, care of children, house-keeping, including marketing, cooking, and sewing; and in social welfare and other interests of the community. The medical department will look after sanitation, water supply, care of sick and injured, and personal hygiene. These features, as well as the conduct of the Communal building, together with the organization of recreational features, including sports and athletics, maintenance of playground, lectures, entertainments, social amusements and field days, etc., are to be directed by the administration of the community, whose board will be composed in part of the workmen themselves.

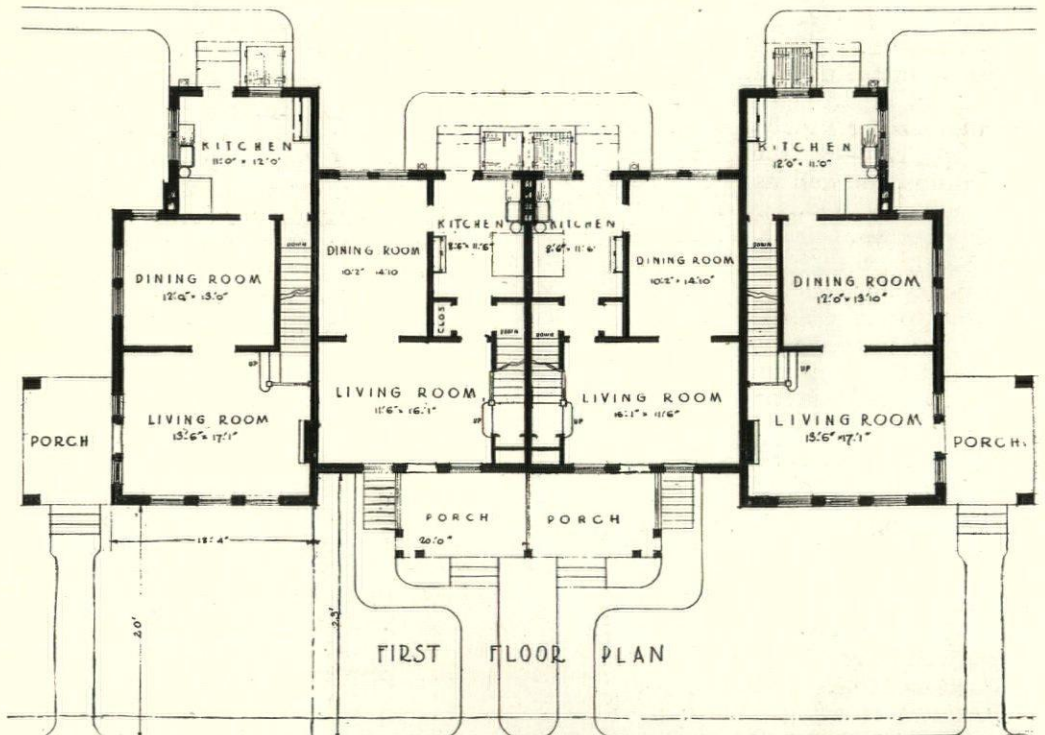
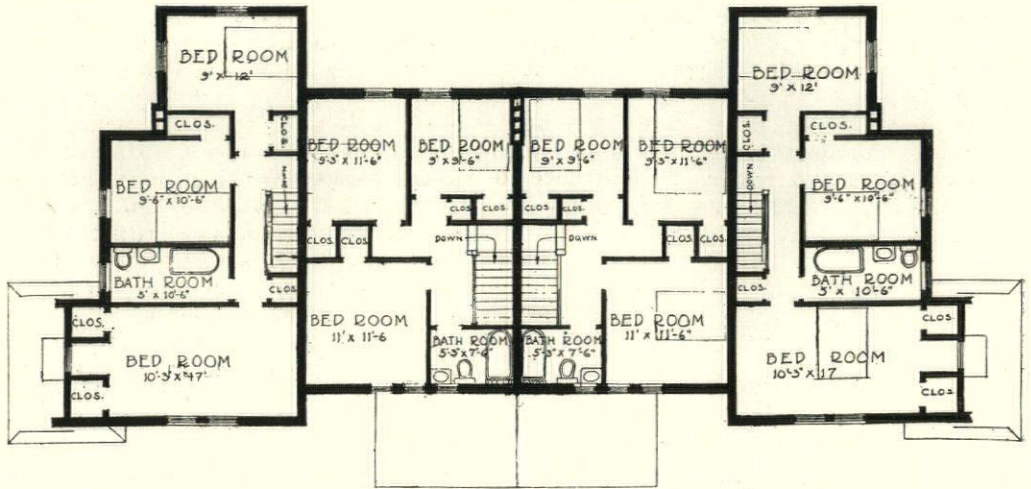
SUPERVISION AND MANAGEMENT.

Wilmington was fortunate to have many progressive, public-spirited citizens, whose foresight and vision have made Union Park Gardens a distinct achievement. To them, and particularly to their Chamber of Commerce, is due the credit for realizing the urgent need for adequate housing. They organized the Wilmington Housing Company, which undertook to raise sufficient funds by public subscription to purchase the necessary land. Some one hundred and ten different individuals subscribed to the stock of this company, with the understanding that, while there was little pos-

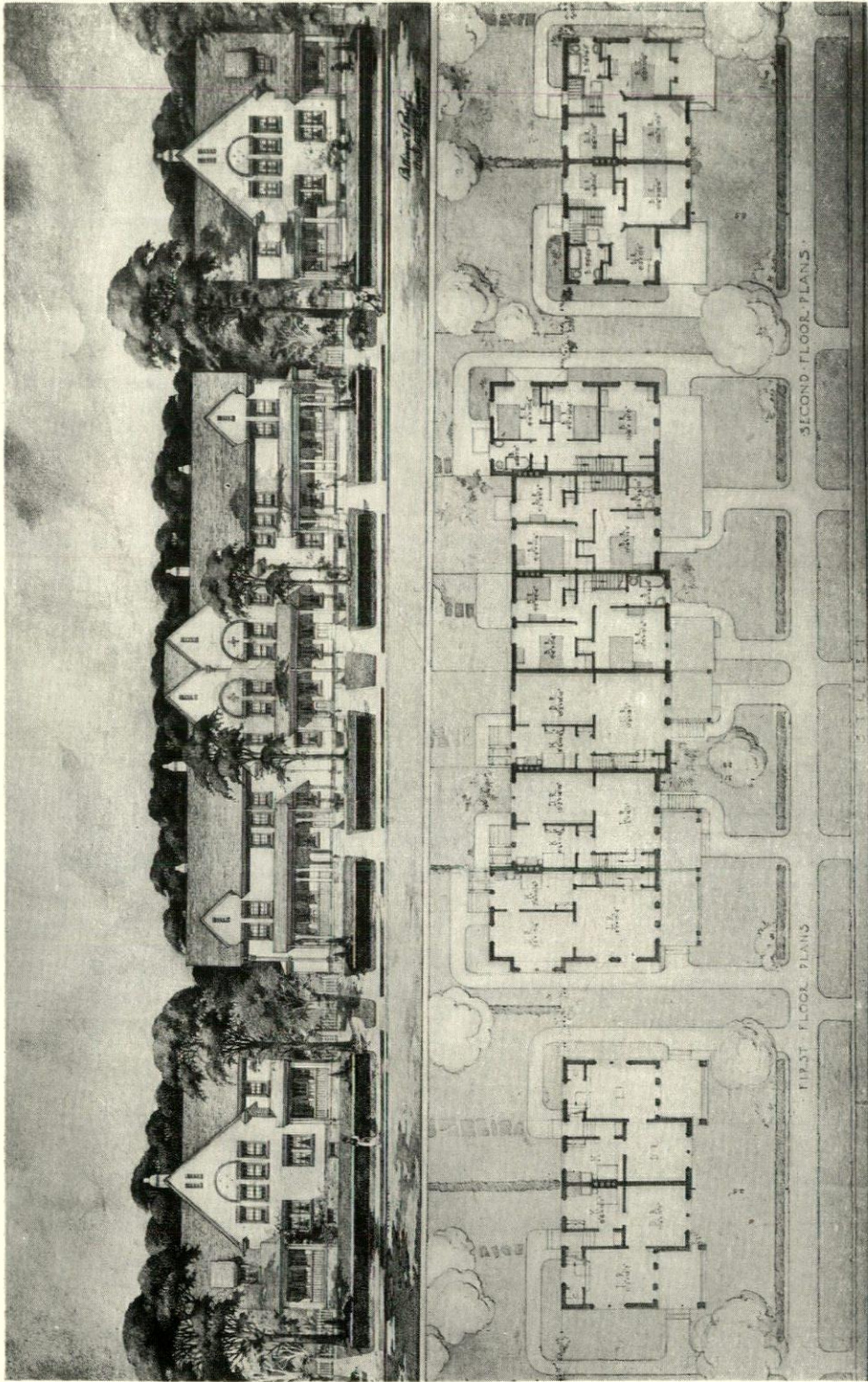
sibility of financial return, the money would be used to purchase the land, which was to be given to the National Government, and upon which the latter would make a loan for the construction of the houses. This company advanced \$100,000 to the Liberty Land (or operating) Company, with which the land was purchased. This company in turn gave the Government a mortgage, covering the loan for construction work, agreeing to pay five per cent. interest per annum; and, after all operating expenses were paid, any unexpended balance was to be used to amortize the loan.

The Liberty Land Company proposes to rent the houses and not to sell them. The distinct advantages of preventing deterioration and depreciation of the properties, together with imposing certain property restrictions, are only secured by retaining control over the management of the development. Proper management and upkeep, so essential to the success of such a project, can only be maintained by renting—not by selling. At the same time this eliminates the objection so often advanced by the laboring class that the purchase of houses interferes with the mobility of labor; the freedom to seek better positions elsewhere. The rents to be charged will be controlled largely by existing rents for similar accommodations elsewhere in the city of Wilmington. They will vary from \$27.50 a month for the smaller houses for the average shipworker to \$50 for the larger single houses, of which there are but a limited number, for superintendents, etc.

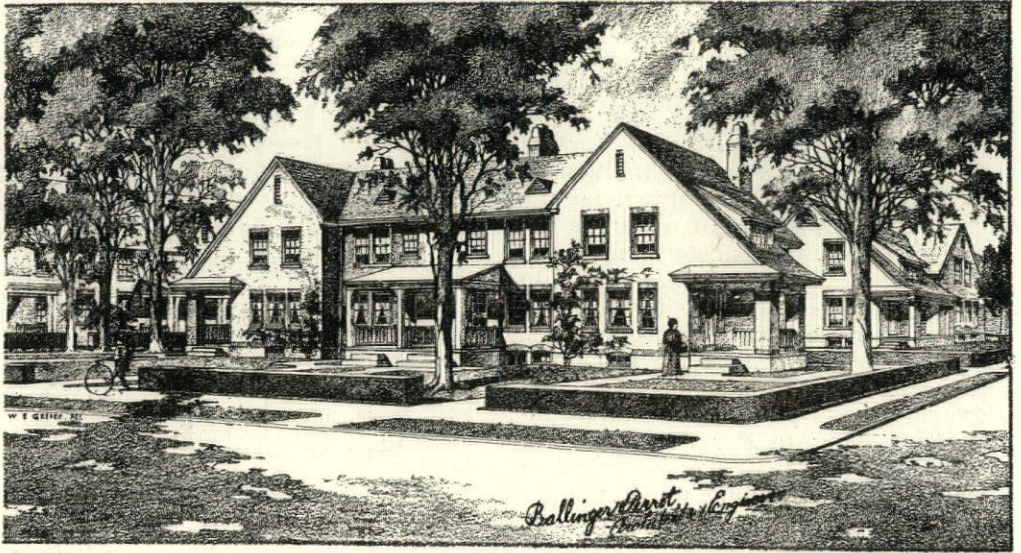
In the near future the Government must determine upon a definite policy of administration for its various housing projects now in course of construction; by which they will be permanently insured the highest standard of maintenance and operation. This may be best accomplished by selling the properties on the installment plan to the tenants as a group, and not to individuals, represented by local limited-dividend, non-profit land companies. In this method of procedure, similar to the English co-partnership scheme of ownership, title remains in the original companies organized to hold the properties in perpetual



FLOOR PLANS OF TYPICAL
GROUP OF FOUR HOUSES.



ELEVATION AND PLANS OF TYPICAL BLOCK, SHOWING TWO-FAMILY AND GROUP HOUSES. HOUSES ARE STUCCO, HALF STUCCO, BRICK OR HALF BRICK, DEPENDING UPON LOCATION. FRONT AREA ENTRANCE TO BASEMENT.



TYPICAL GROUP OF FOUR HOUSES.

yard with both trees and shrubbery, which will not only beautify the tract, but will materially add to the intrinsic value of the property. The houses have been located with careful regard for their relation to street and property lines, the latter to be marked by hedges. Fences are to be erected on the rear property and party lines only.

COMMUNITY LIFE.

To foster the social life of the community and to cultivate a spirit of fellowship and neighborliness, a Communal building, with its various accommodations, is to be erected. It has been learned that in industrial communities for skilled workmen and their families, particularly for those brought from a distance, it is as essential to provide recreation and amusement as it is to provide adequate and sanitary homes. It makes for their well-being and contentment, which are the prime factors in eliminating, or at least reducing to a minimum, the labor turnover, the most serious industrial problem at the present time.

On the main floor of the Communal building, besides the necessary administrative offices for the management of the development, is an auditorium. This

room, with stage, dressing rooms, and the rear balcony, will accommodate six hundred persons for lectures, moving pictures, gymnasium exercises, dances, and dramatic and social entertainments. In the rear of the auditorium is the swimming pool, with its spectators' gallery, exercise room, drying room and lockers, showers, and toilets for both sexes. Between the main entrance and the auditorium are a combined club and reading room and a lounging room, which have been designated a "Rendez-vous." The necessity of providing a place in the community, preferably in the Community building, where the workmen could congregate to express their personal opinions on matters of daily interest, a sort of round table, to act as a safety valve, was the fundamental idea involved in providing this "Rendez-vous." This is intended to supplant the saloon and the country store as a meeting place to discuss topics of the day. From an adjacent kitchen, sandwiches and light refreshments may be served to this room, and also to the auditorium. Across the front of the building is a second story, in which are located the social service and medical departments, and game rooms, including pool, billiards and cards. There is no

rangement had the added advantage of controlling the shipment of materials to the various Government operations as needed, thus avoiding any irregularity in distribution.

Quantity estimates were made for the various portions of the construction in advance of letting the contract, on the basis of which the cost of materials for each type of house was determined.

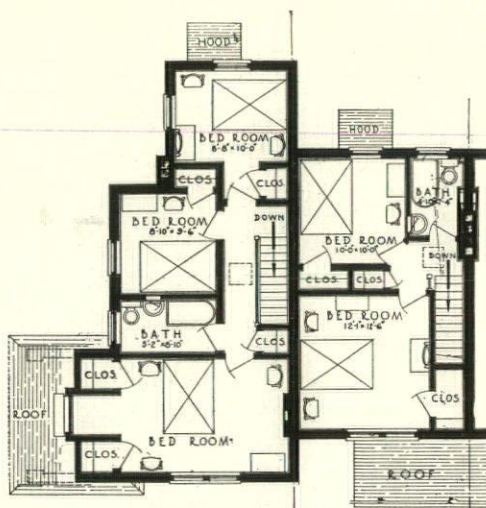
The city of Wilmington has agreed to reimburse the Government for the cost of the sewer system by cancelling the sewer assessment against the properties and paying its proportionate share, approximately two per cent. for street intersections, etc.; to pay five-eighths of the cost of street construction, excluding sidewalks; and to assume the cost of installing the water supply by its purchase upon completion. The gas and electric companies are to pay for the installation of their respective services up to and including house meters.

GARAGE FACILITIES.

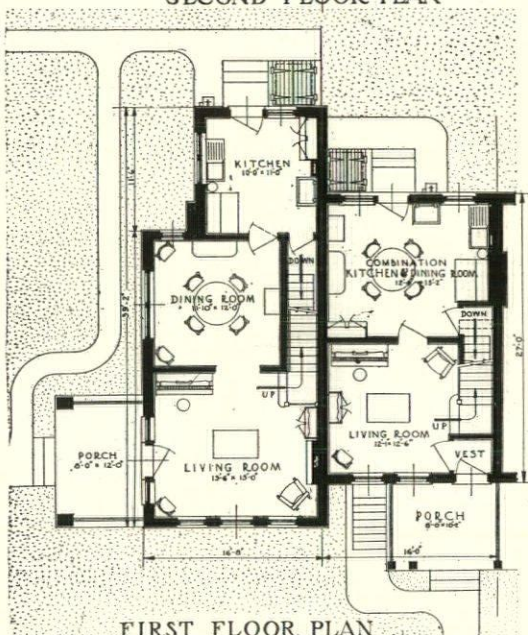
The question of providing individual garages has always been a much mooted one, of both the additional cost and the lack of sufficient information in advance of actual occupancy to determine, with any degree of accuracy, not only how many individual garages are likely to be required but also in connection with which houses they should be located. However, for the detached and semi-detached houses, whose occupants are more likely to possess automobiles, there is both ample ground at the rear of the property for a future garage and for access to it at the sides of those houses. If it is found that the public garage on Union street, near Lancaster avenue, is insufficient or inconvenient, it may become necessary to provide additional, more centrally located facilities by utilizing for community garages the two areas now reserved for allotment gardens.

LANDSCAPE TREATMENT.

That landscape work has a wholesome mental and moral effect upon the residents is indisputable. Landscape architecture, which frequently receives little



SECOND FLOOR PLAN

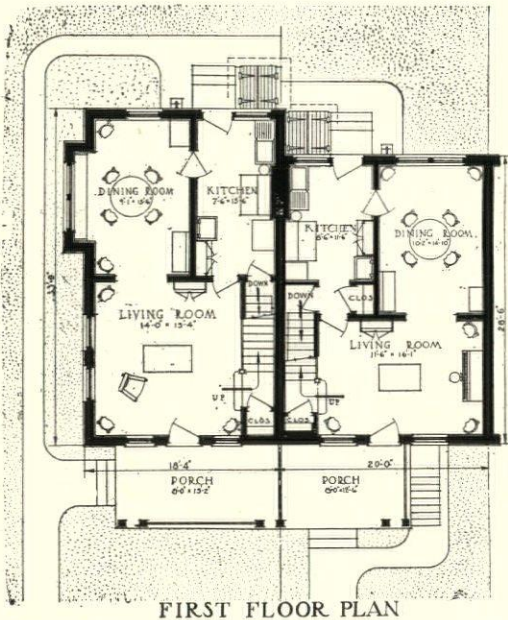
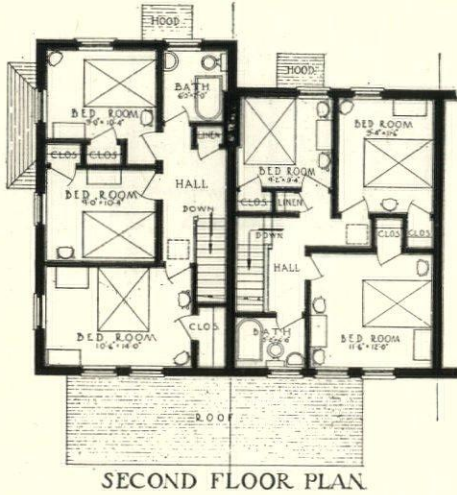


FIRST FLOOR PLAN

Types K and K-3, Group Houses: Each Unit, Six Rooms and Bath and Four Rooms and Bath, Respectively.

or no attention, as is evidenced by the unfinished appearance of numerous housing projects, is in this development to be under the able direction of Mr. Nolen.

The present trees and other natural beauties of the site have been preserved as far as possible. The streets are to be planted with hardy trees, and the space between the roadways of Grant Boule-



Types M and G-1, Group Houses: Each Unit, Six Rooms and Bath.

open raised and cemented terraces with benches either side, has a front porch, which never extends the full width of the house in order not to exclude direct sunlight from the living room. Gas is furnished for cooking, and both gas and electricity for illumination by means of combination fixtures.

CONSTRUCTION AND INTERIOR FINISH.

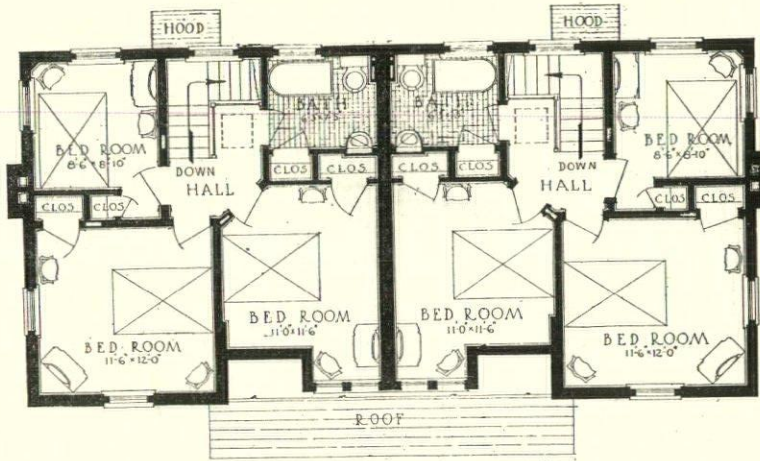
Frame construction has not been used in this development. Stone masonry has

been generally used for basement walls, above which they are of brick and hollow tile, the latter houses and some of the brick ones to be stuccoed on the exterior. The roofs are slated, so that the entire development is both semi-fireproof and permanent in character. Public utilities, including sewers, water, electricity and gas, are being extended from Wilmington proper. The interior finish is yellow pine, a variety of colors being secured by staining it green, mission-brown, or golden-oak. The use of white as a color for interiors has been purposely avoided, because it requires constant cleaning and frequent repainting.

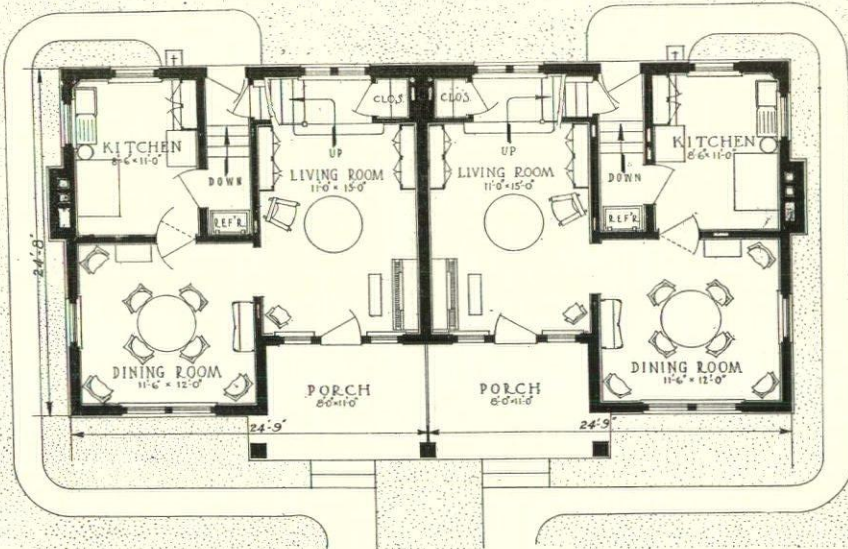
Ballinger & Perrot, the architects and engineers, have obtained excellent results by planning these houses after the "Airlight" design, making them only two rooms deep, thus affording each room the maximum of light and ventilation. This design has the additional advantage of affording rooms of ample size and a rectangular plan, which facilitates the use of standard-sized rugs, and a simple furniture arrangement. Thus, in both the design of interior accommodations and arrangement and the construction itself the architects have conformed to every requirement of the Housing Division of the Emergency Fleet Corporation.

COST OF CONSTRUCTION.

A detailed statement of the total cost of construction is not yet available. Even if it were, it could not serve as a basis of comparison for similar enterprises, as Union Park Gardens is an emergency development for the housing of shipworkers, in which rapidity of construction was of far greater importance than cost. It was impossible to obtain a reasonable lump sum figure because of the continually advancing prices due to the war. For this reason, and also to avoid delay in starting actual construction, the contract was let on the basis of cost, plus a fixed sum. The materials were purchased through the Construction Department of the United States Army. It was thus possible to obtain them in quantity at the reduced prices previously agreed upon between the Government and the dealers in building materials. This ar-



SECOND FLOOR PLAN



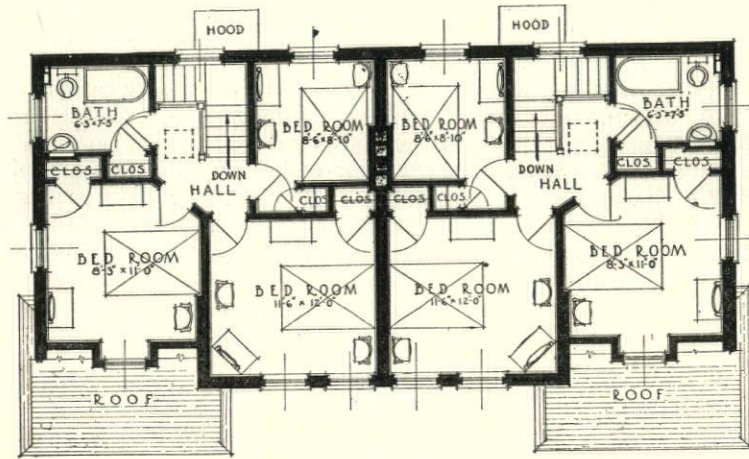
FIRST FLOOR PLAN

Type D-3, Semi-detached House: Each Unit, Six Rooms and Bath.

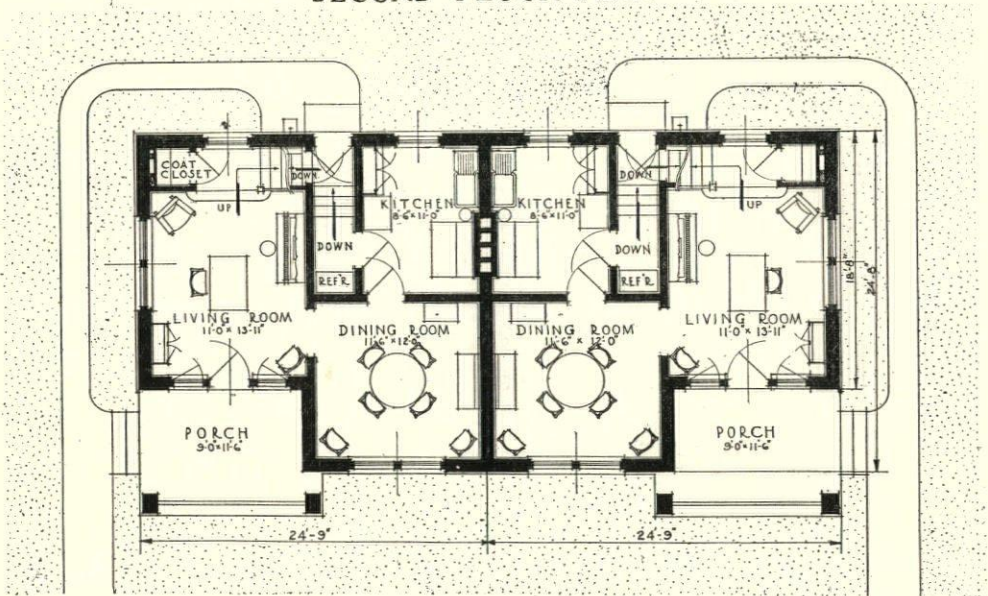
Type D-4: Similar in Plan, but Different in Elevation.

No. 6: All First Floor Rooms and Two Bedrooms Have Windows on Two Sides, Affording Excellent Cross Ventilation.

Type C: Single Detached House is One-Half of This Plan, with Windows in What is Now the Party Wall of the Two-Family House.



SECOND FLOOR PLAN

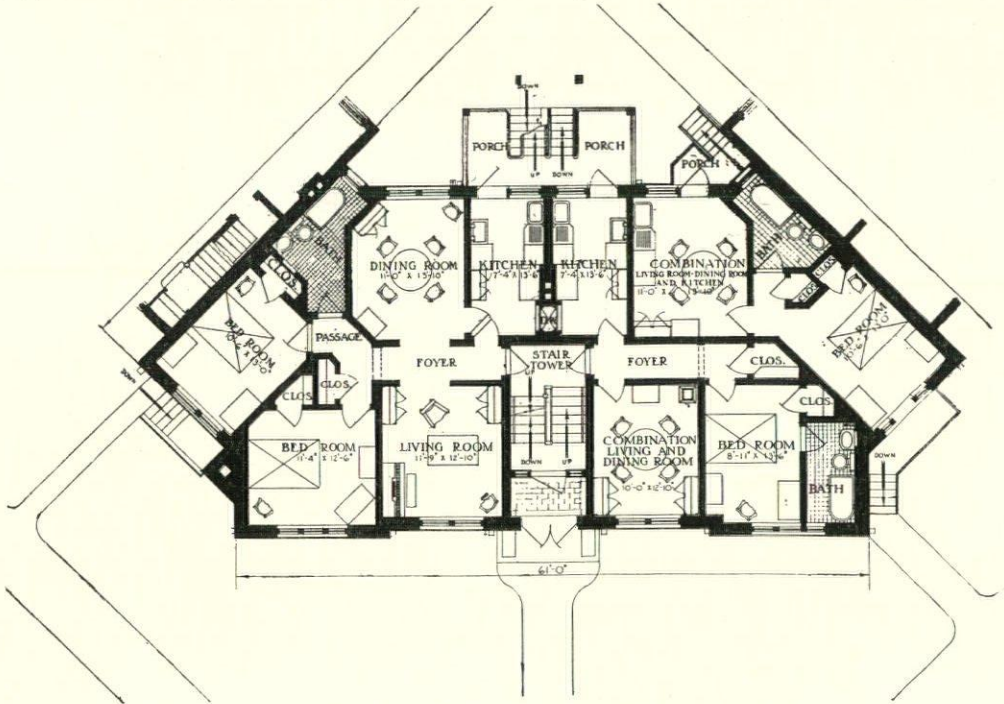


FIRST FLOOR PLAN

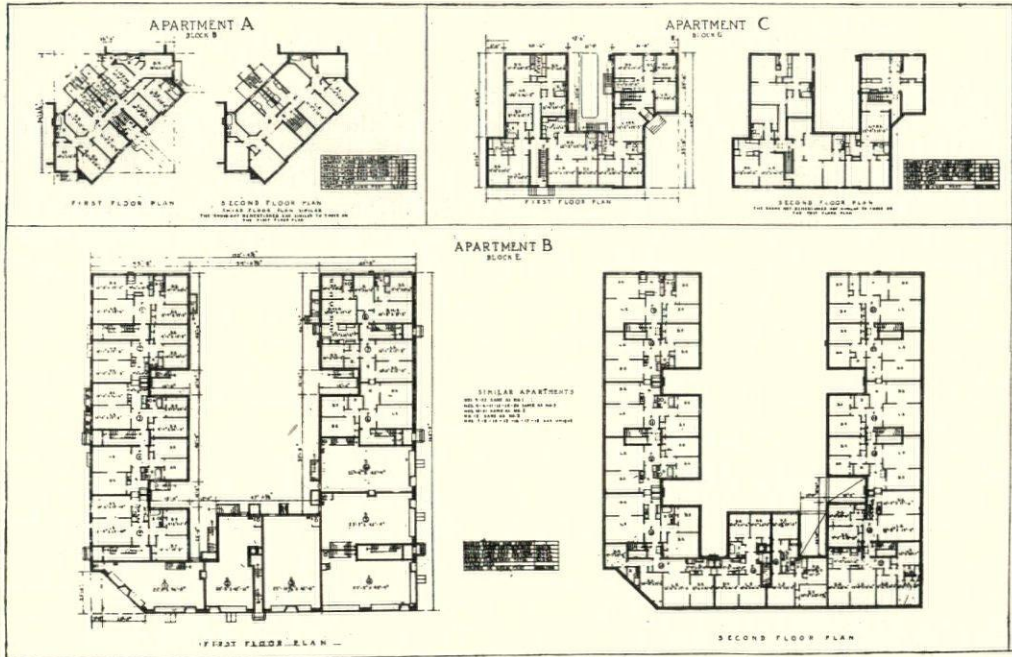
Type D, Semi-detached House: Each Unit, Six Rooms and Bath.
Types D and D-2 Are Similar in Plan, but Different in Elevation.

daylight in the front part of the basement, which is usually pitch dark in group houses. Two soapstone laundry trays are located in this basement, conforming to local custom. The use of the so-called "space saver," or laundry tray of which the cover acts as a drainboard for the kitchen sink, has been tabooed as a catch-all. Although it is frequently claimed that the installation of laundry trays in the basement, instead of in the kitchen, is inconvenient and increases the labor of the family washing because of additional stair climbing, in the opinion of the writer it has the advantage of removing the odors of the laundry from the kitchen, as well as preventing the laundered clothes from absorbing the odors of the cooking. Furthermore, in the winter months and in bad weather, the use of a dry, warm and well-ventilated basement for the drying of clothes is a real asset. While provision has been made for cooking and the heating of water by gas, a hearth and the necessary chimney flue have been included in every kitchen so that, if desired, a coal range may be conveniently installed at any time.

The kitchen fixtures have been located with reference to convenience and labor saving; the sink and its drainboard always with a window on one side to provide ample daylight and the range on the other side. There is also a built-in dresser for dishes and supplies, supplemented in many of the houses by a large closet for heavy kitchen utensils and bulky commodities. All bathrooms are entered from the second floor hallway only. They have composition floors, and are equipped with modern plumbing and fixtures, including a tub, lavatory and toilet fixtures. There is an ample attic space, well ventilated front and rear, to keep the bedrooms cool in summer. This attic has no living accommodations, but may be used for storage. A coat closet has been provided in nearly all living rooms, and every bedroom has at least one ample clothes closet. Besides a built-in medicine closet in the bathroom, a linen closet, for the storage of bedding and supplies, opens into the bathroom in the semi-detached house, and into the second floor hall of the group houses. Every house, except a few which have



TYPICAL APARTMENT BUILDING A.



APARTMENT BUILDINGS A, B AND C.

many instances, by arranging them three rooms deep, the middle room receiving light from one side only. The intermediate group houses are generally twenty-seven feet to thirty feet in depth, as compared with thirty-three feet and thirty-nine feet for the end ones. It was decided to increase the area of end group houses, particularly those located at street intersections, as they would command higher rentals, because of the advantages of side lawns, better outlook, and more abundant sunlight and air.

To meet the anticipated demand by workmen with small families for houses at cheap rents, a number of the intermediate group houses, type K-3, in the less desirable locations, comprise only four rooms and a bath, of which the two second floor rooms are bedrooms. On the first floor the rear room occupies the full width of the house and is used as a combination dining room and kitchen. In an emergency the living room can easily be converted into a bedroom. This type of house will be at a premium, not only because the housework is reduced to a minimum, but also because it con-

forms more nearly to the customary mode of living of many of the workmen.

HOUSE ACCOMMODATIONS.

The arrangement of both the plan and the interior accommodations of these houses has been made to conform to the Government's standards for war housing. Every house has a full basement, well lighted and ventilated, with a cement floor, a hot-air furnace, and a covered exterior entrance from the rear yard. In addition, every intermediate group house has an areaway entrance at the front, with steps descending at the side of the porch, which, in conjunction with the rear basement entrance, gives excellent through ventilation. It also facilitates the removal of ashes as well as affording convenient and direct access for the gas and electric inspectors to make periodic meter readings without passing through the main part of the house. (According to the regulations of the companies supplying these services, it is compulsory to install gas and electric meters directly inside the front basement wall.) This entrance door is glazed to give abundant

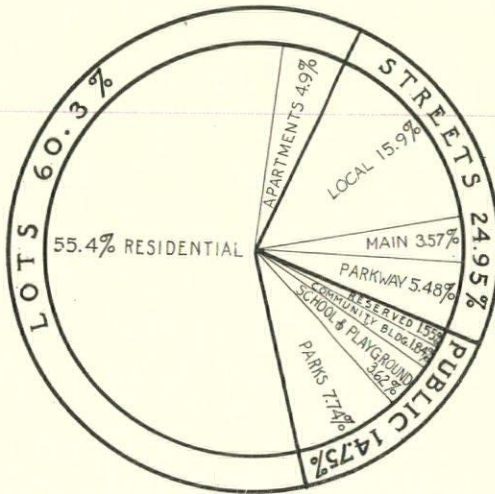


DIAGRAM SHOWING PERCENTAGES OF PROPERTY ALLOTTED TO VARIOUS PURPOSES.

riations of the intermediate houses depending on whether 16, 18, or 20 foot frontage, with four variations of end houses, depending on whether 16 or 18 foot frontage.

4. Apartment house: Realizing that the houses would be larger than required by many of the married workmen without children, it was deemed advisable to provide forty apartments, of which there are four types, consisting of three, four, five and six rooms and bath, respectively. These rooms include living room, dining room (which are combined in the three-room and bath apartments), kitchen, bedroom and bath on a single floor.

SEMI-DETACHED HOUSES.

TYPE D.

The semi-detached or two-family house, type D, of which D-1, D-2, and D-4 are modifications, has a frontage of twenty-four feet nine inches, and a depth of twenty-four feet eight inches, and is built upon lots of varying sizes. This house contains six rooms and bath: a living room eleven feet by thirteen feet eleven inches, having windows on three sides; a dining room eleven feet six inches by twelve feet, and a kitchen eight feet six inches by eleven feet, all on the first floor. The stair to the second floor opens from the end of the living room,

thereby making an attractive entrance feature. Another feature worthy of special notice is the clever arrangement of the rear kitchen entrance vestibule. This combines the entrance to the basement stair and a space for a refrigerator. The ice box is thus removed from the heat of the kitchen, but is still easily accessible to both the kitchen and the outside entrance. On the second floor are three bedrooms and a bath, the former having roomy closets, and the latter a linen closet, in addition to the built-in medicine closet over the lavatory. Two bedrooms, which are particularly attractive and spacious, are approximately eleven feet by twelve feet; while the third, somewhat smaller, is eight feet six inches by eight feet ten inches.

Attention is called to the ideal arrangement of types D-3 and D-4, in which all the first floor rooms and two of the bedrooms have windows on two sides, thus insuring excellent cross-ventilation.

Worthy of note is the simple but clever manner in which the architects have reversed the plan about the party wall in the semi-detached or two-family houses, to secure variation in the exterior architectural effect. A comparison of D and D-3 clearly indicates the method pursued in arranging the plan so that it would be flexible to this extent, thereby effecting economy in construction and labor by maintaining uniformity in the arrangement and size of rooms. This idea has been still further elaborated by utilizing the plan of half a semi-detached house, D-3 type, for the detached or single houses, in which windows have been placed in what was formerly the party wall.

GROUP HOUSES.

Intermediate Group Houses—

Types G-1 and K-3.

End Group Houses—Types M-1 and K.

The group house is essentially the same as the semi-detached house in its interior accommodations. In the plan itself, a distinction has been made between intermediate and end group houses by increasing the depth of the latter to allow rooms of a larger size; and also, in

STATISTICAL STATEMENT					
LOTS (RESIDENTIAL)	ACREAGES		PERCENTAGES		LOTS
HOUSES	32.14		55.4		NUMBER OF HOUSE LOTS - 514 (506 TO BE BUILT UPON NOW) + 3 APARTMENT HOUSES APARTMENTS - 40 TOTAL 554
APARTMENTS A-B-C	2.86		4.9		
TOTAL		35.00		60.30	HOUSES PER NET ACRE 16.0
SEMI-PUBLIC PROPERTIES					FAMILIES PER NET ACRE (554 ON 35 ACRES) 15.83
RESERVED SPACES	0.90		1.55		OF THE 32.14 ACRES 24% IS OCCUPIED BY HOUSES 76% IS UNOCCUPIED
TOTAL		0.90		1.55	AVERAGE LOT AREA .062
PUBLIC PROPERTIES					NORMAL LOT SIZE
SCHOOL & PLAYGROUND	2.10		3.62		DETACHED 50ft x 100ft
COMMUNITY BLD'G.	1.07		1.84		SEMI-DETACHED 45ft x 100ft
PARKS	4.49		7.74		GROUP 16ft, 18ft, 20ft x 100ft
TOTAL		7.66		13.20	HOUSES PER GROSS ACRE 8.8 FAMILIES - - - 9.38
STREETS					STREETS
MAIN	WIDTH 60-80 ft	2.05		3.57	LENGTH 0.63 MILES
LOCAL	40-50 ft	9.22		15.90	LOCAL 1.67 "
PARKWAY (SPECIAL)		3.17		5.48	PARKWAY 0.80 "
TOTAL		14.44		24.95	TOTAL = 3.1 "
GRAND TOTALS		58.00		100.00	
REMARKS:					
<p>The boundary streets, Union Street and Lancaster Avenue, are main thoroughfares. One-half their width and length is included in the above calculations.</p> <p>The principal playground is to be provided in the present Public Park, south of Union Street.</p> <p>The area of the six stores, occupying part of the first floor of Apartment B, has not been deducted in the above schedule because there are apartments over them on the second floor.</p>					

DIAGRAM SHOWING PERCENTAGES OF PROPERTY ALLOTTED TO VARIOUS PURPOSES.

ing, calculated on the basis of 514 families in separate houses and 40 families in the three-apartment, occupying a total of 35 acres, is 15.83 families per net acre.

Excluding the apartments, and using 514 houses, which occupy 32.14 acres, as the basis of calculation, the density is 16 houses per net acre. This intensification of housing, 15.83 families per net acre, or 16 houses per net acre, is made possible by the use of the group house. This development very forcibly illustrates the possibilities of the group type of house in the successful concentration of housing, when scientifically planned. It is worthy of note that, notwithstanding this density of housing, only 24 per cent. of the 32.14 acres devoted to house lots is occupied by the houses themselves, which conforms to the generally accepted standard of density as recommended by English authorities on garden suburb planning. The remaining 76 per cent. is unoccupied and consists of lawns, which, with the additional area of the streets, insures ample light and air.

ARCHITECTURAL TREATMENT.

The monotonous uniformity of rows of houses has been carefully avoided. In spite of the fact that the group scheme has been followed to a great extent, attractive and diversified effects in architectural design have been obtained by using both varying house set-backs and broken roof lines. Gable ends and dormers have been introduced at certain irregular intervals, especially at important points like street intersections, opposite streets, etc., with good results. Many of the houses have been given individual settings by taking advantage of certain irregularly shaped plots. There are twenty-odd different types of houses, arranged in a variety of combinations. The groups vary from three to ten houses each, separated by party walls, in units of both even and odd numbers. Only in two instances do they exceed this number, notably, one group of twelve and one of thirteen.

Harmony, simplicity, and uniformity of scheme have been maintained by adhering to one style of architecture, thus limiting the types of exterior treat-

ment; and by securing effects in mass and proportion, rather than by the introduction of useless and expensive architectural embellishments. Practical knowledge, common-sense requirements, and good taste have been exercised to make these houses essentially workingmen's homes, which can be placed within the means of the average skilled worker either to rent or purchase.

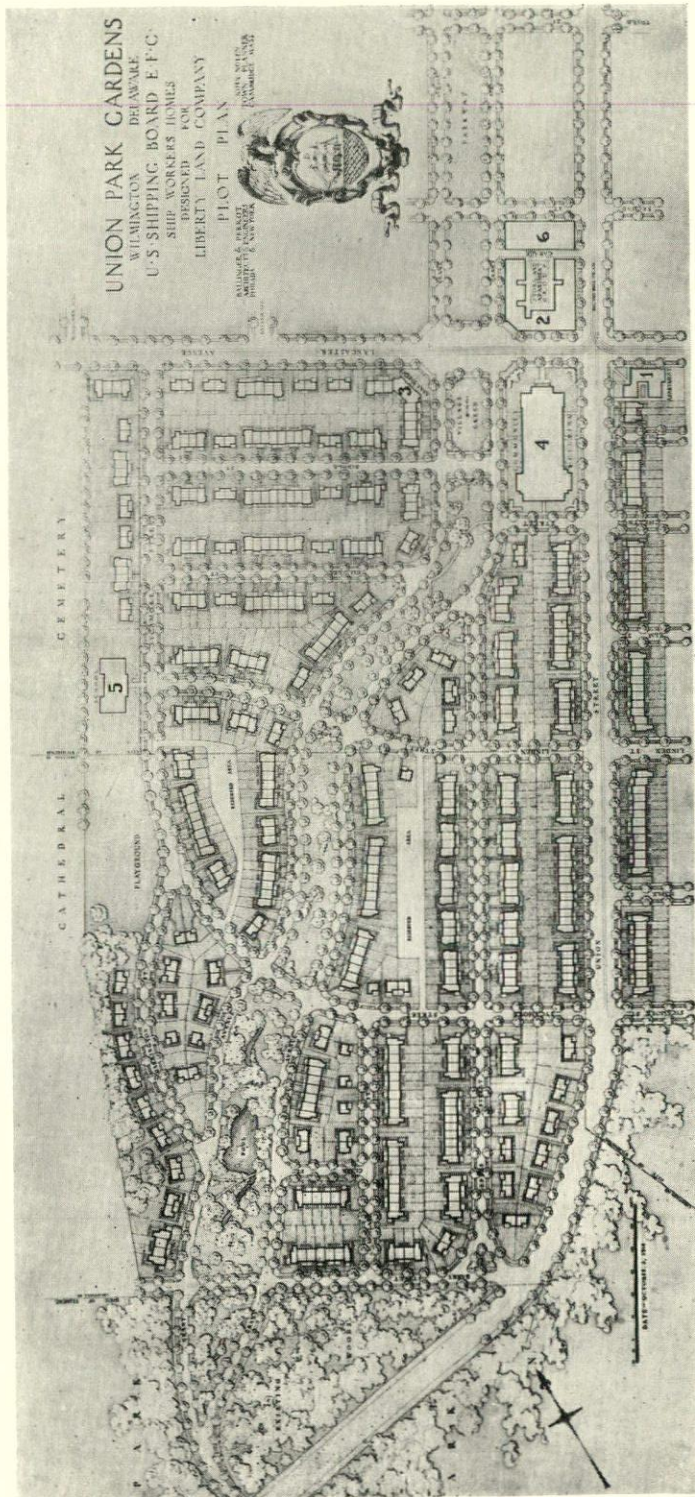
TYPES OF HOUSES.

The necessity of obtaining at least five hundred houses on this tract at the minimum cost per unit, consistent with proper construction and complete accommodations, made it obligatory to eliminate the single or detached house and to resort to the use of the semi-detached and group types. This, however, has been in no way detrimental to the project. Although the argument has been advanced that, to secure the maximum of light and air, the detached house offers the best solution of the industrial house plan, it must be borne in mind that these advantages are secured only at a greater cost of both land and construction. They, too, may be just as unsightly and monotonous as the group or row type, against which there is so much prejudice. In overcoming the objections to the group house by planning it only two rooms deep to secure abundant sunlight and ventilation in every room, certain advantages over the detached house are secured, namely, reduced cost of both land and construction; while the fewer exterior walls reduce the expense of heating to a minimum. At the same time, because of its better proportions, it offers greater possibilities for architectural treatment.

The houses are of four principal types:

1. The detached or single house—of which there is but one type.
2. The semi-detached house*—two-family or twin (double), of which there are two general types, D and D-3, having three variations each, D-1, D-2 and D-4.
3. The group house—having seven va-

*The term "two-family house," as used herein, signifies a house in which two families live side by side, separated by a party wall, and is not to be confused with the double-decker, in which two families live one above the other.



TOWN PLAN OF UNION PARK GARDENS.
 Figs. 1, 2 and 3—Apartment Buildings.
 Fig. 4—Community Building. Fig.
 5—School. Fig. 6—Public Garage.

of this sort, to reduce vehicular traffic on the main thoroughfares, and to facilitate the delivery of household commodities and the collection of ashes and garbage. With the inauguration of the "cash and carry" system by the stores, the delivery question no longer required serious consideration. On account of insufficient appropriations and of existing city ordinances which limited cleaning, lighting and removal of ashes and garbage to streets only, together with the question of adequate policing, the authorities of the City of Wilmington could give no assurance of extending such facilities to service drives. The situation was fraught with further difficulties due to the fact that, although Wilmington would undoubtedly be extended in the near future to include the entire development, at the present time the greater part of Union Park Gardens is outside the city limits. Obviously there was no alternative other than the elimination of all service drives. The ingenuity of the architects was taxed to the utmost to arrive at a solution which would be satisfactory to all parties concerned, with the result that the novel, yet simple, expedient of introducing front areaways, whereby ashes and garbage could be removed conveniently and directly from every group house, was determined upon. This feature has a twofold advantage: first, reducing the expenditure for road construction, thereby effecting a material saving in the cost of the project; and, secondly, making it possible to increase the depth of each plot by half the proposed service drive, or seven and one-half feet. The writer has dwelt at some length on this feature, because, in his opinion, the architects have successfully introduced a new element in the solution of the rear service drive problem in connection with group housing.

LAND SUB-DIVISION.

The plots for intermediate group houses, between parallel streets, although not conforming to any absolutely uniform dimensions, generally average from sixteen to twenty feet frontage by ninety-five to one hundred feet depth. End plots of this same depth have a

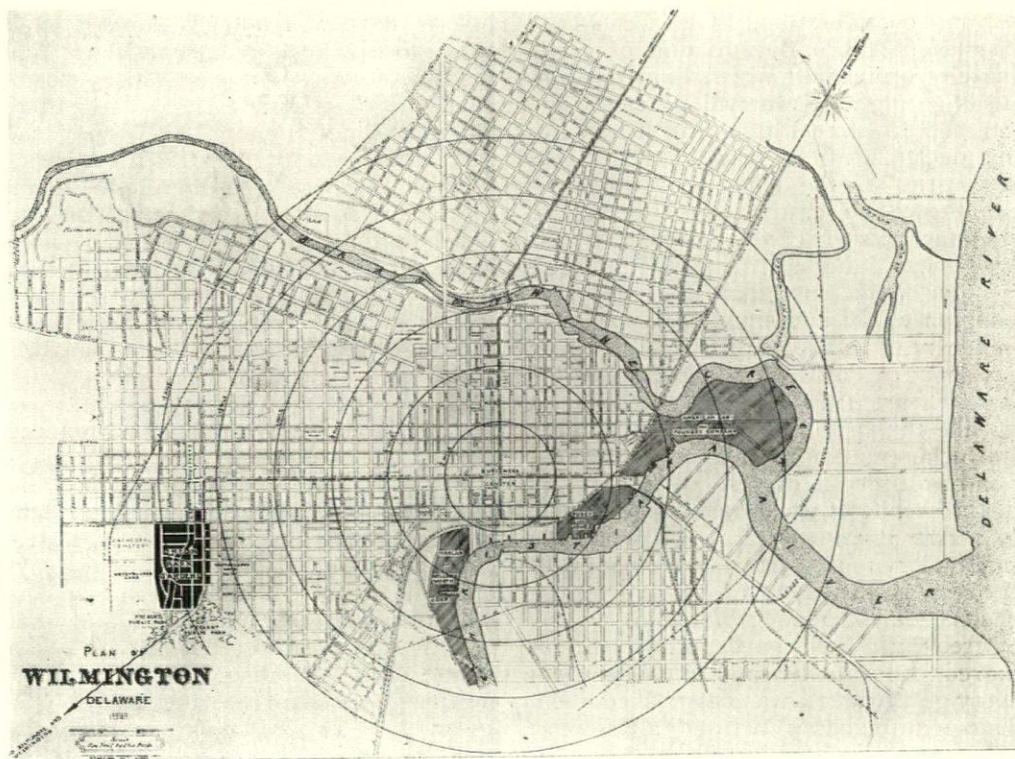
somewhat greater frontage, in order to maintain a sufficient distance between groups. Although sixteen feet has been taken as the accepted minimum distance, it has been possible to secure eighteen feet or more in practically all instances. Plots for the detached and semi-detached houses have a frontage varying from thirty to fifty feet, depth irregular. The distance between houses on opposite sides of the street, depending upon whether the minimum 20-foot or the maximum 30-foot set-back is used, varies from eighty feet to one hundred feet on the narrower streets, and ninety feet to one hundred and ten feet on the wider ones. Allowing for the depth of each house, there remains a distance of ninety to one hundred feet between rear walls of houses; which space is more than sufficient for an abundance of light and air.

This project contemplates five hundred and six houses, of which three hundred and ninety-nine are of the group type, one hundred and four semi-detached, and three detached. After allowing sufficient ground for the apartment houses, stores, community building, school and playground, there will remain a few lots which may later be purchased and built upon. A site has been reserved for a future school building, with an adjoining playground for baseball and tennis. In addition, two reserved areas, unsuitable for dwellings, are to be devoted to allotment gardens, for those who would not otherwise use their own back yards for this purpose.

The chart reproduced herewith shows the proportion of land allotted to the various purposes. Of the total area of 58 acres, 35 acres, or 60.30 per cent., have been used for strictly residential purposes, 32.14 acres for the 514 house lots, and 2.86 acres for the three apartment lots, the latter having a total of forty apartments. The remaining 23 acres, or 39.70 per cent., represent seven and two-thirds acres, or 13.20 per cent., for a future school and its adjacent playground, community building and parks; nine-tenths of an acre, or 1.55 per cent., for reserved spaces to be used for allotment gardens, and 14.44 acres, or 24.95 per cent., for streets. The density of hous-

points. This is particularly true of the Village Green, which not only gives a more appropriate setting to the communal and apartment buildings, but opens the view in many directions to vistas of the most charming character.

side of which are 20-foot roadways, having a 7-foot planting strip and a 6-foot sidewalk on the property side only. The latter are fifty feet and forty feet in width, between property lines, having roadways of twenty-four feet and twenty



MAP OF WILMINGTON, DEL., SHOWING RELATION OF UNION PARK GARDENS, AT LOWER LEFT HAND CORNER, TO SHIPYARDS ON THE RIVER FRONT.

Careful distinction has been made between principal and secondary streets, not only to effect economy in the cost of street construction and maintenance, but to preserve the residential character of the development by encouraging the use of the principal and wider streets for through traffic, and the secondary narrower streets for local traffic. The former include Lancaster avenue and Union street, which are both to be eighty feet in width, having 36-foot roadways, 14-foot planting strips, 6-foot sidewalks, and two feet between sidewalks and property lines; and Grant avenue, one hundred and twenty-five feet wide, consisting of a central planting space on either

feet from curb to curb respectively. Between the curb and the 5-foot wide sidewalks of these streets, there is a planting space of seven feet on the wider streets, and five feet on the narrower ones. A noticeable peculiarity of the plan is the fact that, with one exception at the southwestern corner of the tract, none of the streets continue beyond the tract on the west side because of the Cathedral Cemetery.

To those familiar with scientific town planning, a glance at the general layout attracts attention because of the absence of service drives between blocks at the rear of the group houses. The original scheme included 15-foot wide driveways