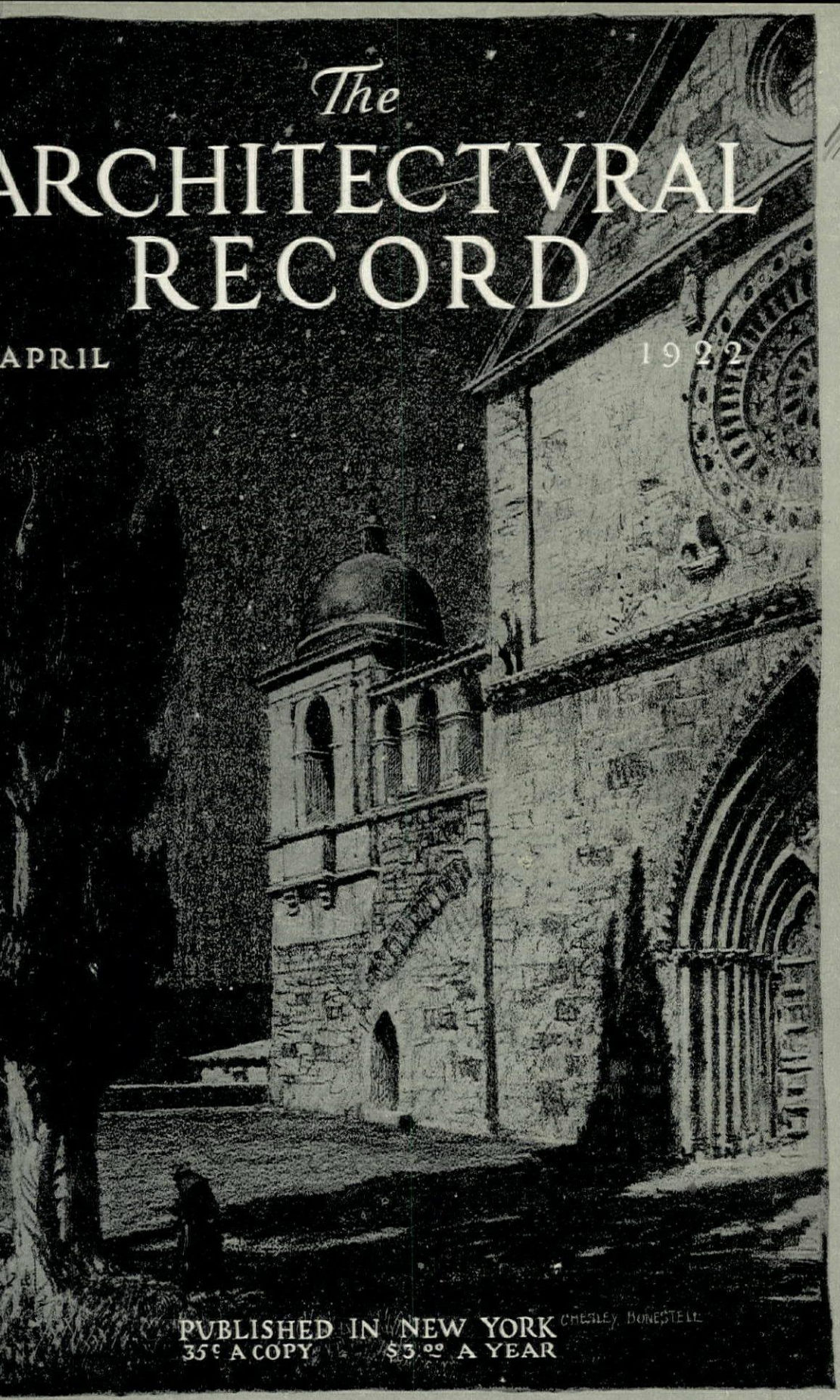
The ARCHITECTVRAL RECORD

APRIL 1922



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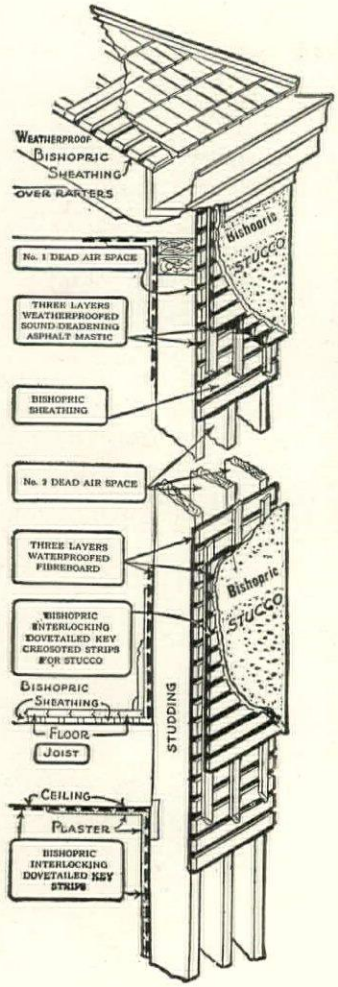

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PLATE IV

A. Cornice decoration. Olympia. Terra cotta.
B. Akroterion Parthenon.
C. Rosette Olympia. Terra cotta.
D. From the Akropolis.
E. Terra cotta metope Temple of Thermos.

TERRA-COTTA ANTEFIX
POLYCHROME, V
CENTURY.

ARCHITECTVRAL POLYCHROMY

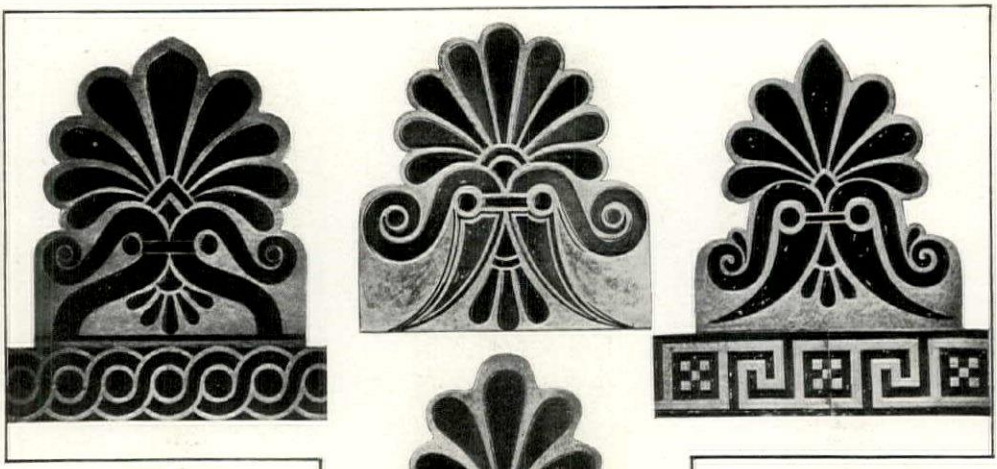
BY LEON V SOLON

PART IV

The Technique of Architectural Polychromy. Light & Shade as Media for developing Tone Interest in Flat Color The Greek Method for Neutralizing Antagonistic Tones

IN the preceding part of the treatise it was maintained that color gradation when artificially produced in architectural polychromy induces visual impressions which are not in accord with actual conditions. One must not, however, condemn tone gradation in every form as disadvantageous. Where color is employed to contribute its quota of beauty to architectural effect, it would be illogical to impose a restriction eliminating one of its most interesting features. Ungradated color was exclusively used by the Greeks in architecture; but, if the conformation of their colored ornamentation be analyzed, it will be found full of significance. The realization that forms ornamentally contrived were ultimately to be viewed as colored decoration, must undoubtedly have influenced their evolution. This probability supplies an objective to research; it becomes necessary to reconstruct the arguments from which the Greeks developed certain practices, and incidentally to ascertain the applicability of their methods to modern problems.

The tendency of flat colors, applied in comparatively large areas, is to appear harsh and detached in effect. In coloring an architectural design, the Greeks found it advisable to treat certain sizeable items with an unbroken color. Artistic intuition in such cases would automatically prescribe tone modulation as the most effective means for neutralizing the inherent harshness in such color masses. Artificial gradation being inadmissible, the need arises for discovering methods whereby the requisite chromatic quality could be produced, recognizing the necessity of identifying color effect with the individual effect of each architectural item treated. Color depends upon light for its existence; that is to say, for its visibility. Modifications of tone occur in a color as the direct result of varying degrees of light intensity. As a concrete example, imagine a sphere painted in a brilliant color, and placed before us in such position that rays of sunlight strike it at an angle of from 40° to 50°. With the light rays falling upon this object at angles which range from the vertical to the tangent, a gamut of color values will



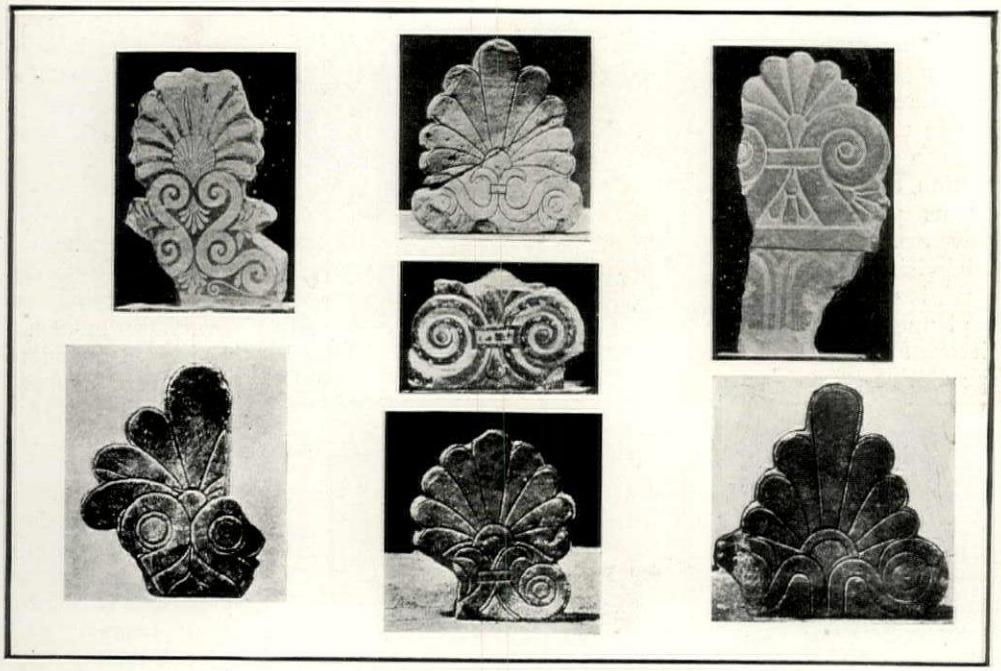
EXAMPLES SHOWING THE MANNER IN WHICH COLOR UNITS IN COLORED ORNAMENTATION WERE SEPARATED. OLYMPIA. COLORING RED AND BLACK AND MULBERRY AND BLACK ALTERNATING.

be produced which progress from the brightest tone to the deepest shade of that color. If, with this observation in mind, sections of Greek polychrome detail be studied, the observer will at once become conscious of a specific importance attached to the play of light upon concave, convex, and inclined surfaces. The inter-relation established between the structure of ornamental form, color, and light, attaches a new interest of an extremely practical nature to certain peculiarities in decorative expression which hitherto possessed primarily a stylistic significance. An exhaustive examination of their achievement during the three most fertile centuries, made from this new point of departure, dispels any surprise at their conservatism in polychrome methods. By this association of media of effect an imperative requirement is fulfilled, in that it identifies color quality with architectural effect, as tone value varies in direct correspondence with the conformation of form and the angles of planes.

EXAMPLES ILLUSTRATING THE GREEK METHOD FOR TONE DEVELOPMENT BY MEANS OF LIGHT AND SHADE.

The gable akroterion of the Heraion at Olympia (a fragment of which is shown on plate III) is a typical example of the application of the principle. Comparatively large areas of dark brown constitute the most forceful notes in this striking detail. Were those color masses applied to flat surfaces without tone variation, their uncompromising strength and inherent harshness would react detrimentally upon adjacent delicate ornamentation. As these broad bands of dark color were essential to decorative effect, their tone quality was modified by a modelled treatment of the surfaces, in anticipation of this color treatment. In examining the section of this akroterion (which we illustrate, page 291) it will be found that these surfaces are modelled with undulations almost semi-circular in section, which, by the action of light, produce an infinite variety of tones in the local color. These modulations of tone cause the masses of harsh color to become constituent elements of effect, instead of detached color units.

The circular antefixae of the same building are a variation of the akroterion motif; but as the proportionate areas of dark brown are not of sufficient importance to assert themselves detrimentally, they are not modelled. An equally important reason for the unmodulated condition of these color masses is that, as



ANTEFIXAE FROM AEGINA.

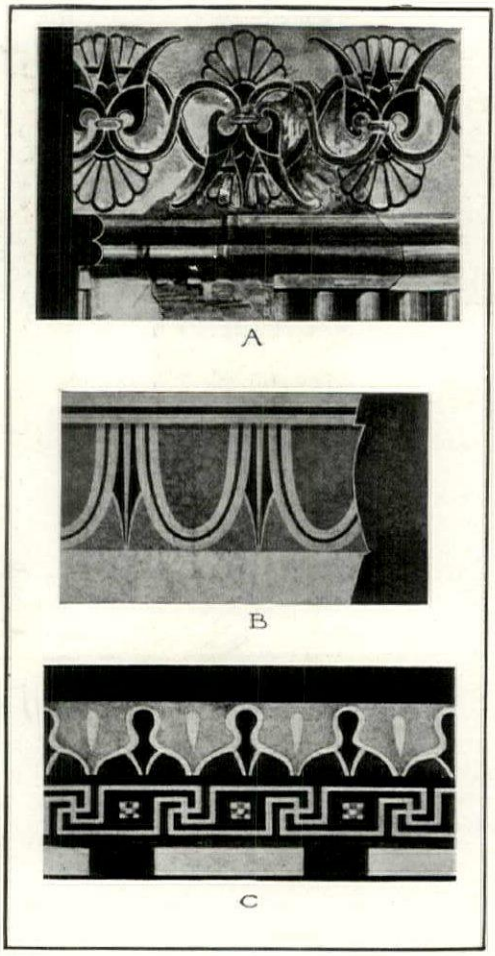
flat tones they constitute a more advantageous background to the central rosette, which is concave in sections in order that delicate tone modulations may be produced.

At the head of plate IV we illustrate an extremely interesting cornice decoration from Olympia, reconstructed by Curtius and Adler. The material is terra cotta; a wide range of tone values are most ingeniously developed in a single color by the peculiar character of its modelling; a red fillet outline, which defines the constituent ornamental items, serves the additional purpose of accentuating and separating the various tone values created. The comparative simplicity of its coloring is readily accounted for by its proximity to the cyma, which is usually one of the most forcefully colored items in a polychrome structure; greater color elaboration would have introduced an element of confusion through competitive interest; this purely ornamental member was consequently subordinated in effect to its architectural neighbor. The bold variation of the "egg and dart" which embellishes the lower part of this decoration, is an interesting instance of light and color adjustment. In normal lighting the bold embossment of the red "egg" detail would assure that tone modulation necessary to mitigate the possible crudity of these valuable color spots. As this decoration stands against the sky, these color masses would, by reason of the diffusion of light, appear flat and detached. To compensate for this condition, a triangular motif is designed in the centre of the "egg," which produces a bold equivalent for the high light. The use of white to accentuate the direction of the scrolls is also ingeniously conceived.

One of the most beautiful examples of this conventional use of concave and convex forms, bounded by the defining fillet outline, will be seen in the carved scroll-like roof decorations which beautify the Tomb of Lysicrates. By this peculiar decorative treatment, ornamental and color values were preserved despite the disadvantages of location against strong light. This magnificent architectural decoration appears to embody the fullest content of expression conceivable in that method of modelled treatment. Unfortu-

nately no trace of any contemporary coloring survives, but there is no reason to assume that it was a solitary exception to the prevailing practice of polychromy. The subdivision of its detail is so obviously planned for color decoration, that a speculative reconstruction of its color treatment would be a comparatively simple undertaking.

The necessity for maintaining the decorative integrity of colored items silhouetted against the sky was fully appreciated by the Greeks; this fact is illustrated in a host of examples. In a number of antifixæ the colored decoration is set well within the outer edges, with the intent to preserve ornamental precision from light encroachment and consequent loss in scenic value. The "saw-edge" or rudimentary "sun-burst" treatment of the contour of the great Heraion anthemion is devised with that object.

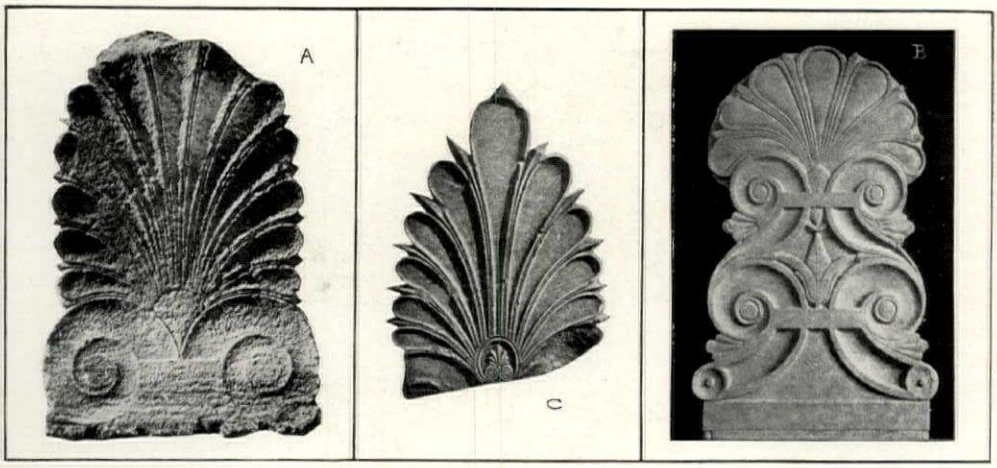


A—OLYMPIA FRIEZE. B—PROPYLAEUM. C—OLYMPIA MOULDING.

THE PRACTICAL PURPOSE SERVED BY THE "FILLET OUTLINE" CONVENTION IN COLORED ORNAMENTATION

Visibility of color from a distance is an essential requirement in architectural polychromy. The suitable palette must consequently consist of forceful tones or pigments possessing a high degree of radiant energy; colors of such character have usually little harmonious relation, and in many cases are mutually antagonistic. Our next problem is to discover a method whereby colors of such character may achieve decorative value when assembled for architectural embellishment. The Greek assortment of pigments was extremely limited owing to their very elementary acquaintance with chemical process; their practice was confined to the use of the simplest color bases. The architectural palette consisted of black, dark blue, light blue, brown or mulberry, red, ochre, yellow and white.* These color elements are crude, with no apparent mutual tonal relation, so far as can be judged from the modern viewpoint, fully recognizing the fact that we are temperamentally incapable of recording a reaction to a Greek color effect equivalent to that experienced by its author. In this treatise, however, research is directed to those color activities which react upon architectonic properties rather than to those which are individually expressive. As Greek polychrome embellishment was a contributory decorative factor to architectural effect, its invariable use encourages the conviction that results obtained with color cannot have been unworthy of their exalted association; decorative ingenuity based upon sound argument alone could

*The greenish color found in many fragments was probably blue originally, as chemical analysis proves its derivation from the same form of copper as the blue; disintegration would account for the greenish blue.

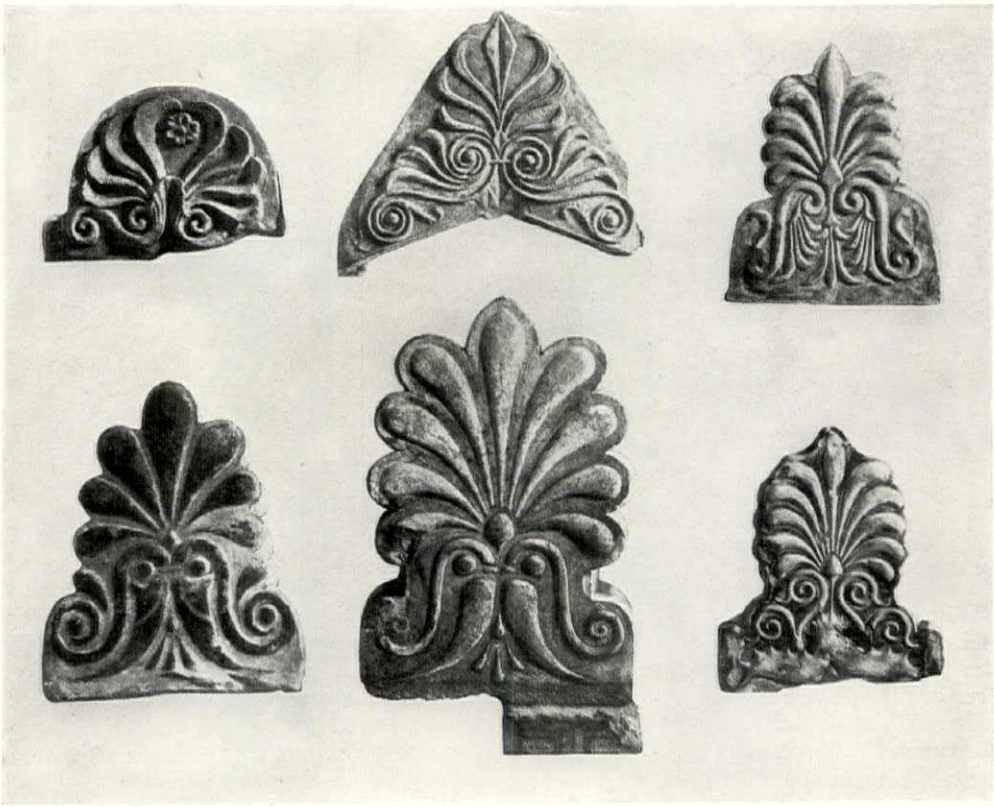


EXAMPLES OF CONCAVE AND CONVEX TYPES OF MODELLING FOR COLOR.

have attained beauty with such uncompromising media.

When inherent color activity asserts itself antagonistically to artistic effect, it is necessary to discover either the nature, or the precise location, of such activity. When such reactions in color phenomena are recognized, Greek ornamental conventions identified with color effect must next be studied, to ascertain whether the origin of any of these can be attributed to observations recorded. The color conditions which call primarily for investigation might be illustrated with a colored diagram; this concerns the mutual reaction of antagonistic colors. This diagram should consist of a series of repeating geometrical or ornamental figures, after the plan of diagram D, Plate III; two brilliant and unrelated colors being arranged in alternation upon the subdivisions. To facilitate subsequent observations it is advisable that the size of the unit be not less than one inch in its minimum dimension. With the completion of this diagram a specific color activity comes into operation, through the contiguity of two unrelated and aggressive colors. Judging from the standpoint of general decorative utility, the result produced is unfitting for artistic effect. This drawing constitutes an uncompromising illustration of that form of chromatic activity which exists in a group of decorative units treated with unrelated colors possessing appreciable radiant properties. The mutual relation of these units, in their repetition, parallels approximately circumstances that prevail in architectural ornamentation. If the visual effect of this color arrangement be analyzed through prolonged and intent contemplation, an unpleasant reaction will be experienced by those who are endowed with artistic sensibility; this increases as the critical faculty is concentrated. Intensified examination will reveal the fact that artistic sensibility is irritated most violently at those points at which the two colors make actual contact. From this observation we may formulate a deduction; namely, that the most injurious result arising from this form of color grouping proceeds from actual color con-

ANTEFIX—OLYMPIA. GILT ORNAMENTATION ON BLACK.



EXAMPLES OF MODELLED TREATMENT FOR THE DEVELOPMENT OF TONE VARIATION FROM FLAT COLORS.

tacts. To test the accuracy of this observation, it is necessary to make another diagram with the same colors and decorative unit, in which all color contacts are eliminated, by leaving a uniform space between each color unit. In this second diagram, it will be found that the quality of active antagonism between the colors, which characterizes the first diagram, is considerably reduced; in fact, many colors which clash violently in diagram I. seem to acquire a vibrant quality of considerable decorative value when rearranged after the manner of diagram II. Having thus located the focal point of chromatic discord, and found a means for neutralization or elimination (according to the tonal character of the colors involved) our predetermined plan of procedure calls for a careful examination of Greek architectural detail designed for color, with the purpose of tracing a connection between any peculiarity in decorative expression, and the phenomenon noted.

The most superficial examination will reveal the connection sought. The principle of contact elimination, as the harmonizing factor in promiscuous color grouping, is demonstrated in a host of examples; the method of its decorative application embodies one of the most characteristic features of Greek ornamental expression. A species of outline, treated diversely, separates all ornamental color units in Greek polychrome detail; the majority of examples are treated as follows:

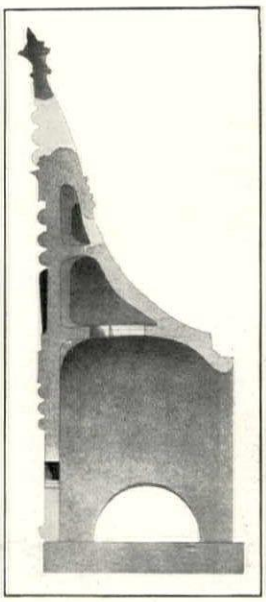
Type A The outline separating colors is raised, either rounded in section, or flat after the manner of a fillet. The structural material forming the raised outline is left uncolored in some instances; in others it is tinted. Plate IV, B.

Type B The ornamental motif is designed in such fashion that the spacing between color details is more or less uniform; these spaces have the appearance of outlines after the manner of "stencil-ties"; the ground color is left untreated. See one and two-color antifixæ, page 286.

Type C The outline is treated in a color distinct from those which it surrounds. In certain examples where a repeating motif is colored in alternating groups of three colors, the outline colors alternate correspondingly. See three, four and five color moldings.

Type D The outline is delicately channeled, or sharply sunk in narrow or broadish bands. Plate IV, 9.

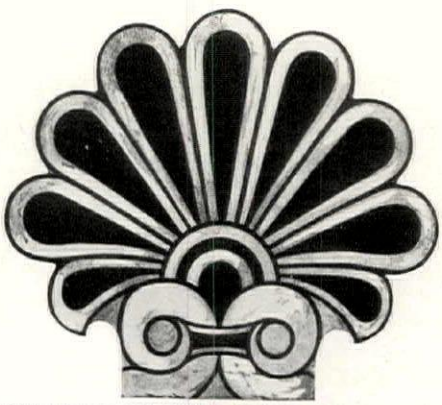
This technique of color separation in the various interpretations might be described as universal; rare deviations occur, from exceptional causes only. Incompatible tones in crude pigments were harmoniously transformed in Greek polychromy by this method, the extreme simplicity of which endowed their color illumination with qualities of strength and dignity. The fact that the Greeks considered polychrome effect to be an indispensable adjunct to their sublime structural conceptions, permits us to assume that the result was not disturbing.



SECTION OF GREAT GABLE AKROTERION OF THE HERAION. See Color Plate III.

One of the most valuable properties of this technique is the apparent incorporation of the color decoration with the architectural item. This cannot be rated too highly, when we consider that the quality of color effect differs radically from that of all other contributory factors in architectural effect.

These invaluable methods which the Greeks devised are the direct outcome of their recognition of so-called "limitations" of media, and disadvantageous phenomena. Much has been expressed regarding the cramped influence of these factors upon art expression; yet, all those decorative processes or ornamental conventions which in by-gone ages have revealed the fullest content of beauty latent in substance, originate in those "limitations." *(To be continued)*



TREASURY OF GELA—COLOR SEPARATION BY BROAD ORNAMENTAL COLOR FILLETS.

SOUTH FRONT—LA PIETRA, IL PELLEGRINO,
VIA BOLOGNESE, NEAR FLORENCE.

La Pietra, Il Pellegrino, Via Bolognese, Near Florence

By Harold Donaldson Eberlein

LA PIETRA, on the Via Bolognese, to the north of Florence, has presented to the world since 1690 an imposing and dignified Baroque exterior. Prior to that date it was a typical villa of the early Renaissance. Fortunately, notwithstanding the dominating Baroque accretions, much of the early fifteenth century work remains intact and is perfectly discernible after a little careful examination, so that the structure is, in a way, an architectural palimpsest.

The Sassetti family owned the villa in the fifteenth century, a fact attested by their arms carved on many of the corbels within the house. Later it passed into the possession of the Capponi family, and in 1690 Cardinal Capponi made the changes alluded to. He it was who built the lodges at the gate, from which a long *viale* leads to the north front of the villa, the central portion of which was raised to accommodate a lofty ball room and to accord with the prevailing notions of symmetrical composition. At the same time the walled flower garden, to the east of the house, was constructed or, at least, enlarged and ornamented in the taste of the period.

One interesting instance of the way in which Cardinal Capponi's architect merely overlaid much of the pre-existing work without obliterating it is seen in the doorway of the south or garden front where, upon the *quattrocento* lintel a Baroque pediment has been imposed, leaving the earlier setting quite undisturbed. The ceiling of the *sala* affords another instance of the same sort of skin-deep remodelling, where bold plaster relief decorations were applied without at all changing the ancient vaulted structure.

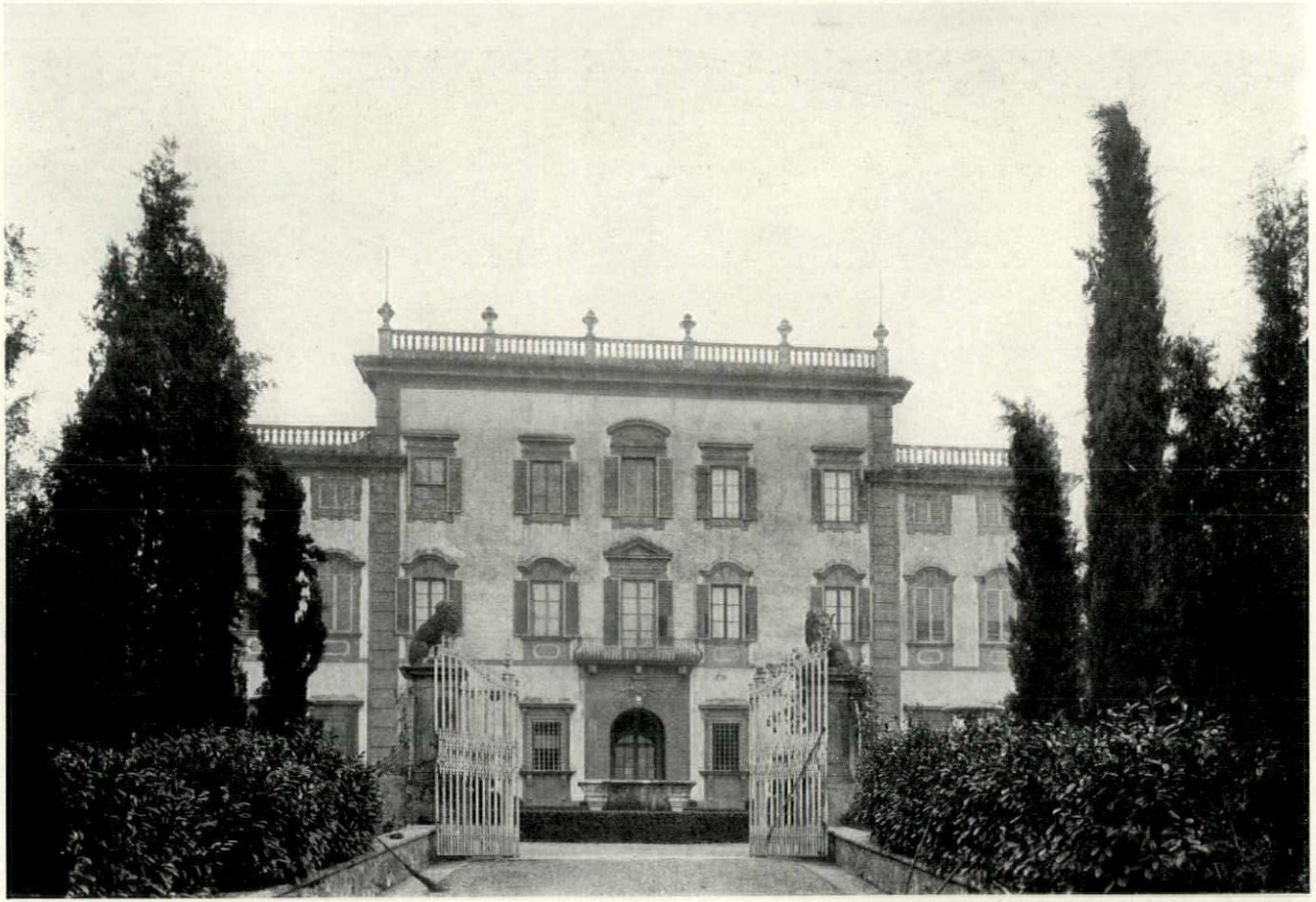
The seventeenth century episode of embellishment did not affect the plan of the villa, which remained a hollow square built about a central *cortile*, and it was not until a recent date that the *cortile* was roofed over with a skylight and a circular staircase installed therein. The stuccoed walls of the exterior are of a brownish gray color, the shutters are green, and the stone trims of doors and windows are of a brown-toned stone.

The ancient garden lay-out, upon descending levels of the south slope, was unfortunately swept away at the time when the passion for *giardini Inglesi* wrought such sad havoc in Italy, but, luckily, enough traces of the former arrangement remained so that it was possible to reconstruct the erstwhile plan with considerable accuracy, and according to this plan the gardens have been restored in a successful and gratifying manner.

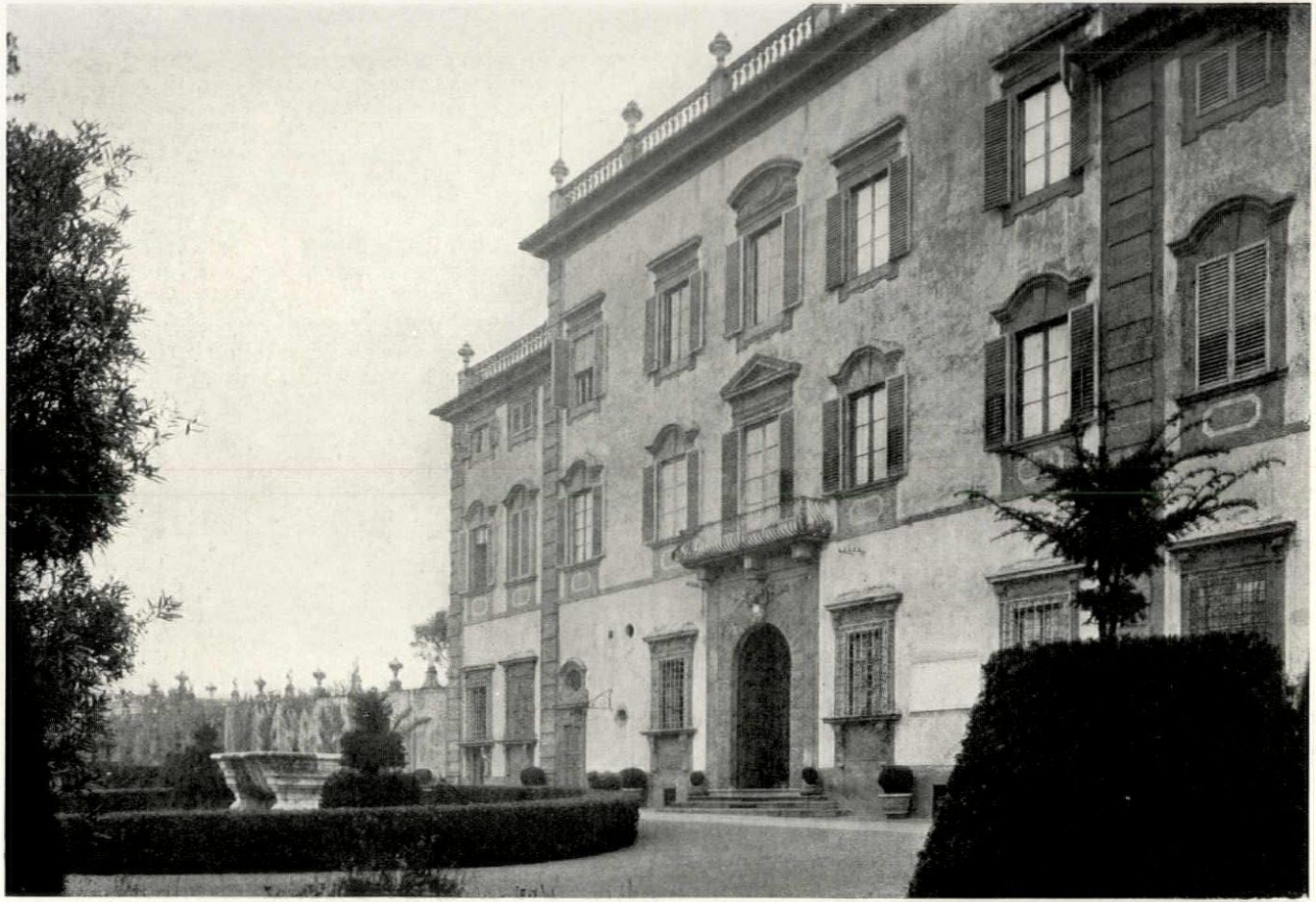
STEPS IN GARDEN — LA PIETRA, IL PELLEGRINO,
VIA BOLOGNESE, NEAR FLORENCE.

THE VIALE—LA PIETRA, IL PELLEGRINO, VIA BOLOGNESE, NEAR FLORENCE.

THE LODGE—LA PIETRA, IL PELLEGRINO, VIA BOLOGNESE, NEAR FLORENCE.



NORTH FRONT—LA PIETRA, IL PELLEGRINO,
VIA BOLOGNESE, NEAR FLORENCE.



NORTH FRONT—LA PIETRA, IL PELLEGRINO, VIA BOLOGNESE, NEAR FLORENCE.

NORTH DOOR—LA PIETRA, IL PELLEGRINO,
VIA BOLOGNESE, NEAR FLORENCE.

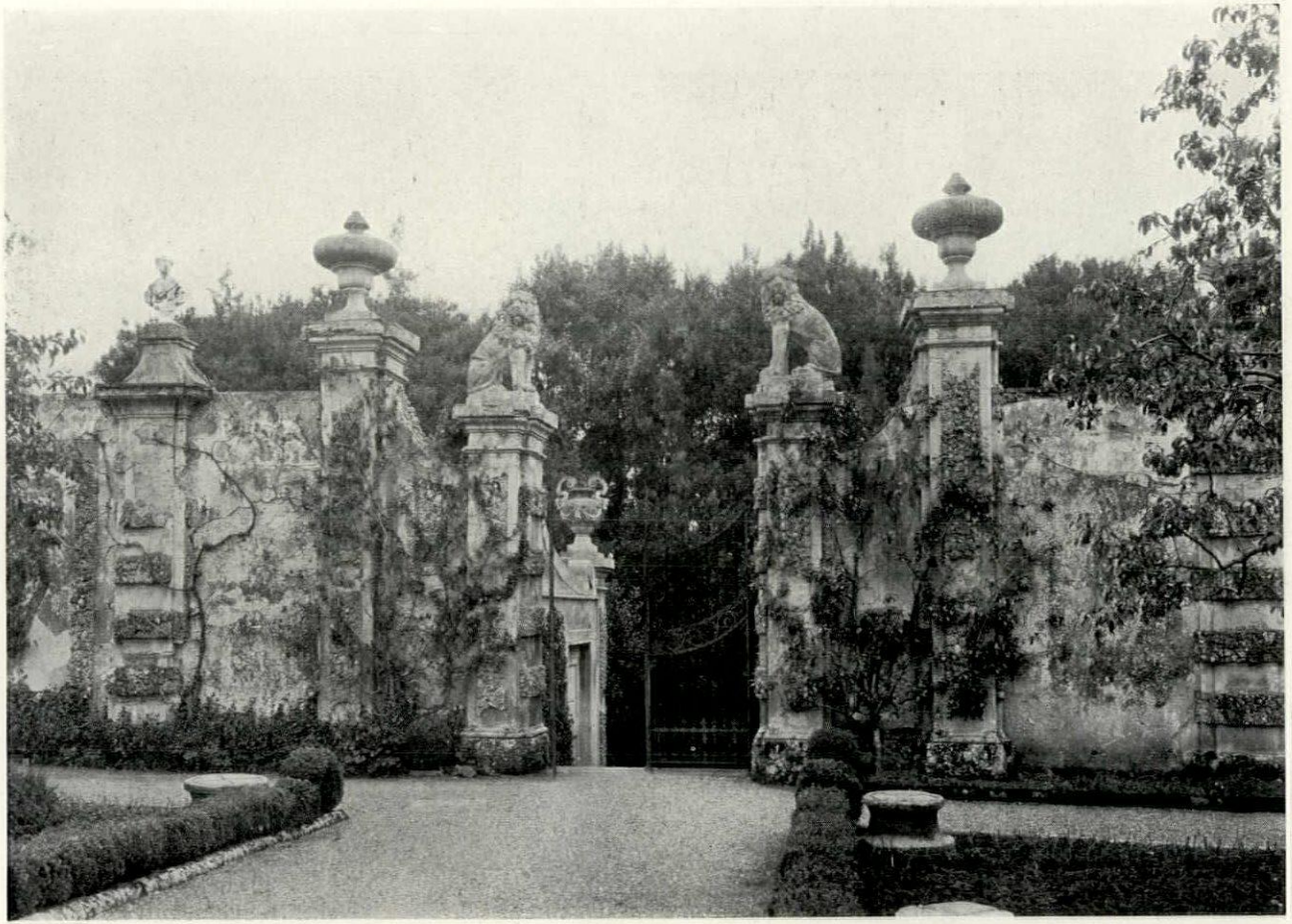
STAIRCASE — LA PIETRA, IL PELLEGRINO, VIA BOLOGNESE, NEAR FLORENCE.

SALA—LA PIETRA, IL PELLEGRINO,
VIA BOLOGNESE, NEAR FLORENCE.

FIREPLACE IN BALL ROOM—LA PIETRA, IL PELLEGRINO, VIA BOLOGNESE, NEAR FLORENCE.

DINING ROOM—LA PIETRA, IL PELLEGRINO,
VIA BOLOGNESE, NEAR FLORENCE.

DINING ROOM FIREPLACE — LA PIETRA, IL PELLEGRINO, VIA BOLOGNESE, NEAR FLORENCE.



GATE IN WALLED GARDEN — LA PIETRA, IL PELLEGRINO, VIA BOLOGNESE, NEAR FLORENCE.

SOUTH TERRACE—LA PIETRA, IL PELLEGRINO, VIA BOLOGNESE, NEAR FLORENCE.

UPPER GARDEN—LA PIETRA, IL PELLEGRINO, VIA BOLOGNESE, NEAR FLORENCE.

SOUTH FRONT—LA PIETRA, IL PELLEGRINO,
VIA BOLOGNESE, NEAR FLORENCE.

LOWER GARDENS—LA PIETRA, IL PELLEGRINO, VIA BOLOGNESE, NEAR FLORENCE.

SOUTH FRONT FROM GARDEN, LA PIETRA, IL PELLEGRINO, VIA BOLOGNESE, NEAR FLORENCE.

TRAINING REQUIRED FOR THE INDUSTRIAL ARTS

By

FLORENCE N. LEVY

A REPORT of conditions in the building trades, published in the New York Times, calls attention to "skilled man-power" shortage and the lack of opportunity in the United States for the training of craftsmen in this particular field. "It has been revealed," the item states, "that the shortage of skilled mechanics in the Eastern building trades is one of the fundamental reasons for the present cost of building erection. * * * In some lines there is a shortage of almost 50 per cent. of mechanics capable of doing expert work."

It is not only in the building trades that there is a lack of skilled workers, but in practically every industry in which expert craftsmanship and good design play a prominent part. Color and design are the important features in the furnishing of the home—rugs, curtains, draperies, wall-paper, furniture, lighting fixtures, architectural hardware, pottery, china, glass, silverware, etc. It is upon the harmonious relation of line and color, in other words upon art, that success depends in the dress of both men and women — costume, millinery, jewelry. Even our food becomes more attractive when packed in an artistic container with labels and outer cartons designed by an artist.

The education of the artist offers problems today very different from those of the past. In olden times the expert workmen took young men as assistants and taught them the secrets of their craft, thus building up a system of apprenticeship which lasted well into the middle of the nineteenth century. With the invention of machinery, which permitted the reproduction in quantity of the original model made by the artist, schools became necessary in order that leaders might be trained as designers and expert craftsmen.

It was in the industrial art schools of France, England, Germany, Sweden and other European countries that the best designers and craftsmen in American factories were trained. Before the Great War most manufacturers were satisfied to purchase their designs in Europe and merely adapt them slightly for the American market; in fact buyers demanded foreign designs. Between 1914 and 1918 our supply of both designs and craftsmen was cut off and our manufacturers of silks and wall-papers, of jewelry and gowns, etc., made frantic efforts to train designers and craftsmen over night. It could not be done. Some have returned to borrowing ideas from Paris because there is, they say, no talent here. In reality we have a wealth of talent in this broad country, but, like our mines, it must be developed.

The purpose of this article is not to enter upon any theoretical discussion of the need for industrial art education, but rather to bring together, in condensed form, some of the methods employed in European industrial art schools; the development of industrial art education in the United States; and an analysis of practical suggestions for industrial art education in this country that have been offered by men who have given much time and thought to the subject.

INDUSTRIAL ART TRAINING IN EUROPE

Since the Exposition of 1851 Great Britain has developed a system of industrial art education consisting of some 350

schools and 90 county museums, all fed from the South Kensington Museum in London. In London itself there is a series of general design schools and special art trade schools affiliated with the County Council Central School of Art. This last is essentially a school of production where the pupils are taught the crafts by which they expect to earn their living: silversmithing and its allied crafts; textiles; stained glass and mosaics; decorative painting, sculpture and architecture; book production; furniture; dress design; and engraving.

A British Institute of Industrial Arts was organized in 1918 by the Board of Trade and the Board of Education to raise and maintain standards. Exhibits of British artistic manufactures are being sent to South America and elsewhere and important exhibits of these goods are being held annually in the large cities of Great Britain.

Stimulated by the example of England and Japan, Germany developed her industrial art schools and museums during the twenty-five years preceding the war. An investigation of the art and industrial education of that country was made in 1912 by James P. Haney, Director of Art in the New York City High Schools, and published by the Board of Education of that city. This report describes the various types of continuation and evening schools for journeymen; industrial art schools (35) found in all the more important towns and supported by city and state; and the professional schools (24) each dealing with the education of the artist-artisan in one special subject such as ceramics, wood carving, jewelry, etc. The school of graphic art at Leipzig, the center of the book trade, is a model of practical equipment and professional instruction. At Munich the school of photography had 90 studios, laboratories, etc.

Germany had developed her traveling exhibits of industrial art so that practically any type of work was available to schools and factories. In 1911 some of the modern German applied arts were brought to the United States through the efforts of John Cotton Dana, Secretary of the Newark Museum, and after being exhibited in Newark were shown in six other cities.

In Italy there are over 200 industrial art schools, of which seven are of an advanced type. Some of these were described in 1912 in an address by Frederick H. Sykes, of Teachers College, in his plea for "Schools of the Art Industries as a New Type of School in the Public School System."

The French Government made a study from 1888 to 1897 of the industrial art museums, schools and societies throughout Europe, the results of which were published in five large volumes. This comparative study formed the basis for innovations in the French schools. Before the war there were 32 industrial art schools in France fed from over 200 schools of design.

France is planning an International Exposition of Decorative Arts to be held in Paris in 1924. An article in connection with publicity regarding the Exposition calls attention to the need for France to encourage her decorative arts because, even before the war, her imports of these objects were increasing and her exports were decreasing.

The struggle for trade is keener than ever. The factories of Germany and Japan and other reviving nations are competing with those of America for the markets of the world. It is not enough to satisfy home consumption or even to hold the present foreign markets. We must conquer new ones. To accomplish this it is necessary to do more than merely produce a sound article. It must be so artistically presented as to attract at once. Supremacy will go to the nation that can train the best designers and craftsmen. The manufacturer is, therefore, vitally interested in discovering the talented and maintaining schools from which he can draw his expert workers.

DEVELOPMENT OF INDUSTRIAL ART EDUCATION IN THE UNITED STATES

Interest in drawing and its application to the artistic industries has developed slowly in the United States. It was not until certain educational laws of Massachusetts went into effect in 1870 that

drawing became a required study in any state; even in 1909 (last statistics available) it was required in only 12 states.

The first state to have an industrial art school was Pennsylvania. One of the direct results of the Centennial Exposition in 1876 was the establishment that year in Philadelphia of the Pennsylvania Museum and School of Industrial Art, which now has over 1,300 students in its design and craftsmanship department and more than 300 in its special textile school. It was founded by citizens of Philadelphia and receives $30,000 a year from the city, for which it gives 70 free scholarships to high school pupils, and $35,000 a year from the state, for which it offers a free scholarship in each county. In Providence there is the Rhode Island School of Design, founded in 1877 by the Women's Centennial Commission, which now has an enrollment of over 1,700 pupils, out of which about 300 are supported by state funds and 100 by the city, while many are receiving instruction under the direction of the Rehabilitation Division of the Federal Board for Vocational Education. Both these schools have a special textile department, and in Providence a new wing has recently been erected which has been equipped by the jewelry trade at a cost of $15,000. These two schools stand out as the only large, well equipped, general industrial art schools in the United States.

Smaller schools following the same lines of work but on a more restricted scale are the Trenton, N. J., School of Industrial Art, chiefly devoted to pottery; and the Fawcett Industrial Art School at Newark, N. J. There are several textile schools in Massachusetts and the New York City Board of Education in 1920 opened a Textile High School.

The New York State School of Clay Working at Alfred, N. Y., is not only training technical men, but some highly artistic pieces of ceramics have been produced under the direction of Alfred Binns. An interesting productive schoolshop is the Newcomb Pottery, part of the activities of the Sophie H. Newcomb College for Women, Tulane University, New Orleans, La., of which Ellsworth Woodward is director. The best course in the graphic arts is at the Ohio Mechanics Institute at Cincinnati.

In New York City, with its 5,620,048 inhabitants in 1920, of whom 2,531,421 earn their living, there is no well equipped school for jewelers or silversmiths or bronze workers; none for potters; no school for lithographers or bookbinders; none for furniture makers, wood carvers, and upholsterers; nor is there an adequate school for the assembling art of interior decorator. Dressmaking and the household arts are somewhat better provided for. The Board of Education of New York City maintains a Free Evening Industrial Art School, but in a building used during the day as an elementary school, so that it is impossible to have any equipment. This is therefore little more than a design school. Some of the high schools, notably Washington Irving, have developed specialized design courses that lead directly into the trades. Several private schools are doing excellent work in teaching design but have few facilities for showing the industrial application of the patterns.

An industrial art survey, in progress since December, 1919, is being conducted by the National Society for Vocational Education and the University of the State of New York under the direction of Charles R. Richards of Cooper Union. Eight or ten field workers studied conditions in the artistic industries in the United States during the summer of 1920, and one went to Europe to secure information regarding industrial art schools and museums there. The whole is now being edited for publication.

During the past few years several organizations have taken an active interest in the promotion of industrial art education. The Metropolitan Museum of Art since 1917 has held an annual exhibition of goods manufactured in the United States, the designs for which were influenced by study of the Museum's collections, has set apart study rooms, has conducted classes in comparative design, and in other ways has helped to raise the standards both of the manufacturers and of appreciation by the buying public. Ex-

hibitions of American industries have recently been held at the Art Institute of Chicago, the Minneapolis Institute of Arts, and elsewhere.

The Architectural League of New York, during the past ten years, has given more and more space at its annual exhibitions to the arts related to architecture. The Art-in-Trades Club, founded in 1906, is composed of over 300 men employed in the trades related to home furnishings.

The Art Alliance of America, founded in 1914, was especially active during the war in opening the industries to American artists. For three years it conducted competitions for textile designs open to students and professional designers throughout the country; the exhibitions were held in its New York galleries, and prizes, averaging $1,500 a year, were contributed by the industries. It maintains a free Placement Section through which positions are found for designers and other art workers. The Art Center, which opened its building at 65 East 56th Street, New York, in November, 1921, is the home of a group of societies all interested in the applied arts.

The Industrial Arts Council, organized in 1919, is composed of delegates from 17 industries, representing dress, furniture, glass, greeting cards, illustrations, interior decoration, jewelry, lithography, millinery, monuments, silk, silverware, toys and wall-paper. One of the first recommendations was a survey of the artistic industries; this having been undertaken as described above, the Council has been inactive, awaiting the report of the survey.

The Chamber of Commerce of the State of New York, through its Committee on Commercial Education, is preparing to take an active part in the development of industrial art education.

SUGGESTIONS FOR SYSTEMATIC DEVELOPMENT OF INDUSTRIAL ART EDUCATION IN THE UNITED STATES

At present the matter of industrial art education seems to be hopelessly twirling in a vicious circle. The industries acknowledge the need for more and better trained designers and craftsmen and are willing to help finance the necessary schools; they cannot do this alone, yet fear that government control will create so much "red tape" that the schools will become useless. Educators and artists tell what has been done in Europe and point to the well equipped buildings as models of efficiency.

City, State and Federal authorities are slow moving, but have they been properly approached? The force of public opinion is required. Manufacturers must make known their need for well trained designers and craftsmen. If the lack of opportunity for training along these lines in the United States is proclaimed in a loud voice and many times, it will surely reach those who have power to help.

The Smith-Hughes bill passed in 1916 provides Federal funds to duplicate state appropriations for teachers' salaries and for the training of teachers. It would seem, therefore, that the greatest opportunity for the advancement of industrial art education is that industry and art should combine their efforts and bring pressure to bear on the state educational authorities, which in turn can secure Federal aid.

A well organized system of industrial art education would progress about as follows:

1. Elementary schools with drawing taught to develop appreciation, as at present.

2. In the secondary schools, technical training in free-hand and mechanical drawing and in design to be encouraged and the standards raised; the talented to be sent forward by means of scholarships furnished by city and state aid funds contributed through the industries and other private sources. That such scholarships are thoroughly practical is proved by the experience of the School Art League of New York City, which, during the ten years of its existence, has provided over 150 tuition scholarships in industrial art.

3. Design Schools to be developed in all cities of 100,000 population and over (there are 68 in the United States according to the 1920 census) through

strengthening the design courses in existing art schools, both private and public, and establishing design schools where none exist.

4. Continuation, evening and short-unit courses in design and in craftsmanship to be developed for men and women already in the trades, so as to provide apprentices and journeymen of any degree with *what* they want, *when* they want it.

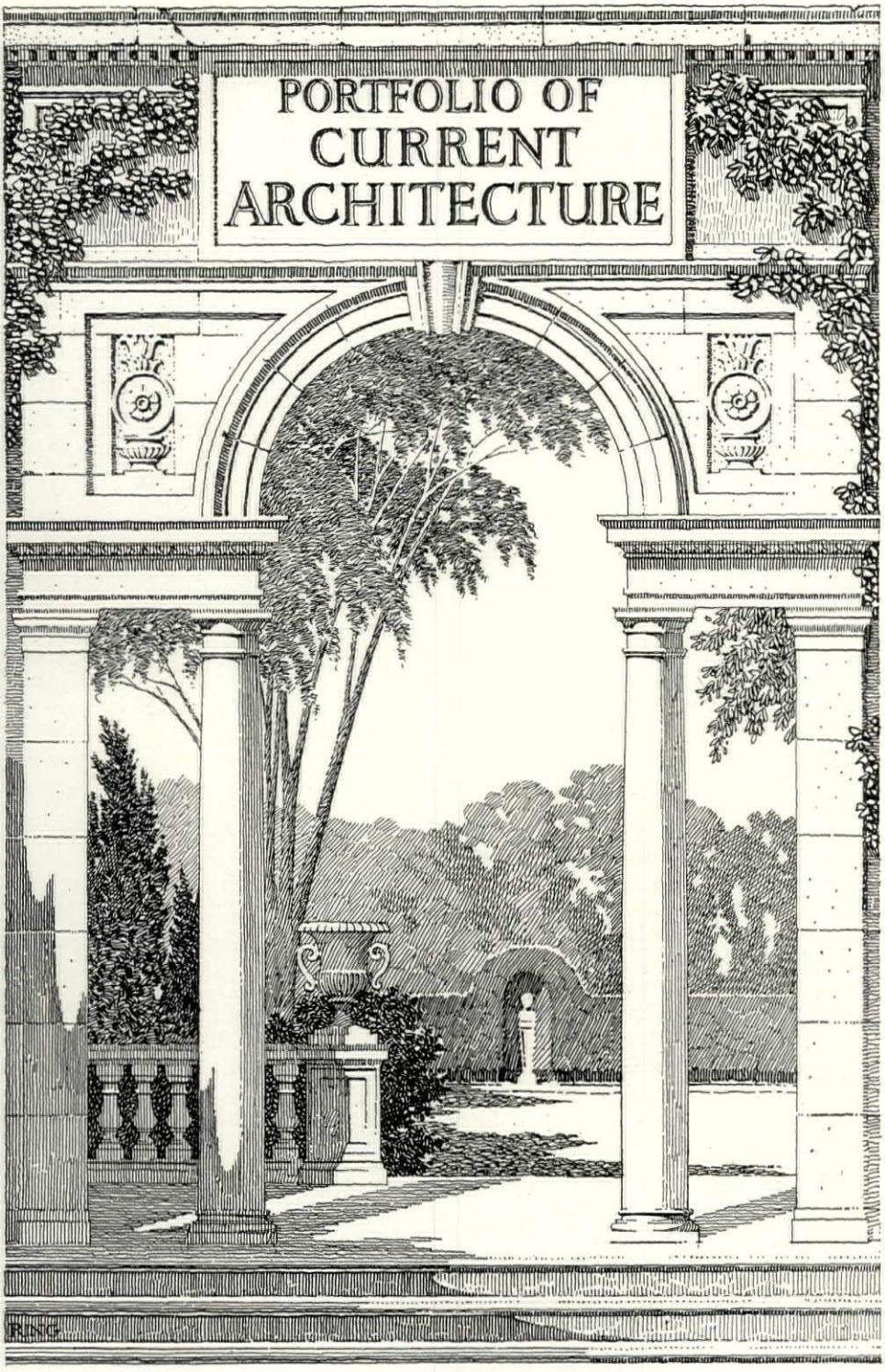
5. Specialized industrial art schools, devoted to a group of subjects related to a local industry for the purpose of training workers of all grades for that special industry. Thus there would be a chain of schools where the trades allied to the arts could be taught and where a diploma of graduation would be recognized by the various unions as tantamount to and in lieu of a certain amount of apprenticeship.

6. A National Industrial Art School with full equipment of studios and shops, museum and lecture hall, would be the central and controlling force in this system of industrial art education. It would be a professional college with its independent Board of Directors and advisory trade councils, but should be closely related to the schools of design and other industrial art schools throughout the country. Here teachers of the industrial arts would be trained, foremen and superintendents could secure special instruction, designers might take short "refresher" courses, buyers and salesmen would find special instruction fitted to their needs, etc. Charles A. Bennett, Dean of Technology at Bradley Institute, Peoria, Ill., has written a description of what he believes a National Industrial Art School should be, laying special stress upon the advantage of its being "a group of productive factories."

A general plan for financing and managing these schools of design and of industrial art throughout the country might be laid out as follows: 1. Land to be given by the city or purchased through private gifts with the aid of condemnation proceedings; 2. Buildings erected through gifts from private citizens; 3. Maintenance to be through city, state and Federal payment of teachers' salaries, endowment funds, support by trade organizations, appropriations to cover scholarships, and by means of moderate tuition fees; 4. Management to be in the hands of a board representing manufacturers in the various trades taught, the local Board of Education, trade unions, the workers whose specific needs are to be met, and the public interested in art and in education.

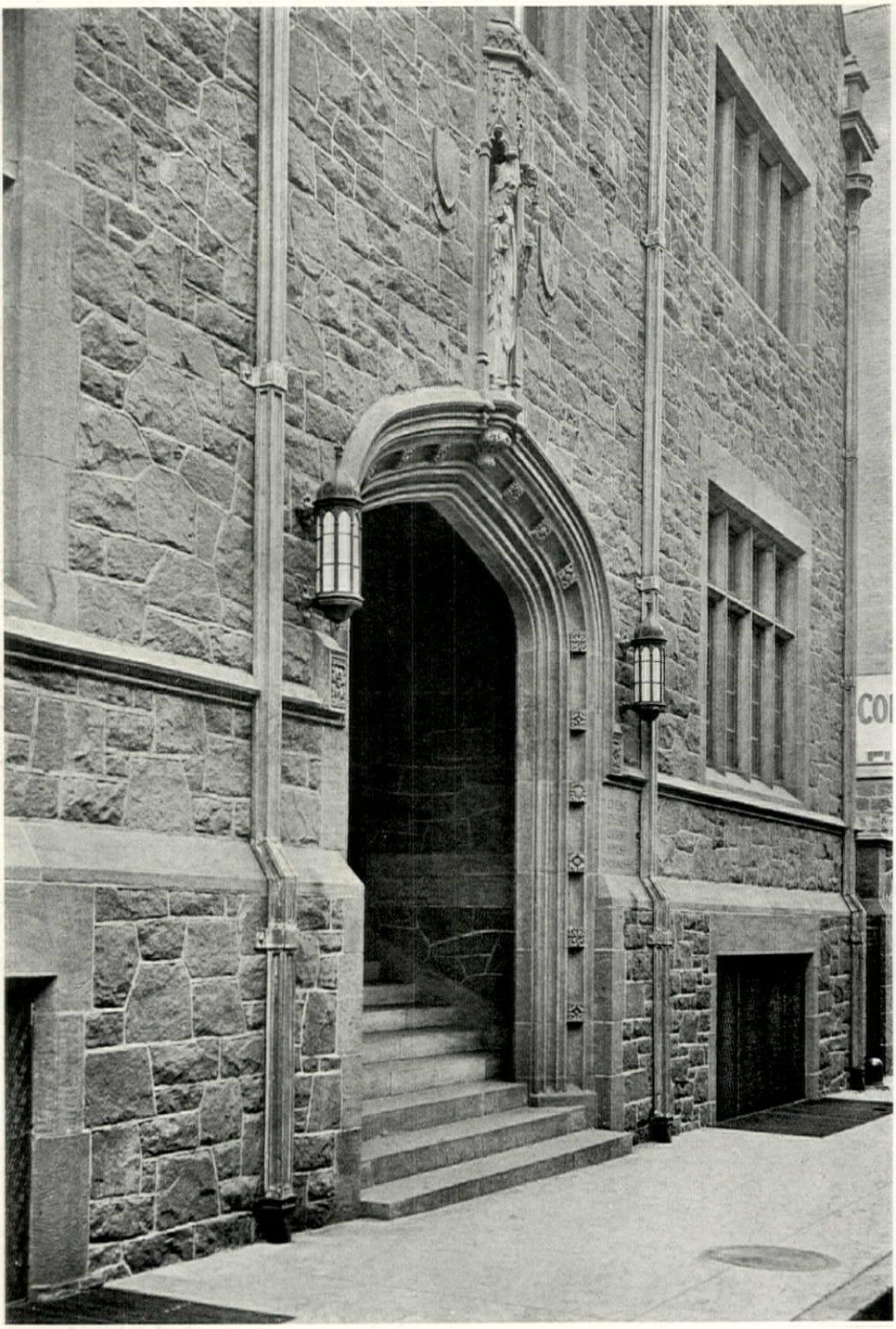
To accomplish this requires the co-operation of many forces, especially the manufacturers in all the trades wherein design, color, and craftsmanship play a part. The best results will come when art and education, manufacture and labor co-operate, both as individuals and through their organizations, with city, state and Federal authorities.

"Nothing in the war was accomplished until the idea of co-operation, of joint service, was driven home. Nothing in the development of a system of industrial art education adapted to the needs of the United States will be accomplished until the same lesson is applied. Let us bring into joint action all the forces that can serve to carry forward this campaign. The whole question is one of service together. We need to mobilize our forces and bring them to the aid of the arts."


PORTFOLIO OF
CURRENT
ARCHITECTURE

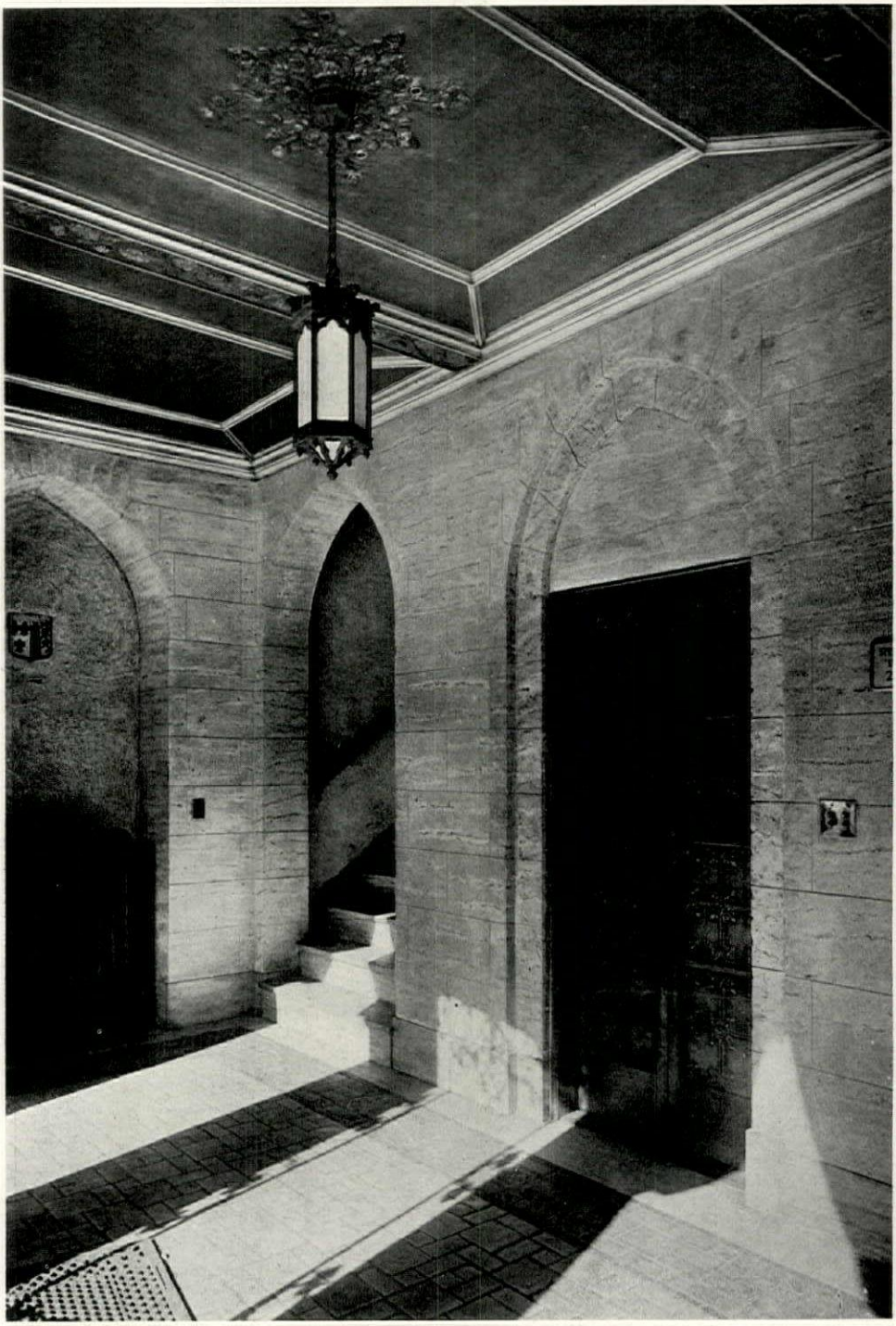
DOORWAY — CHURCH OF THE INCARNATION, NEW YORK CITY. ALLEN & COLLENS, ARCHITECTS.

CHRIST CHURCH PARISH HOUSE, HARTFORD, CONN.
DELANO & ALDRICH, ARCHITECTS.

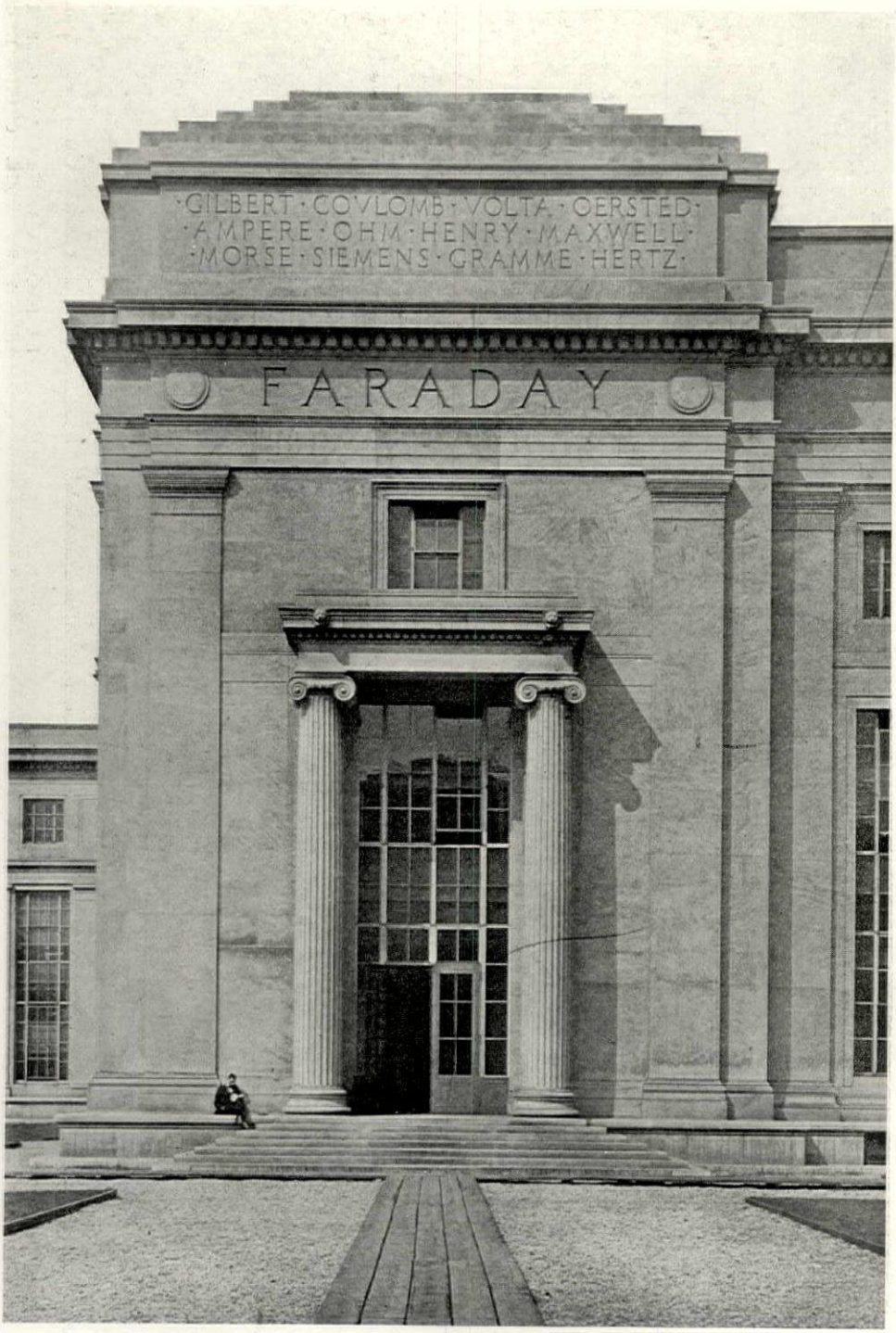


ENTRANCE DETAIL—CHRIST CHURCH PARISH HOUSE, HARTFORD, CONN. DELANO & ALDRICH, ARCHITECTS.

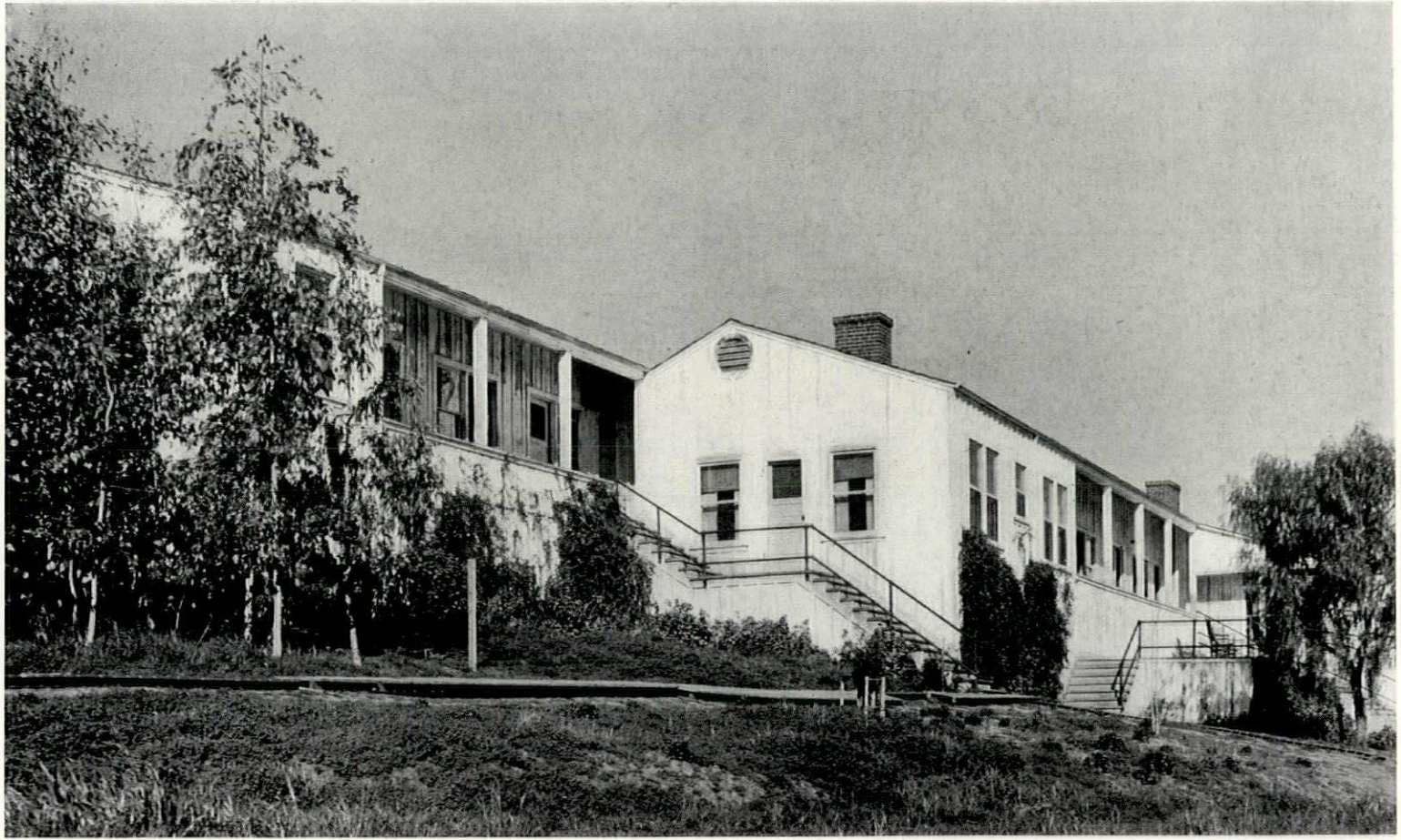
ENTRANCE—STUDEBAKER BUILDING, BROOKLYN, N. Y.
TOOKER & MARSH, ARCHITECTS.



INTERIOR—STUDEBAKER BUILDING, BROOKLYN, N. Y.
TOOKER & MARSH, ARCHITECTS.

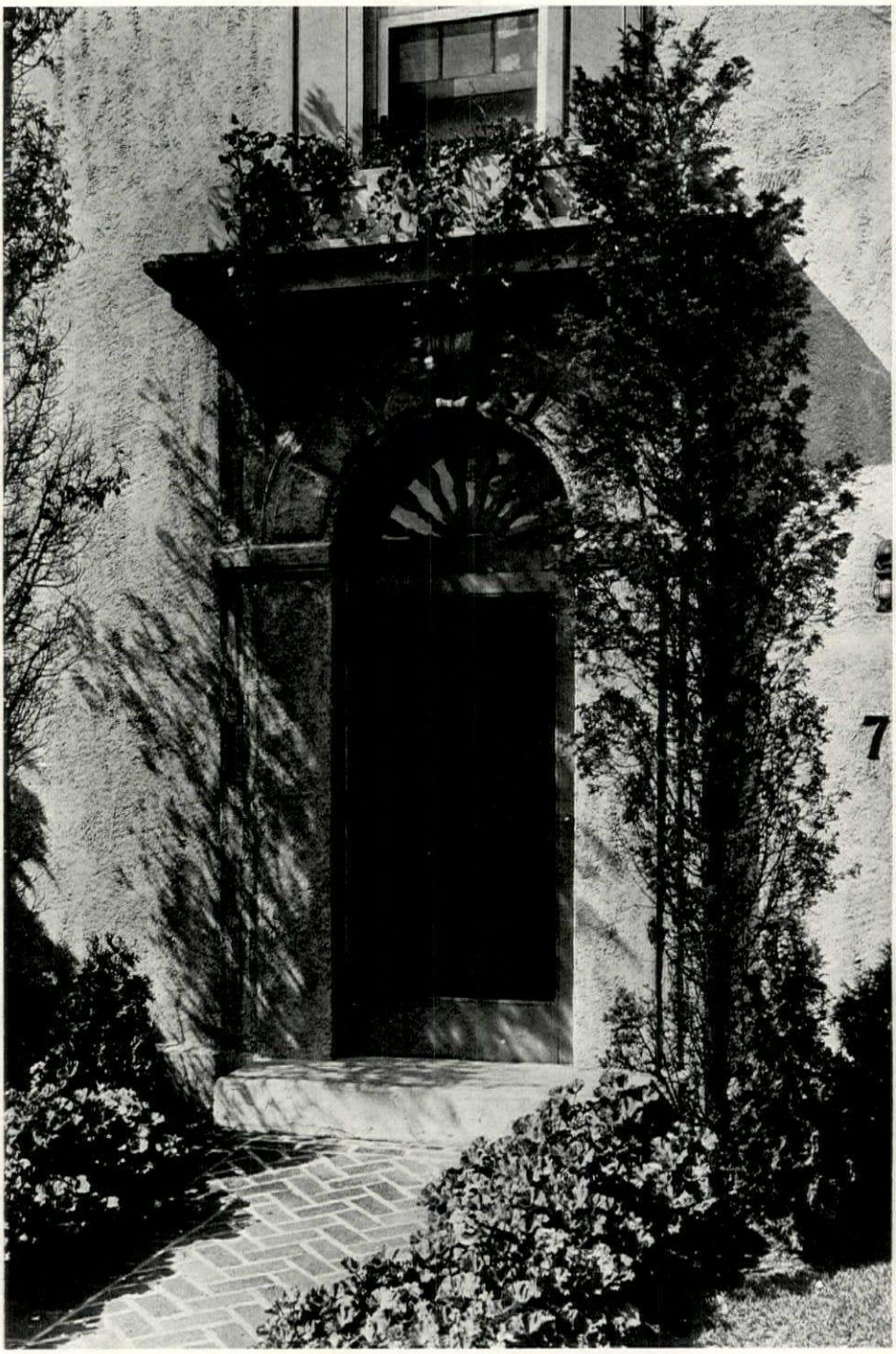


DETAIL—BUILDING FOR THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY, CAMBRIDGE, MASS. WELLES BOSWORTH, ARCHITECT.

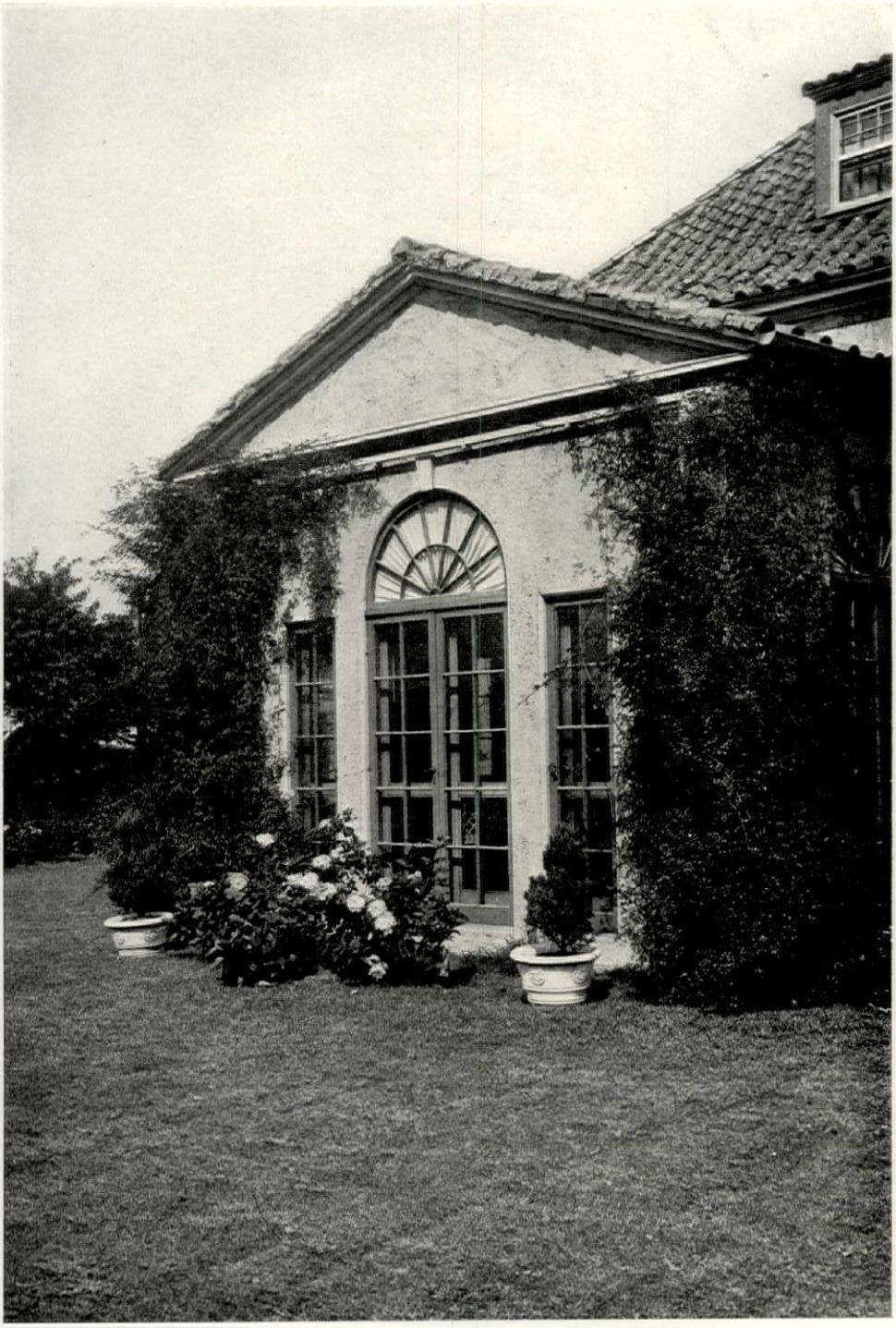


LA PALOMA DORMITORY, GEORGE JUNIOR REPUBLIC, CHINO, CAL. MYRON HUNT, ARCHITECT.

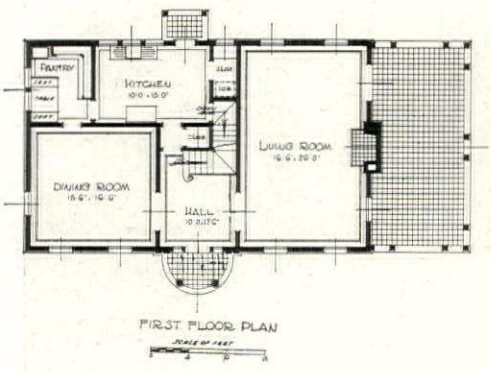
RESIDENCE OF H. W. HARDINGE, ESQ., FOREST HILLS, LONG ISLAND. WILLIAM LAWRENCE BOTTOMLEY, ARCHITECT.



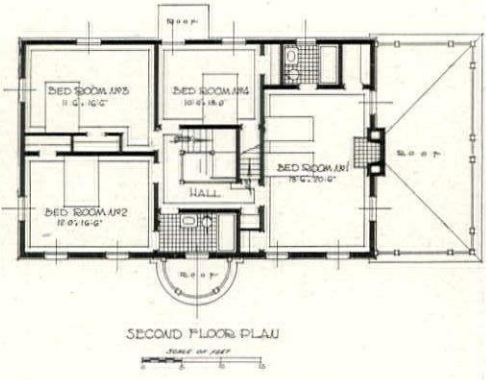
ENTRANCE DETAIL — RESIDENCE OF H. W. HARDINGE, ESQ., FOREST HILLS, LONG ISLAND. WILLIAM LAWRENCE BOTTOMLEY, ARCHITECT.



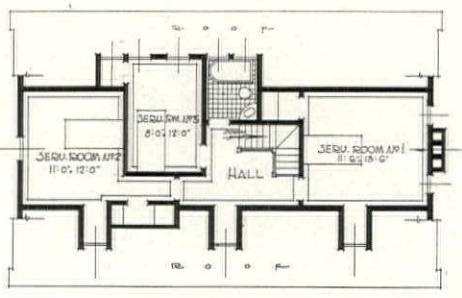
SUN PORCH DETAIL—RESIDENCE OF H. W. HARDINGE, ESQ., FOREST HILLS, LONG ISLAND. WILLIAM LAWRENCE BOTTOMLEY, ARCHITECT.



FIRST FLOOR PLAN



SECOND FLOOR PLAN



THIRD FLOOR PLAN

GENERAL VIEW AND FLOOR PLANS—RESIDENCE OF W. E. KNOWLTON, ESQ., TENAFLY, N. J.
R. C. HUNTER & BROTHERS, ARCHITECTS.

SOUTHEAST CORNER — COTTAGE AT TADWORTH, SURREY, ENGLAND. L. STANLEY CROSBIE, ARCHITECT.

NORTHEAST FRONT — COTTAGE AT TADWORTH, SURREY, ENGLAND. L. STANLEY CROSBIE, ARCHITECT.

SOUTH FRONT—COTTAGE AT TADWORTH, SURREY, ENGLAND. L. STANLEY CROSBIE, ARCHITECT.

NORTHWEST CORNER AND ENTRANCE — COTTAGE AT TADWORTH, SURREY, ENGLAND. L. STANLEY CROSBIE, ARCHITECT.

The EAST SIDE HIGH SCHOOL CINCINNATI, OHIO

Garber & Woodward, Architects

TO develop a plot of some twenty-eight acres with an extremely irregular outline and contour, and with a variation in levels of sixty-five feet, for the use of a large and growing educational establishment: this, in brief was the problem of the architect of the East Side High School in Cincinnati.

The plot was in the heart of one of the best residential sections of the city, facing a main thoroughfare, Madison Road, from which it was separated by a deep and wide ravine of great natural beauty. Another main avenue joined the first, in front of the property, at an angle of approximately forty-five degrees, affording a view of the contemplated building site from a distance of almost a mile, and this splendid prospect was one of the principal scenic factors to be considered in the design.

After consideration of the problem, it was decided to build a group of buildings rather than one large building. The group plan shown herewith gives an idea of how this was accomplished. Buildings A, B, C, D, and E, placed about a semi-octagonal court, house the Administration, the Auditorium, the Library and all academic class rooms, lecture rooms, laboratories, etc. To the rear of these buildings, at a lower level, is the Athletic Field, with a quarter-mile athletic track and a stadium seating 4,000 persons.

On the minor axis of the Field are the gymnasia (which stand on a level high above it), and the Industrial Arts Building and the power plant, on a lower level. The power house is mostly below ground and forms merely a fence-wall between the wings of the Industrial Arts Building. A service tunnel connects the power plant with the end of Building E and extends from Building C to the gymnasia; the latter section of it is open to the use of students.

To the north is a large tract of land to be developed later as an agricultural unit.

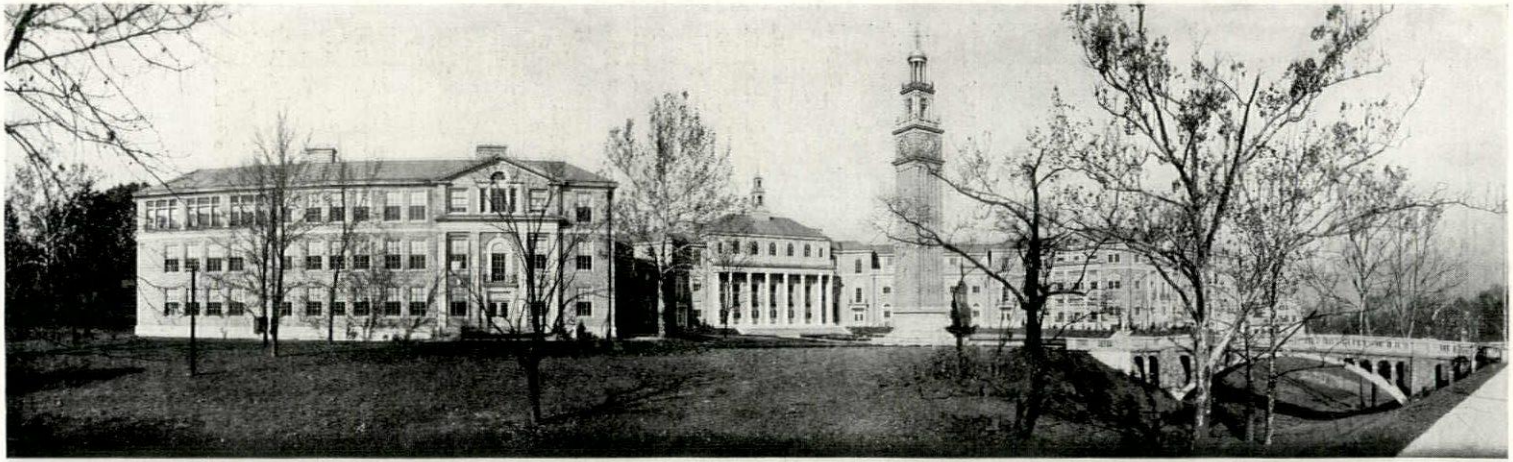
The ravine between the Academic Group and Madison Road has been preserved and beautified by planting, and access over it is afforded by means of a foot bridge so that pedestrians only may enter the main court.

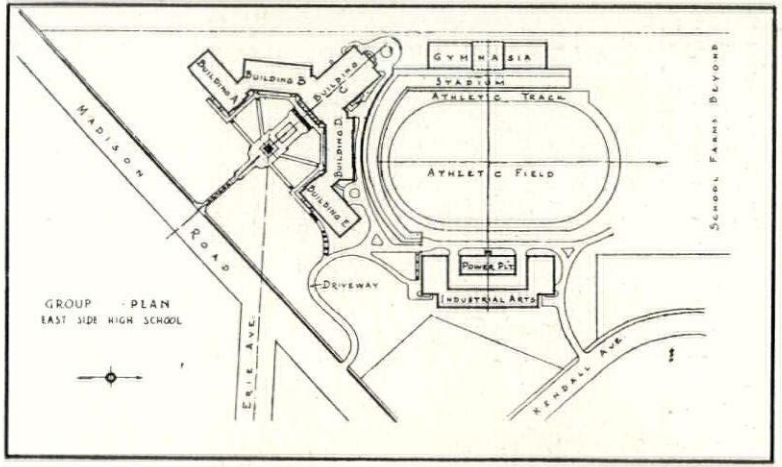
The clock tower is on the axis of Erie Avenue and can be seen from a great distance. The Colonial style was adopted as the most appropriate for the general layout and location.

So much for the architectural solution. The planning of the class rooms, lecture rooms, laboratories, etc., presented difficulties, as the various department heads had different ideas as to the proper size for classes. As one wanted fifteen, another twenty-four, and a third thirty to a class, it was necessary to compromise upon some unit as a working basis. This led to the adoption of a unit of thirty students for all classes, and the buildings are planned on this basis, each room accommodating thirty or a multiple of thirty, so that in certain instances classes can be brought together for combination lectures, etc. The four study rooms will accommodate two hundred and forty students each.

Teachers have desks in the faculty room and go to the various rooms for classes; they have no "home room"; this makes all class rooms available every hour in the school day. The school was originally planned for 1,800 students. There are now about 2,300, and by a proper arrangement of programs, the buildings can be made to take care of about 3,500.

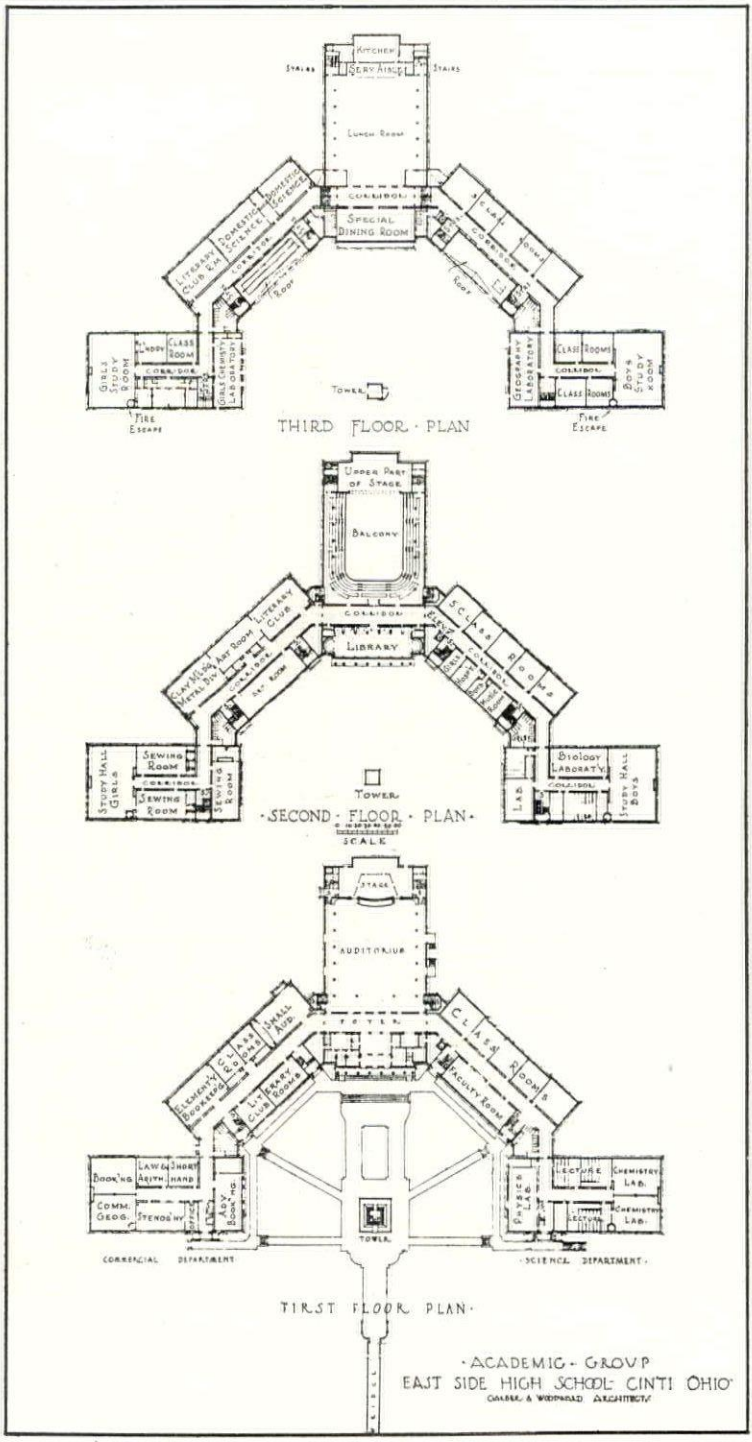
The Lunch Room is on the third floor, above the Auditorium, and operates on



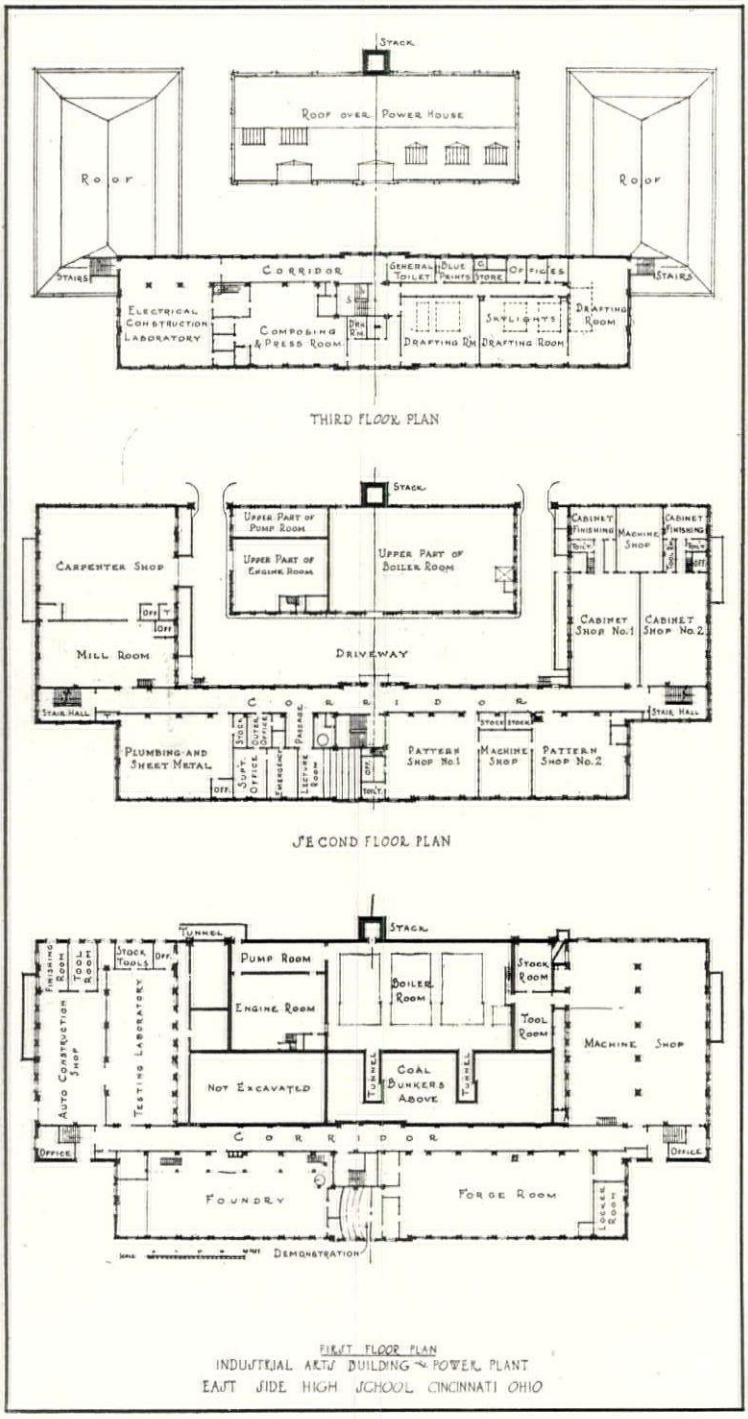


GENERAL VIEW AND GROUP PLAN—EAST SIDE HIGH SCHOOL, CINCINNATI, OHIO. GARBER & WOODWARD, ARCHITECTS.

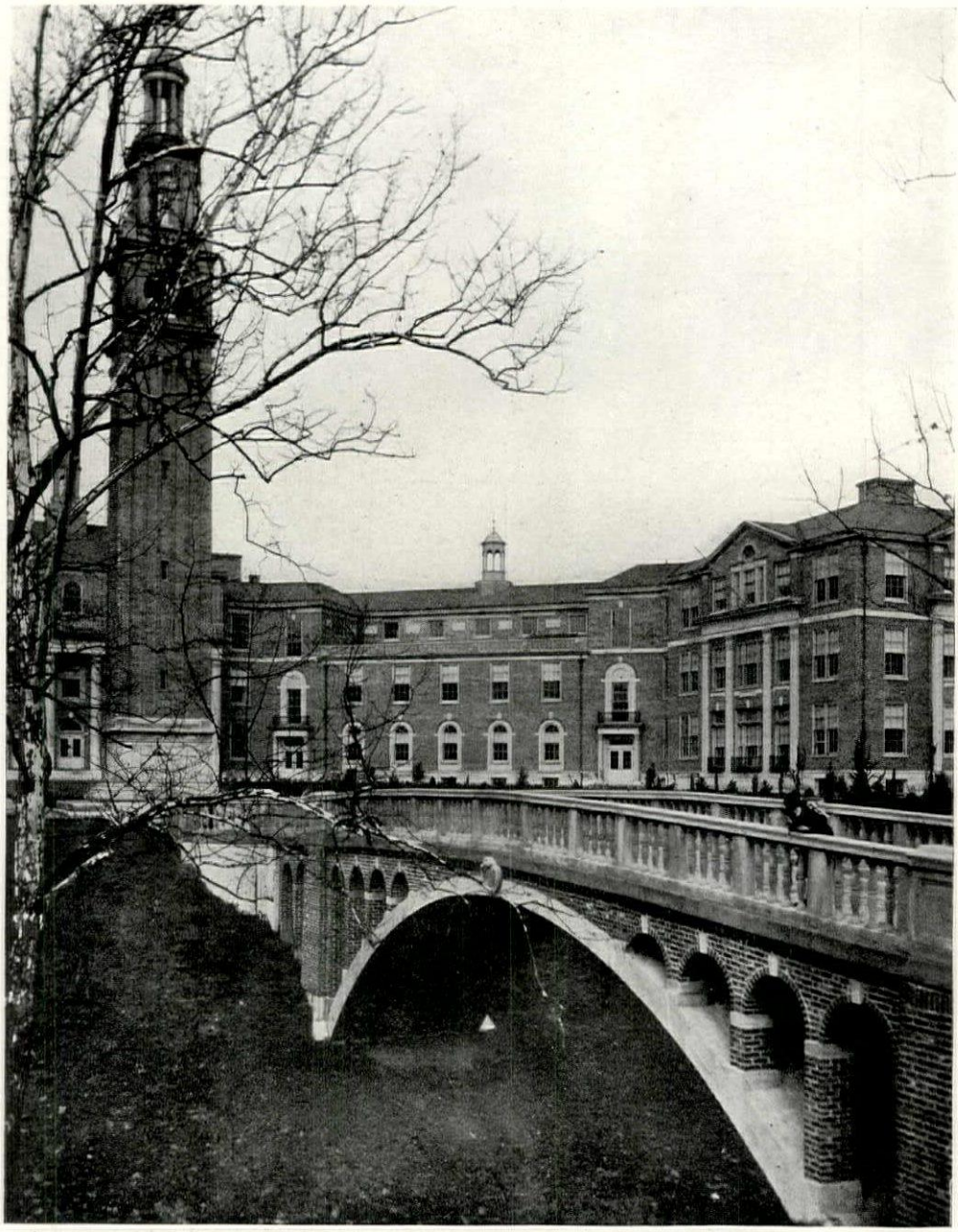
CLOCK TOWER—EAST SIDE HIGH SCHOOL, CINCINNATI, OHIO. GARBER & WOODWARD, ARCHITECTS.



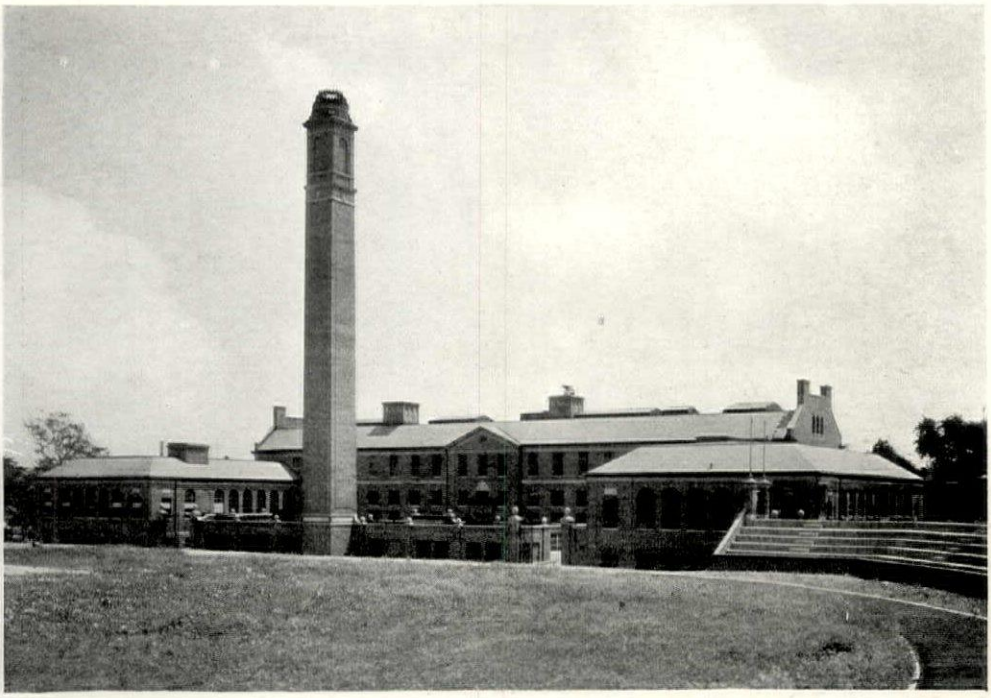
ACADEMIC GROUP—EAST SIDE HIGH SCHOOL, CINCINNATI, OHIO. GARBER & WOODWARD, ARCHITECTS.



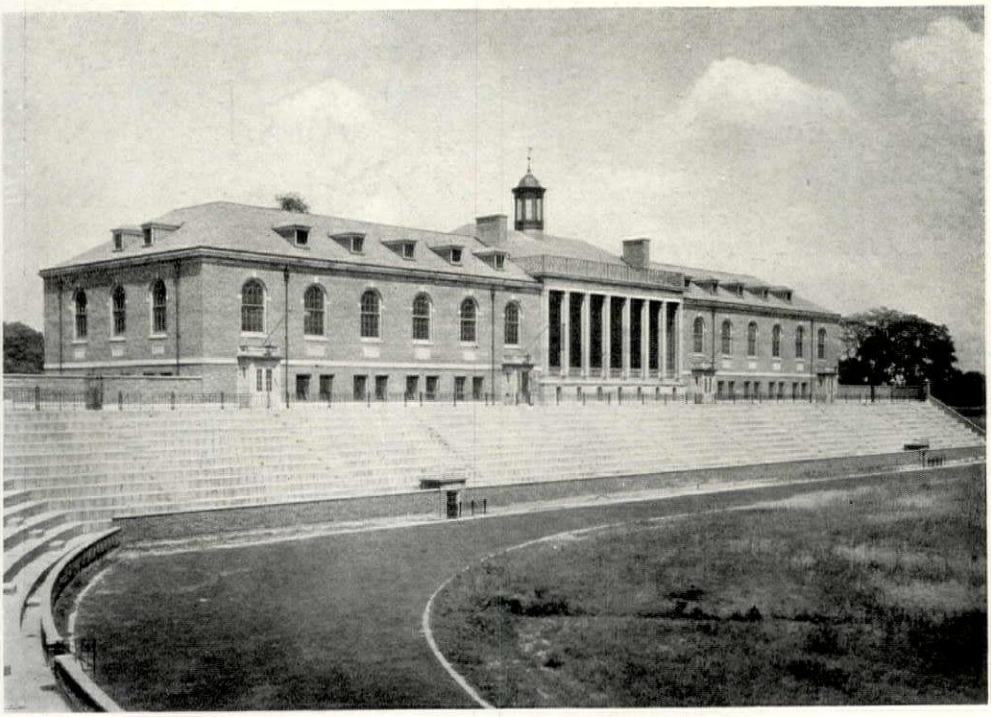
INDUSTRIAL ARTS BUILDING AND POWER PLANT—
EAST SIDE HIGH SCHOOL, CINCINNATI, OHIO.
GARBER & WOODWARD, ARCHITECTS.



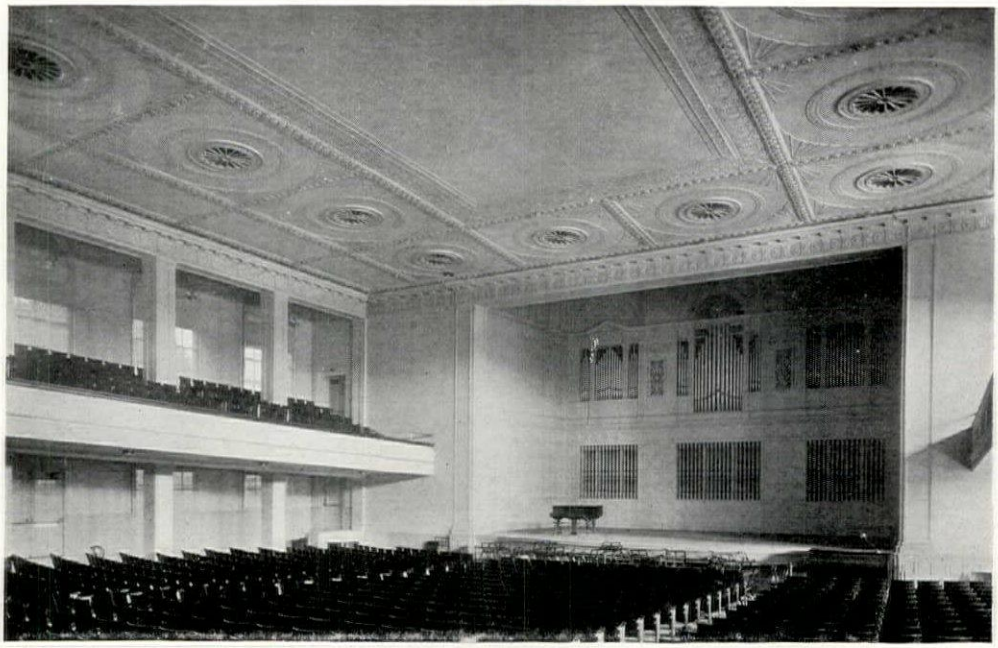
FOOT BRIDGE OVER RAVINE, ACADEMIC GROUP IN BACKGROUND—EAST SIDE HIGH SCHOOL, CINCINNATI, OHIO. GARBER & WOODWARD, ARCHITECTS.



INDUSTRIAL ARTS BUILDING AND POWER PLANT—EAST SIDE HIGH SCHOOL, CINCINNATI, OHIO.
Garber & Woodward, Architects.



GENERAL VIEW OF GYMNASIA AND PART OF STADIUM, EAST SIDE HIGH SCHOOL, CINCINNATI, OHIO.
Garber & Woodward, Architects.



AUDITORIUM, LOOKING TOWARD PLATFORM—EAST SIDE HIGH SCHOOL, CINCINNATI, OHIO.
Garber & Woodward, Architects.

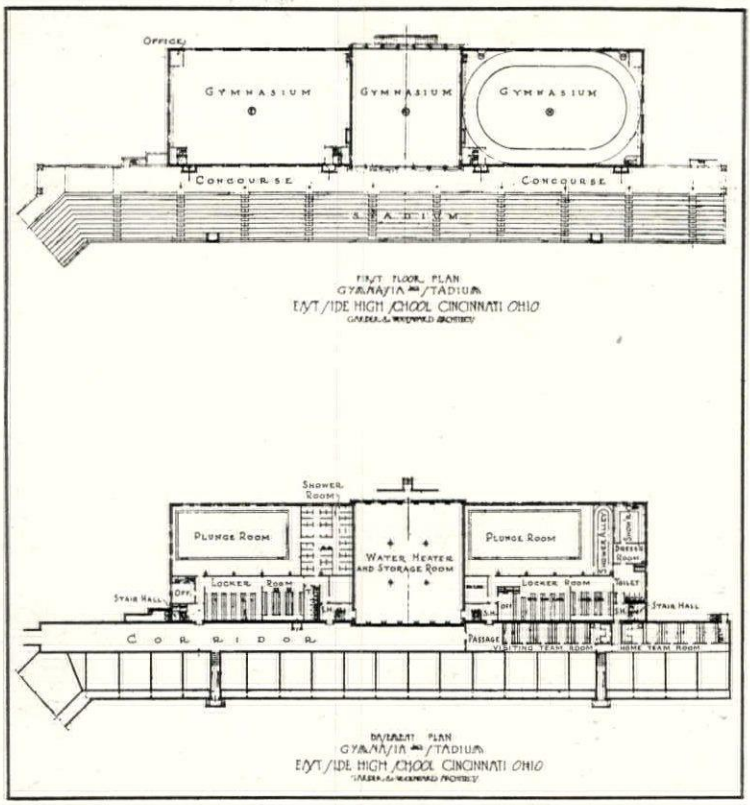
LIBRARY IN ACADEMIC GROUP—EAST SIDE HIGH SCHOOL, CINCINNATI, OHIO.
Garber & Woodward, Architects.

the self-service plan. It can accommodate 900 students at one time, who can be served in a period of 15 minutes. Teachers are taken care of in the special dining room over the Library on the same self-service plan, the food being conveyed from the main kitchen in bulk and kept hot.

The Gymnasia are divided, one for girls and one for boys, with an open air gym between for basket ball, hand ball and other uses in wet weather when it is desired to exercise the students in the open air.

Ample provision for swimming pools, one for boys and one for girls, is made on the floor below the gymnasium, with locker and shower rooms and offices for instructors. A feature of the boys' shower is the shower alley, consisting of a continuous shower through which the students pass before entering the plunge. This is operated by the instructor, the boys entering at the right, where the water is warm, and emerging at the left, where the water through a gradual cooling has become cold.

From this level, access to the Athletic Field is had under the Stadium, and provision is also made for visiting and home teams so that they do not use the gymnasium proper.



GYMNASIA AND STADIUM—EAST SIDE HIGH SCHOOL, CINCINNATI, OHIO.
Garber & Woodward, Architects.

FIG. 126.—LEXINGTON HALL, CAMBRIDGE, MASS.
NEWHALL & BLEVINS, ARCHITECTS.

TENDENCIES IN APARTMENT HOUSE DESIGN

PART X *"Irregular Lot" Plans*

By FRANK CHOUTEAU BROWN

WE have so far studied the development of the Apartment House plan from its simplest individual form to the comprehensively planned and grouped agglomeration of a number of individual suites of rooms arranged about one or more courtyards, and have indicated an unmistakable trend toward greater use of this type, in larger and larger groupings of suites. We have also illustrated, in the greater majority of cases, plans arranged to go upon lots of definitely rectangular outline. A few exceptions have been included, such as the "Double Court" prize design printed in December, or the "Duplex" example published last month. These designs, however, varied only slightly from the form they would have taken on a rectangular plot; they remained recognizably easy to relate to the conventional lot of generally accepted proportion and shape.

A large number of examples of apartment buildings exist where the lot of land is extremely irregular in outline, and when we encounter an apartment building adapted to go upon such a piece of land, it would perhaps appear that the method we have adopted of tracing the development of the apartment house problem would no longer apply.

Where the land outline is irregular the plan best suited to fully develop its potentialities will naturally possess equally unusual solutions and contours. Therefore, while it often may not conform to any of the classifications previously considered, it will yet be found of sufficient importance and value to be worthy of study for its own sake, even if it is necessary to place it within still another group that—for want of a better term—we may call "Irregular lot" plans.

To that point we have now come. Consideration of the typical "Courtyard" type of plans carries us by the easiest of stages to the consideration of this group of "Irregular" plans.

This group is of great interest to the realty operator because, in a great number of American cities—even those which have in the past been the closest adherents to the "Gridiron" type of street plan—there occur a certain number of lots of irregular outline, most of them on the most important and otherwise valuable corners, and very generally where an important street is entered from an angle by a street or road tributary to some side district. Such corners are likely to become centers of future intensive growth, causing a largely increased valuation of property lying immediately adjacent to this road intersection. Consequently, the two irregular pieces of land that occur where the branching road intersects at anything other than a right angle, have potentialities of unusual value. At the same time it often happens that their initial sales price is somewhat depreciated by the fact that the land does not seem susceptible of improvement in the usual manner.

Where the land may appear difficult or incapable of the usual type of improvement in the eyes of the conventionally thinking buyer, its very irregularities of contour are frequently the means of suggesting some individual and appropriate plan. Thus, by taking the best advantage of these irregularities, it is possible to work out an improvement more economical and advantageous to the owners and

FIG. 127.—BRAYLAND TERRACES, NEWTON CENTER, MASS.
Kendall, Taylor & Co., Architects.

occupants than would have been the case with a plot of land of the usual shape and the same area or cost.

These plans are, by their very individuality, less likely to be directly adaptable to another piece of land of different, while still unusual, shape. Nevertheless, study of a group of plans of this kind, while not directly applicable to any specific problem, must yet prove both stimulating and suggestive. With that factor in mind a certain number of plans of apartment groups of irregular outline have been selected for illustration. The plans cannot begin to completely cover the different types of variously shaped lots that exist or can be imagined, yet they will suggest solutions to certain problems that recur with considerable frequency in the improvement of our urban and suburban property.

The proportion of the lot was of the first importance in determining the kind of apartment plan that could be arranged to go upon it, in our previous illustrations. That factor now becomes of much greater value. The size and contour of the lot are now brought into greater prominence, as will be shown in most of the illustrations.

It may, at first sight, appear that the "Courtyard" type of plan diminishes in value when one has to do with a lot of irregular shape, but if the area of the plot is sufficient to make the use of a courtyard advisable, it will be found possible, especially upon the lot of acute angled outline, to work out a plan far more economical of space, because no loss of area in courtyards is necessary in order to light rooms that, on a square or obtuse angled lot, would require either an interior well or exterior courtyard to bring them the light, air and ventilation so important in any successful plan for this kind of development.

Most lots fall immediately into two groups—those meeting an acute angle of street intersection, and those occurring upon the corresponding lot upon the other side of this same intersection, coming to an obtuse angle. Lots of this kind are likely to occur in pairs. A third group is occasioned by the relation of a piece of property to either the inside or the outside of a street that has a sharp curve. These are the principal variations from the customary rectangular lot proportion resulting from our predilection for the "Gridiron city" plan. The lots falling

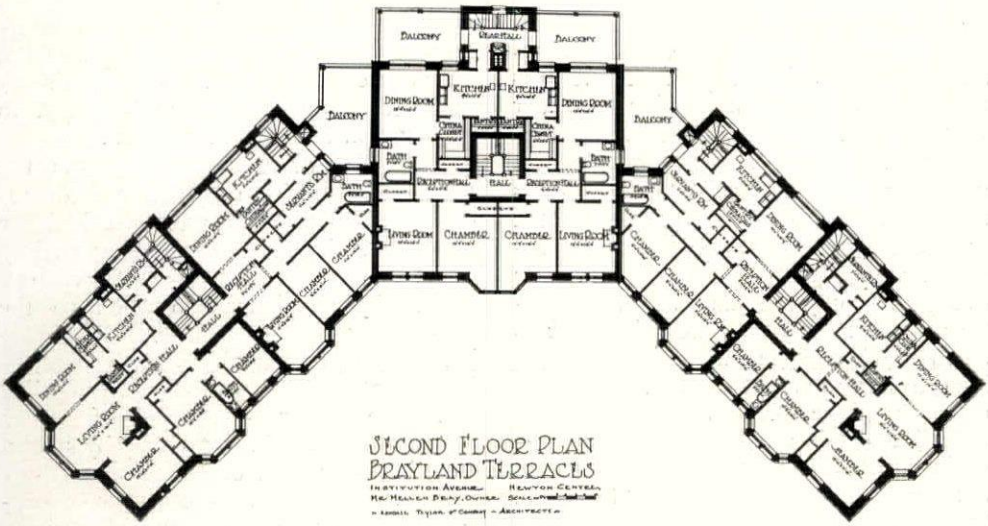


FIG. 128.—TYPICAL FLOOR PLAN—BRAYLAND TERRACES, NEWTON CENTER, MASS.
Kendall, Taylor & Co., Architects.

within these classifications are almost always on street corners—an important part of their potential value to the prospective builder of an apartment house.

Let us first take up the class of building adapted to suit a lot with corner angles slightly more obtuse than the usual rectangle, and take for our first instance one that is obviously closely related to the "Open Court" type of plan. An example will be found in Fig. 128, where an "Open Court" plan has ben adapted to a plot of land where two intersecting streets make an obtuse angle, merely by swinging outward the two side arms or wings bounding the courtyard to the right and left and thus opening out the courtyard frontages until the building appears in plan as it is here shown.

As far as the two wings themselves are concerned, and the portion of the structure that closes in the rear of the court, no appreciable alteration in the customary arrangement is necessary. The spaces occurring in the square angle at the right and left of the central section, and at the rear of the two wings, are almost entirely eliminated. In the plan under discussion, what remains of this space is given to an open balcony or porch, in connection with the service portion of the apartment in each wing.

The structure, this peculiarity excepted, develops a pleasing exterior, obviously well adapted to the size and aspect of the lot (Fig. 127), while providing very attractive outlooks from all apartments upon the suburban streets on which the property faces. The apartments themselves are simple in arrangement, the central section containing two four-room apartments to the floor, with common front and rear stairs. Each wing contains a six and a seven-room apartment, with common front but separate rear staircases, thus appealing to a large number of possible tenants. Given an attractive location in any popular suburb, convenient to street car and railroad stations—as this building is—there should be every reason for a plan of this type proving a profitable investment for the owner.

Two other examples of developments on similar shaped plots of land are selected for illustration, from such widely separated cities as Chicago and Washington. In both cases they are of a different and far more expensive type than the plan just discussed. In the example from Chicago (Fig. 129), we find a plan with two large apartments to the floor, each of ten rooms, and again it is obvious that an already well defined shape of

structure has been adapted to suit a corner lot on unequally sloping streets. In this case the original plan outline was the "T" shape, very much like the other Chicago plan that was shown in Fig. 55 last November, but the front portion has now been bent backward into the sections that front upon the two streets, while the service well has been carried out at approximately a forty-five degree angle, so as still to occupy the main line of the centre axis and secure the necessary courts on each side to light the rear rooms. As is usual in a plan of this kind, the service rooms continue back of the kitchen on each side of this rear extension. The designer has had some success in achieving regular and balanced principal rooms, leaving the more irregular shapes to be taken up by closets and hallways. A considerable area is given up to halls or passageways, under a varied assortment of names, and the left hand apartment segregates the bedrooms into the separate "block" or cube that we have previously mentioned. The rear service stairs, as is often the case in Chicago, are of the "open" outdoor character.

The example from Washington (Fig. 131), is another instance of the "de luxe" type. The angle of the street intersections is here a little more obtuse than in the last example, and the entire floor area is given up to a single apartment on each story, reaching on the upper flors a total of nine principal and seven service rooms to the apartment. A great deal of the total area is also occupied by halls and passageways. The plan is further considerably affected by the fact that the lot is bounded upon the third side by another street, along which most of the principal bedrooms are arranged; so that, actually, the type of plan very nearly conforms to the group of "rear courtyard" plans enclosed upon three sides. It is interesting to compare this building with some of the larger New York "de luxe" plans, or with one or two of those mentioned in last month's article.

As in many of the New York examples, the plan of this apartment is particularly appropriate to entertaining on a rather ample scale, and it is evidently a type that would be in demand in an international capitol. (Fig. 130.) Unlike the previous example, the corner angle is *not* indented, but this area has been put to good use in this apartment plan.

The City of Cambridge, across the Charles River from Boston, has of recent years become an intensive field for apartment developments, owing mainly to the opening of a tunnel that gives exceptionally rapid transportation to the business centre of Boston. Cambridge has, too, a peculiar city plan that results in a great many lots of irregular outline and also a great number of rather large areas of land entered only by streets closed at one end, or "Places," as they are generally called. These are so prevalent. in such pleasantly situated sections, that they are accepted as convenient and even fashionable locations for private homes. The last few years have seen many of these lots being built up into apartments, at first to help out in housing the student body in Harvard College, and latterly to meet the more general demand for family living accommodations. This series of articles has already shown a number of types of Cambridge apartments, and the rather unusual conditions existing in that city should perhaps have been explained earlier in order to help account for the somewhat peculiar and sometimes cramped tendencies to be noticed in so many of these plans.

We will now turn to one or two more examples more recent, and on a larger scale than any we have yet shown from Cambridge. These examples illustrate the utilization of both acute and obtuse angles, in the same group of apartments, under conditions that show the evident intention of the designer to make the best use possible—under the hampering conditions of the site—of the "open courtyard" idea.

The first, and the smaller, of these examples is the building known as Mather Court (Figs. 132, 133 and 136). Mather Court is located on an attractive site, overlooking the Common, in Cambridge, quite near the Washington Elm. The lot not only fronts upon a street bounding the Common, but it is also bounded by

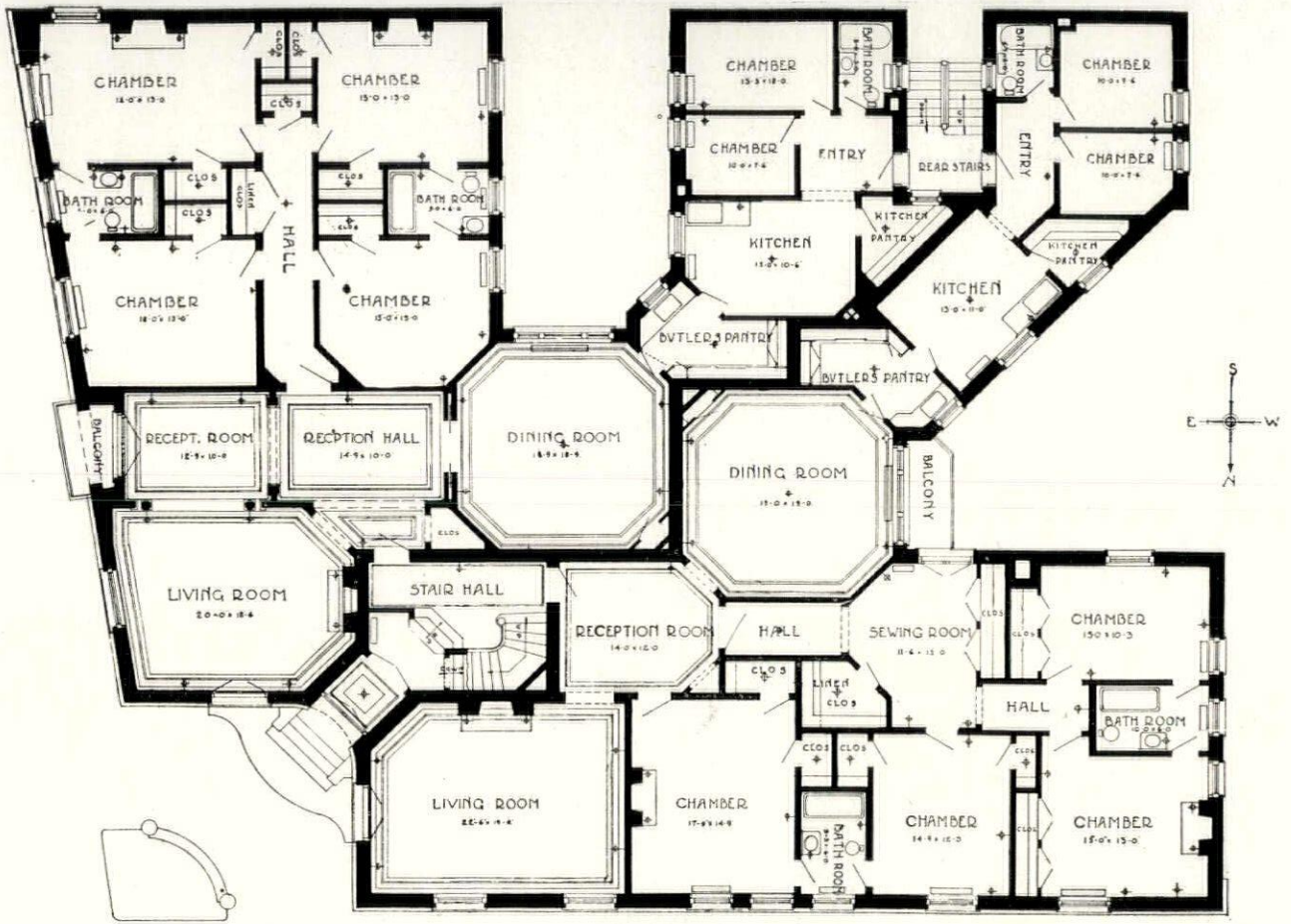


FIG. 129.—TYPICAL FLOOR PLAN—APARTMENTS AT NO. 1367 NORTH STATE STREET AND NO. 1362 ASTOR STREET, CHICAGO, ILL.

FIG. 130.—APARTMENT HOUSE AT 1785 MASSACHUSETTS AVENUE, WASHINGTON, D. C.
J. H. De Sibour, Architect.

two streets, both of which come into the centre of the city at an angle, one forming a slightly obtuse, the other a sharply acute angle in the building. The latter street is Concord Avenue, to which another reference will be made later.

The typical floor plan of Mather Court (Fig. 133) is divided into five housekeeping apartments, all served by one main staircase and elevator, the kitchens being separately reached by means of three service staircases and lifts. The courtyard opens to the south, and is of irregular and indented shape, the projecting outlines mostly taking, on the exterior of the building, the appearance of "bays."

Of the apartments, one (on the Concord Avenue corner and at the right of the court) is of eight rooms, two others, on the left of the court and on the inner side, are of five rooms, while the two rear apartments are of four and three rooms apiece, including the kitchenette as a room. So far as the courtyard itself is concerned, this plan is an example of the tendency toward "closing in" the open side on the street by widening the street width of the two wings. In the one case there is an evident intention to counteract the slope of the street on the left of the building, and in the other to secure more area to be used for rooms in the most desirable street frontage of the plan. The circulating public corridor interferes with the apartments opening through or across the building, except in the case of those occurring on the exterior angles of street or court, or across the wings. The great irregularity of the plan has also affected the shapes of a number of the rooms, although a good proportion of the angular changes have been taken up by corridors, closets, kitchenettes, and other

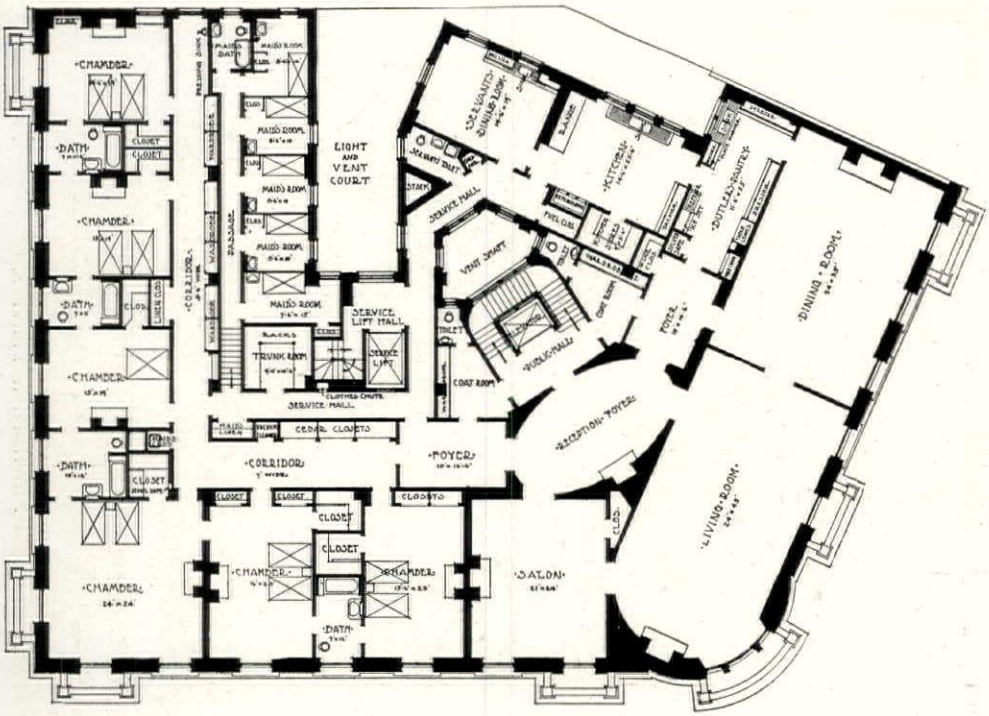


FIG. 131.—TYPICAL FLOOR PLAN—APARTMENT HOUSE AT 1785 MASSACHUSETTS AVENUE, WASHINGTON, D. C.
J. H. De Sibour, Architect.

indispensable service portions of the plan.

The architects of this building are also the architects of another building directly across Concord Avenue, which therefore shares a part of the same outlook southward over the Common. These apartments, while making one group, were, as a matter of fact, built in two sections. The portion first constructed was known as Concord Hall (Fig. 135), and occupies an obtuse corner angle, with the entrance located in a rather small court. The floor plan shown gives six apartments, all entered from a common main hall and elevator. The service portions are reached by means of four service staircases and lifts. The largest apartment is again on the principal corner, and has beside it a three-room doctor's office suite. This doctor's office lies along the right side of the court and along the opposite side of the courtyard is another doctor's office suite, with a four-room living apartment beyond it. There are also two small suites, of three and four rooms respectively, on the inner court and angle. The kitchens and the kitchenettes have again been included in this computation.

The newer portion, recently completed, is worked out upon a different idea. This structure, known as Lexington Hall, is upon an acutely angled lot, with streets upon the two principal faces and a small court, utilized in common between this building (Fig. 137) and the structure that we have just examined. The corner angle is occupied by a four-room living apartment, which can be rented and used in conjunction with the three-room apartment located at the right of it if so desired. There is another three-room living apartment upon the slightly recessed court along the sloping street; and another, also of three rooms, facing out upon the court at the right of the Concord Avenue front. The latter apartment is so planned that it can also be increased in size by adding to it the small single room and serving closet apartment located immediately back of it. This room, and the

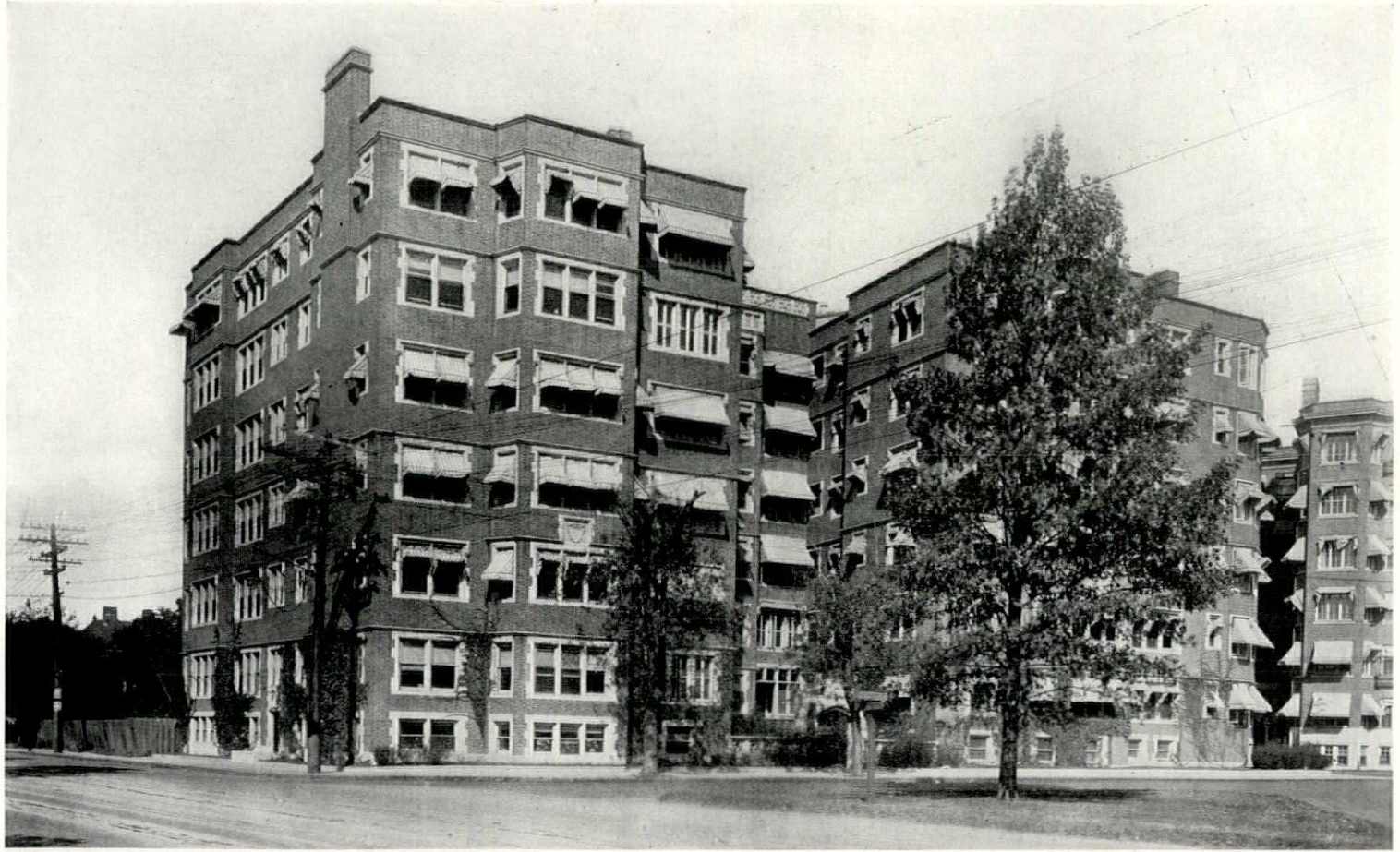


FIG. 132.—MATHER COURT, CAMBRIDGE, MASS.
NEWHALL & BLEVINS, ARCHITECTS.

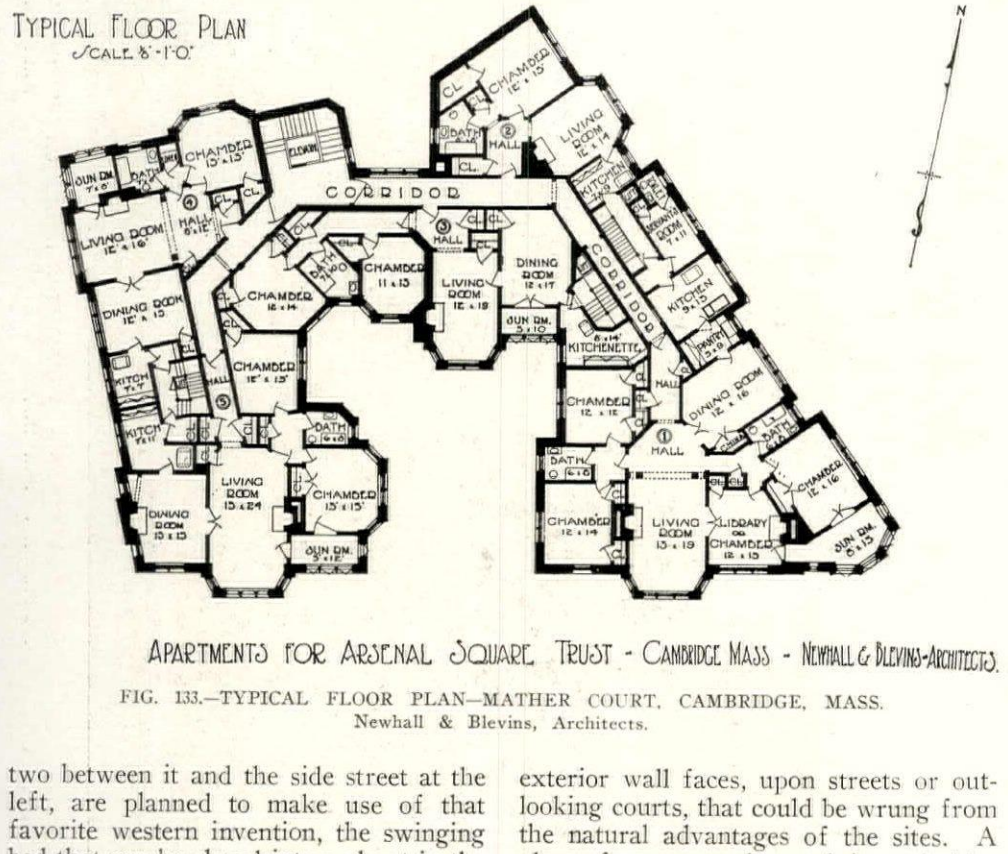


FIG. 133.—TYPICAL FLOOR PLAN—MATHER COURT, CAMBRIDGE, MASS.
Newhall & Blevins, Architects.

two between it and the side street at the left, are planned to make use of that favorite western invention, the swinging bed that can be closed into a closet in the daytime. These two rooms are also so arranged that they can be rented together to one tenant, if desired.

This is, among all the plans we have seen, the most flexible from the point of view of the rental agent and the tenant. It can be divided and sub-divided to meet many different kinds of requirements; combined to form large, or divided to make small, living units. In internal arrangement, and in the ingenuity of the means by which all three of the service staircases are clustered on the inner spaces surrounding the main central stairs and elevator, this scheme is particularly worthy of the study and attention of those interested in similar problems.

All three of these plans are necessarily complicated by the irregularity of the land to be developed. Their designers have made the utmost possible use of all the exterior wall faces, upon streets or outlooking courts, that could be wrung from the natural advantages of the sites. A plan of many angles and irregularities was the inevitable result—angles that are well enough adapted and made use of in the room shapes and outlines, in the main, but that must, nevertheless, make the building construction of these buildings run to a higher cost per foot than would otherwise have been the case.

To offset this added cost, we can fairly estimate in many cases a lower cost for the land, because of its apparent development difficulties, and a larger rental return per room, when these difficulties have been successfully solved, owing to the greater amount of street frontage and outlook obtained for the tenants, particularly with the lot on the acute angle.

Externally, these structures cannot be made so attractive, perhaps, as in more conventional circumstances. In all the exterior views of these buildings, it will be seen that the designers have frankly

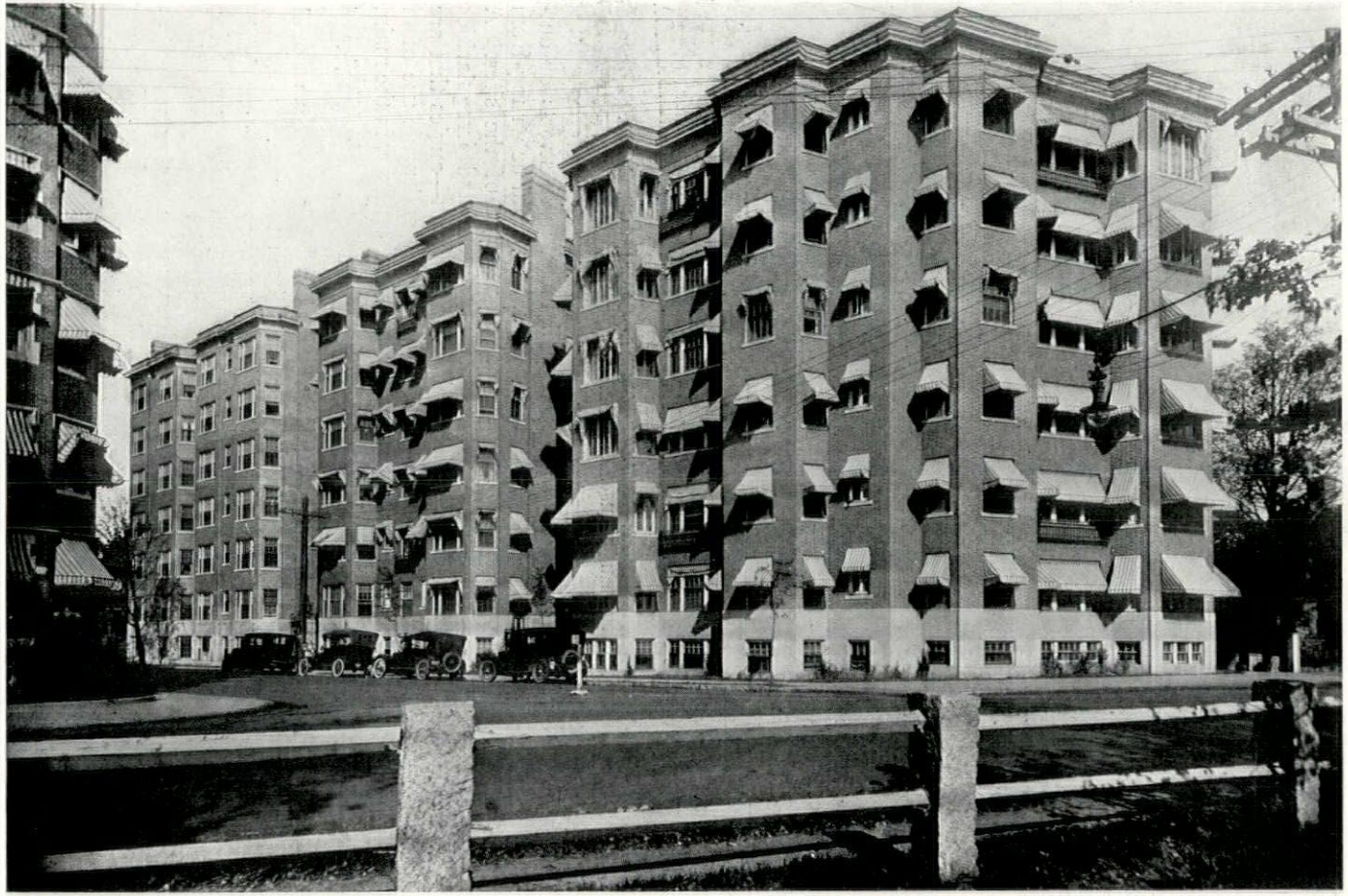


FIG. 134.—CONCORD AND LEXINGTON HALLS, CAMBRIDGE, MASS.
NEWHALL & BLEVINS, ARCHITECTS.

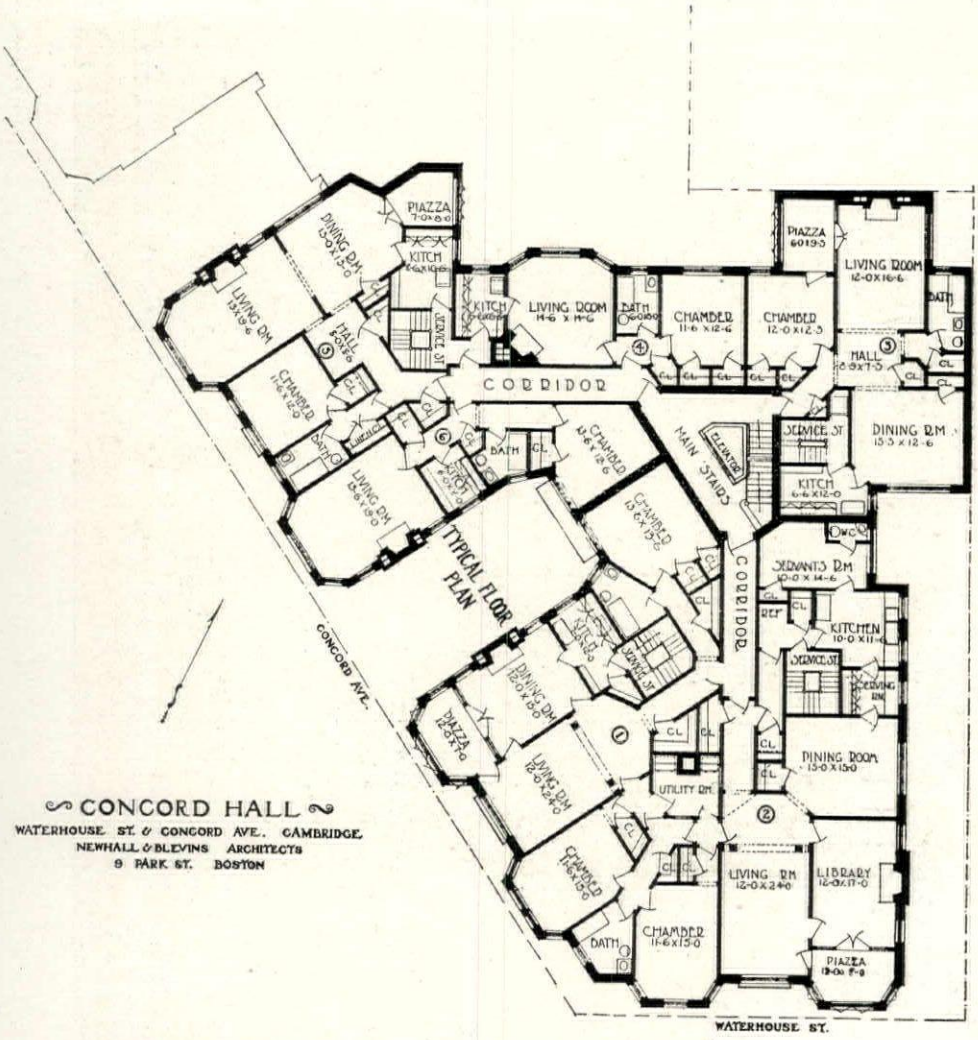


FIG. 135.—TYPICAL FLOOR PLAN—CONCORD HALL, CAMBRIDGE, MASS.
Newhall & Blevins, Architects.

undertaken to make a virtue of a necessity, and once having adopted the exterior bay as an expression of the plan-type, they have used it as consistently and thoroughly as possible. The result has been, of course, to add apparently even greater height, by introducing so many perpendicular members into a façade already rather small in scale, and further broken by the greater or less indentations of the courtyards employed as the major elements. As these three structures mentioned are all of six stories and basement (the ultimate limit of height to which it would be expected that a staircase service approach could be utilized without separate elevators) the emphasis of their perpendicular lines becomes all the more marked, as in Fig. 134.

In this view a portion of Mather Court may be seen extending beyond the left-hand-margin of the illustration, Lexington Hall being that portion farthest away and without awnings, beyond the telephone pole, and Concord Hall, the two remaining right-hand sections of the group. A portion of the Concord Hall group can also be seen at the right of

FIG. 136.—MATHER COURT, CAMBRIDGE, MASS.
NEWHALL & BLEVINS, ARCHITECTS.

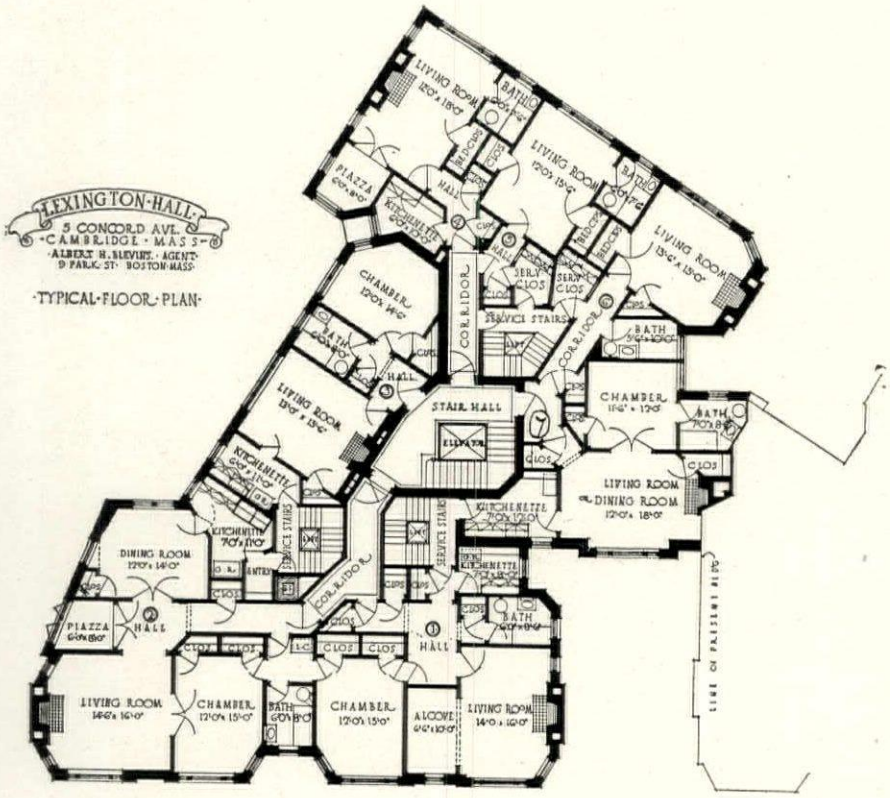


FIG. 137.—TYPICAL FLOOR PLAN—LEXINGTON HALL, CAMBRIDGE, MASS.
Newhall & Blevins, Architects.

the Mather Court apartment in Fig. 132.

In the plan of Concord Hall, Fig. 135, the outline of Lexington Hall is shown beyond the walls first built, while in Fig. 137 the outline of the Concord Hall building is indicated in the same way at the right of the courtyard.

Another and quite different type of solution is offered in the Lombardy Apartment (Fig. 138), where an acute corner angle between two streets is improved with a structure having four apartments to the floor, one of six, two of five and one of four rooms. All are served by a single main staircase, and a very small amount of public hall area. Indeed, the manner in which the waste of area in passage space is avoided in this plan is one of its most interesting details. The separate "block" of sleeping rooms, entered from a small common vestibule from which the bath and the living room also open, is the essential technical means, although employed in a less geometrically evident fashion than in examples previously shown. Again, as in the first plan illustrated in this article, the main hall and staircase is placed upon an axial line at right angles to the corner angle of the building.

As in other of Mr. Friz's apartments, we can see from the exterior photograph how irregular land contours have been welcomed by the designer, and made to give him additional rentable space; in this case by the additional apartment with individual entrance found to exist in the basement story, at the left, but above the ground level. Sometimes the irregular and much broken surface contour of an otherwise desirable lot, will be accepted by the seller as a disadvantage and by the buyer as an available asset, though it must be at once obvious

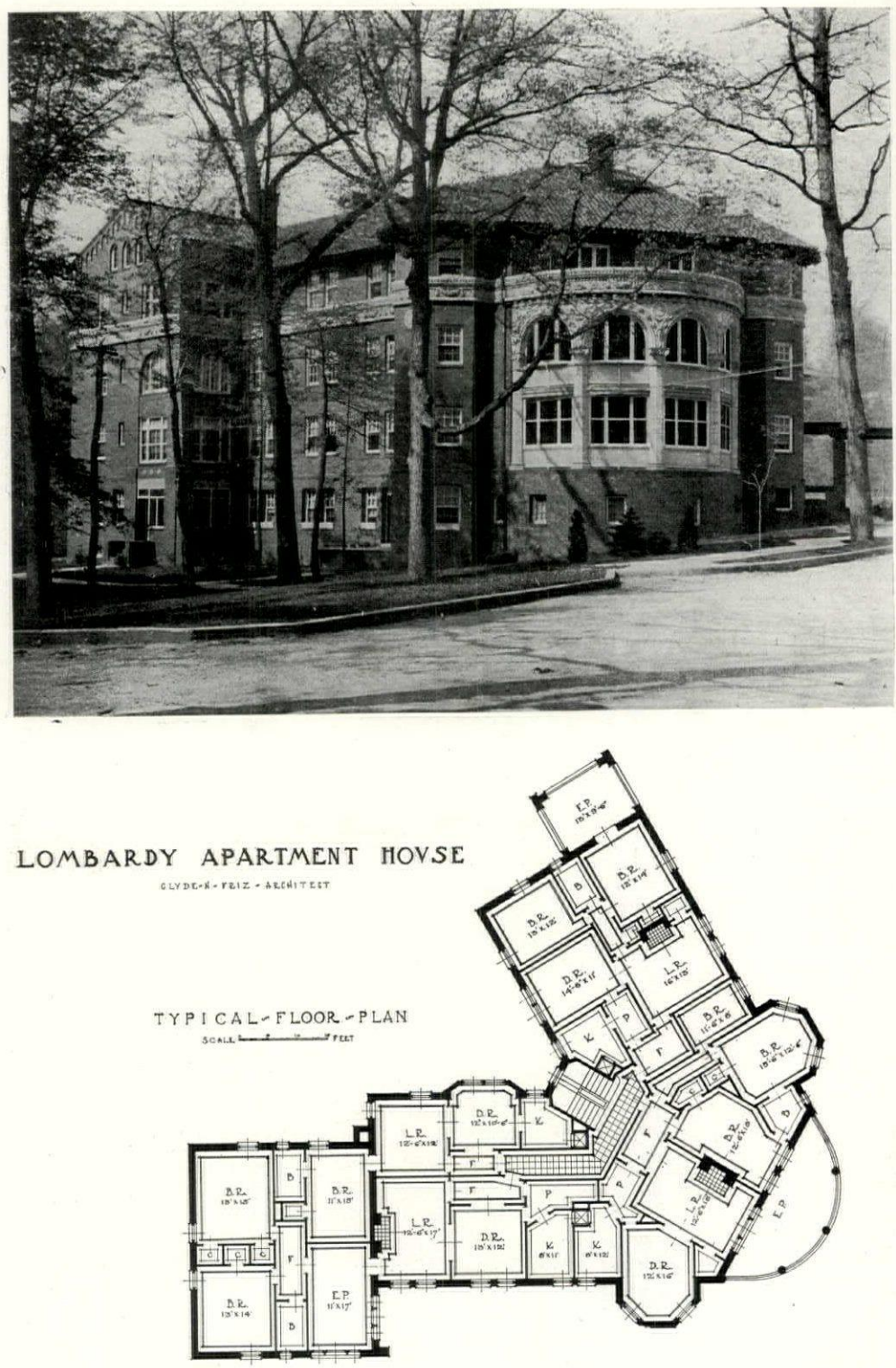


FIG. 138. — EXTERIOR AND FLOOR PLAN OF LOMBARDY APARTMENT HOUSE, BALTIMORE, MD.

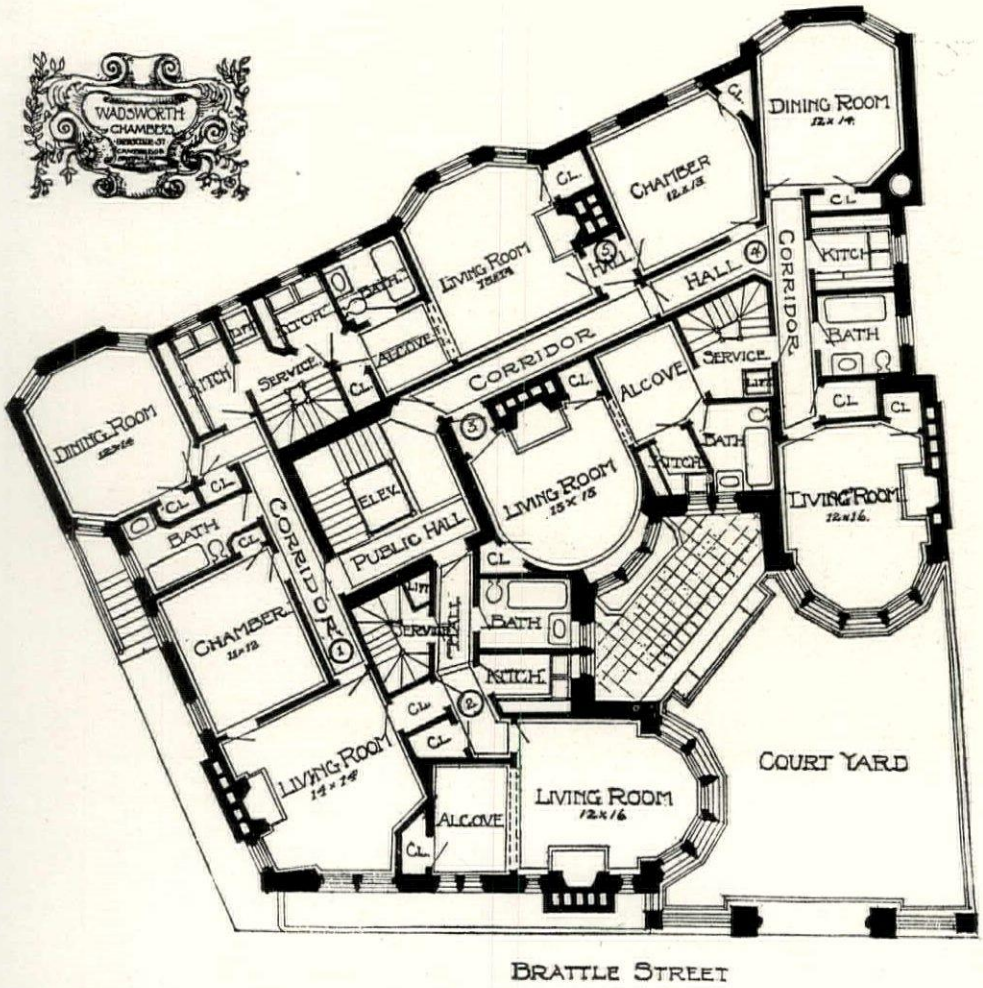
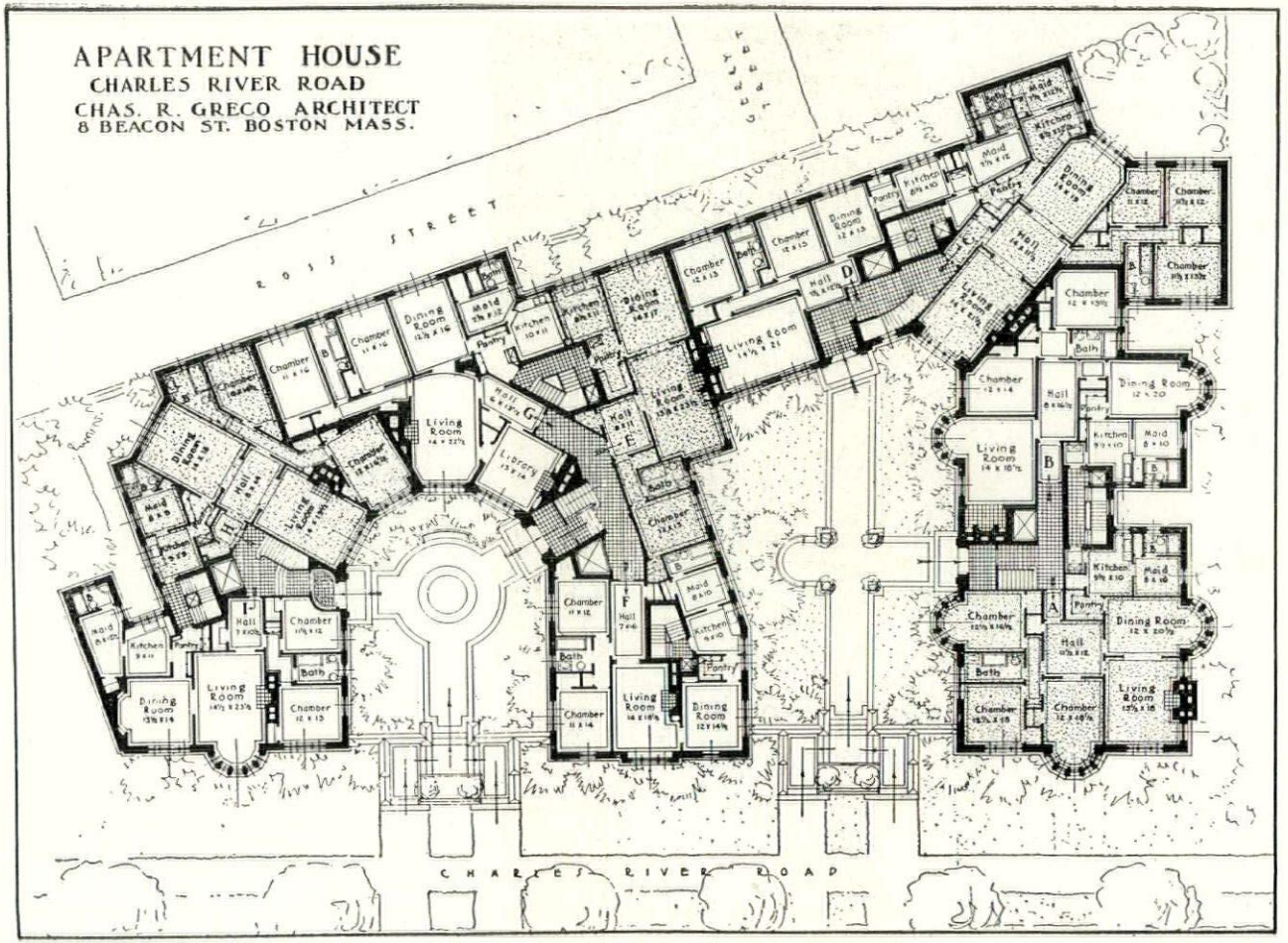


FIG. 139.—TYPICAL FLOOR PLAN—WADSWORTH CHAMBERS, CAMBRIDGE, MASS.
Newhall & Blevins, Architects.

that it will only be possible to capitalize it by utilizing a novel and unconventional plan arrangement for the structure to be developed. Other plans by Mr. Friz, already shown in earlier articles, have been distinctive in illustrating his ability at making use of this resource, in nearly every example.

An extreme instance of an unconventional lot, with the problem of its plan development still further complicated by its small total area, is indicated in Fig. 139. This is also offered as another type of the irregular lot problem. This irregularly shaped lot is *not* upon a street corner. The only street frontage is, as a matter of fact, along one of its smallest sides. While the lot has four sides, they are all at unusual angles; angles which have been faithfully followed by the plan outlines, except at one corner on the street, where an indentation taking the form of a small and restricted court has been introduced by the architects.

The comparatively small floor areas of this plan have, by intensive study, been divided into a number of living apartments, using one front staircase and elevator and three backstaircases and lifts. There are two three-room, bath and kitchenette suites, and three living-



FIRST FLOOR PLAN – SUITES INDICATED BY SHADING

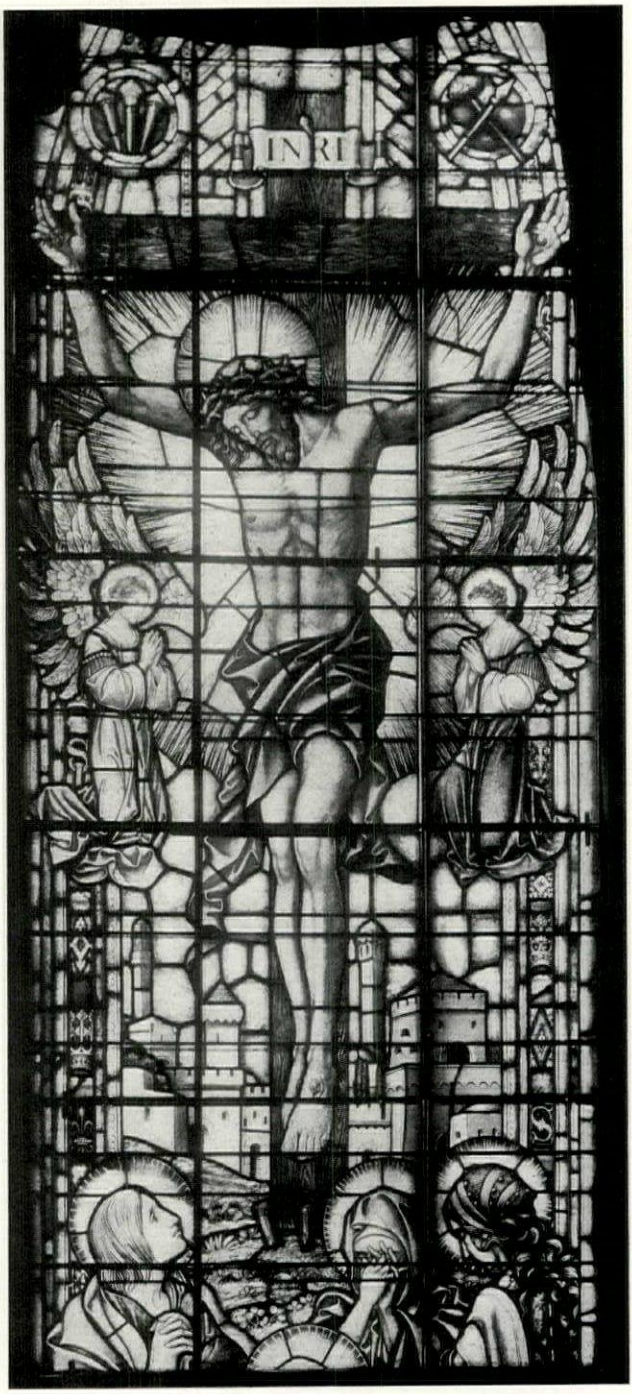
FIG. 140.—APARTMENT HOUSE ON CHARLES RIVER ROAD, CAMBRIDGE, MASS. CHARLES R. GRECO, ARCHITECT.

FIG. 141.—EXTERIOR VIEW FROM ACROSS CHARLES RIVER—APARTMENT HOUSE ON CHARLES RIVER ROAD, CAMBRIDGE, MASS.
Charles R. Greco, Architect.

room-alcove, bath and kitchenette apartments. One or two of these can be interchangeably related to portions of the larger apartments, or a room of the latter can be divorced from its associates and added to the resources of the smal'er suite—thus incorporating some of the virtues of flexibility already indicated in one or two earlier examples, including Fig. 137 in this month's article.

Another and larger instance of an apartment planned to meet the irregular angles of an interior lot (although in this case the site did offer the advantage of an outlook upon a road at the back of the structure) is found in Fig. 140. The apartments here, as accords with the lot, are larger—nine suites in all—one of eight, two of seven, five of six and one of four rooms, and baths. The structure is arranged around and between two courtyards giving on the principal frontage on the Charles River, each courtyard having two entrances leading to two, and in the one case, three apartments on each floor. This method has made it possible—in connection with the deep indentation of the courtyards themselves—to open every apartment through from one to another side of the building, so that the matters of air, draughts, light and outlook for the occupants are unusually well provided for.

To summarize this month's article: the lot of irregular outline, while costing more to build over—on a square foot basis—than the rectangular piece of land, yet oftentimes plans out to better advantage than the conventionally shaped lot, especially as to utilization of the full land area.



DETAIL OF CRUCIFIXION WINDOW,
SALISBURY CATHEDRAL.
DESIGNED BY REGINALD BELL.

STAINED GLASS *in the* "WARRIOR'S AISLE" OF THE NAVE *of* SALISBURY CATHEDRAL

IT is intended that the north aisle of the nave of Salisbury Cathedral be known as the "Warrior's Aisle" and be devoted to memorials of the war. An important feature of this scheme is the filling of all the windows with stained glass. The stained glass artist, Mr. Reginald Bell, of the firm of Clayton and Bell, has been entrusted with this important part of the work.

The aisle is lighted by eighteen fine lancet windows, arranged in pairs, five pairs east and four west of the north door. As none of these already contains any painted glass the opportunity presents itself for a scheme of windows on a large scale, designed as one complete and harmonious whole, unhindered by existing windows of various dates and conflicting styles.

The pervading idea of the whole scheme is, "Devotion," "Sacrifice," and "Victory," expressed by figures scriptural and historical, typifying the highest forms of service, devotion to duty and self-sacrifice.

These figures have been designed as a great procession moving toward the East and leading up to the easternmost pair of lancets, one of which contains the "Crucifixion" (the supreme sacrifice), the other, "Christ enthroned in Glory" (victory over death).

So far as can be discovered, no instance exists of a procession of figures extending through a long range of windows, though this arrangement in sculptured friezes and wall paintings is well known.

One of the functions of painted glass is to act as a curtain, softening and diffusing, as conditions make it advisable, the glare of white light. This glare gives the nave of Salisbury a rather hard and severe appearance.

To accomplish the desired effect without darkening the interior Mr. Bell has adopted a very silvery scheme of color with a large proportion of white glass, the varied tints of which have been carefully combined by the artist from his observation of the old work in the south transept of the choir for which Salisbury is famous.

The first two windows were completed in time to be dedicated during the celebration of the seven hundredth anniversary of the Cathedral on June 24, 1920, at which Dr. C. H. Brent, Bishop of Western New York, preached a very fine sermon. The easternmost of the two contains the Christ seated on the throne, the right hand upraised in blessing, the left holding an orb. The figure is crowned and dressed in a mantle of white and gold over an underdress of ruby glass patterned with white. At His feet is the globe of the earth, above, the rainbow showing through the base of the throne. From behind the figure radiate rays of glory showing up against a background of pale blue which fades into white above and below.

In the head of the window hovers the Holy Dove. Below are grouped adoring angels whose robes give an effect of broken color in contrast to the figure above. In the base of the window is a shield bearing the arms of the Cathedral, a Madonna and Child in gold on a ground of blue. Below in gold letters the text: "God so loved the world that He gave His only begotten Son."

The next window represents the Crucifixion. The figure of Christ on the Cross occupies more than half of the window, while, on either side, an angel kneels in prayer. At the foot of the Cross are grouped the three Holy Women and St. John. The Virgin Mary kneels in the foreground, with a robe of pale blue which counteracts the rich ruby and gold cloak of the Mary Magdalene on the right. In the top of the light ap-

PART OF ORIGINAL HALF-INCH SCALE DRAWING — MEMORIAL WINDOWS IN WARRIOR'S AISLE, SALISBURY CATHEDRAL. DESIGNED BY REGINALD BELL.

pear a crown and the emblems of the Passion. In the base is the shield of the old city of Sarum, four gold bars on a blue ground, and below the text: "He that overcometh, to him will I give to sit with Me in My throne."

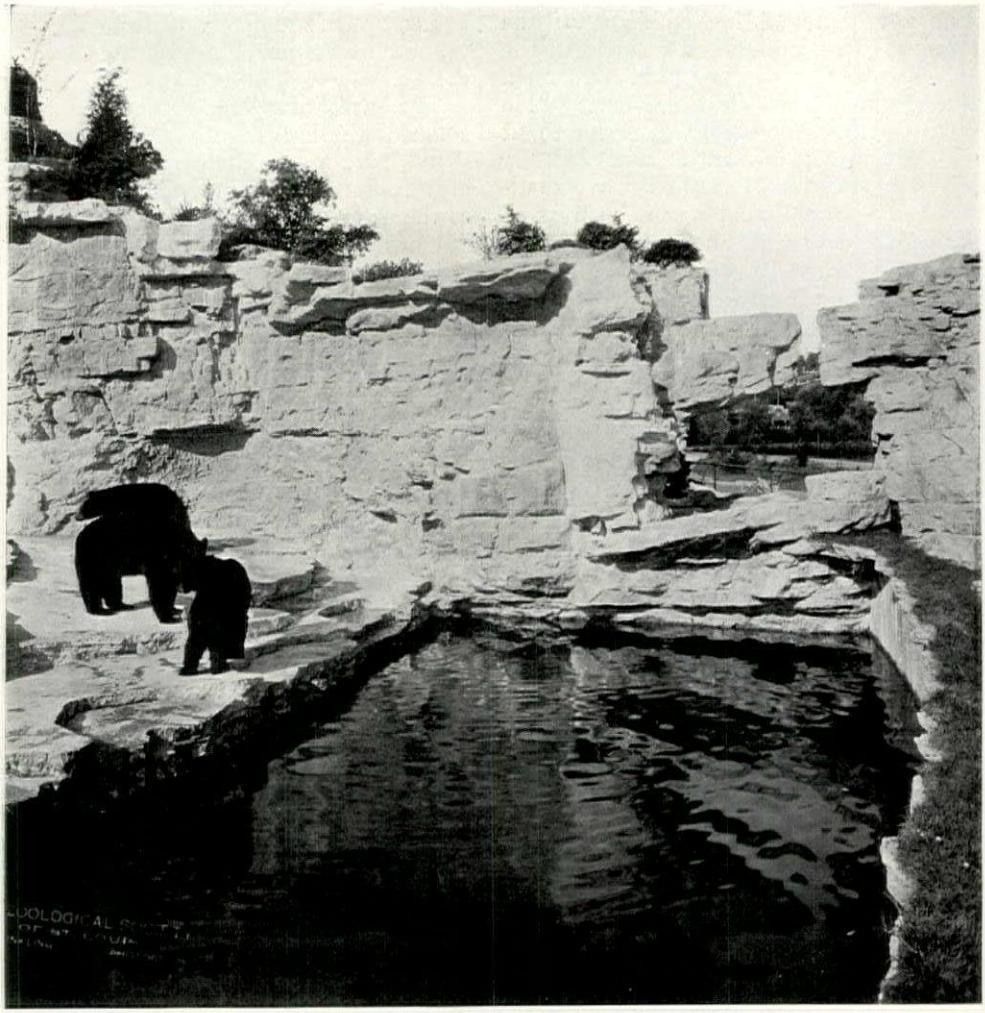
These two windows, being overshadowed to a great extent by the buttress of the transept, present an interesting problem to the glass painter in avoiding the too common fault in a light window of looking thin and weak when the importance and meaning of the subject demands a certain depth of handling, though the general effect is to remain silvery.

This work is a serious attempt to infuse more life and breadth into the conception of stained glass as a branch of design.

The accompanying reproductions of some of the lights, both in whole and in detail, give an excellent idea of the general design and the individual expression of the artist.

Unfortunately the great beauty and richness of the coloring is absent in the reproductions, but those already familiar with Mr. Reginald Bell's work will be able to form an opinion of the magnificence of these windows, the design for which has been on exhibition during the spring of 1921 at the Royal Academy, Burlington House, London.

STUDY FOR FIGURE OF THE MADONNA IN CRUCIFIXION WINDOW, SALISBURY CATHEDRAL.
Designed by Reginald Bell.



NEW TYPE OF BEAR DENS BEING DEVELOPED
BY THE ST. LOUIS ZÖÖLOGICAL GARDENS.

PARK ARCHITECTURE

ZOOLOGICAL GARDENS

By Horace W. Peaslee

It is nearly a hundred years since the first great zoölogical park was established in Europe, and for over fifty years most of the large cities have vied with each other in their collections. In the United States we are just on the threshold of a great zoölogical development. (The Philadelphia Zoo is in the half century class with Cincinnati and Washington, following closely.) New York has established one of the great collections of the world. St. Louis has a two-million-dollar program. Chicago is starting with a clean slate and a large ideal. Nearly every city of any pretense features some animal exhibit. With radically different policies and details confusing the situation, it is worth while to consider carefully the work that has been done in this field and to test it by the constructive criticism of experts.

IN the study of a subject as complicated and as comprehensive as the design of buildings for zoölogical parks, there are several methods of approach. One might take the animals "two by two, the elephant and the kangaroo" and detail their peculiarities as affecting the architectural design of their individual quarters. Discussion along this line, however, involves constant repetition corresponding with the overlapping of related species. Possibly the simplest arrangement for brief treatment is to approach the subject from the point of view, first, of the public as casual visitors; second, of the institution as reponsible for the maintenance of the exhibits.

The first thought of the visitor is to see the animals, to get about easily and with the greatest return for his effort. The designer must therefore first study the general layout of the park as a means to effective circulation.

DISTRIBUTION AND CIRCULATION

The average zoölogical park in so far as arrangement is concerned apparently "just growed." It started with a small collection, added to from time to time as popular interest waxed and support was forthcoming. This method of growth forestalled the development of a comprehensive plan. Another factor seriously interfering with orderly grouping is the desire to take advantage of topography, forestation, orientation, prevailing air currents and convenience, as each may lend itself to the housing of any special group. The result is often a collection of detached units with connecting walks.

Without constant reference to a guide book it is difficult to find all the exhibits, and a complete round means continual retracing of footsteps for the visitor.

In some of the continental zoölogical gardens, one finds the other extreme. The buildings, corrals and runs are so interrelated by paths and barriers and so supplemented by arrow-marked plans that it is difficult to get out of the scheme when once started.

Somewhere between the two extremes, it should be possible to devise an arrangement to eliminate the awkward features of both. Even with an informal spot-adaptation, there can prevail a main line of circulation which by reason of its size or direction will dominate even the untutored inclination. Buildings or units can be related to this, even with auxiliary or divergent lines, in such a way that the tendency will be to return to it rather than to leave it. If there is doubt in the mind of the planner as to which route visitors shall take, this doubt is going to be echoed and amplified for every holiday group that comes to a forked walk.

As applied to general grouping, the same rule would hold for one or a dozen entrances. Any entrance should lead directly to a major line of circulation instead of forcing the pedestrian to decide between walks. In a minor way, any building should be designed so that passage through will rejoin the main route. If a circular corral is to be inspected from the circumference, the enclosing walk may be tangent to the principal route, insuring return to the starting point.

Taking up the question of entrances, we find one park in this country featuring a splendid group of buildings to form an entrance court. There are five other entrances through which probably ninety-five per cent. of the visitors arrive. The court is a fine conception, but comparatively few people use the grand steps and thus receive the intended impression. Every minor entrance offers an indifferent first impression and a series of alternatives as to route. A somewhat similar situation exists at Marseilles, where a street car connection to a side entrance is preferred to the much more striking grand approach through the Palais de Longchamp.

In the first of the examples just cited, we find a great structure placed transversely across the park end of the court, with entrances on the cross axis. The description states that "through its position in the general plan, it closes a wide gap and effectively links together the northern and southern halves of the establishment." However, failure to function properly, due to lack of major plan considerations, is evidenced both in the *culs-de-sac* for massed spectators in each end of the building and in the use of the cross axis as a thoroughfare to such an extent that a long paragraph occurs in the guide book warning against such practice!

A counter situation exists in another large group, where a projected museum-administration-auditorium building will block the main approach. Miscellaneous buildings are disposed to right and left beyond it amid a pattern of paths. Three buildings occur on the main axis. In a corner of the park is a unique naturalistic group, the extension of which will be the feature of the park. It is unfortunate that the opportunity should be lost for a splendid first impression by a fine approach and harmonious relation of buildings, and that with an unprecedented appropriation for its development the naturalistic display should not be emphasized by position instead of minimized by an incidental site in unpleasant comparison with buildings and formal landscape effects.

These elements of general plan are by no means aesthetic considerations affecting only a nature attuned to academic ideals; nor are they limited to hazy impressions forced upon a public that prefers to see real animals. They vitally concern the public in enabling it to make its rounds of inspection with the least possible effort—an important point, since tired and tiring children are usually involved. They concern the park authorities in directing traffic along certain lines, preventing cross lines and confusion of movement, and in getting the maximum returns from appropriations usually inadequate.

The designer who really wants to get

the public point of view can do no better than to become a part of a representative crowd on a holiday, preferably sponsoring a member of the class which constitutes a very large percentage of the visitors at a Zoo—a small boy. He will soon find that the boy is continually calling attention to the fact that he cannot see anything; there is usually a massed crowd in front of the very exhibits he is most interested in, especially the monkeys, bears, lions, tigers and miscellaneous cubs. The insistent demand of children to be lifted to the top of a rail or radiator, or these lacking, to a shoulder, naturally leads to a study of floor and cage levels. In some exhibition houses with cages on one side only, such as the London and New York lion houses, a raised platform with seats is provided along the side of the building opposite the cages, from which visitors may study the animals over the heads of the promenaders. This, however, does not help the situation immediately in front of the cages. It seems a feasible scheme in buildings certain to draw large crowds, to provide two or three breaks in the floor level before the cages, supplemented with sections of railing so that visitors may move along comfortably on different levels. Even without crowds, it is apparent in many instances that cage floor levels are often needlessly high for comfortable observation by children. It is unfortunate that limited funds should require the display of smaller animals in double deck cages, as these little animals make a special appeal to children.

ELEPHANT HOUSE, NEW YORK ZOÖLOGICAL GARDENS.
Heins and La Farge, Architects.
Elephantine in outline, opening and detail, and in pleasing contrast to the multi-minaret house in the Berlin Gardens.

The opposite extreme must be guarded against in quarters for water animals. One hippopotamus tank observed is so deep and poorly lighted that half the water surface is concealed from view. In this same pool, incidentally, the descent from the stall is so close to the public space that spectators are showered with water when the animal emerges from the tank. Placing the runway on the far side of the pool would have avoided this and at the same time have given a better view.

Notwithstanding such drawbacks, the public always wants to see the animals at the minimum distance. Half the reason for the cage bars is to keep the public out and protect the animals. The designer must keep in mind in adjusting the guard rails not only convenience of service, but prevention of injury to the animals from overfeeding by the overfond public. This distance will vary less in the case of small animals which must be seen at close range than in the case of an elephant with an inquisitive trunk. The detail of the barrier depends upon the character of the exhibit. A radical departure was made at the time of the construction of the New York lion house in the substitution of steel mesh for the vertical bars which had previously been accepted as a matter of course. This mesh offers little interference to the view although minor improvements might be made in the detail of its reinforcement. The mesh idea may be carried to extremes, however, as is illustrated by a letter published in a Dutch paper from a Netherlander who visited a Texas Zoo. He precipitously left the place upon discovering that the lions were held in captivity only by "chicken wire." The report

commented upon American assurance and optimism.

LIGHTING

Lighting of display buildings is as important from the public's point of view as from that of the exhibits. Both extremes are found. In one instance a display building was designed along the lines of a conservatory, producing an unpleasant glare and surplus heat. In another a domed ceiling was used without overhead lighting of any kind and as a result the building is gloomy most of the day. In buildings with cages on both sides, the public space may be lighted either overhead or by a clere-story, and the cages by skylights. When a skylight is supplemented by a flat ceiling glass, a considerable loss of light occurs from dirt accumulation on the upper surface of the ceiling glass, which is difficult to clean and often neglected. Where the cages are placed on only one side of the building, windows may be placed opposite together with either of the overhead lighting arrangements, or if the cages are included within the main walls of the building, skylights may be used only above the cages. As far as general effect is concerned, clere-story lights are more agreeable than a long center skylight. In no case should the observer be forced to look directly into the light.

HEATING AND VENTILATION

The main criticism that a designer will hear of zoölogical buildings concerns ventilation. Even with most scrupulous care on the part of the attendant in the cleaning of the stalls and cages, there is normally an offensive odor peculiar to wild animals which must be considered in addition to the usual problem of ventilating any place of assembly for large crowds. Again, temperatures necessary to tropical animals are often disagreeable to people burdened with overcoats. Here follows a complication of problems for adjustment according to the individual case. Ventilation is not always improved by the heating arrangements. Heating pipes do not logically form a part of a guard rail in front of a battery of cages. They are uncomfortable for visitors and they are not agreeable to look upon, and the placing of exposed piping in close proximity to cage drippings contributes to the unpleasant odor. The heating and ventilation system concealed by grilles in the lion house in Lincoln Park, Chicago, is an especially good solution, not only from an aesthetic point of view but also from the very practical one of sanitation.

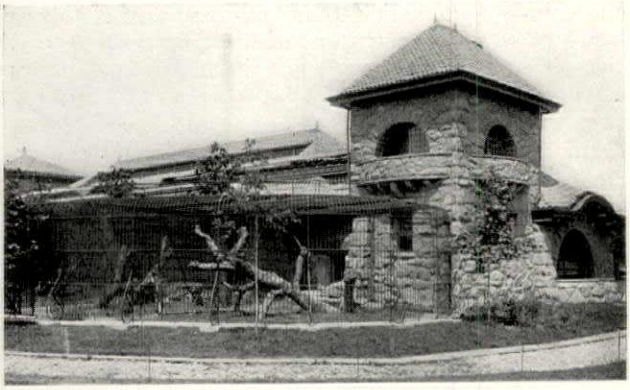
It must not be overlooked that foul air outlets are only half of ventilation; fresh air intakes are equally important. The fresh air that comes in through entrance doors alone is inadequate. A feature of the primate house in the New York Zoölogical Park is a fresh air intake below the cages and a foul air outlet above them which carries off odors through the cages instead of projecting them into the public space. A new device is now being tested in different institutions, which gives promise of solving this and other problems of air purification.

In studying the problem of heating and ventilating, it should be remembered that buildings of large plan with high or vaulted ceilings and ample width are much less liable to unpleasant atmospheric conditions than buildings of meagre planning.

The elements of crowding, inability to see, heating and unpleasant odors are the main things that the public has to criticise about the interior of zoölogical buildings. Outside, one will hear adverse comments if the animals are at too great distance from the observer, a condition which the designer may precipitate by placing the corral shelters around which the animals congregate in the center of a large enclosure instead of within a reasonable distance of a public walk. One other criticism is heard and of recent years it has been gathering weight. This is a protest against the close confinement of animals in cages. It has caused a revival of the so-called "barless dens" along the lines initiated by Carl Hagenbeck in his Stellingen park. On this subject there is the keenest interest among all concerned —the public, the institution and the architect.

"BARLESS BEAR DENS"

The Hagenbeck idea as developed in many German cities and in the Borghese



TIGER HOUSE, ZOÖLOGICAL GARDENS, WASHINGTON, D. C.
Architects, Glenn Brown, Victor Mindeleff.
The low, picturesque design makes for an appropriate exterior, but causes poor ventilation and congestion of space within.

Gardens in Rome is the use of artificial rock barriers with naturalistic dens and walled moats. As used abroad, it is essentially spectacular and a feature of what are really amusement parks. A valid objection to it is that the animals get so far away from the spectators that their size and peculiarities cannot be appreciated. The rock work is obviously cement and of little artistic merit. The modern adaptation of the idea is essentially American. Denver began with moulds from actual rock formation and casts of colored aggregate so well done as to pass for natural formations. Earth covering with clever rock plantings complete the illusion. St. Louis started out with a bear den costing $125,000. Others followed until the unit cost is down to $65,000. Some thirteen in all are projected. Chicago, about to launch a great zoölogical undertaking, is tremendously interested, and even the architects of the great lion house at Lincoln Park favor the new type for the great zoölogical gardens about to be developed in its Forest Preserve.

It is enlightening to discuss these projects back and forth with different experts. Sharp lines are drawn between casual collections which are primarily for display and representative selections which have larger scientific purpose. It is apparent that the cost of construction of these naturalistic developments if directed along the lines of building construction and accumulation of animals for exhibit would make a tremendous showing of animals, which is, after all, what the public want to see. The questions of sanitation, of protection from rodents, of breeding and withdrawing from display, of increased healthfulness, of weathering, of construction cannot be settled at the present time. Where the cost is so great and the net value not definitely established, it is not wise wholly to disregard the opinions of men who have built up great successful establishments with well rounded groups of healthy animals. On the other hand, the open dens are so attractive that even at the high cost a limited number would seem justifiable. It is quite possible that one or two such dens would prove as much of a novelty and drawing card as a group, and the money saved could be diverted into real animals instead of artificial rock.

HEALTH OF ANIMALS

The first concern of a zoölogical institution is the health of its animals. It may have cost thousands of dollars and years of effort to secure a certain specimen. Therefore the designer who has been considering how to please the public must now study the even more important elements that affect the health of the exhibits. Animals are subject to dis-

THE GREAT LION HOUSE IN LINCOLN PARK, CHICAGO.
Perkins, Fellows and Hamilton, Architects.
And yet it was a Chicago man who wrote, "Architects and landscape specialists have as yet done nothing upon which an article can be based."

ease just as humans are and in the unnatural state of their captivity easily get out of sorts. The most positive and definite recommendation that can be obtained is Carl Hagenbeck's statement that fresh air is the all-important factor in keeping wild animals in good condition. In winter as well as summer he gave his animals access to the open air direct from their inside dens. The extent and application of this general principle is a matter to investigate in each instance, because a Zoo cannot afford to learn by experiment the exceptions to this rule.

Exercise is another positive essential to good health and finds expression in cages large enough for even the restless ones that pace up and down, and in ample outdoor dens, the need for exercise should be met by smooth surfaces for running about; rocks or tree trunks to climb; or ample ranges, according to the nature of the beast.

THE LLAMA HOUSE, NEW YORK ZOÖLOGICAL GARDENS.
Heins and La Farge, Architects.
The oddities in detail are so much in evidence and in such contrast of color as to compete in interest with the animals on display.

Good food is another factor. The designer must ascertain what the requirements will be and the facilities which he must supply. In the larger groups, these may include farm buildings, butcher shops, hay barns, ice houses, kitchens and dairies. A central distribution point and service group with food storage and preparation rooms in each building will be required. The operation of feeding should be rehearsed and detailed by the supervisory authorities and facilities provided for carrying out the instructions. If food pans are to be washed, there should be a suitable sink and assurance of boiling water; if individual pans are to be used to prevent spread of disease, places should be provided for them; if mashes are to be mixed or vegetables chopped up, facilities should be at hand.

Cleanliness is all-important. There must be ample facilities for cleaning and washing the cages at all times. Floors should be sloped to drain, but not too much for appearances. It seems almost needless to mention such obvious details, yet one house was observed with horizontal joints in wooden partitions and joints in the floors opposed to the slope, all conducive to rapid deterioriation and rot. The gutters into which the floors drain need not be conspicuous and obnoxious. A higher front and a deeper bottom, and a tile lining of the type used in swimming pools is a considerably better arrangement than the unsightly sheet metal gutters in ordinary use. For hoofed animals a floor of a cork brick used in dairies is highly commended as being non-absorbent and not slippery. Cross lined cement floors are difficult to clean since it is necessary to sweep them in two directions. Floors need special drain grilles if stoppage of pipes is to be prevented. In one elephant house, the slope of the main sewer was inadequate to prevent caking and stoppage of the pipes, so that it has been necessary to introduce "Y's" and cleanouts. Water for drinking must not become stale or polluted, and again it seems unnecessary to point out such errors as the admission of sewer gas into a drinking tank.

Water should be provided for bathing or hosing as necessary. Mains must be adequate for the demands upon them. A's hippopotamus tank is criticised as too small for the comfort of the animal, but A maintains that he changes the water in his tank two or three times a day, whereas B's tank takes so long to fill and so long to empty that it is always filthy.

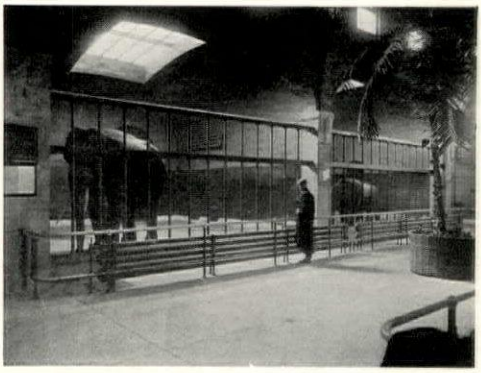
Cleanliness is not possible in a cage

where vermin can find forage. Tightly leaded joints, sanitary bases, absence of moulding and the like are all very well as far as the cage proper goes but it is rather a shock to get back of the scenes and examine the conditions one finds under cages. The space under the built-up platform should not be left as a catch-all for the accumulation of endless trash and the harboring of rodents.

Cleaning cages thoroughly is not possible from the outside. It is therefore necessary to shift the animals temporarily and every cage or stall should be designed with this requirement in mind. Where the design calls for inside and outside cages, this transfer can be readily made in summer time, at least. A den within a cage likewise enables the keeper to lock up an animal while his cage is being cleaned. In winter, however, it is often desirable to shift the animals from cage to cage inside by means of connecting doors. Sliding doors are preferred over doors swinging on hinges in all walls and partitions. The passage back of the cages in the New York lion house is faulty in that the keeper who is adjusting the doors to move the animals from outside to inside or vice versa cannot see what he is doing and even though signalled from the front may close the door upon the animal's body or tail.

The removal of refuse from the stalls is conveniently handled by manure boxes which open from the stalls and from the outside. A sill or track on the side toward the stall is a nuisance, and corner pockets on the outside jam an accumulation and make removal difficult. The introduction of a service road around a stall building, of necessity cutting across the ends of all the connected paddocks and involving the use of many gates, suggests the related design of gate and yard widths so that the opening of the gate for the road closes the end of the yard.

In spite of all these precautionary measures there is enough work for that most important appendage, the hospital. It will be equipped with antiseptic baths, overhead cage conveyors, operating space and the like. Likewise there should be some building for the reception, quarantine, or winter storage of animals.



INTERIOR OF ELEPHANT HOUSE, NEW YORK ZOÖLOGICAL GARDENS.

The vaulted ceiling of the unit stall is as good in scale as the miniature elephant heads on the columns are out of scale.

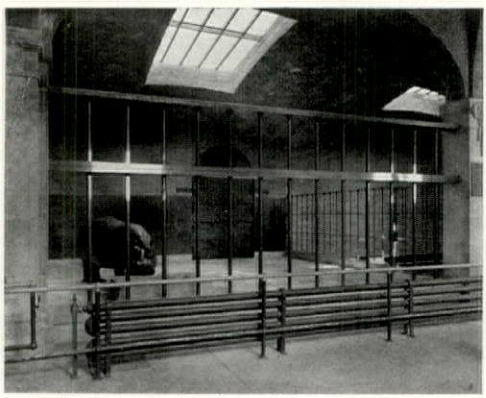
The heating of a large group of zoölogical buildings is an expensive item and more important than the heating of park greenhouses, since wild animals are more difficult to find than wild flowers. The requirements are somewhat varied in that different temperatures must be maintained. Considering the cost of installation and operation, as well as the nuisance and disorder resulting from individual heating plants, it is surprising not to find the central heating plant in general use. For special heating of certain buildings small plants could be supplied to succeed the main plant when it is shut down for the season.

SPECIAL PROBLEMS

An architect would not undertake to design a residence for a human client without learning by interview and observation the client's manner of living, his peculiarities and requirements. The problem is similar with the animal client, less complicated in some respects, but more difficult in others since the animal client cannot be interviewed for an expression of his preferences. However, a satisfactory substitute may be found in the person of the keeper who has intimate knowledge of his charges. From casual remarks and reminiscences all sorts of details can be acquired and the more general the investigation the more valuable the consensus of opinion will be.

It is the elephant that causes the archi-

tect the most trouble. This is not due to his bulk alone but to the intelligent use that he makes of it. He invents stresses and strains and moments of inertia that bring ultimate tensile strengths into every-day practice. The walls that enclose him, if of brick, must be covered with sheet steel to resist the action of tusks,—if these have not been removed. The bars that separate him from peanuts and people must be of sturdiest construction with special attention to end anchorage and intermediate bracing. Railroad steel will bend under his onslaught. The doors through which he wants to pass must be fortified against attack from either side. Sharp spikes, point outward, which have been bent or snapped off, bear witness to the toughness of his head. Everything within reach of his inquisitive trunk must be securely fastened in place. Drain tops should be screwed down. Water supply and waste valves should be key-operated. A wheel valve or a door latch is "open sesame" to an elephant. It is amazing what he will find to do. One crafty animal amused himself by opening the refuse box and scattering the refuse all over his yard after the keeper had swept up; another seized a rope by which clerestory ventilators were operated and nearly dislocated the superstructure. Leg control must be provided for with heavy rings for chain anchorage placed diagonally so that the animal may reach his food and water without being able to wheel and attack his keeper. Some elephants are absolutely docile and need no such precautions, but a designer must figure on the possible exertion of strength and cunning, even coupled with vicious tendencies.



INTERIOR OF RHINOCEROS HOUSE, NEW YORK ZOÖLOGICAL GARDENS.

Although the rhinoceros lacks the elephant's tendency toward mischief, he needs the same substantial framework for his enclosure.

The rhinoceros is similar in bulk to the elephant but lacking in the tendency toward mischief. He needs the same substantial framework for his enclosure and the same plate-covered walls. It is to be noted, however, that all steel work must be protected with acid-resisting enameled paint. Again, the rhinoceros might break off his precious horn if horizontal rails were made a part of his stall grille.

One learns that giraffes are afraid of a certain steep runway from their stall to the corral. These giraffes probably cost five thousand dollars and the institution would prefer to get a new architect rather than to replace one of these animals. The technical adviser who makes a tour of investigation is going to gather a great deal more valuable information for an institution than will the visiting committees who are not trained to observe and analyze.

"PLAN AND ARCHITECTURE"

It is a more or less popular fallacy that the architect is interested only in the appearance of things. This finds expression in announcements that the plans were designed by the administrative authorities and the "architectural work" by so and so. Of course, there is a divided responsibility for either success or failure in every case. The reason for the prevalence of the current theory is that the architect or his landscape confrere is the one who has the most real concern for the external appearances, and the technical ability to express his ideas. On this basis questions pertaining to style and detail are of more interest to him than to either the public or to the institution, who generally take such matters for granted, be they good or bad.

Two extremes of expression are encountered in the design of zoölogical buildings—without considering the architectural abnegation of the naturalistic display. In one, we find the modern

structural simplicity with exposed steel trusses and super-sanitary walls; in the other a studied effort to obtain exotic atmosphere. A type of building of the same origin as the animals it will house finds ample precedent in continental gardens, but one must not lose sight of the fact that these foreign zoölogical gardens originated largely as amusement parks, which character many still maintain. There, the extremes of exotic styles had justification in their appeal to the popular fancy and ranked with the concert, café and trained animal features. In limited space, fantastic style developments stand out in sharp and unpleasing contrast to each other and are counter-attractions rather than settings for the animals. With plenty of intervening space, structures of different geographical types may be used providing that they be treated in simple fashion.

THE GIRAFFE HOUSE, ANTWERP ZOÖLOGICAL GARDENS.
An unpretentious example of "atmospheric" architecture and of shortcomings in fencing.

As an example of extremes in style, the Berlin Zoölogical Gardens may be mentioned, although for its exhibits it has always ranked high among the continental collections. There is one sensation after another, in Hindoo, Japanese and Egyptian temples, Swiss chalets, Chinese pagodas, and the like. The contrasts of style are too much for absorption and assimilation. It is a museum of architecture overpowering a mere collection of animals and belonging in an amusement park to which admission is charged.

In the Denver Zoo is a monkey structure representing a cliff dwelling of the Southwest. This is occupied by monkeys hailing from India!

The ostrich house in the Berlin gargarden is a young Egyptian temple, painted inside and out with life size hieroglyphics. It contains a collection of ostriches and cassowaries. As far as the latter bird is concerned, there is no architectural association, since he comes from Australia, or Timbuctoo, as we once learned. Even an ostrich would never have been allowed in such a temple in his home land. If domesticated, he would have only a simple service building. In pleasing contrast is the Antwerp house illustrated, an exotic type but of marked simplicity.

A similar contrast is found between camel houses in two American Zoos. In one case, it is an Asiatic pavilion of utmost elaboration, attracting as much attention as the animals; in the other it is a nondescript affair of plaster, stone and irregular roof line forming such a fitting combination that one almost expects to see a camel driver appear.

Log buildings or "block-houses" for elk or northern animals may be used to good advantage, but they should be designed as stables or shelters and not as quaint cabins or picturesque rustic garden houses. The one looks sturdy and appropriate, the other frail and subject to abuse. Panels with applied cedar sections in geometrical patterns, intricate interweaving of odd branches and all such craft work is out of place in animal housing.

Variation in style is of incidental interest in the secondary buildings, but the greater the number of units, the less need for accentuation of each. Where large collections are housed or group treatments are required, a certain uniformity must prevail. Here individuality may be accomplished, as in the New York group, by the extensive use of sculpture relating to the exhibit, not as in another instance, with an elephant's head on a lion house!

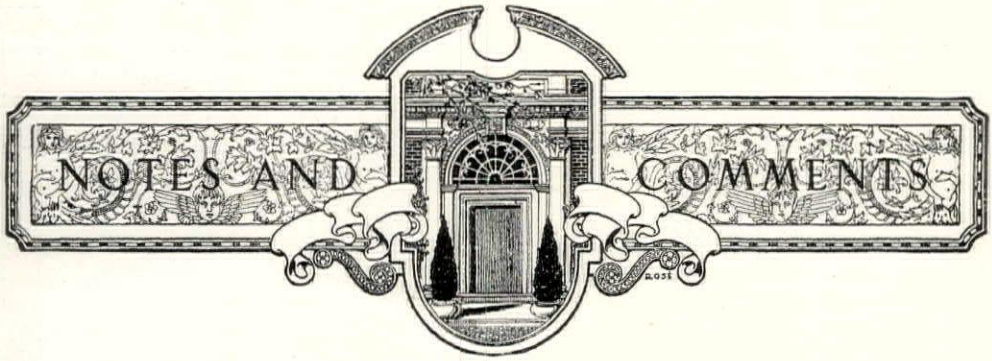
Large group treatments are in themselves open to debate in that by reasons of orientation it is necessary to balance

open cages on one side with solid walls on the other; or perhaps to sacrifice the best interests of the animals by not giving them the best exposures and sunlight. It is possible that at least one large group of animal clients is not getting a square deal, since in two major collections the main axes of the buildings are directly opposed in orientation.

Small groups make interesting punctuation points in a large scheme, but again we have a notable instance where, in a large park area, three buildings are grouped so close together that the distance between them is less than the minor axis of the smaller ones. There is enough feeling of congestion due to the necessary bars and fencing without increasing it by needless crowding of buildings.

In the treatment of interiors the Chicago lion house, so frequently commented upon for its good points, receives unfavorable criticism on account of its white tile, suggestive of sanitation usually observed in a dairy restaurant. Subdued greens and browns are much more restful to the eye and quite as sanitary. Cages are occasionally treated with painted backgrounds, but unless these are exceptionally well done and not allowed to become time worn, simple walls are more satisfactory. Well-lettered inscriptions have been used to excellent advantage on large wall surfaces on some buildings in the Jardin des Plantes in Paris. In the Antwerp gardens, maps locating the original habitat of the animals further intelligent appreciation of the exhibits. In the design of exterior cages, the architect finds that a repetition of interior scheme gives a decidedly cramped effect. This can be overcome by projecting bays and long end wings, as in the London Zoo, with short intermediate sections. In the Jardin des Plantes a colonnade with bar-filled spaces gives a building effect not as agreeable as all-metal cages for outdoor use.

The designer of zoölogical buildings should familiarize himself with the different buildings of each class that have been erected in this country and abroad and check them point by point. From nearly every example he will get certain features which are commendable and fine and others which are objectionable. He will produce better buildings if nothing is taken for granted; if a policy or detail is not adopted until examined from every angle and not rejected without equally thorough investigation of the merits of its proposed substitute.



A City Plan for One's Home Town

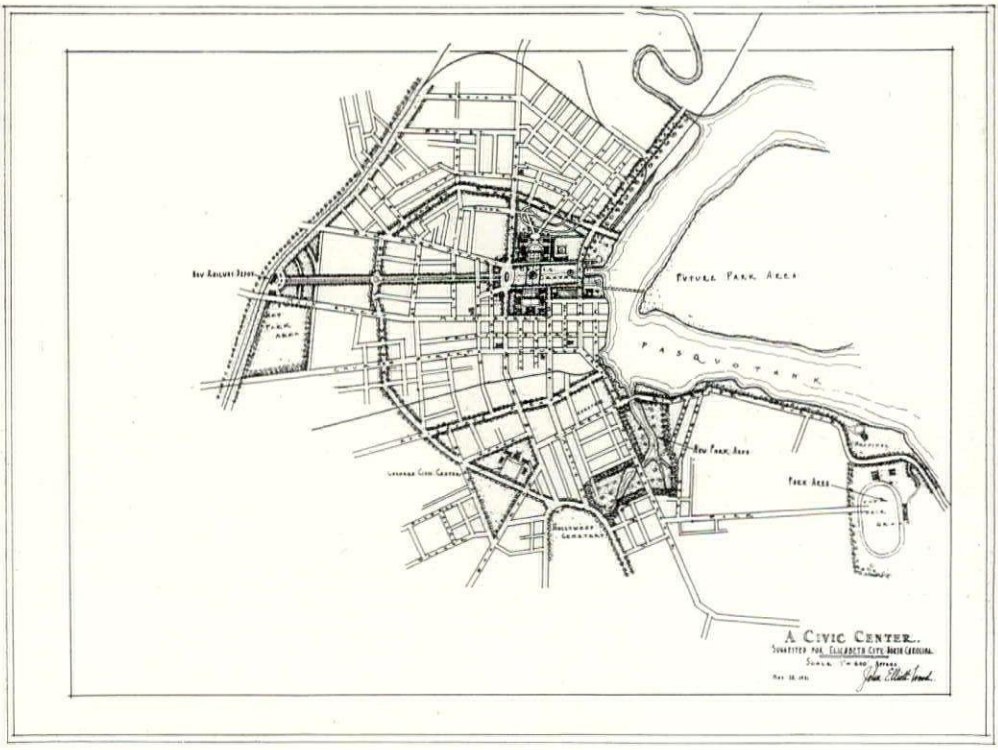
A mid western city hesitated recently in locating a proposed group of public buildings that savored of a civic center, in fear that it might predispose a city plan. A visiting architect, of high repute, allayed the anxiety of this city by recommending, after a brief inspection tour, a *sine qua non* site for the buildings. "City planning," he observed complacently, "is nothing but common sense."

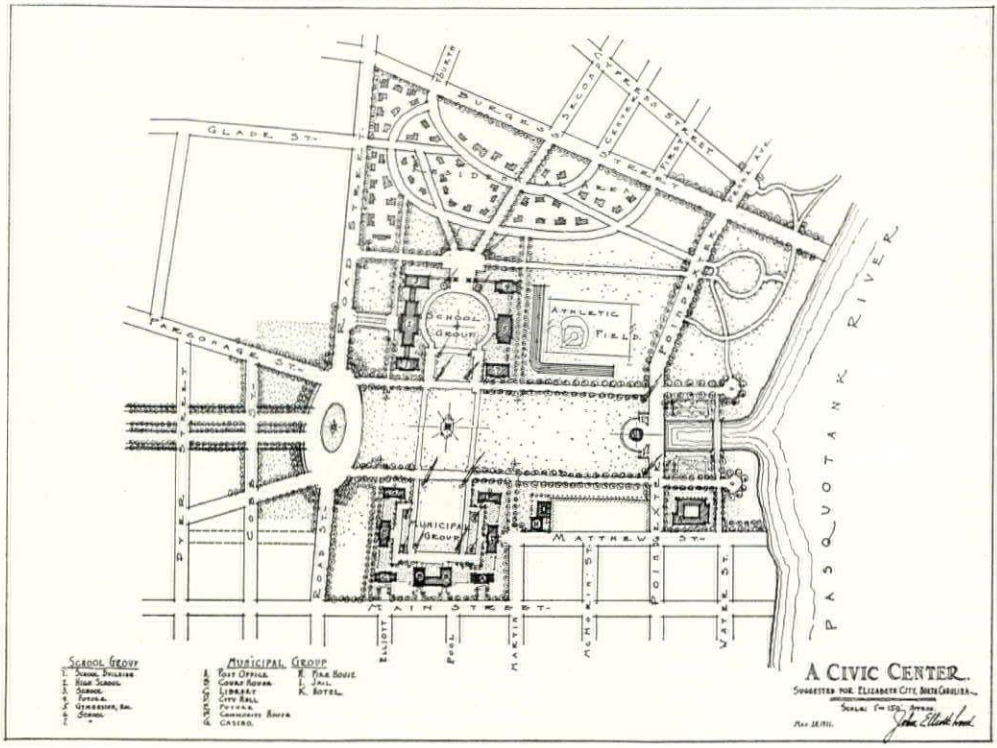
What an adroit perversion of the mentorism of Royal Cortissoz, that in matters of art "the layman only needs to use a little common sense in order to realize when he is being rationally instructed and when he is having his leg pulled." Common sense in art appreciation, in architecture, in city planning is as essential as it is in politics or business, but to assert that it may be substituted for the exact knowledge which accrues from research and experience in any of these fields, is nonsense. The architect should rather have said that his architectural training fitted him to advise on the particular phase of city planning most closely allied with his profession—such advice being but tentative and preliminary. A very little common sense should have made clear to the city authorities, if not to the architect, that a civic center can exist only in relation to a city plan as a whole, and that in the case of their city there were problems involved of traffic arteries, property restrictions, railroad terminals and parkway connections that could properly take months for a city plan commission to determine with any degree of certitude.

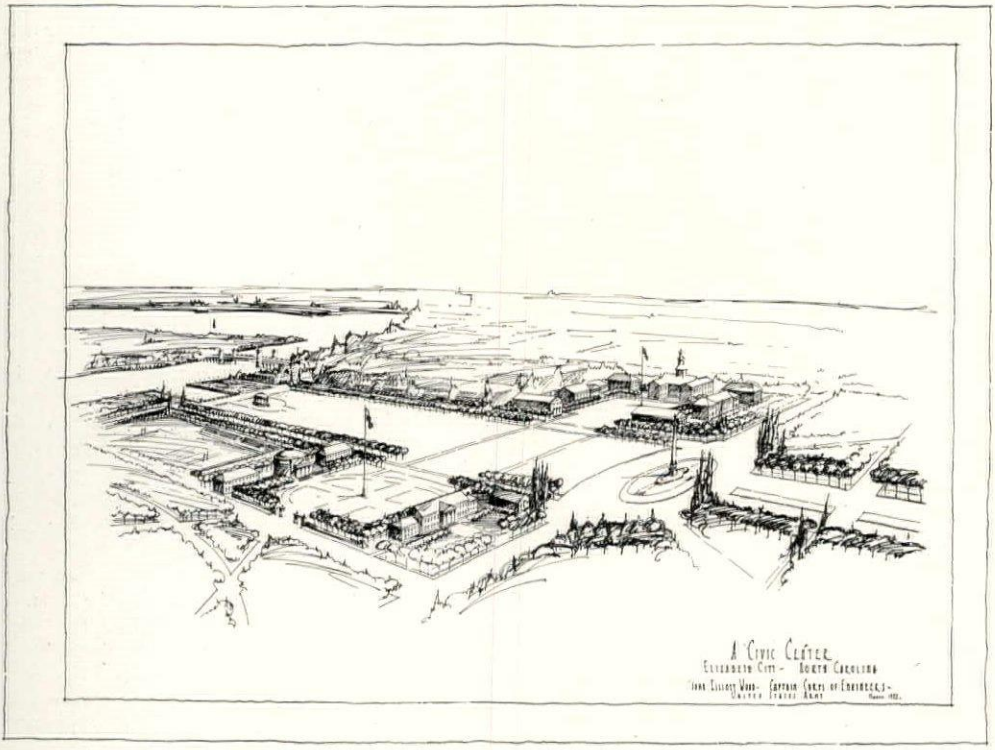
Architects are sensible of the professional possibilities of city planning and many are acute to try on the mantle of city planner. Those already associated with city planning projects, engaged in the locating of public and semi-public buildings, bridges, memorials and civic improvements generally, enjoy the obvious advantage of securing commissions for such features while the general plan is taking shape. The keen architect keeps informed of city planning projects at large and especially those under way within his professional purlieu. Every architect, in actual fact, is participating in the habilitation of cities wherein are being erected buildings of his design, and he participates in city planning in so far as his architectural conceptions conform with city planning ideals. Whether actuated by desire to contribute his measure to this movement in the intelligent ordering of civic growth or—let the truth be said—whether swayed merely by the motive of personal gain, more and more architects are exhibiting a willingness to accept a call into the city planning field.

There is nothing mysterious or hierophantic about city planning; neither is it purely common sense revelation, as the architectural adviser of the mid-western city would have it appear. "Who are a little wise the best fools be," is a true old saw, and fortunate it is that all architects are not privileged to rush into city planning, who feel the urge upon them. Unlike the ministry, preparation must precede rather than follow inspiration. For those who would seek enlightenment in the general requisites of city planning, one opportunity presents itself which may be availed of without jeopardy to architectural reputation or hardship to any community. One community, in fact, has profited largely by this occasion—the City of Elizabeth, North Carolina.

Captain John Wood, Corps of Engineers, U. S. A., a graduate of the University of Virginia and with an architectural degree from the Massachusetts Institute of Technology, assigned to duty since the war in a city actively engaged in large planning and buildings operations, felt a stimulus and longing to design a city *suâ manu*. What more logical place than his home town? Bred to the community ideals of a Southern gentleman, and like Jefferson enjoying an architectural avocation, he expanded to the idea of endowing the southern city of his birth with a city plan of his preparing. He


Future Park Area
Pasquotank R.
New Park Area
Park Area
A Civic Center.


Glade St.
Burgess Road
Second Street
Cypress Street
Parsonage St.
Dyer Street
Road St.
School Group
Athletic Field
Municipal Group
Main Street
Elliott
Pond
Martin
Acher
Water St.
Matthew St.
Pasquotank River
School Group
1. School Building
2. High School
3. School.
4. Future.
5. Gymnasium, &c.
6. School.
7.
Municipal Group
A. Post Office.
B. Court House.
C. Library.
D. City Hall.
E. Future.
F. Community House.
G. Casino.
H. Fire House.
I. Jail.
K. Hotel.
A Civic Center.



secured such a map of Elizabeth City as was available—imperfect and obsolete in street plan as was to be expected—and proceeded by visits home and other means to bring the existing record up to some degree of accuracy. He then compiled a list of civic and institutional buildings of both public and private character which very probably would be needed by this city within the next quarter of a century; he outlined a major and minor street plan; he studied housing conditions; he gave consideration to parks and playgrounds and other necessary adjuncts to a well organized town, and finally evolved a plan which Elizabeth City could follow in its logical growth and to which it could turn for guidance as occasion should arise.

This architect found his task no easy one. Idealistic features of his choicest selection from European capitals proved to be impracticable in a small American city; irrevocable existing conditions dictated street lines other than he would have had them; public and private buildings which he would have wiped away with a Hausmann hand were discovered to be immeasurably dear to the heart of Elizabeth City. Yet he neither sulked nor balked, and eventually produced a plan of comparative excellence. In this plan he made all possible use of existing public buildings and land; he devised a modified zoning regulation that would eventually eliminate, without necessity of public purchase, all privately owned structures detrimental to the scheme proposed. He enlisted the interest of leading citizens of the town, he marshalled the newspapers to a city planning campaign, he contributed plans and bird's-eye views without stint; in short, he gave of himself as freely and unreservedly as though he were in active practice and his home town were a most valued and remunerative client.

He has learned much psychology in his first city planning experience. A prophet in his own country, his recommendations, so rational as to appear self-obvious when once presented, have been belittled in every sense. He has been accused of insincerity, of upsetting property values, of being an idle dreamer. But, on the other hand, let it be broadcasted that the child of his brain and vision is being fostered by the town fathers; for a plot of land which was on the point of being purchased for a new high school building at the time the city plan was submitted has unanimously been abandoned and a site acquired in accordance with the proposed civic center. To be sure, an architect has been engaged for the design of

this $250,000 building—the first in a proposed expenditure of $385,000 for schools,—with no thought to the part the new building will take in the city plan as a whole and in that sense without regard to the care with which such architect should be selected. But it is almost too much to hope that a city so recently awakened would realize immediately the opportunity at its door in the gratuitous services of a professional adviser; a philanthropic city planner, moreover, may not seek recognition or encomium, except in so far as appreciation of his work is essential to its ultimate success. The case is noteworthy as a demonstration to other towns of the quick fruits of city planning and as an instance to other architects of city planning by mission rather than commission.

Such a labor of love in his home community will not be without benefit to any architect. The best work of artists upon which their reputation is founded is that done *con amore*, which frequently signifies *per amore*. That an architect's ardor for city planning may be cooled by an experience as recounted above does not mean necessarily that love's labor will be lost, for he will be the cool headed architect sought for consultation by city planning commissions. If such architect is called to serve on civic improvement committees he will be a more valuable man by reason of his home town experience, not as a full fledged city planner, but as one aware of the full meaning and comprehensiveness of this new city activity.

That a plethora of incompetent plans will follow an era of philanthropic city planning by architects, bringing odium to architectural city planners of proven ability, and elimination of "jobs" that would otherwise fall to professional city planners, is contrary to historic record. "Great men must be employed to complete great changes in empire, but little men may begin them." There will be added demand for those who have attained excellence and reputation in city planning by the impetus which the "little men" will start. And all personal thought aside, is it not a worthy mission to aid some city to enter the march of city planning progress that must otherwise be left far in the rear?

GEORGE BURNAP.

A Combination Ranger Station and Community House

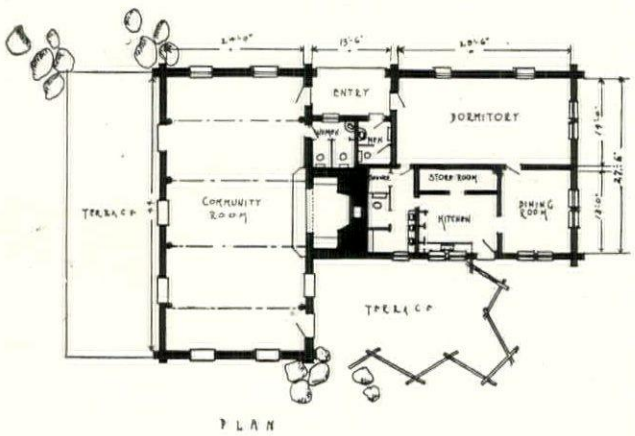
An experiment in national park buildings, the combination community house-ranger station, may soon be adopted by the Landscape Engineering Division for all national parks.

Already two such structures are under way in Yellowstone. One section will be turned over to rangers for general headquarters, the other devoted to those who "pack in" by automobile. The first of these buildings will be located at the Canyon of the Yellowstone, and a second soon is to be started at Old Faithful.

Considerable advantage is seen in placing the community house in combination with a ranger station. Without inconvenience, the motorist can secure from the ranger force information regarding roads, park rules and directions. A huge community room, equipped with fireplace, reading and writing tables and dance floor, insures to the motor traveler not only a gathering place for entertainment, but a shelter from storms and chill weather. It is a very real convenience for the thousands who prefer this method of travel to the customary train tours.

But the program of building and locating park structures where they will best fit into the outdoor picture will not end with the new ranger-community stations. It is a dream for the future that all new construction work will be similarly patterned. This will apply not only to government buildings, but to camps and hotel structures as well.

A new look-out and shelter station at the top of Mount



PLAN

COMMUNITY ROOM AND RANGERS' QUARTERS, YELLOWSTONE NATIONAL PARK.
Prepared by Landscape Engineering Division.

Washburn, more than 10,000 feet above sea level, is being moulded along this plan. Perched at a precarious height, the effect of solidity has been carried out through the use of boulder-like rough stones hewn from the mountain. In thus presenting an appearance suggesting the turret of some feudal robber baron it departs sharply from the conventional log or wood structure, which, however safe, generally suggests insecurity when perched upon a storm or windblown point.

An interesting sidelight in connection with this building lies in the fact that only snow water was used in the mixing of cement. Located far from any water source, artificial melting of snow was resorted to by the workers. Summer suns brought about an eleventh hour rush in operations, for there was fear at one time that the snow would melt before a sufficient quantity of water had been secured.

GENE COHN.

Planning the Small-Town House.

Shortly after the close of the war, I was doing some work near a large Government-built housing project. Very well-designed were these little white story-and-a-half cottages; surely they were just what any workman's family would want! But—why was the Government having such trouble in selling these? The prices were low; a huge new steel plant, employing thousands of well-paid workmen, was only a few minutes away; what was the matter?

I could not answer the question, then; but later I stumbled on the answer. Here it is: the woman who does her own work doesn't want a story-and-a-half cottage—nor a two-story house, for that matter—she wants a bungalow.

The proof? Well, I was asked by The People's Popular Monthly, of Des Moines, Iowa, to conduct a "Small-town House Contest." This magazine has a general circulation of about 350,000. Sketch-plans, crudely drawn, but carefully thought out, came pouring in from small-town women all over the country; the wives of laborers, mechanics, business men, salaried men, and so on. 74% of these plans showed pure bungalows, with no finished upper story; semi-bungalows (story-and-a-half) came next, with 18½%; straight two-story houses were only 7½%.

This showing surprised me very greatly; and it also set me thinking. How much of the labor turnover in the large industrial plants is due, I wonder, to the dissatisfaction of the workmen's wives, because the housing isn't what they want? I believe these percentages are well worth the study of every architect who plans small houses; whether for philanthropist, industrial plant, development corporation, or individual client.

Let's analyze this contest a little further. 38% of the plans showed 5-room bungalows; 25%, 4-room; 9%, 6-room. 47% of the contestants preferred frame siding; 20%, stucco; 8½%, brick; 2½%, cement block; while 22% did not give any preference as to building material. All but 2% of the plans showed a bathroom. 5½% had a sleeping-porch, while 5% wanted a breakfast alcove.

The typical floor-plan of the 5-room bungalows was much like figure 1; the first-prize plan, in this contest. There is nothing specially novel about this; just a carefully studied little layout. But there are several points worth noting; points that were brought out, over and over again, in the other plans and letters that I received:

1. The built-in sideboard, with doors to kitchen in the back; so that dishes, meals, etc., can be passed through, or put in from either side.

2. The absence of a pantry; the food is kept in the large kitchen-cupboards, or dropped down to the cellar in the screened dumb-waiter "D," which serves as a food-safe. There are lockers and flour-bins beneath the work-table and the drain-board of the sink. The built-in kitchen equipment is nearly always detailed or described with very great minuteness.

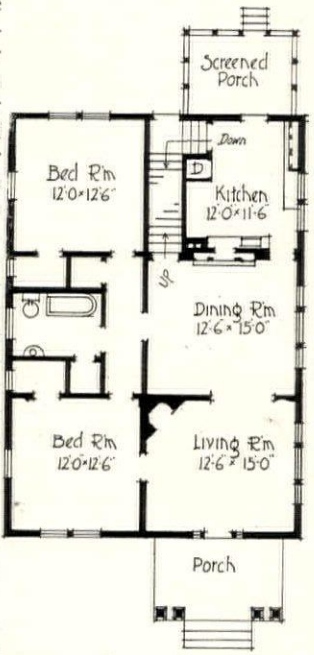


Figure 1

3. The grade entrance on the cellar stairs;

Figure 2.

doing away with the heavy cellar doors, so clumsy for women to lift.

4. The screened back porch; holding a refrigerator, and serving as a breakfast-porch on occasion. But many of the plans had no porch here.

5. The small passage, giving privacy to the bedrooms and the bath.

6. The absence of any reception hall or vestibule.

7. The large dining room, which often serves as family sitting-room; leaving the living room to fill the place of the old "parlor" to some extent.

8. The ample closets.

Many of the plans omit the little passage; the bedroom closets are switched into this space, and the bath is entered from both bedrooms. These bedrooms, of course, communicate with the living room and dining room directly; sometimes with the kitchen. A door by which the housewife can get to the kitchen from her bedroom is very much in demand; many reasons are given for this.

Now let us look at figure 2; a second-prize plan for a four-room bungalow. There are all sorts of variants on this typical plan; but the main idea runs through them all. In some cases the living room is quite large, to permit a dining table at one end; sometimes there is a little breakfast porch; sometimes the breakfast alcove, as shown, recessed from the kitchen, and fitted with built-in benches and table. One clever plan had the alcove between living room and kitchen, with glass doors to shut it off, at need.

If we carefully study these plans, we will see that the authors had one foremost idea in mind: to save steps and labor for the housewife. I wonder how many of us put that idea first, when we plan a small house? Yet when we plan a factory, we put the efficiency-idea first of all. The housewife looks on her home as her workshop; why cannot we get her viewpoint?

WILLIAM DRAPER BRINCKLOE.

Le Brun Traveling Scholarship Competition

The Le Brun Traveling Scholarship for 1922 has been awarded to Mr. Lionel H. Pries of Philadelphia, from a field of thirty-three competitors from all parts of the United States.

The quality of the designs submitted was unusually high and the solutions varied. The winner receives $1,400 to enable him to travel abroad for the purpose of study. In addition to the prize, the Jury gave mention placed first to Mr. George K. Trautwein of Philadelphia; mention placed second to Mr. John O. Vegezzi of New York City and mention placed third to Mr. Paul Hyde Harbach of Buffalo. Mentions not placed were awarded as follows: Mr. George N. Pauly, Mr. Roy F. Larson, Mr. Gerald K. Geerlings, Mr. Louis Fentor, Mr. Roy Walling Cheesman and Mr. Frederick Ross Lorenz.

This prize was founded by Mr. Michel Le Brun in 1910, and was originally awarded every other year, but recently Mr. Pierre Le Brun has increased the endowment so as to enable the New York Chapter, American Institute of Architects, trustees of the fund, to award it annually. The Jury of Award was composed of Mr. Pierre N. Le Brun, ex-officio, Mr. Milton B. Medary, Mr. Henry Bacon, Mr. Louis Ayres, Mr. Laurence F. Peck, Mr. Francis Nelson and Mr. Julian Clarence Levi, Chairman.