THE ARCHITECTVRAL RECORD

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DETAIL OF SOUTH GABLE AND GARDEN—
RESIDENCE OF GEORGE ARENTS, JR., ESQ.,
RYE, N. Y. LEWIS COLT ALBRO, ARCHITECT.

THE ARCHITECTVRAL RECORD

VOLVME XLIII

NVMBER IV

APRIL, 1918

THE RESIDENCE OF GEORGE ARENTS, JR., ESQ.

RYE, NEW YORK

LEWIS COLT ALBRO, ARCHITECT

By JOHN TAYLOR BOYD, JR.

AN effective free rendering of an English type of house, Elizabethan in its antecedents, such is the residence of Mr. George Arents, Jr., at Rye, New York, which was designed by Mr. Lewis Colt Albro, of New York City. It is situated on an estate of some eighty acres, three miles from the town, in that landscape of low hills and meadows broken with occasional outcropping ledges characteristic of most of the Long Island Sound region from the sea up to the mountains of New England, the hills rising higher as one proceeds northward. At Hillbrook the changes in level are not great, perhaps not over a hundred feet—a park-like country of meadows and clumps and groves, ancient pasture lands, with green turf here and there flashed by blue-gray hedges worn smooth by weather or ancient geological ice.

The house itself stands well back on the site, permitting a view over the owner's land. The entrance to it is through a long driveway of more than a quarter of a mile, leading from a gate and a gatekeeper's lodge; first past a flat farmland, partly tilled, then turning over a bridge that spans a brook in a grove of trees, out into the open again across a lawn to the house. There is no effect of a secluded entrance court or portico, such as one finds in many houses, but simply of a wide lawn all around the house, broken only by the roadway. The house is an irregular mass, with a fine high slate roof and brick chimneys; its walls are a colorful rough-texture brick, broken by limestone and some half-timber elements well diversified in the picturesque salients and gables and entrances.

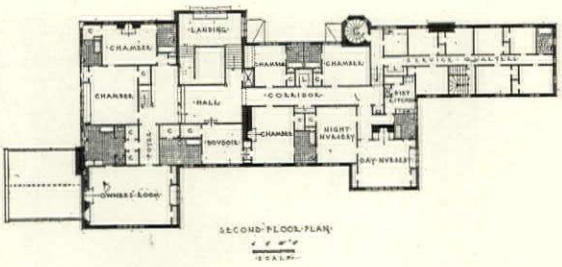
Masses of shrubs screen the service court and wing, almost the only planting in the great lawn. The diversity already remarked as a characteristic of Mr. Albro's design is especially predominant

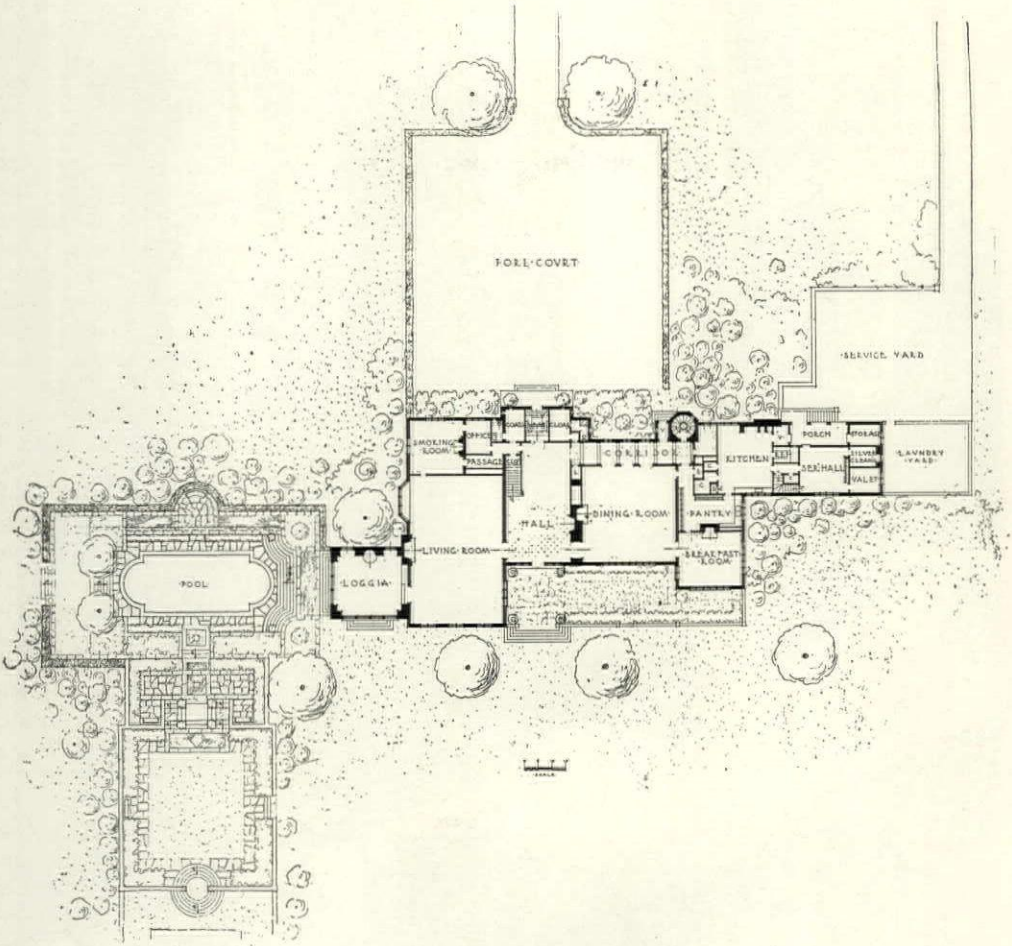
in the west end, where the long low gable and interesting wall treatment of slender colonnettes against brick of the sun room extension furnish one of the best pictures of the exterior. Of the entrance front the main elements are apparent in the photographs—the monumental stone entrance, vigorously modeled; the oddly contrasting side entrance, tucked away in a corner; the purple and green of the slate roof, all in excellent scale and remarkably consistent. Among the skillfully executed details are the dark reddish brick, with wide joints well raked out, the ironwork of the lamps and the leadwork of the leaders, and the English chimneys. Perhaps, as noted above, the sun room extension is the most charming bit of the exterior, the freest and most imaginative. The garden—principally a pool sunk in the lawn, its lining a clear robin's egg blue, and its walls and curbs a rough gray stone enlivened by big pots and jars in which grow rhododendrons—appears as an effective and most skillfully designed landscape on the modern English model. An extension of it is planned down the slope in the cross-axis of the pool. An interesting detail is the touches of color provided by the risers of the stonework steps, which are built of long, thin, bright red pressed bricks. Altogether admirable, the vigorous wholesome design of the garden pool, free as it is from finicky proportions or fussy details, is reached in the terrace on the south front, on which the hall and dining room windows open. A panel of greensward breaks the stone pavement of this terrace and a hedge of heliotrope behind the balustrade sets it off.

In reviewing the exterior, one feels that the hand of time is much needed in this south front. Now it seems somewhat restless, somewhat spotty, and one longs to see the vines grow and the stones weatherbeaten till their tones harmonize with the brick. Very little stone is necessary to enliven brick walls, a fact which the entrance of Hillbrook well proves. The zigzag lines and checkered patterns of the quoining are hard to reconcile with the delicacy of the Gothic proportions, especially with their light and shade. Of course, the precedents to the contrary would seem overwhelming, but nevertheless the broader, more regular and more symmetrical pattern of the sun room wing, in which wall and window and roof are tied with the architectural scheme of decoration and blend so admirably together, could hardly be improved upon. For such a scheme of decoration stands upon its own merits; while the more conventional, historic method of design of the south front needs the effects of time and of vines to soften the quoins, concealing them here and there or else softening their angles with tiny spots and shadows. All this much-needed harmony will come in the course of years when the full effect of the planting is apparent.

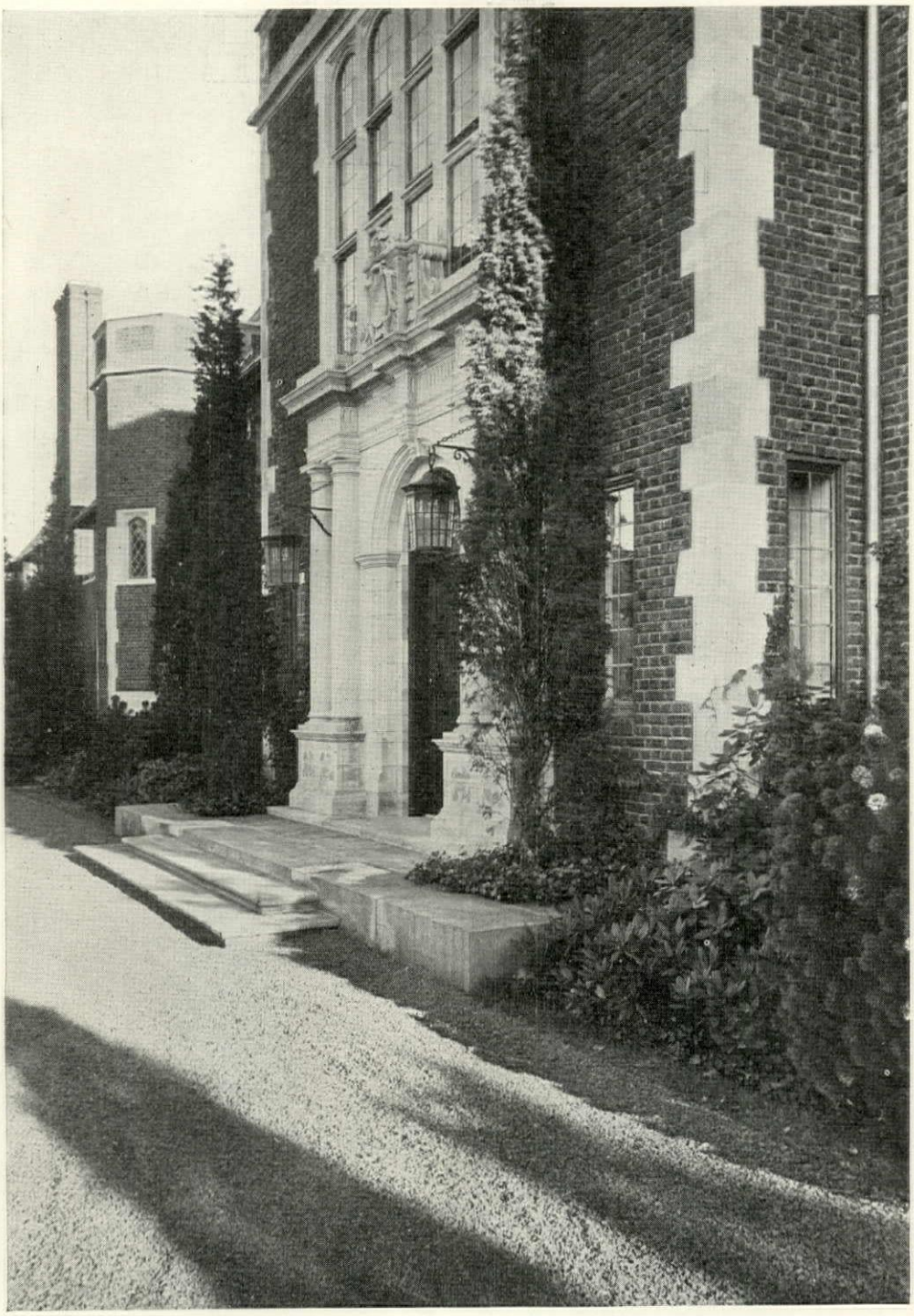
The interior of Hillbrook displays the same high level of artistic merit and the same consistency and finish as characterize the exterior. The plan opens out from the entrance into large rooms, the larger ones impressing the visitor with an unusual spaciousness. One of the means employed to attain harmony is the free use of dark wood paneling throughout the ground floor of the house. At Hillbrook this has been carried farther than usual, until the effect is of the dark, rich atmosphere that one associates with the historic Elizabethan style. The designer has at the same time been able to invest the separate rooms with plenty of individual interest, which becomes apparent on better acquaintance. The splendid character of the entrance hall, really a large room, is evident in the photograph. The detail of the stairway is executed with great delicacy, which is found in only a very few historic examples of the style. Too many architects do not realize that some of the old English woodworkers attained an exquisite refinement hardly surpassed by any Gothic craftsmen. Until very lately such work was conceived in a rather heavy, even clumsy and grotesque spirit; but today it is giving way to effects of refinement and grace, while still retaining the imaginative playfulness that is one of the charms of the style.

The large living room is a splendidly able, strong design, in one scale. The

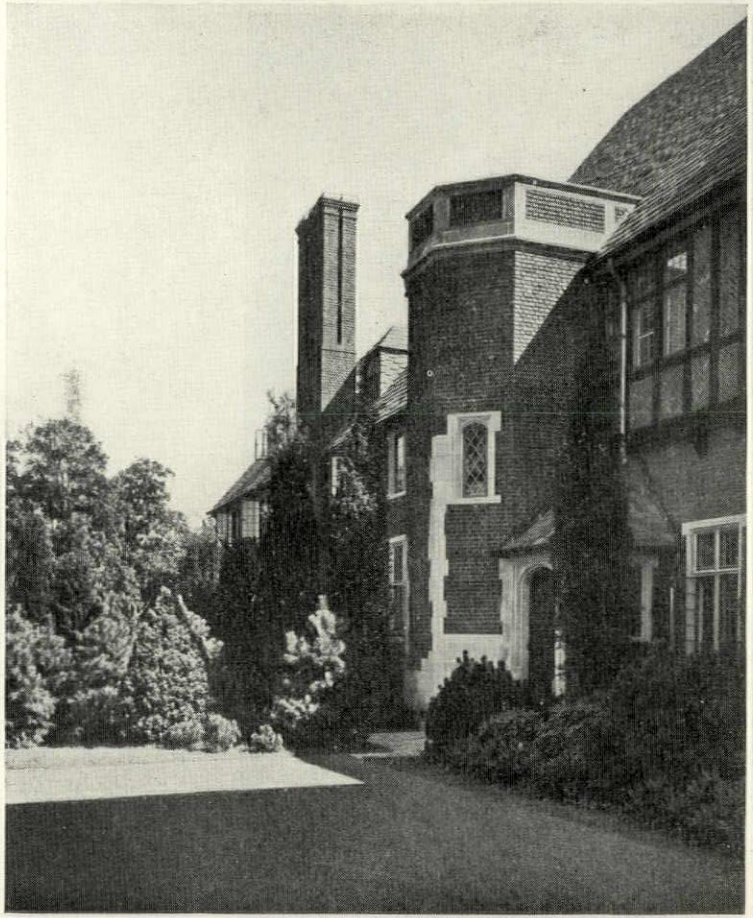




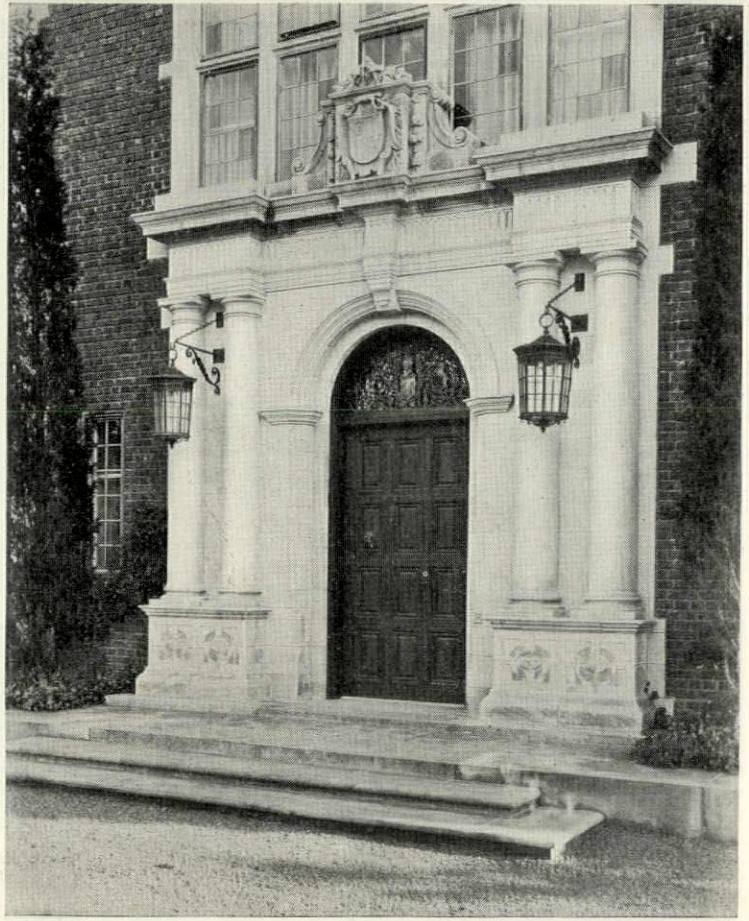
FIRST AND SECOND FLOOR PLANS—RESIDENCE OF GEORGE ARENTS, JR., ESQ., RYE, N, Y. LEWIS COLT ALBRO, ARCHITECT.



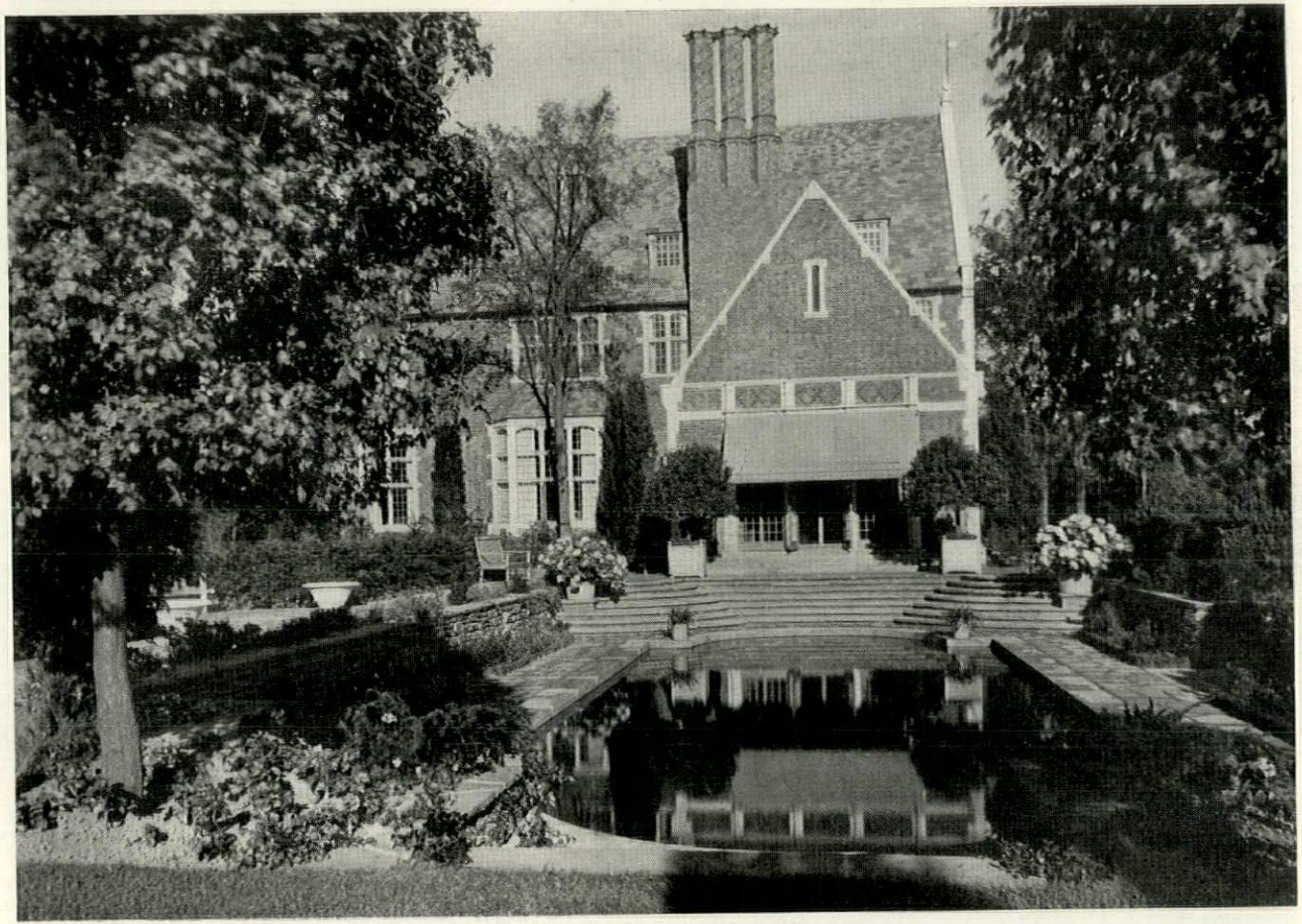
GENERAL VIEW OF NORTH ELEVATION—
RESIDENCE OF GEORGE ARENTS, JR., ESQ.,
RYE, N. Y. LEWIS COLT ALBRO, ARCHITECT.



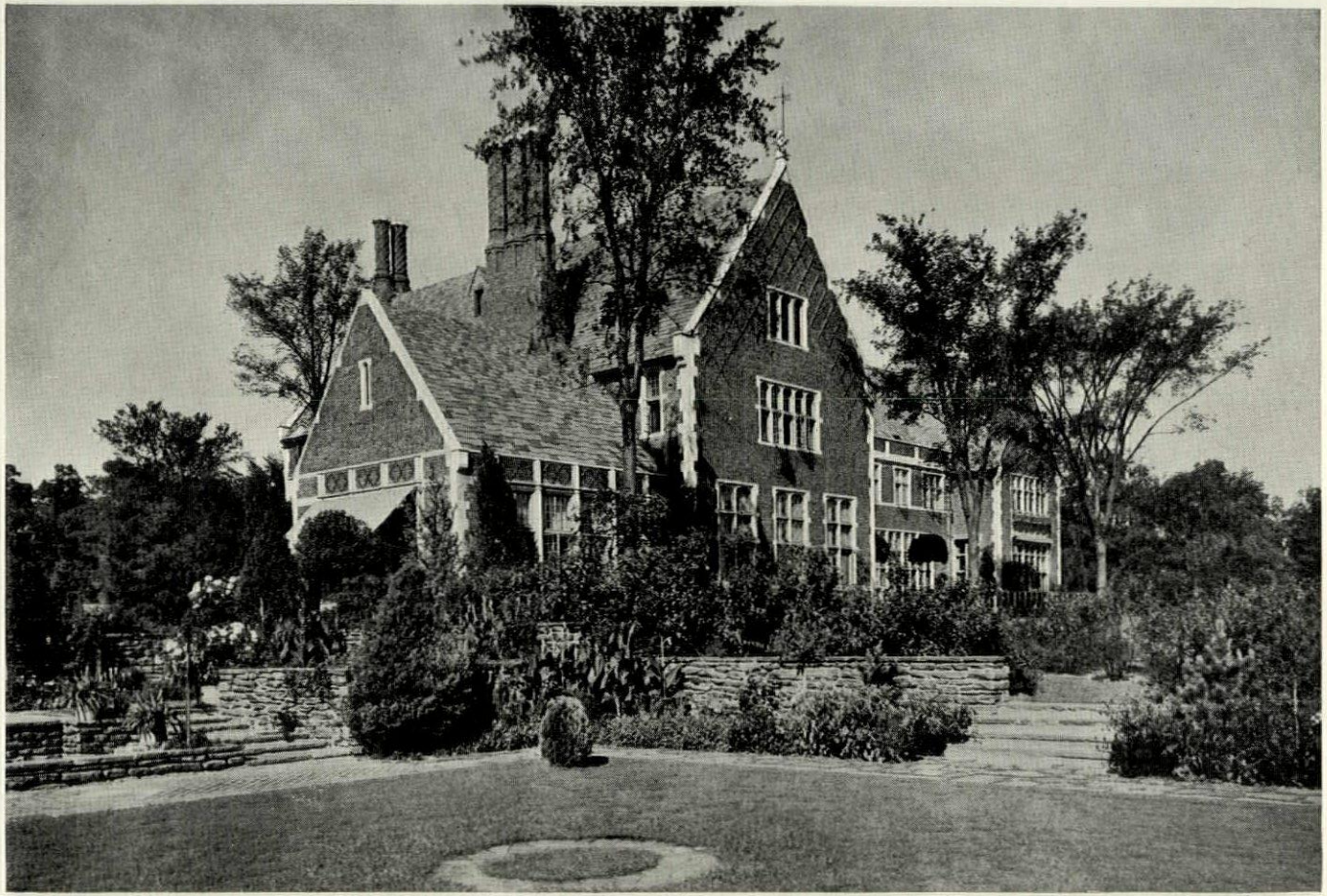
CHILDREN'S ENTRANCE, NORTH ELEVATION—RESIDENCE OF GEORGE ARENTS, JR., ESQ., RYE, N. Y.
Lewis Colt Albro, Architect.



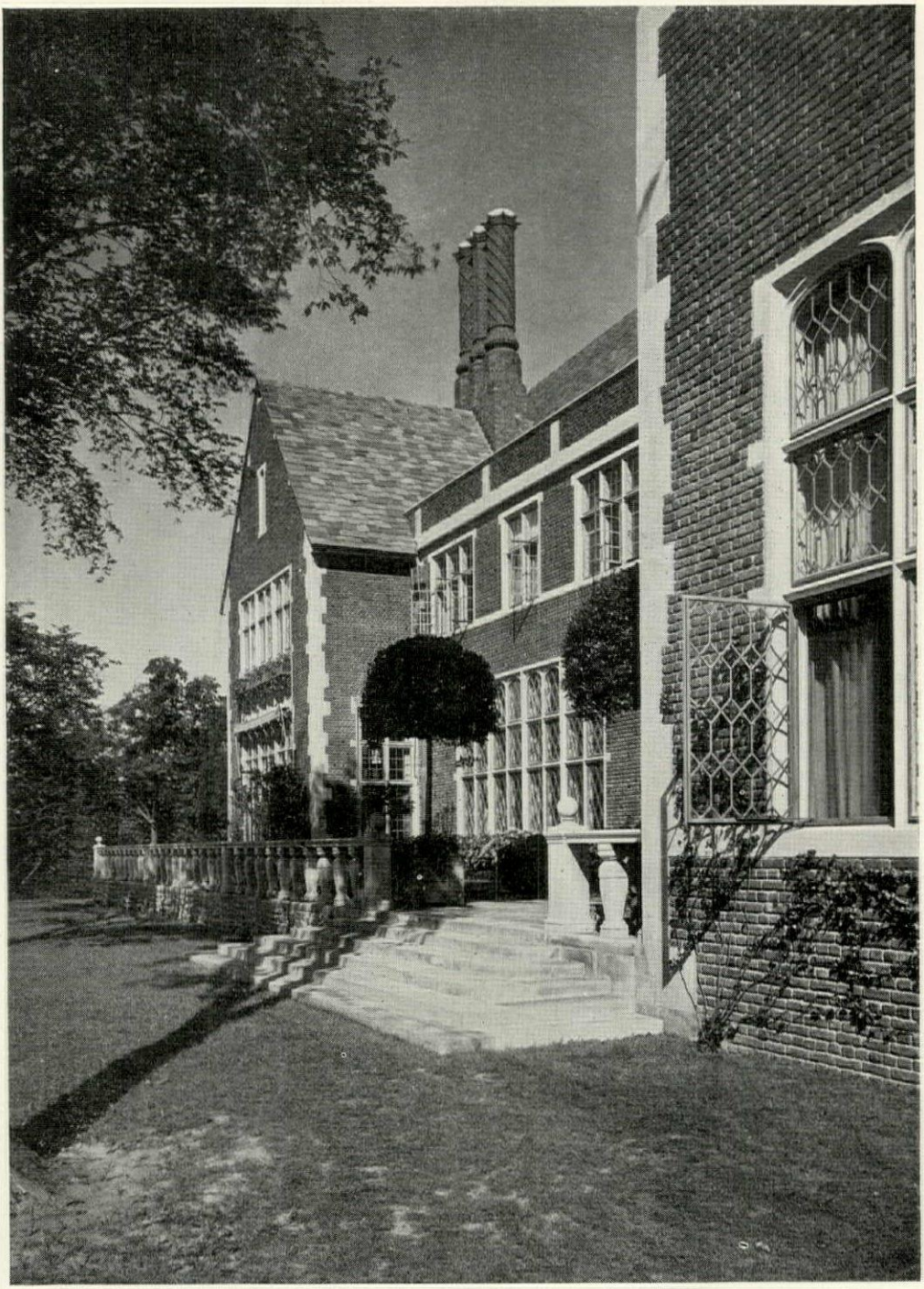
MAIN ENTRANCE, NORTH ELEVATION—RESIDENCE OF GEORGE ARENTS, JR., ESQ., RYE, N. Y.
Lewis Colt Albro, Architect.



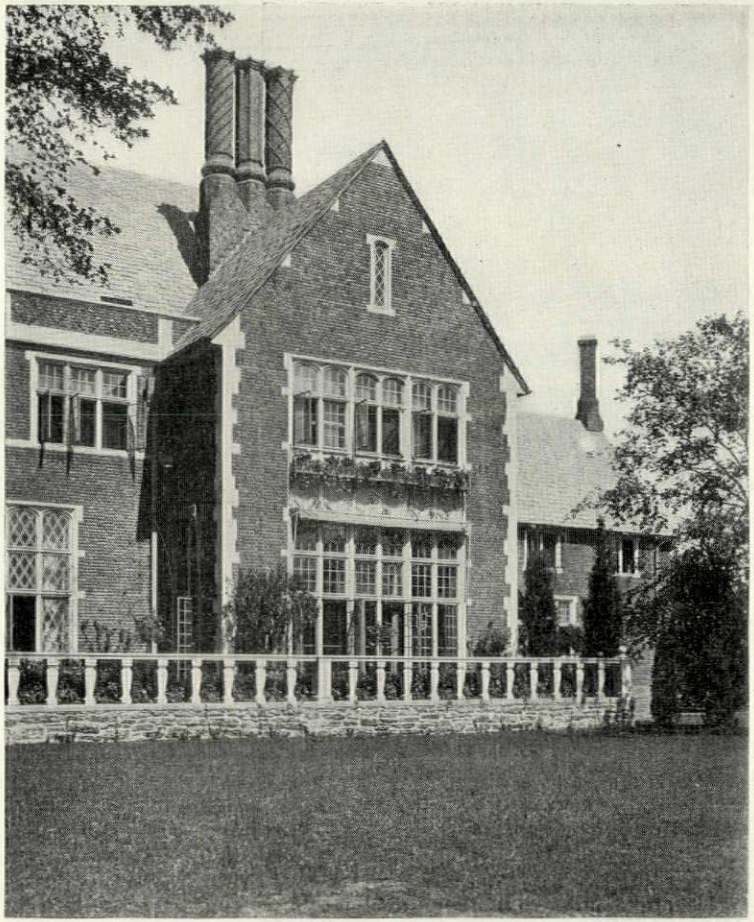
POOL AND LOGGIA—RESIDENCE OF GEORGE ARENTS, JR., ESQ., RYE, N. Y. LEWIS COLT ALBRO, ARCHITECT.



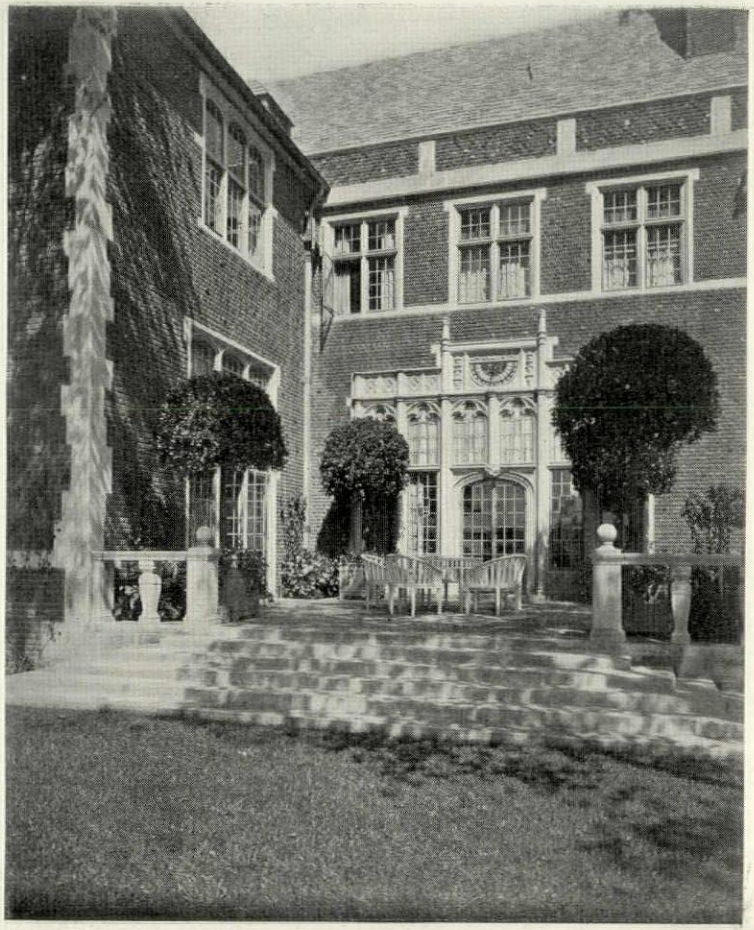
GENERAL VIEW OF SOUTH FAÇADE—
RESIDENCE OF GEORGE ARENTS, JR., ESQ.,
RYE, N. Y. LEWIS COLT ALBRO, ARCHITECT.



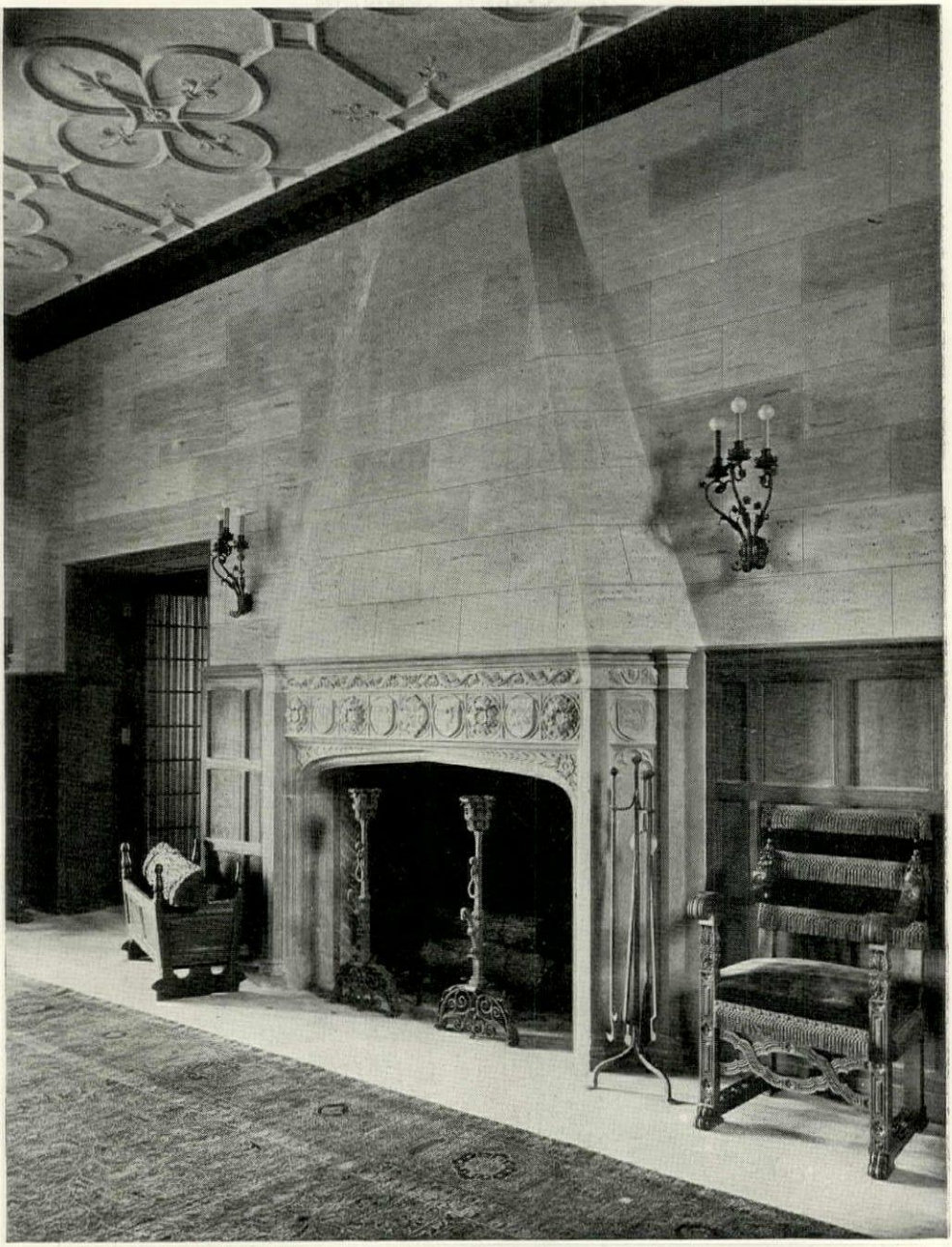
SOUTH TERRACE — RESIDENCE OF GEORGE ARENTS, JR., ESQ., RYE, N. Y. LEWIS COLT ALBRO, ARCHITECT.



BREAKFAST ROOM GABLE, ON SOUTH TERRACE—RESIDENCE OF GEORGE ARENTS, JR., ESQ., RYE, N. Y.
Lewis Colt Albro, Architect.

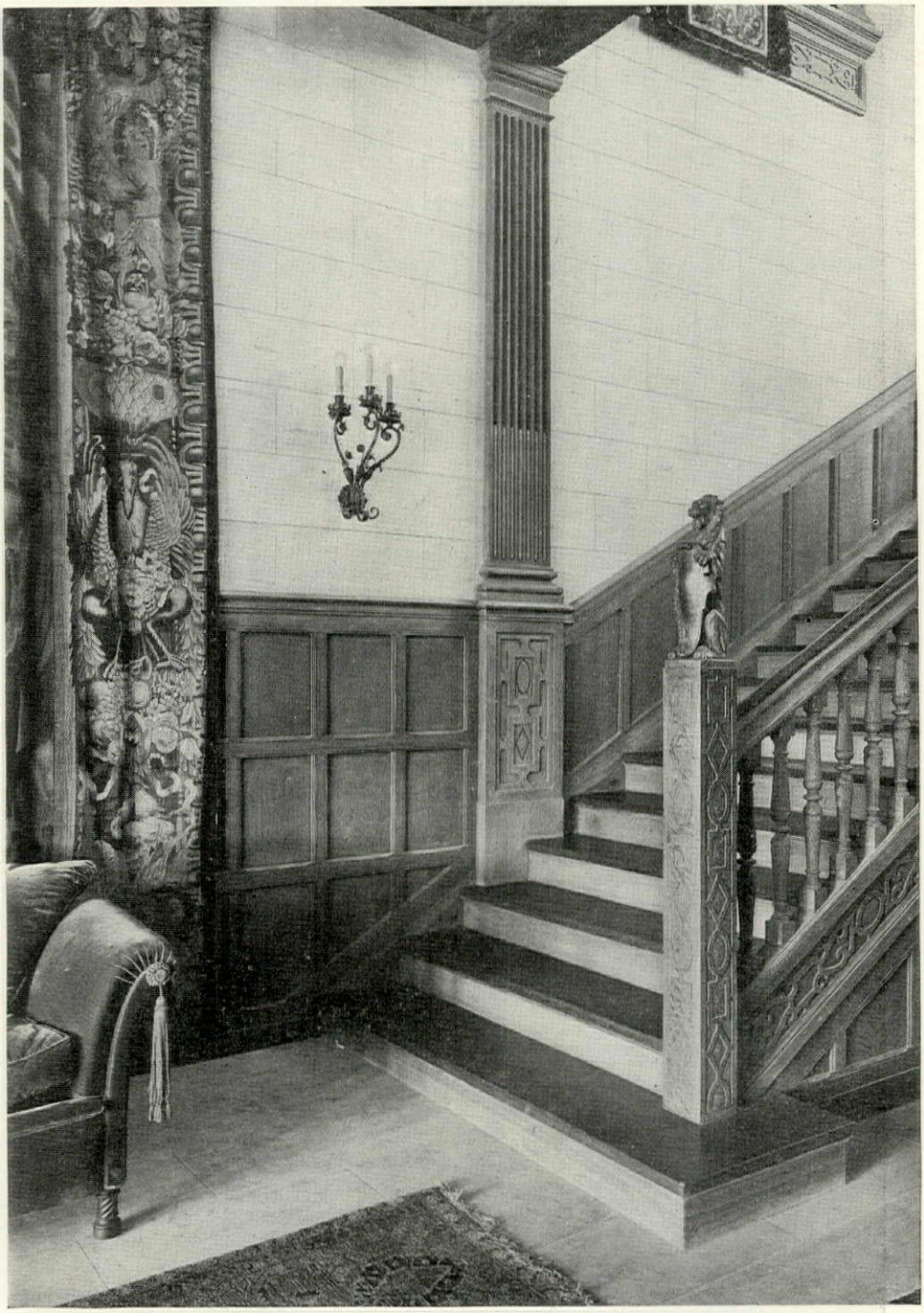


HALL ENTRANCE, FROM SOUTH TERRACE—RESIDENCE OF GEORGE ARENTS, JR., ESQ., RYE, N. Y.
Lewis Colt Albro, Architect.



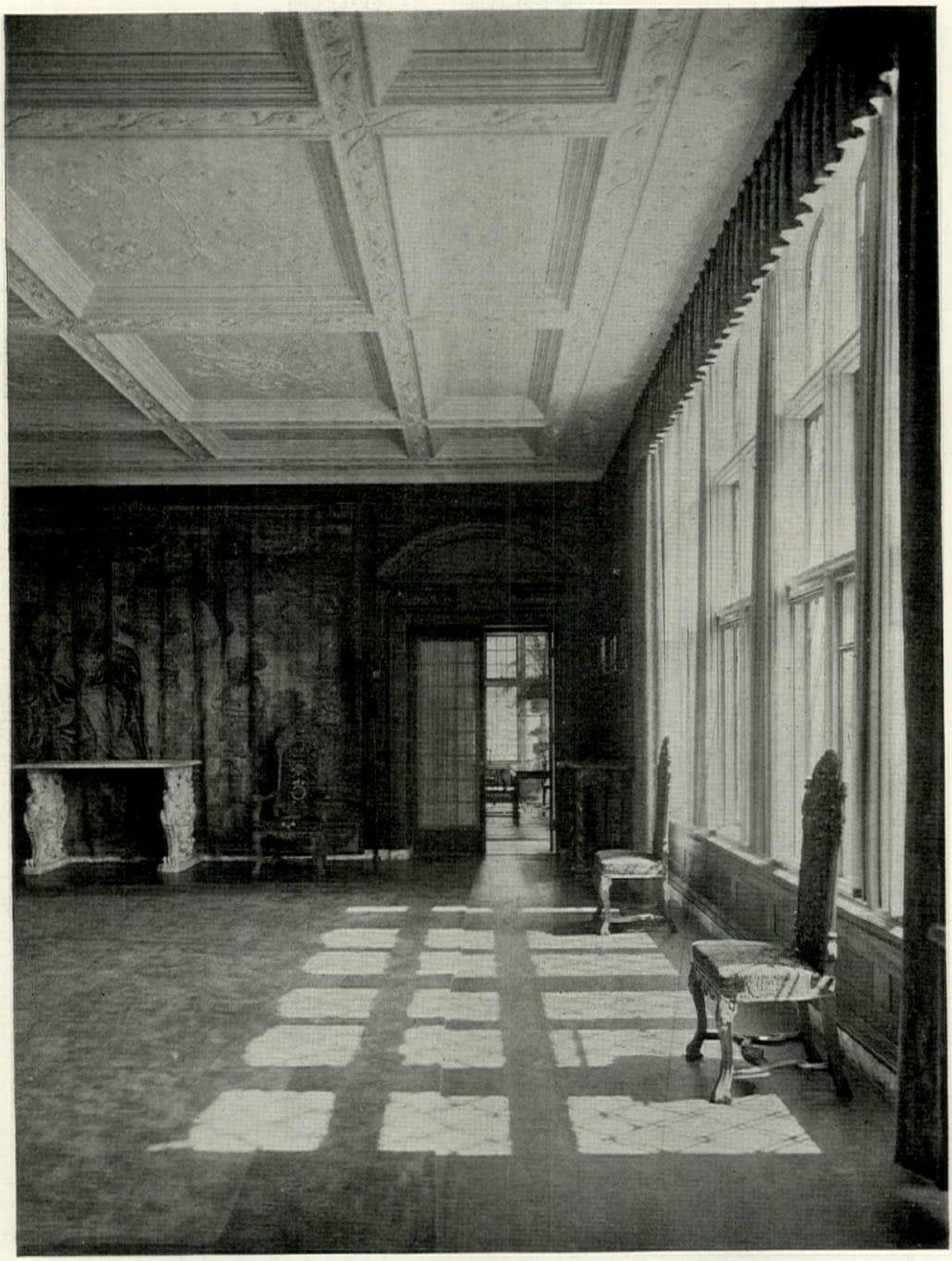
FIREPLACE IN HALL—RESIDENCE OF
GEORGE ARENTS, JR., ESQ., RYE, N. Y.
LEWIS COLT ALBRO, ARCHITECT.

HALL, SHOWING SOUTH WINDOW—RESIDENCE OF GEORGE ARENTS, JR., ESQ., RYE, N. Y. LEWIS COLT ALBRO, ARCHITECT.

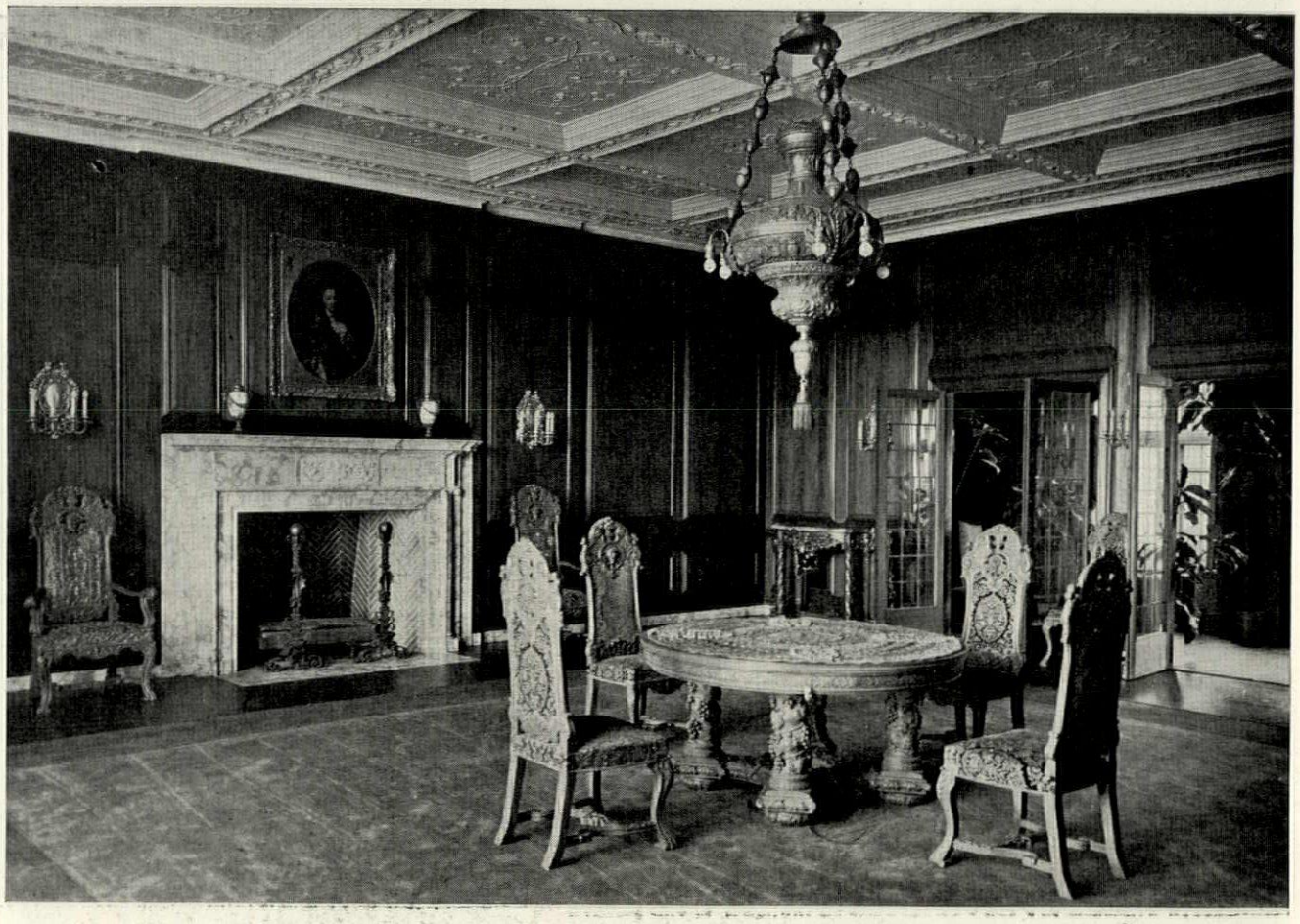


MAIN STAIRS — RESIDENCE OF GEORGE ARENTS, JR., ESQ., RYE, N. Y. LEWIS COLT ALBRO, ARCHITECT.

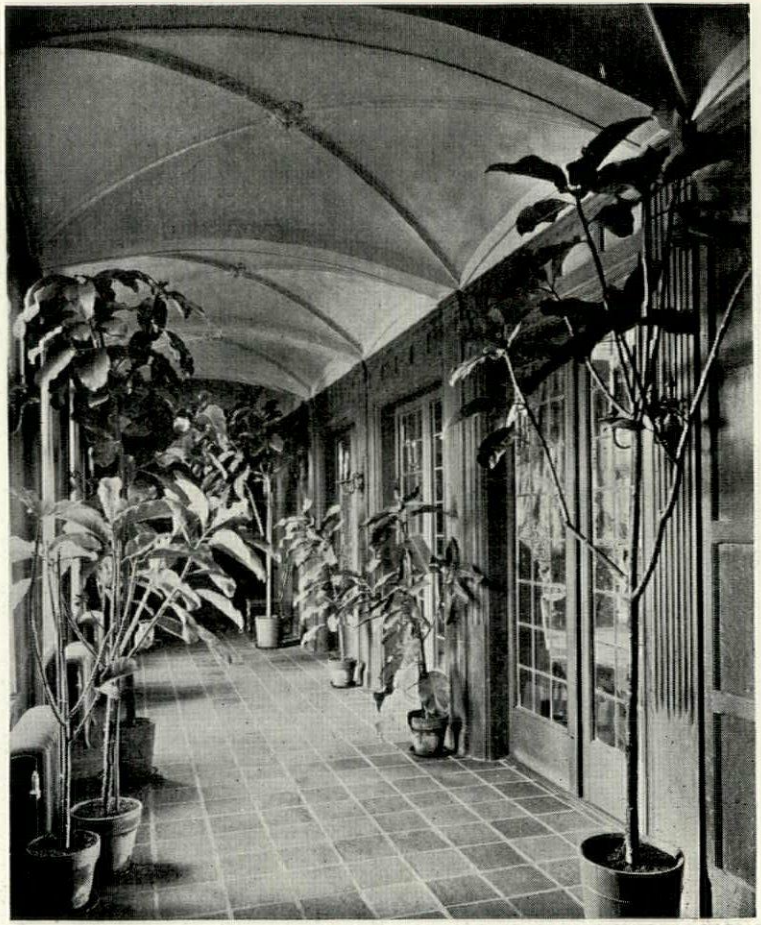
LIVING ROOM — RESIDENCE OF GEORGE ARENTS, JR., ESQ., RYE, N. Y. LEWIS COLT ALBRO, ARCHITECT.



DINING ROOM, LOOKING TOWARD BREAKFAST ROOM—RESIDENCE OF GEORGE ARENTS, JR., ESQ., RYE, N. Y. LEWIS COLT ALBRO, ARCHITECT.

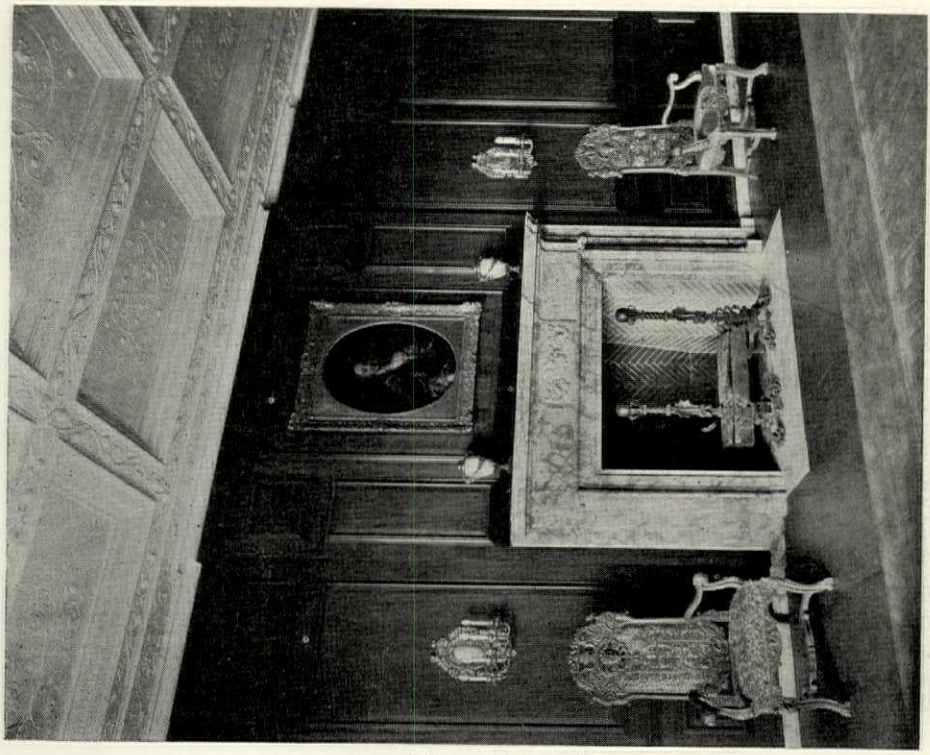


GENERAL VIEW OF DINING ROOM—RESIDENCE OF GEORGE ARENTS, JR., ESQ., RYE, N. Y. LEWIS COLT ALBRO, ARCHITECT.

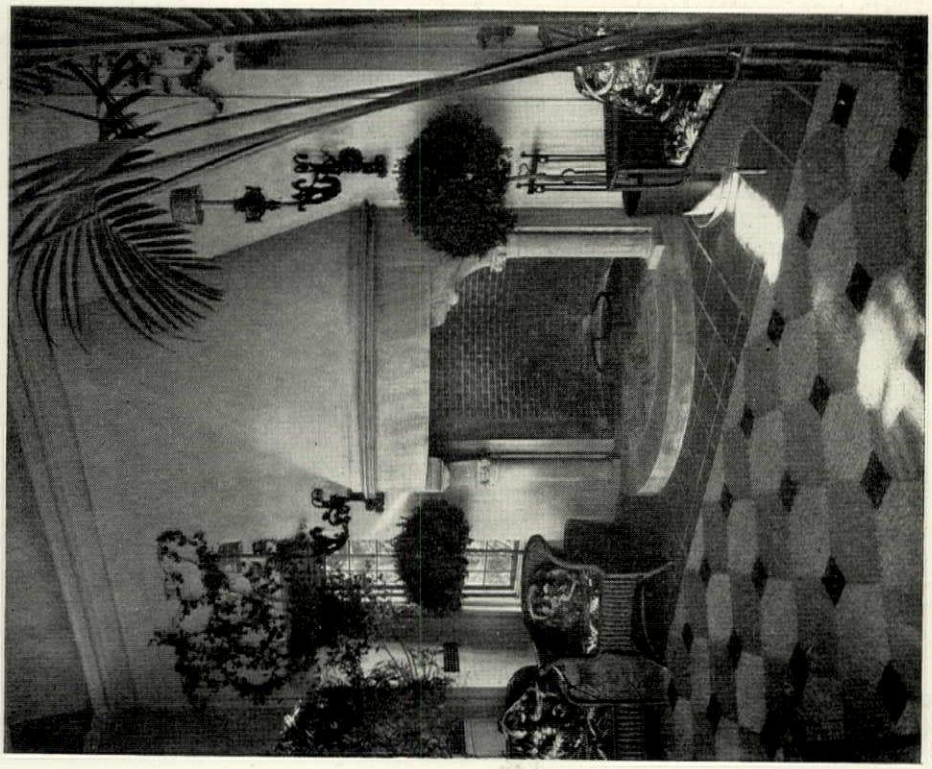


OLD ENGLISH CORRIDOR BEHIND DINING ROOM—RESIDENCE OF GEORGE ARENTS, JR., ESQ., RYE, N. Y.
Lewis Colt Albro, Architect.

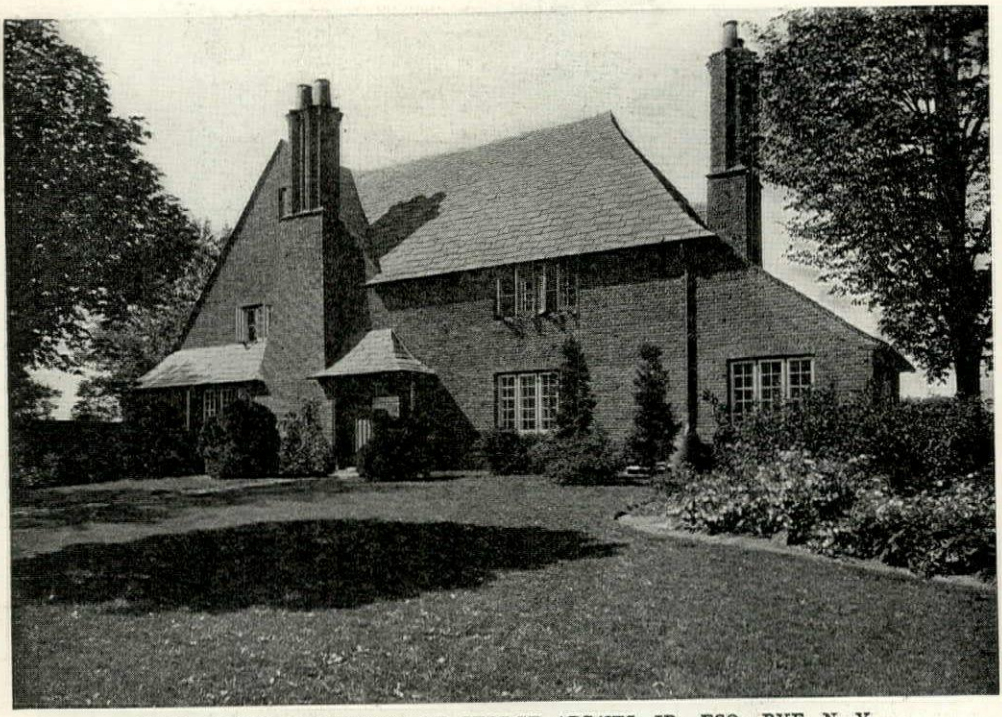
LOGGIA—RESIDENCE OF GEORGE ARENTS, JR., ESQ., RYE, N. Y.
Lewis Colt Albro, Architect.



DINING ROOM FIREPLACE—RESIDENCE OF GEORGE ARENTS, JR., ESQ., RYE, N. Y.
Lewis Colt Albro, Architect.



FIREPLACE IN LOGGIA—RESIDENCE OF GEORGE ARENTS, JR., ESQ., RYE, N. Y.
Lewis Colt Albro, Architect.



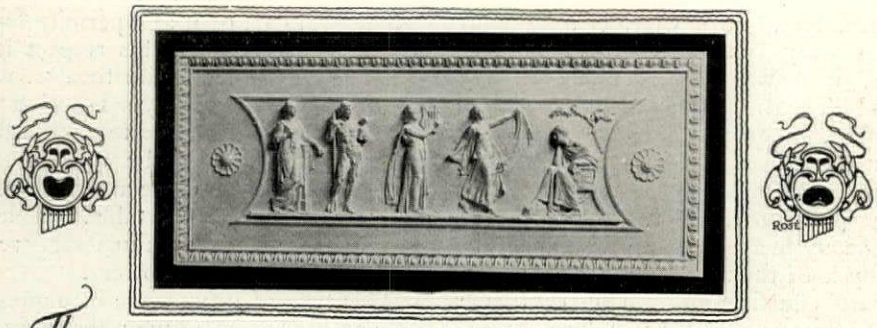
GATE LODGE—RESIDENCE OF GEORGE ARENTS, JR., ESQ., RYE, N. Y.
Lewis Colt Albro, Architect.

oak paneled walls are relieved by the old wood carvings used as door frames instead of the more conventional architrave. In the photograph the ceiling beams appear heavy, but in reality they do not look so in the room. Off the living room opens a small den, paneled to the ceiling in gumwood, a wood which is coming more and more to be used in interiors.

One of the best features of the house is the sun room, in flat walls, with a vaulted ceiling of slightly bluish tone and a fireplace of limestone—all simply modeled as an excellent contrast to the oak paneling elsewhere. The ironwork lighting fixtures, slightly touched with color and gilt, are among the most interesting things in the room.

In the dining room, decoration of a more modern period has been employed. The change occurs without abruptness, for the dark walnut paneling harmonizes with the design of the hall and living room; and the fine plaster ceiling has been executed in that modern revival of old English plasterwork recently introduced into this country with such successful results. The plasterwork is yellowish in color, like old ivory. Off the dining room opens a glazed-in alcove, or breakfast room, and along the north side is a little low, vaulted, oak-paneled corridor, running from the service wing to the entrance door, that engages attention through its delicate, intimate charm.

Among recent houses Hillbrook is a very marked success. One cannot admire the high technical skill displayed in it without taking even more satisfaction in the subordination of the skill to the conception of quiet harmony and richness that has been the main impulse of the design in all the details. Mr. Albro has avoided all purpose to impress or overcrowd the picture with interest. Thus the description of it is soon finished. What impresses one is the whole—a remarkable rendering, freely and boldly executed, of the English historic style.



The STILLMAN THEATRE CLEVELAND, OHIO

Geo. B. Post & Sons, Architects

By

W. SIDNEY WAGNER

I RECALL, while on a voyage to Europe, meeting a gentleman who was endeavoring to organize and finance a company to build and operate in the United States a chain of theatres to be devoted exclusively to the exhibition of motion pictures. He admitted that he had as yet found no one who would seriously entertain his project. Since that time the motion picture has inherited the earth. Mechanical and photographical difficulties, then considered unsurmountable, have been overcome; in photography the results obtained have been little short of wizardry. The production of film dramas has reached levels of costliness, complexity and length undreamed of a few years ago.

The planning and equipment of motion picture theatres, mainly because of the various State and city regulative ordinances, and because of the owner's demand for correct projection and vision, have, in the main, kept pace with the development in the other branches of the new art. But architects have been laggard in taking advantage of the architectural and decorative possibilities of the motion picture theatre. With but few exceptions, they have reproduced the stereotyped design and decoration found in the typical dramatic theatre.

The recently completed Stillman Theatre in Cleveland, Ohio, is a revolt against the placid acceptance of the theory that the public's taste is hopelessly bad and that when it goes pleasure-seeking it demands blatant and flashy surroundings.

In the Stillman Theatre the condition presented to the architects precluded the possibility of developing a clear cut, satisfactory solution of the motion picture auditorium problem. It was required that, while the theatre was to be devoted primarily to the exhibition of motion pictures, it must nevertheless be so planned that it could be readily and economically converted into a dramatic theatre; its acoustics must be such as would permit of the successful presentation of the highest class of concerts and recitals; it was to be provided with one balcony in addition to the main auditorium floor; and, finally, it must have a seating capacity of approximately two thousand. The practical, mechanical, and architectural solution of these various conditions has left its clear impress upon the form of the auditorium.

It is not my intention to give a general description of the purely structural and mechanical features of the theatre. The given conditions were such that, with one or two noteworthy exceptions, upon which I shall touch later, its plan and equipment necessarily follow, in a general way, the precedents established in the earlier houses, of which the Strand

Theatre, New York City, is a familiar and worthy example. Mr. Thomas Lamb, who was the architect of the Strand Theatre, was also associated with Geo. B. Post & Sons in the theatre under discussion, in the capacity of consulting architect.

One point in the structural design of the balcony merits passing mention. The balcony is of the usual modern cantilever type of construction. The cantilever girders proper rest upon a large transverse truss, which spans practically the entire seating width of the auditorium. This truss does not extend to and rest upon the masonry side walls of the auditorium, as is usual in general practice, but is supported at each end upon a column adjoining each side aisle and placed about five feet away from the inside face of the wall. This arrangement permits of the introduction of a slightly inclined passageway from the mezzanine promenade level to the lowest transverse aisle of the balcony, and on each side of the balcony between the end of the truss and the face of the side wall. Besides thus providing two additional fire exits of the best type, these passageways are of distinct advantage from an operating standpoint. They eliminate the usual tiring climb to the balcony levels; they bring the entrance to the balcony down to the same level as the mezzanine promenade and within sight of the main entrances to the auditorium, all of which makes the balcony seats at least as desirable as those on the main floor.

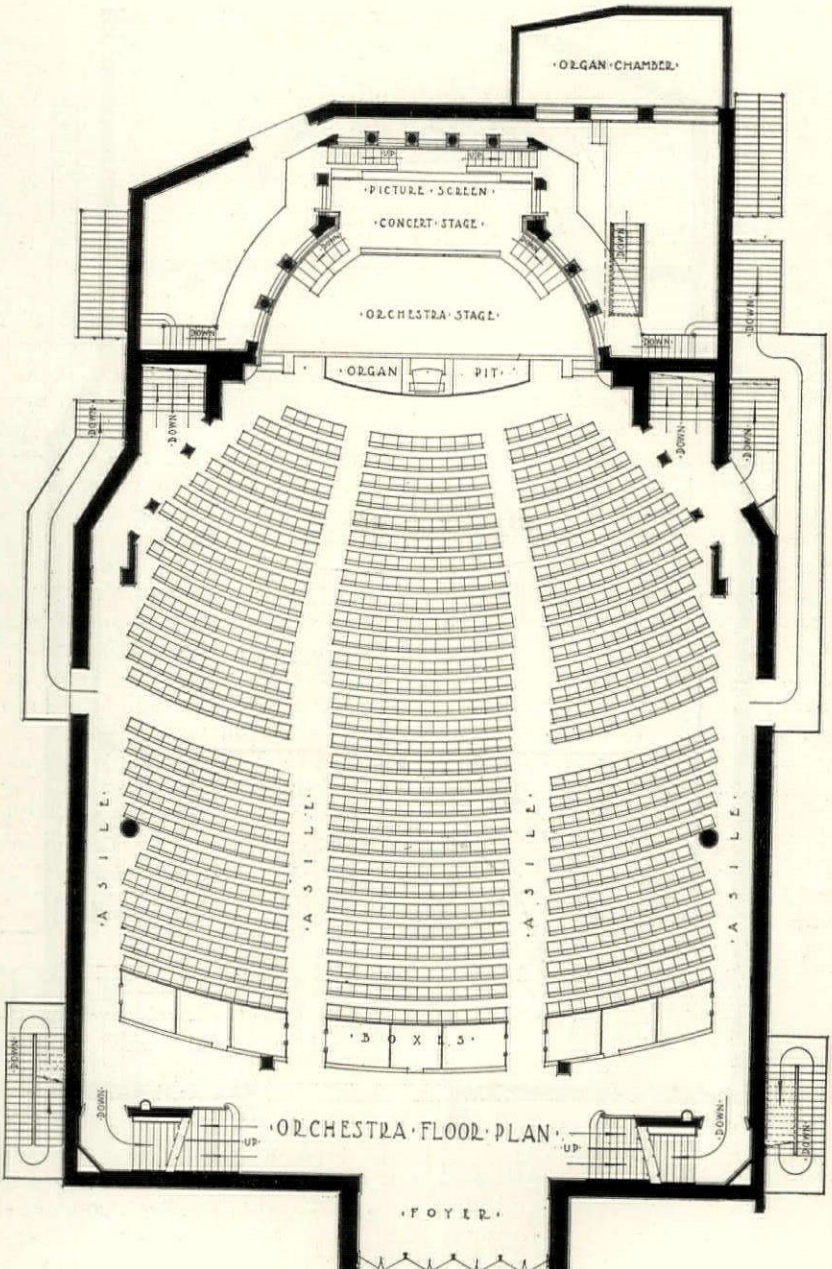
This brings us to another interesting feature, which, so far as I know, is found elsewhere in but one American theatre and there in embryo only—in the Strand Theatre, New York City. This is the mezzanine promenade in the triangular sectioned space formed by the lines of the balcony steppings and the ceiling underneath. Reached from each side of the main floor by a light railed, broad, easy stairway—always so dear to the heart of the consciously well-gowned woman—and equally accessible to the balcony, it provides a comfortable democratic promenade and lounge, a promenade which, while sheltered from the brusque contact of the main floor, is yet an integral part of it and permits "seeing and being seen." In this respect it has a flavor of the European theatre, where the promenade of this type is such a time-hallowed and distinctive feature, a flavor accentuated here by the intimate scale and light freedom of the architecture, enhanced by the comfortable, usable arrangement of the furniture, the restful masses of palms and flowers.

This type of promenade is unquestionably an improvement upon the types with which we are all familiar in this country, usually located in some corner of the vague and many storied space back of the balconies. The Stillman promenade, opening out before the view of the visitor as he steps past the entrance doors, being the focal point to which he is drawn by inclination, comfortable, intimate, remains in his memory as the embodiment of the character of the theatre.

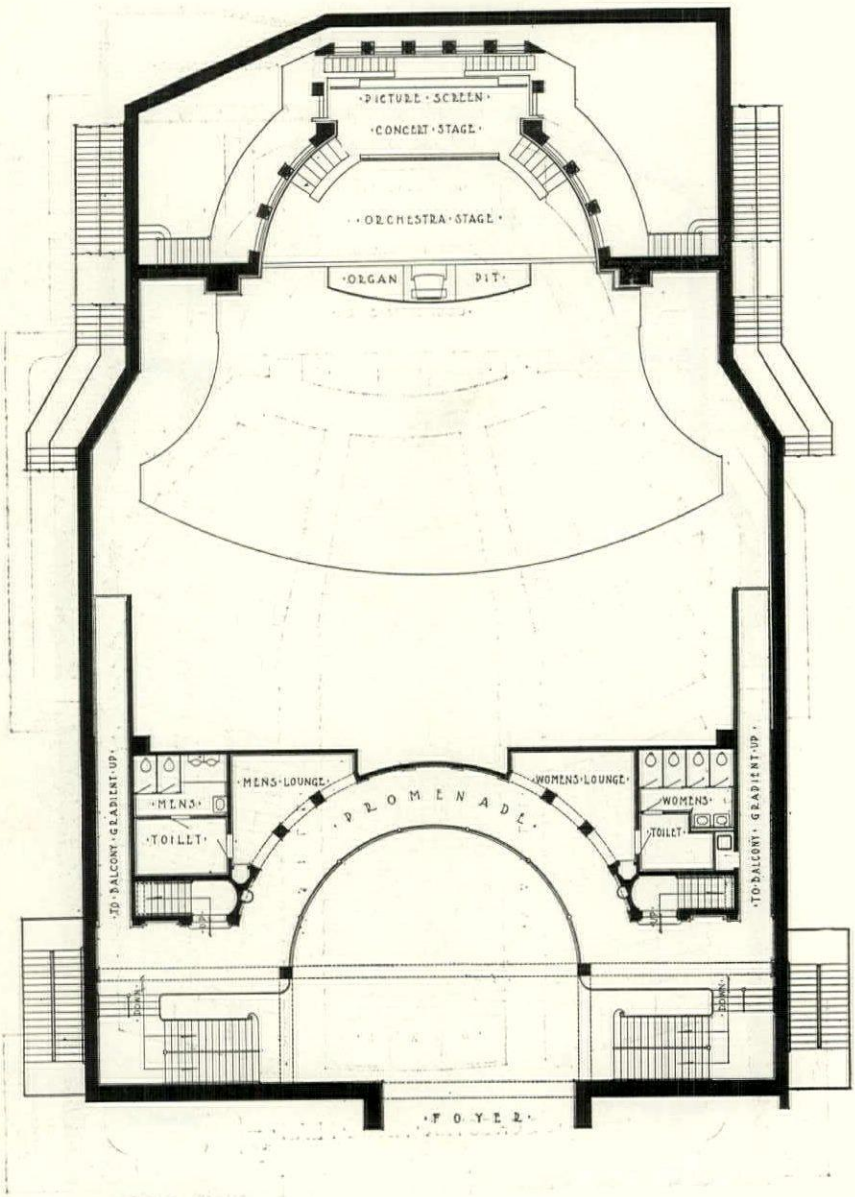
As one of the requirements of the building was that it must have good acoustic properties, it was determined to depart from the conventional types of theatre ceilings and strive for a form which, in conjunction with the flanking proscenium walls, would more nearly approximate the form known in geometry as the paraboloid of revolution. This determination was strengthened by a study of the researches in acoustics by Professor Wallace C. Sabine, Hugh Tallant and others.

The form of auditorium adopted is shown in the section drawing reproduced on another page. The architects, who had been asked to guarantee the acoustic qualities of the auditorium, took the precaution to specify a patented sound-absorbing material in the wall and ceiling panels. The extensive tests of the acoustics of the completed room proved to be so satisfactory, however, that none of this material was used.

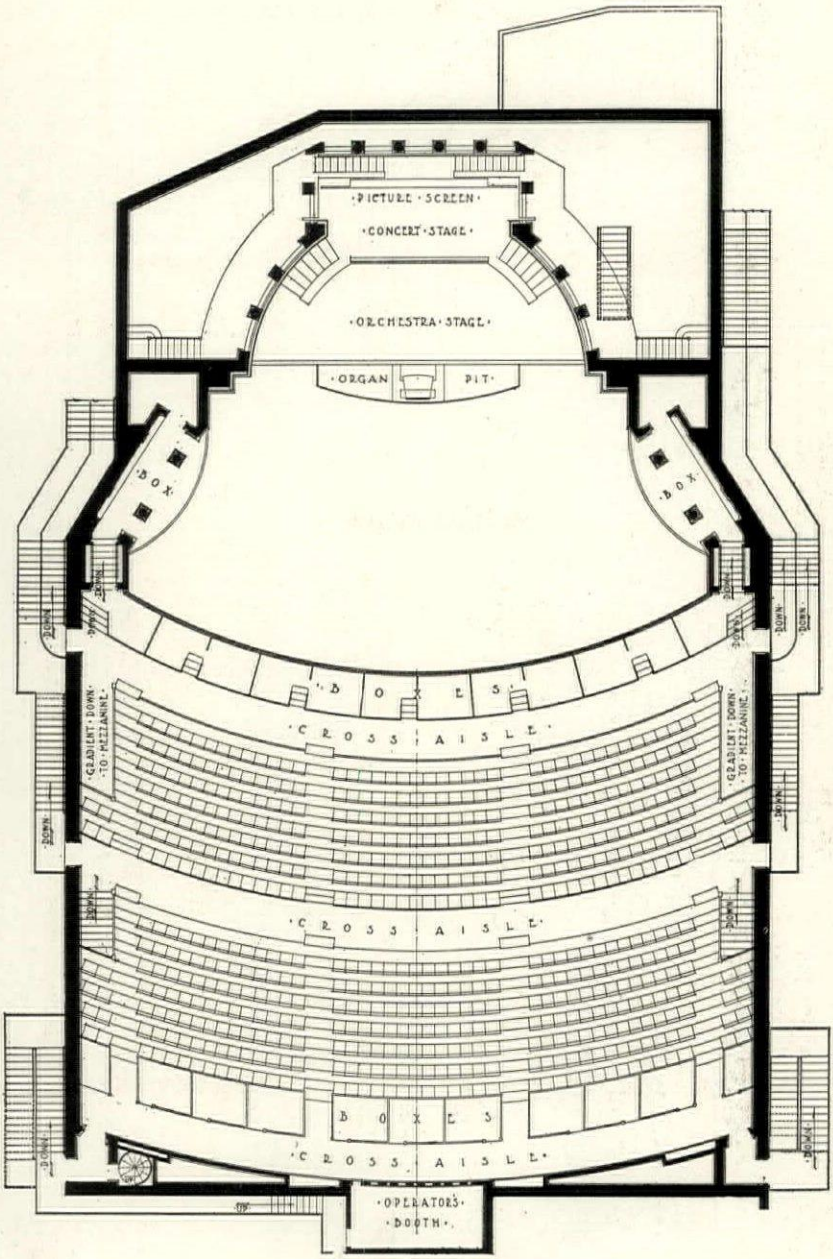
The condition that the theatre be readily convertible into a dramatic house has left its impress throughout. It can be seen in the retention of the form of the proscenium arch and in the introduction of proscenium boxes, both features of very doubtful value in the motion picture theatre. It can be seen also in the alignment of the seating; the



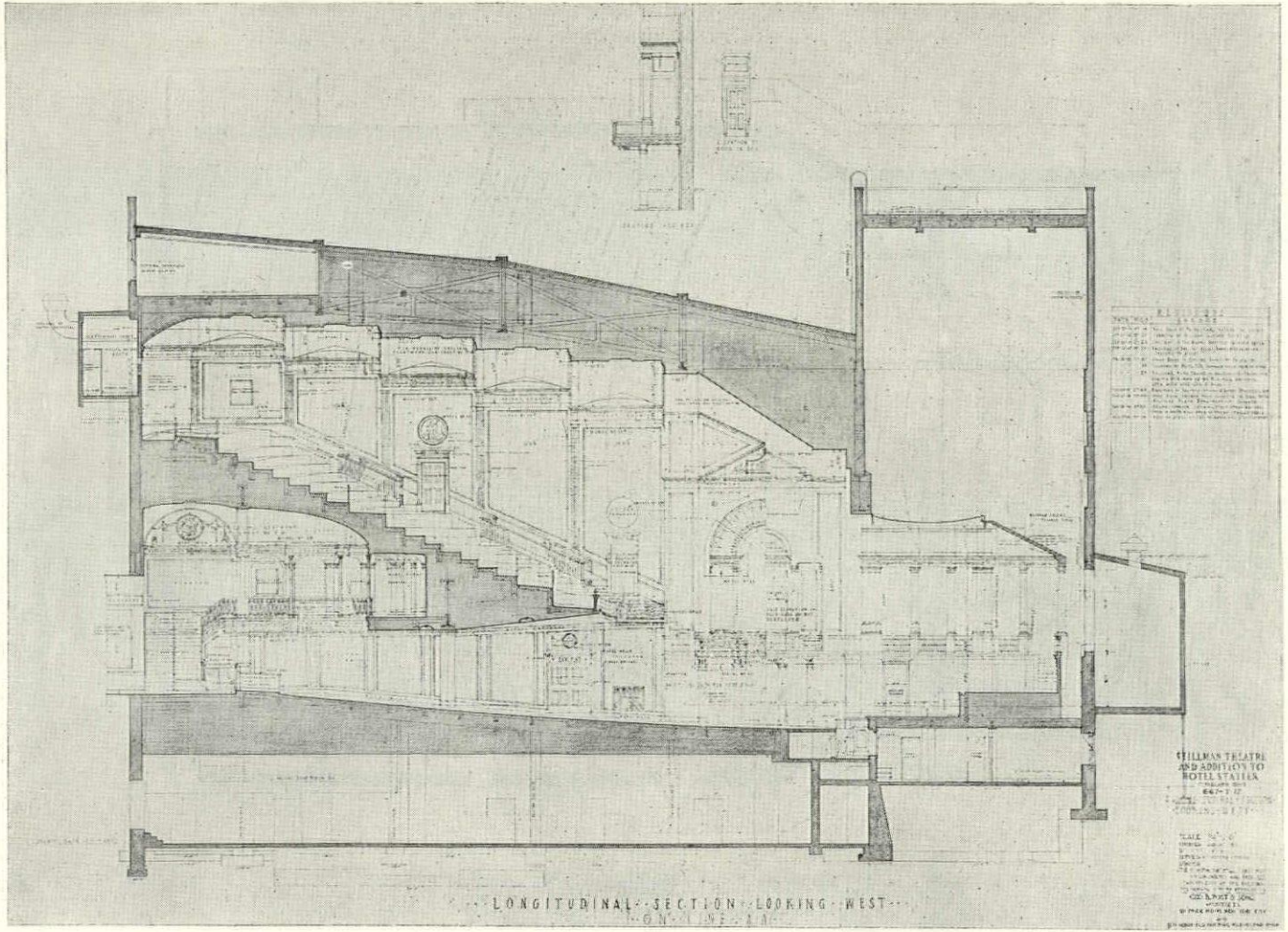
ORCHESTRA FLOOR PLAN—STILLMAN THEATRE, CLEVELAND, OHIO. GEO. B. POST & SONS, ARCHITECTS.



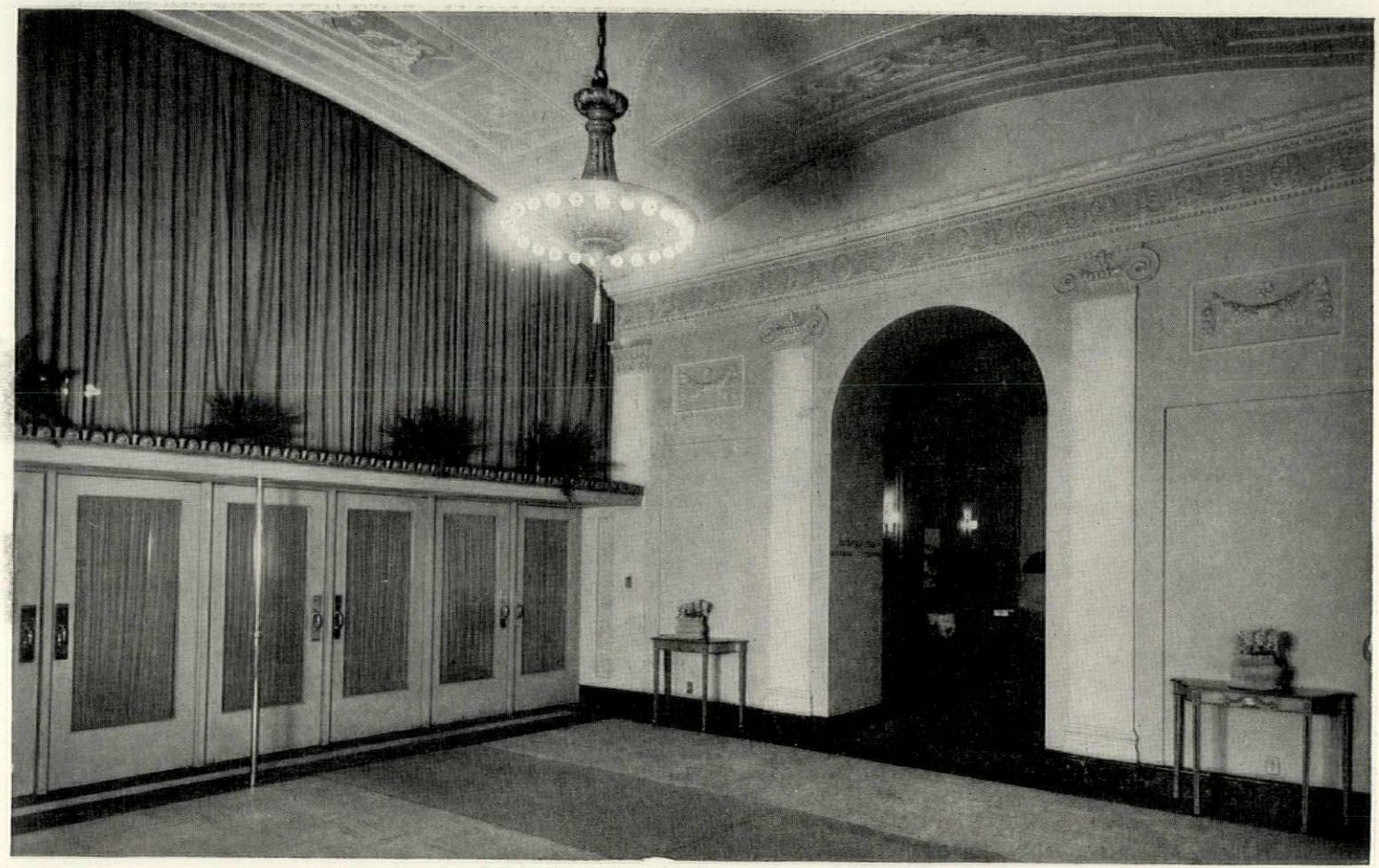
MEZZANINE FLOOR PLAN—STILLMAN THEATRE, CLEVELAND, OHIO. GEO. B. POST & SONS, ARCHITECTS.



BALCONY FLOOR PLAN—STILLMAN THEATRE, CLEVELAND, OHIO. GEO. B. POST & SONS, ARCHITECTS.



LONGITUDINAL SECTION, LOOKING WEST—

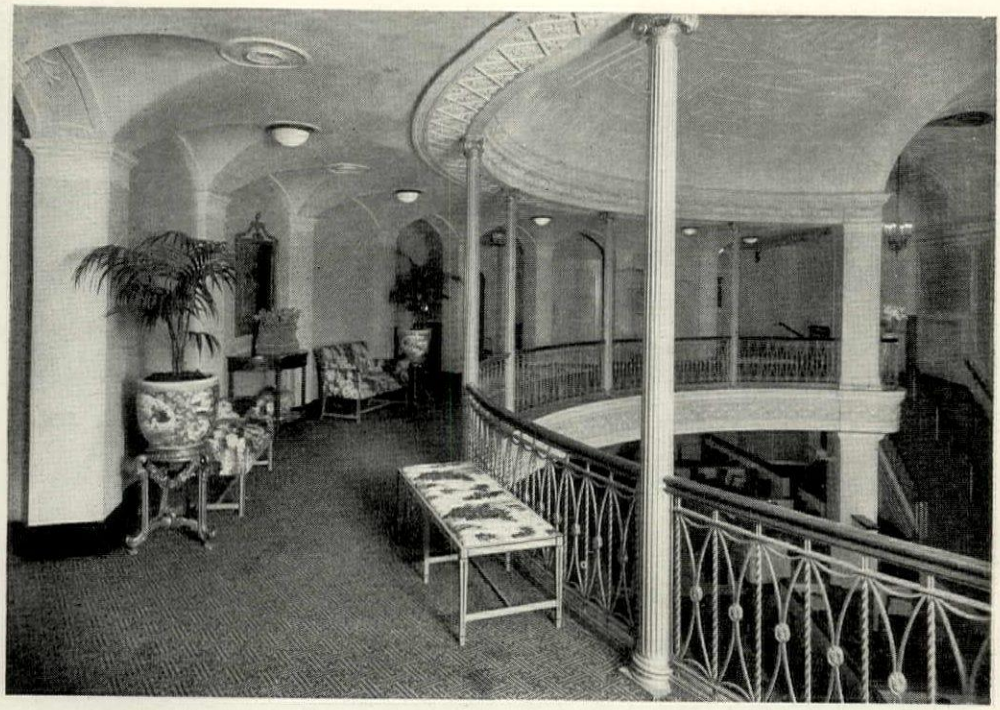


ENTRANCE FOYER, SHOWING ENTRANCE TO RECEPTION ROOM—STILLMAN THEATRE, CLEVELAND, OHIO. GEO. B. POST & SONS, ARCHITECTS.

RECEPTION ROOM—STILLMAN THEATRE, CLEVELAND, OHIO. GEO. B. POST & SONS, ARCHITECTS.

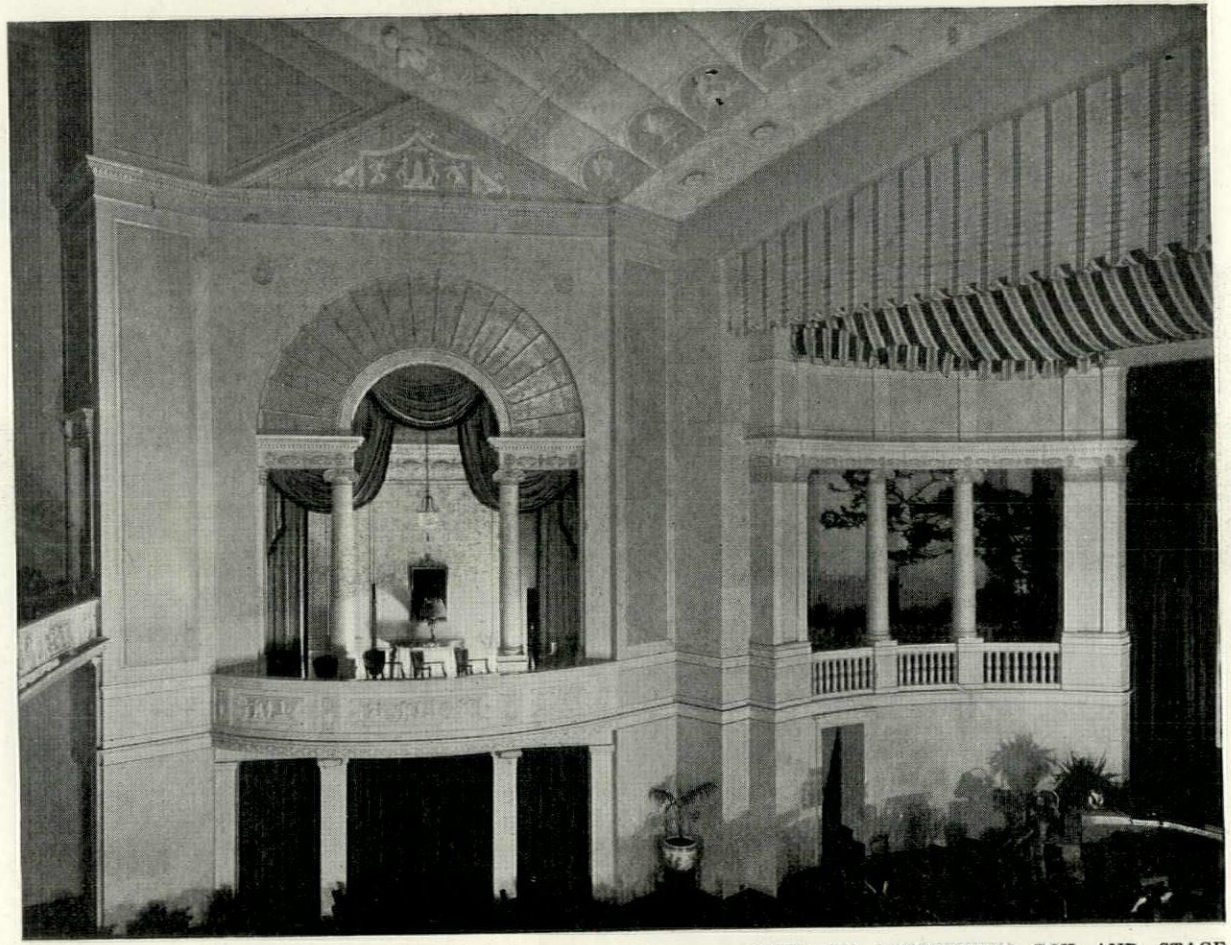
REAR OF AUDITORIUM, SHOWING MAIN STAIRWAY TO MEZZANINE PROMENADE AND BALCONY—STILLMAN THEATRE, CLEVELAND, OHIO. GEO. B. POST & SONS, ARCHITECTS.

MEZZANINE PROMENADE—STILLMAN THEATRE, CLEVELAND, OHIO. GEO. B. POST & SONS, ARCHITECTS.



MEZZANINE PROMENADE—STILLMAN THEATRE, CLEVELAND, OHIO.
Geo. B. Post & Sons, Architects.

MEZZANINE PROMENADE—STILLMAN THEATRE, CLEVELAND, OHIO.
Geo. B. Post & Sons, Architects.



VIEW OF PROSCENIUM BOX AND STAGE SETTING—STILLMAN THEATRE, CLEVELAND, OHIO. GEO. B. POST & SONS, ARCHITECTS.

stepping lines of the balcony pass through the projected plane of the curtain several feet below the footlights and range from wall to wall of the proscenium arch.

But in the setting for the picture screen you will find no suggestion of the made-over dramatic stage. The distinctive character of the motion picture theatre is well illustrated in the suppression of the necessary proscenium arch, and the invasion of the precinct of the stage by a setting which is a homogeneous part of the general architectural scheme. The picture screen can be raised aloft and entirely concealed from view. The small stage then available, with its floor level above that of the heads of the musicians, is admirably adapted to the presentation of small concerts and recitals.

When the picture screen is thus raised, the stage setting is found to continue along the back of the stage, and is then strongly reminiscent of the pictured Roman stage, with its open colonnades framing vistas of open country, with its wide flung awning, screening both players and audience from the sun, and with its coffered and richly colored sounding board high above the heads of the players.

The interest of the stage setting is supported on the sides by the modified Palladian motives which form the proscenium boxes, and is focalized further by the form and composition of the flaring, delicately-ribbed vaulting which springs from wall to wall above the proscenium arch. This vaulting is ornamented with a frieze of figures in the Wedgewood manner in rhythmic attitudes of the classic dance.

The style throughout recalls that of the Theatre Royal in Drury Lane, London, which was altered and redecorated by the brothers Adam in 1775. The walls are colored in tones of warm grays and gray-greens, relieved here and there by the luminous porcelain gray of the Wedgewood figures. The ceiling is a deep, mellow old ivory, glazed and rubbed and waxed until it has attained somewhat of the creamy richness of old sculptured marble; quiet tones that, in the darkened house, hold a promise of relaxation for eye and mind when the lights go on.

The auditorium is reached by a foyer one hundred and fifty feet in length, the floor of which rises in a gradual incline from the entrance on Euclid avenue to the doors of the auditorium. In order to reduce the apparent length and inclination of this foyer, the recurring motives of the side walls are proportionately reduced in a form of architectural perspective, an expedient similar to that employed in the Scala Regia of the Vatican.

From this foyer open the general offices of the management, and also the reception room, a room with quiet toned paneled and painted walls, reflecting in its decoration and furnishing the character of the mezzanine promenade.

DIONYSOS. A STUDY IN POLYCHROME FAIENCE BY LEON V. SOLON.

THE · GREEK · SYSTEM OF · ARCHITECTVRAL POLYCHROME · DECORATION

TEXT AND DRAWINGS
BY LEON V. SOLON

THE art of painting and polychrome decoration as practiced by the Greeks is difficult to visualize, owing to the disparity between existing remains and the narratives of classic authors. Pliny, the practical and exhaustive historian, records much that is intimate concerning men and methods, but is guilty of omissions which greatly depreciate his value to scholars and technicians. He tells us, for instance, that the palette of the great painters preceding the time of Alexander, which includes Zeuxis and Apelles, consisted solely of red, black, yellow and white. The modern painter who, with this meagre palette in mind, attempts to review mentally the combination by which these tints can be so adjusted that grapes may be painted with realism sufficient to attract birds is compelled to credit the feathered tribes of Greece with an acute decorative sense. In his list Pliny has omitted to include blue, a color found on almost every building as far back as the Mycenean Age.

In matters controlling art activity the Greeks appear to have assumed that the necessity to stabilize invention augmented with the importance of the undertaking; esthetic laws should be gradually evolved by works of progressive excellence. The fixed points from which progress was to evolve were established with a marvelous appreciation of the essential in beauty.

The right to originate was held as the reward for proficiency, a privilege protected by a statute enforced, thereby guarding public taste from gratifying its inborn predilection for the inferior creation.

With all their activities in the pursuit of beauty, we find the evidence of practical regulation to control effort operating as a restraint to exuberant temperament or as a guide for the average man.

In a race preeminent in philosophy and in the analysis of abstractions, we might assume that color would have enjoyed the free rein accorded poetry or music. This, however, was not the case, and extremely rigid rules controlled its application when embellishing architecture, which appear to have been passively accepted and implicitly obeyed.

Traces of color survive on practically all buildings where the surface of the material has been protected from disintegration, both on the great monuments and the dwellings. Examples occur over so wide an area and from so remote a date that we may regard the practice more as an instinct than as a mode. Analysis of the data proves that the Greeks formulated a code whereby they neutralized the danger of misusing color, and insured its effectiveness by limiting its application to specific features, even restricting the choice of tints in certain locations.

The practice of architecture on classic lines is much indebted to the patient research of the archeologist for the reconstruction of material from which inspiration is derived. Of recent years the science of archeology has undergone a drastic revision of methods, purposes and aims; the human element has entered more prominently into its scope, through its affiliation with anthropological research; appreciation of its contributions and prospective attainments by workers in the arts creates an outside interest which is a stimulant, removing it from that isolation in which it was formerly left.

We will now briefly summarize the

available facts bearing on the subject of Greek architectural polychrome which have been accumulated by archeologists.

EXCAVATIONS OF RUINS.

The earliest excavations for objects of antique art were made during the Renaissance era, with a view to supplying the galleries of princely collectors with sculpture and other rare and beautiful objects of classic times; and the high prices paid for fine examples often rendered the pursuit extremely profitable. From the close of that period to the middle of the nineteenth century desultory efforts were made by private individuals, and a considerable quantity of literature was compiled in which classic art was commented upon from almost every angle. Though traces of color must have been evident on a great number of the examples retrieved, that feature does not appear to have excited any interest and was only casually noted in rare instances.

The first important excavation responsible for advancing the question of polychrome architecture was made by the famous French architect and archeologist Hittorff at Selinous. Color decoration was so pronounced a feature that Hittorff devised elaborate reconstructions of the buildings and decorations from the fragments exhumed. Unfortunately, his enthusiasm led him to supplement what appeared to be missing data with detail from contemporary Greek vases, in a manner that suggests the Beaux Arts more than Hellas, and which has since been proved inaccurate. He put forth the opinion that it was a custom to decorate buildings in polychrome, which started one of those acrimonious disputes that in the past so frequently galvanized the archeological world.

In 1876 the great temples of Zeus at Olympia, together with their treasuries, were discovered, furnishing definite clues from which the Greek system of architectural polychrome was gradually reconstructed and the correct location of certain doubtful items definitely settled. One of these, the polychrome faience revetments, which Hittorff has attributed to the ceiling, were found to belong to the cornice and corona.

COLOR APPLICATION.

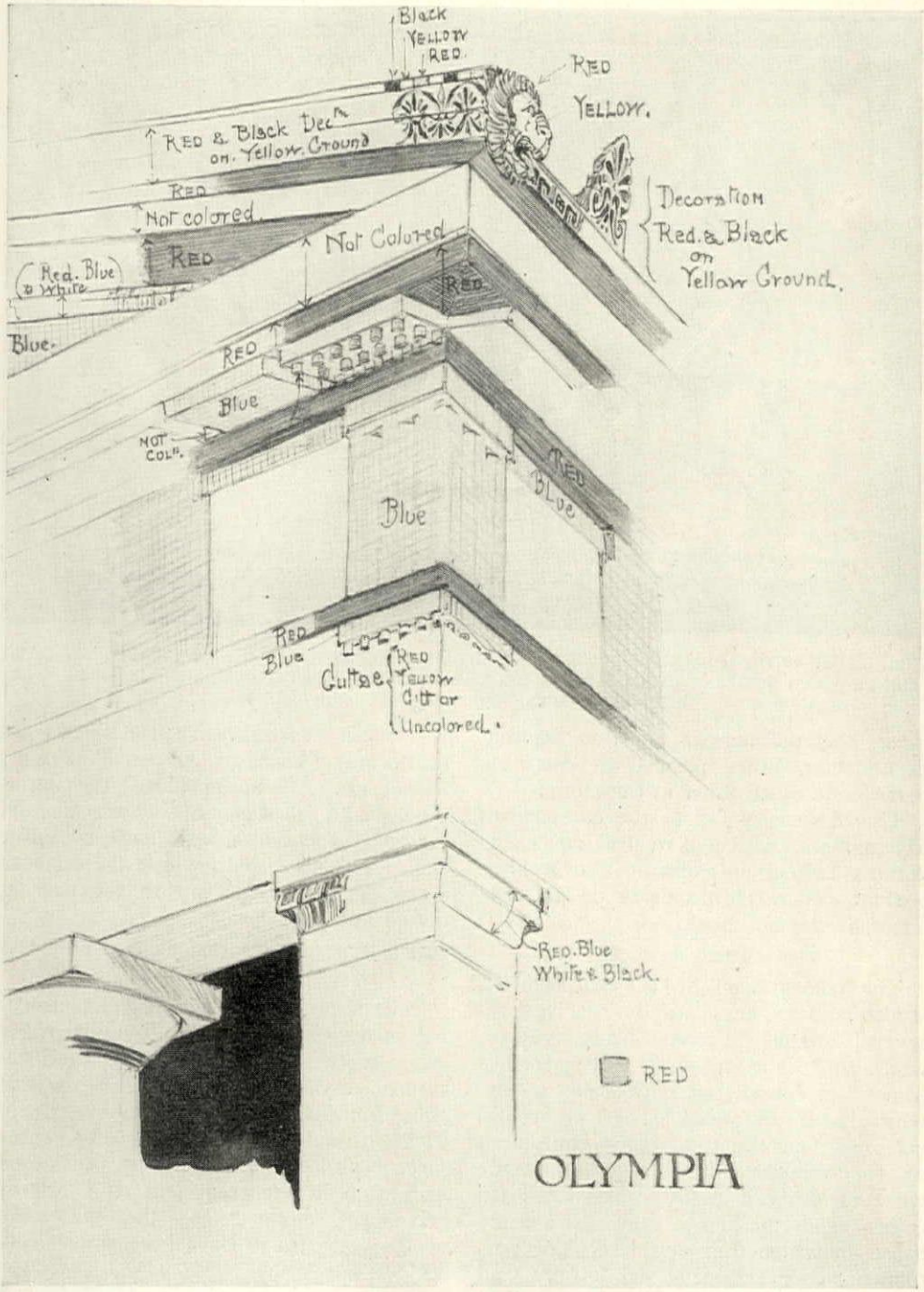
The processes of color application were three in number:

(1) By the fresco method of painting on wet stucco. The Greeks made a very tenacious stucco with which they faced the stone in those districts where the stone was of an inferior grade. It was fine in texture, and detail of great delicacy was painted on it. Where the color mass was free from decoration the stain was mixed with the stucco itself.

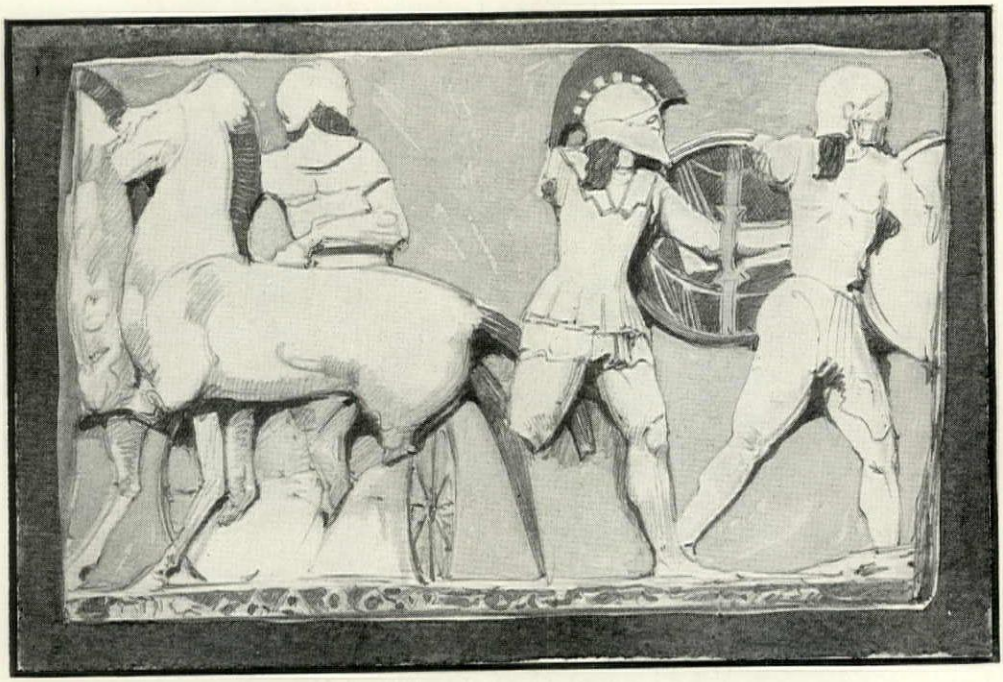
(2) By the encaustic process, which was employed for painting on marble. The pigment was mixed with melted wax, which, when liquid, was used for painting; when it had set, hot irons were applied to the painted surface, which caused the colored wax to penetrate the marble.

(3) By the execution of certain structural items in polychrome faience, such as the highly decorated cornice and corona moldings, antefixae, gargoyles and ornamental roof tiles.

The manner in which the use of faience for revetments and moldings was established is characteristic of the inductive methods of the modern archeologist. During the Byzantine period a wall had been built around the site of the temples and treasuries, which, on examination, proved to have been constructed with material gathered from the ruins. The wall was carefully taken down and found to consist largely of moldings, many of which were highly finished, while others were merely rough-hewn. It was obvious that the latter formed part of the exterior of the structure, but the roughness of the surface precluded their use on the face of the wall. In other temples, stone so treated had invariably been finished with stucco; but as no vestige of that material was discernible, another solution had to be sought. These roughly finished moldings were pierced with holes, in some of which bronze nails remained, obviously for securing objects to their face. The most likely material was the fired clay slabs, debris of which were found in considerable quantities in the vicinity. It was possible to arrive at the original form of the pieces, which proved to be three-sided sheaths exactly



BORRMANN'S RESTORATION OF THE TEMPLE OF ZEUS AT OLYMPIA, SHOWING THE LOCATION OF THE POLYCHROME ORNAMENTATION AND FLAT COLOR. A TYPICAL EXAMPLE OF THE GREEK POLYCHROME SYSTEM.



FRIEZE OF THE TREASURY OF CNIDUS AT DELPHI, REPRESENTING THE COMBAT OF THE GREEKS AND TROJANS. LIGHT BLUE BACKGROUND; RED DETAIL ON SHIELD, HAIR AND HELMET; RED FIELD FOR INSCRIPTION ON BASE; CHARIOT WHEELS YELLOW.

fitting the moldings in question, having, in addition, holes pierced at intervals corresponding to those in the stone.

This discovery led to the comparison of fragments collected in previous excavations and their identification as important decorative features on the exterior of the buildings.

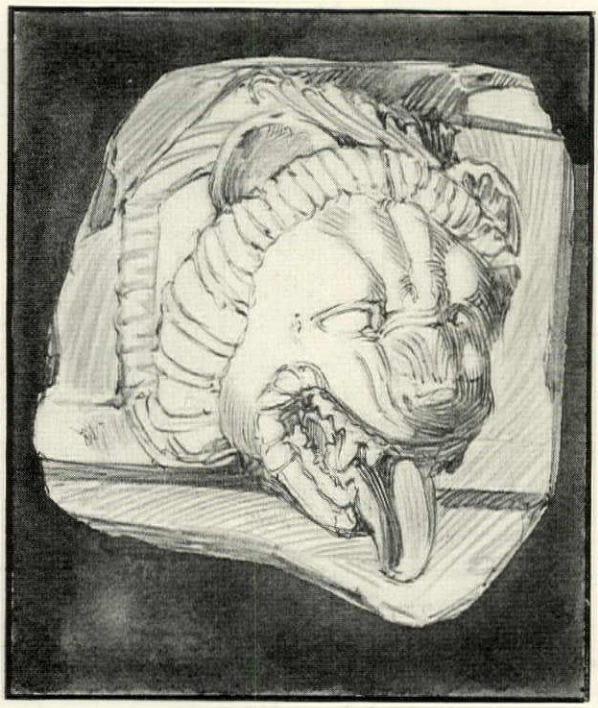
THE GREEK PALETTE.

The colors used by the painters on stucco and in encaustic were: Red, in several shades; brown, black, yellow, white, and light and dark blue; green is sometimes found, but is probably a blue which has decomposed. These colors did not represent the total color equipment of the various crafts, as the textile workers derived many other beautiful colors from madders; they represented those on which they could rely for permanence on exposure to strong light, and were all derived from mineral bases. The colors used by the ceramists were as follows: Reds, produced from oxide of iron; black from the same source, except when made with burnt bones, when it was called "animal black"; the yellow was obtained from ochre; the blues from oxide and silicate of copper (Vitruvius names an "Alexander blue," the ingredients and process of which he describes); the white was made of white clay. The glaze with which these colors were developed has up to the present defied analysis.

THE LOCATION OF COLORS ON THE EXTERIOR.

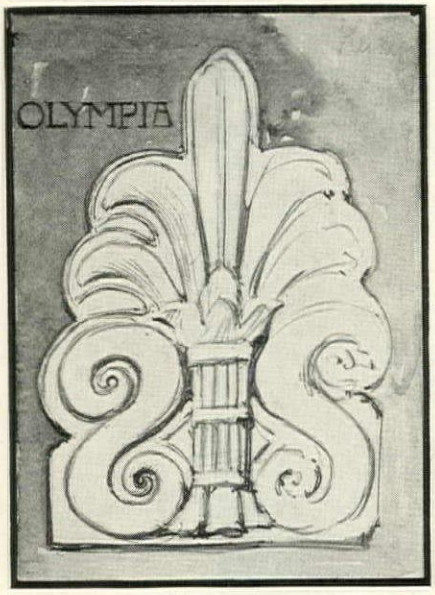
Borrmann, one of the architects assisting in the excavations at Olympia, made extensive researches comparing the location of certain colors on certain items of these buildings with corresponding fragments found in other parts of Greater Greece and Sicily. With an occasional exception in the treatment of detail of secondary importance, the following system appears to have been universally followed:

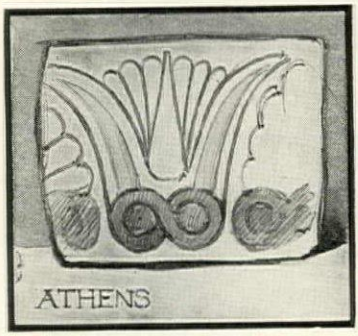
The exterior walls and shafts of columns were never decorated or colored, the surface of the material being left untouched; so far no exceptions to this rule have been brought to light. The capitals at Olympia show no trace of

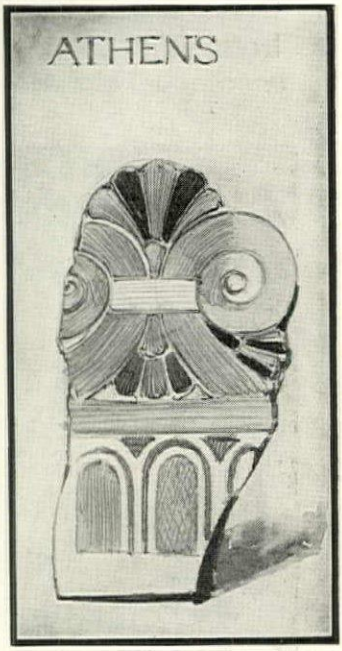


LION'S HEAD, SHOWING SPECIAL TREATMENT OF DETAIL FOR THE APPLICATION OF COLOR.

METOPE FROM SELINOUS. FIELD COLORED IN LIGHT BLUE.

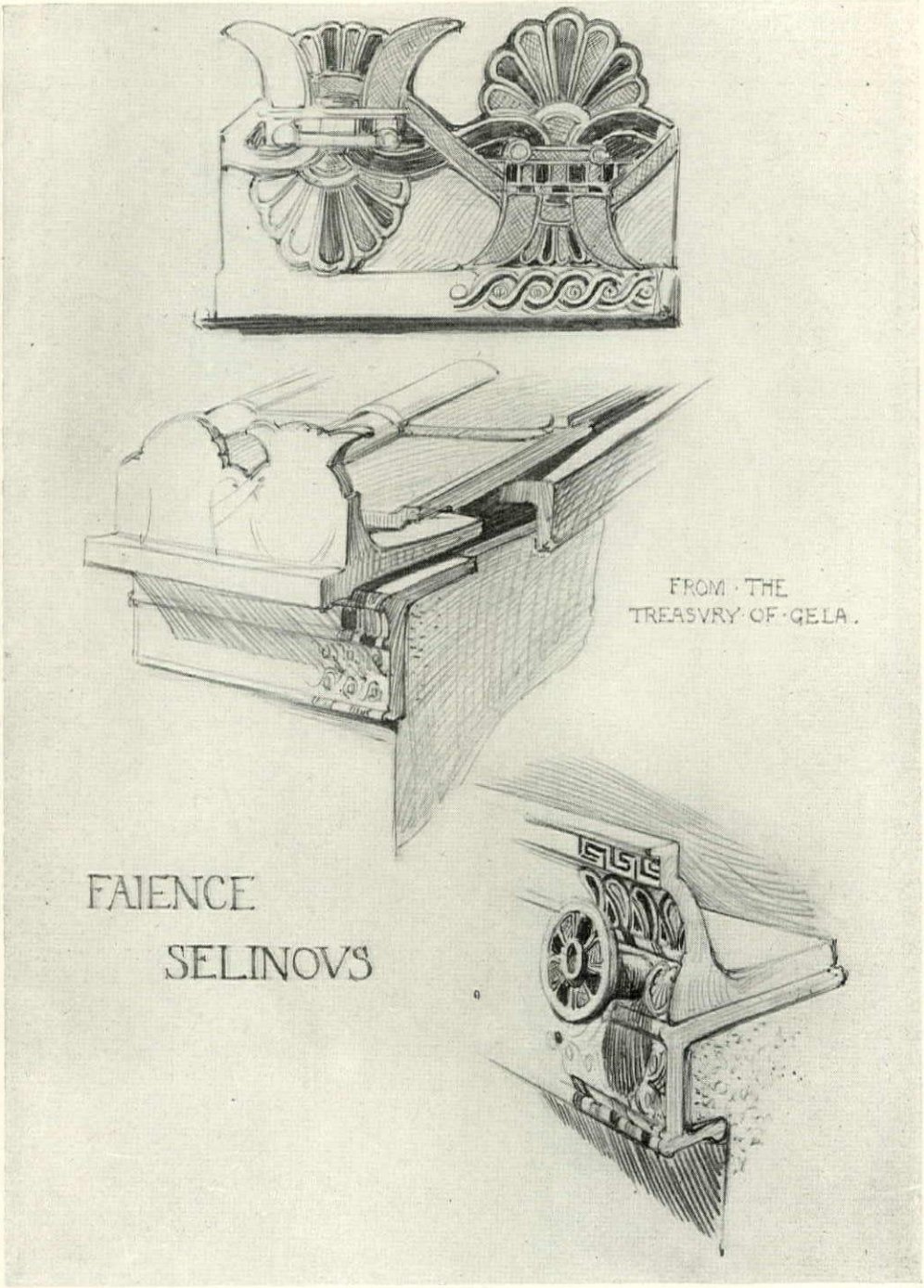




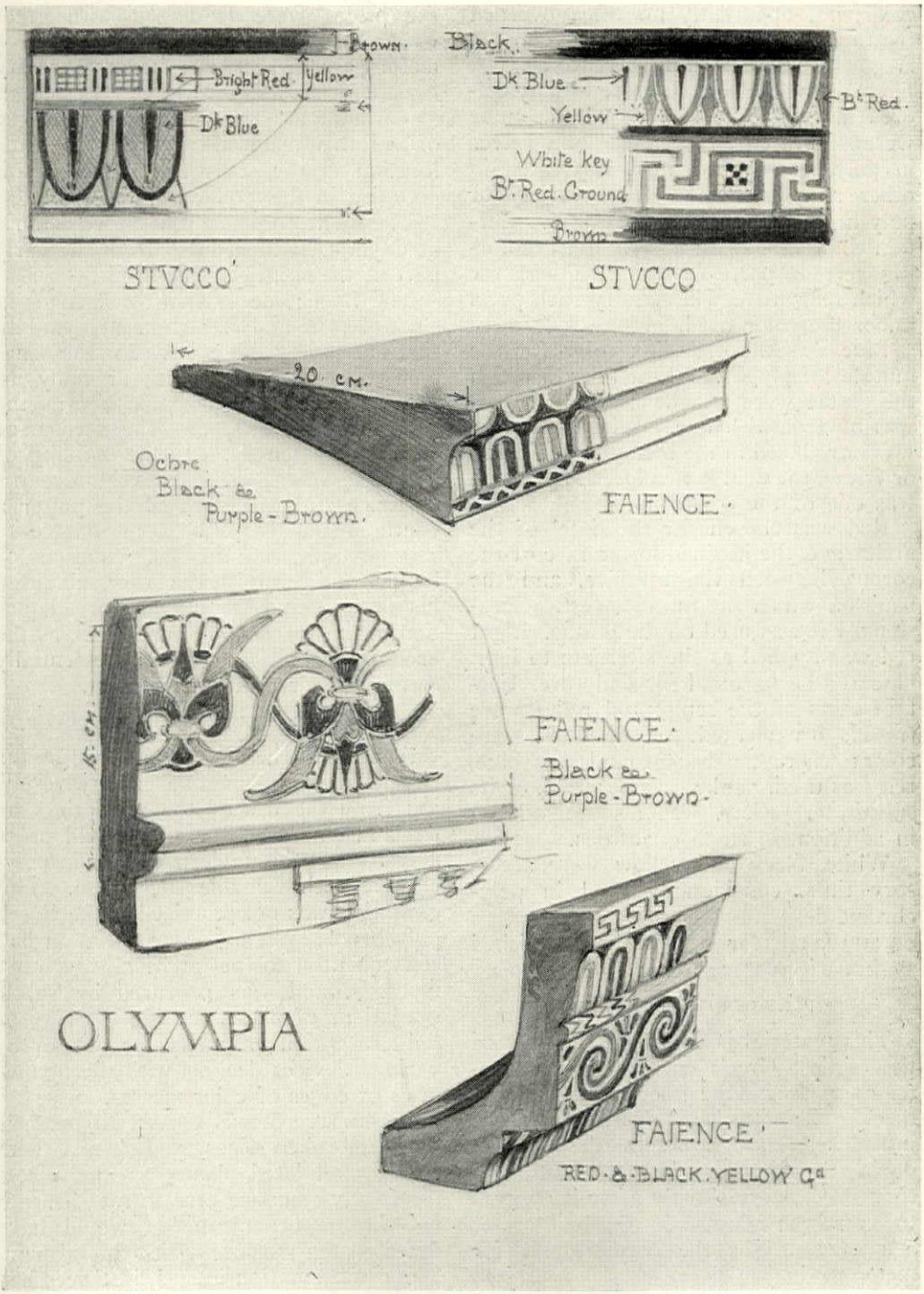


SPECIAL TREATMENT OF DETAIL FOR COLOR APPLICATION.

DETAILS FROM OLYMPIA. THE PIERCED CORNICE ORNAMENTATION SHOWS A SPECIAL TREATMENT OF MODELING TO PROTECT THE COLOR FROM DEPRECIATION THROUGH LIGHT ENCROACHMENT.



DETAILS SHOWING THE IMPORTANT POSITION FAIENCE OCCUPIED IN THE GENERAL SCHEME OF THE GREEK PUBLIC BUILDING.



GREEK METHOD OF USING POLY-CHROME ON STUCCO AND FAIENCE.

color, but apparently no rule governed treatment in this case, as those found at Aegina are decorated in polychrome. The fillets below the echinas were usually colored in red. The capitals of the antae were decorated at Olympia with leaves in polychrome; this item is treated in other temples with a great variety of polychrome methods and designs. Certain colors are invariably found decorating certain parts of the building, for which reason we will classify such parts under the color used.

Blue was the orthodox color for the mutules, triglyphs, and the fillet to which the guttae were attached; the blue used was of a darkish hue. When sculpture was introduced in the metopes, pediment, or frieze, the field was colored; light blue was one of the colors used.

Red was chosen for the lintel of the architrave, the inclined lower face of the corona between the mutules, and the band on which the mutules rest. Occasionally it was used on the guttae. Light red was applied as the alternate to light blue as a background for sculpture. Certain parts of the sculptured relief were traced, ornamented, or filled in with color; where the background was blue, red was used, or the reverse; gold, or its substitute, yellow, was also introduced in addition, in small quantities.

White, black and yellow were accessory tints, considerably used in polychrome design, but had no fixed location on any particular item in the established system of color regulation.

POLYCHROME FAIENCE.

This material is found on the sites of the earliest Greek temples and is contemporary with the later wooden structures. The potter's art of firing clay was introduced into Greece by the Dorians during their invasion in the seventh century B. C.; very shortly after it appears to have been adopted by the builders as a revetment for the cornice, and for metopes, in which case the decorated slabs were framed in wood. It is found extensively in Greater Greece and Sicily, but is rarely used in Peleponesus.

In the cornice, antefixae, gargoyles, and massive pierced cornice moldings, the pieces were fashioned with great elaboration and accuracy, convenience of making and risk in firing being secondary to esthetic and structural considerations.

Throughout the evolution of the orders this material retained the same location in the structural scheme as it occupied in the wooden buildings.

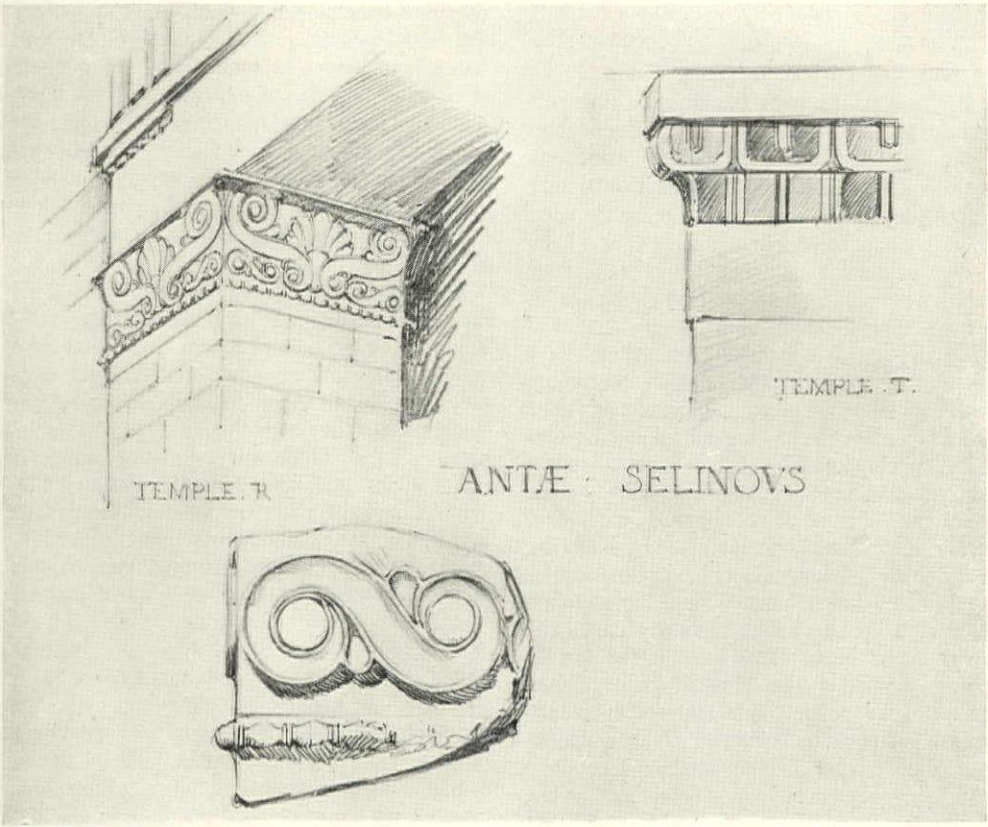
The earliest faience roof tiles are those at Olympia, which dates from the early part of the sixth century B. C.

The faience decoration corresponds in general plan and treatment of detail to that created by the potters for the ornamentation of their wares; in many instances the same decoration adorns the shoulder of a vase and the cornice or corona of a temple. As the building of a temple was a comparatively rare occurrence and the work of the potter a continuous activity, it is reasonable to assume that, in the collaboration of builder and ceramist, the latter submitted his designs and treatments for adaptation to the former's requirements, as the architectural faience work is essentially ceramic in decorative treatment.

PREPARATION OF SURFACE FOR COLOR.

A study of the methods devised by the Greeks to overcome the crudity resulting from the use of the vivid tints on flat and embossed surfaces would probably reward the modern worker in polychrome with valuable suggestion. Tint gradation was not practiced in the Greek polychrome system. Tone variation had consequently to be attained by other methods, and was procured by subtle gradations of plane, causing the play of light to enrich or purify the tint, or by various devices dealing with the boundaries or edges of color masses.

When stucco was chosen to produce long unbroken lines and bands with gently modulated planes, as in the cornice, any surface treatment beneath polychrome ornamentation would have defeated the purpose of its employment. The ornamentation in such instances had a distinctive character, being contrived in such fashion that, by the interweaving and inlaying of tint, no colors were of sufficient area or sufficiently isolated to assert themselves aggressively.



DETAIL SHOWING THE USE OF FAIENCE ON THE ANTAE AT SELINOUS.

Where colored ornament was needed in such scale that flat tints would have appeared hard and detached, surface treatment was resorted to. The following are a few of the methods in most general use:

(1) By a raised outline, in the form of a cloison surrounding the main sections of detail; the detail was occasionally slightly sunk to the centre, as in the antae of the Temple at Selinous. The outline was most frequently uncolored.

(2) The silhouette or plan of the ornament was treated with very slight undetailed embossment, so slight in relief as to be barely distinguishable at a distance without the color.

(3) A combination of these two previous methods is sometimes found in a motif, the cloison being used to impart great solidity to the base or supporting portion of the design, as in some of the Olympia antefixae.

(4) In Athenian work a very precise and sharply cut outline was sunk in the field, which was filled with color and combined with detail in soft relief or intaglio, also colored, the two treatments being separated by a fillet of the field color.

(5) A softly embossed surface was sunk below the face of the material and bounded by sharply cut edges which projected sharp shadows, reminiscent of the technique of Egyptian mural carvings.

Many devices were contrived to preserve color from the encroachment of light, when the object treated was defined against the sky, as in the case of the antefixae or of ornate cornices. A most elaborate solution to this problem was discovered at Olympia, in which the color maintains its strength by the framework of dark shadows cast in deep recesses.

COLOR PLANNING OF ORNAMENTATION.

The basic principle controlling polychrome decoration might be condensed into the following formula: The ornamental elaboration of decorative items in a structure may augment, as their structural importance diminishes. A lengthy and exhaustive examination of polychrome decoration practiced by the various architectural craftsmen points to two factors as being conspicuous in Greek color planning: (1) that repeating detail should be treated with alternating or methodically recurring colors; (2) that actual contact of tints coloring adjoining ornamental detail was to be strictly avoided. Such ornamentation as the leaf or egg-and-dart bands are almost invariably colored with two or three colors, alternating or recurring in regular order where polychrome is used. The colors are without exception separated by the fillet; in many cases the lower color band from which the leaves spring provides the cloison color for a certain leaf color each time that it appears. Alternating colors usually decorate the leaves of the anthemion, each leaf being separated by a fillet, and often having a second outline outside the fillet.

The various uses and effects obtained with the colored outline or fillet are too numerous to review here; the illustrations will give a slight idea of the range.

THE GREEK ESTIMATE OF COLOR.

Practitioners of the plastic arts might be divided into two classes: those who read nature in contour, and those who read it in mass. Among the former are sculptors and draftsmen; among the latter, the colorists.

The most happy inspiration of the Greek was found in purity of form, the counterbalancing of poise, and that exquisite modulation by which planes merge into contour. Their painters ignored light and shade, atmosphere and color vibration, concerning themselves with none of those qualities which have been the main preoccupation of their confreres from da Vinci's day. Their endeavor was to extract the essence of elegance in form and proportion and reduce it to its simplest expression, in silhouette and outline.

Color, to the early Greek, possessed only a portion of the significance enveloping it today. It was the means by which sensuousness was added to dignity, an illumination in the Gothic sense, with no further significance than enrichment. Color harmony in the modern sense does not figure in Greek art, and will be sought there in vain. Their skill lay in an infallible adjustment of color, in such mutual relation and proportion that a homogeneous effect was produced with discordant elements.

We cannot learn color as we understand it from them, but we can learn how to use it. Color expression is as closely allied to the various races as are their languages, for which reason we cannot apply a Chinese color scheme which fascinates us to some Gothic design we admire, without each suffering by the alliance. It is the faith of every serious worker and observer in this country that a national school of architecture and decoration is in process of evolution, and the belief of many that a distinctive type of polychrome decoration will be a dominant feature of that school. The capacity to harmonize color results from a spontaneous impulse, and cannot therefore be generated artificially; but expression may be facilitated by constructing a technique. We turn to nature for all that is most beautiful in form and color; but color harmony is not to be found there, and can proceed only from the artist's brain.

English Architectural Decoration

Text and Measured Drawings by Albert E. Bullock

PART V.

THE vital hold upon architectural expression which Renaissance principles had obtained by the close of the reign of Charles I, through the masterly influence of Inigo Jones and his immediate followers, guided the evolution of interior decoration in subsequent eras.

The stern days of guerrilla warfare which occurred during the Commonwealth failed to stamp out the essential elements, but tended rather to purify detail and make for plainer finishing.

Furniture was of a more solid character and took the forms of combination which necessity dictated. Thus, a table would serve the double purpose of table and bench and would have mechanical means for its extension in size.

Similarly the chests and coffers were made sufficiently portable to be conveyed long distances, containing the chief utensils and belongings of the household.

The main requirements were for easy storage and seating, but bedding was a secondary consideration and frequent resort was had to straw mattresses.

The character of this furniture was naturally heavy, not to say clumsy, because solid and strong articles were most in request.

During this age, when our Puritan fathers stood out firmly for their religious principles with sword and stave, when the Roundheads and the hard-headed Cromwellians fought in many civil wars for constitutional rights, the simplification of transport of all things essential to daily use became one of the chief domestic problems. They were forced to sacrifice ease and pleasure for the severe days of action and continual movement which the civil combats brought about.

Thus it was that many hid their fortunes from the grasping and inquisitive authorities of State and daily lived in fear of their lives and continual dread of the events of the morrow.

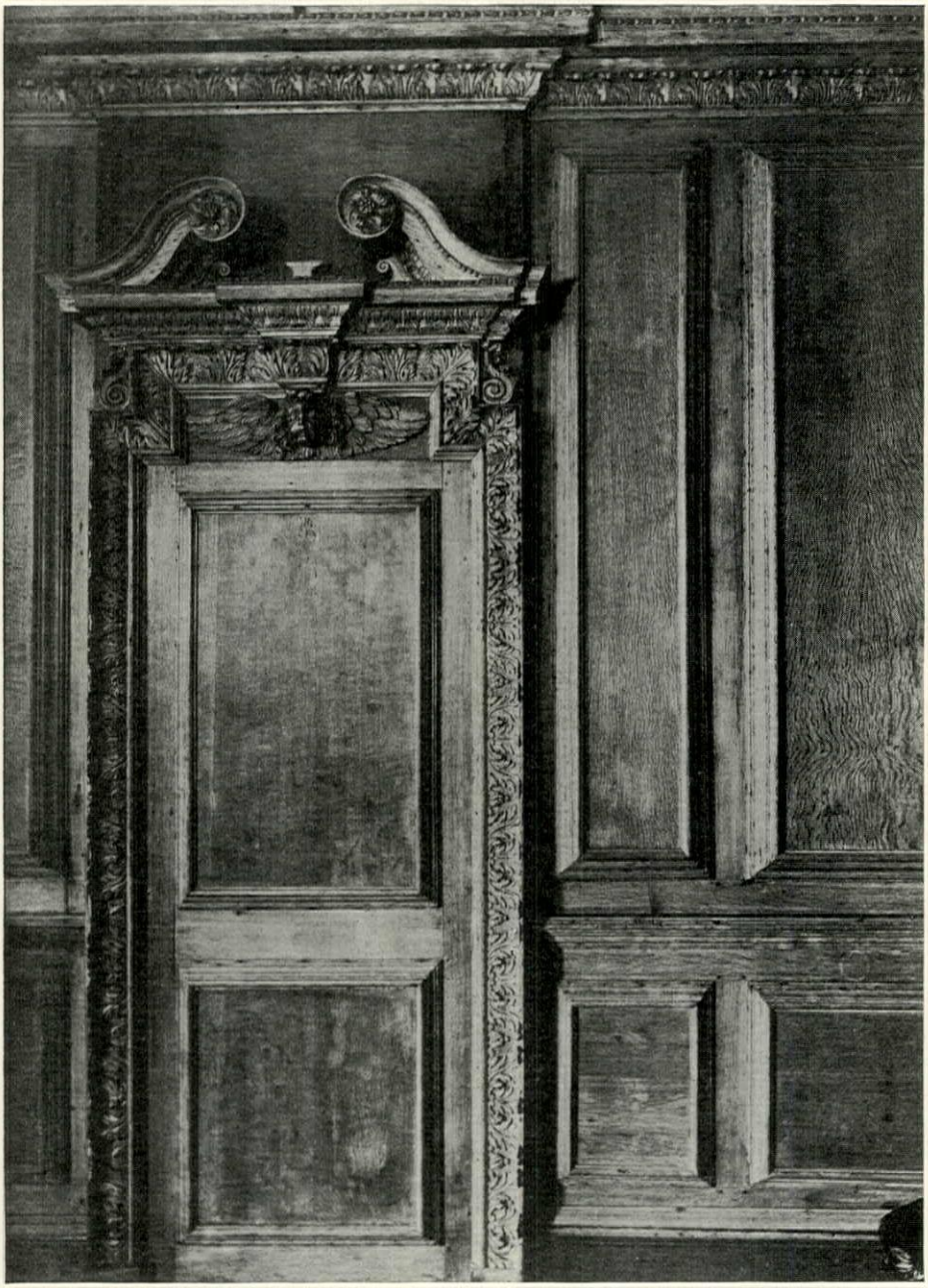
In like manner Inigo Jones was driven to secrete his possessions, which he did in company with his faithful collaborator, Nicholas Stone, a famous and popular sculptor of the time, who assisted Jones to bury his treasures in Hackney Marshes, then a wild stretch of common land on the outskirts east of London City.

The recorded fact has found an echo in modern fiction, it being the theme of at least one author, Rider Haggard, in his story of the life of "Colonel Quaritch."

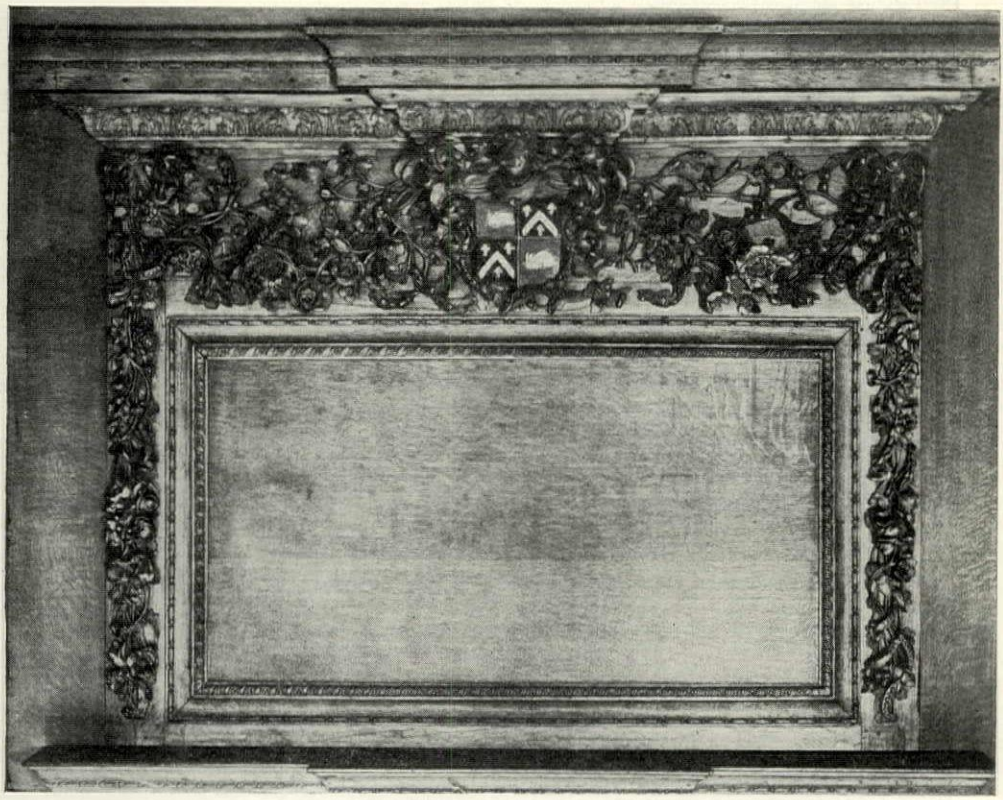
It is natural to assume that during such stirring times it would be useless to search for evidences of artistic decoration or, indeed, any building operations other than those of a temporary nature. Architectural progress gave way to an age of destruction, accompanied by the abuse of holy rites and ceremonies.

The marvel is that more loss to art was not sustained, many beautiful examples of previous work being still preserved in both churches and private residences; and we have it upon the authority of the present owner of Forde Abbey that when Cromwell visited that place he suffered the preservation of much very valuable furniture, including some fine Italian gilt coffers now ornamenting the great salon which subsequently formed part of the additions executed by Inigo Jones.

With a knowledge of these intervening circumstances one can the better trace the progress of Renaissance decoration in England by passing over the period of the Commonwealth and comparing the previous work with that succeeding the Restoration, except that there is little doubt—as may be inferred from the foregoing remarks—that much furniture was executed of a solid, plain and transportable nature.



DOOR AND PANELING — PENHALLOW ROOM, CLIFFORD'S INN, LONDON. (NOW IN VICTORIA AND ALBERT MUSEUM.)

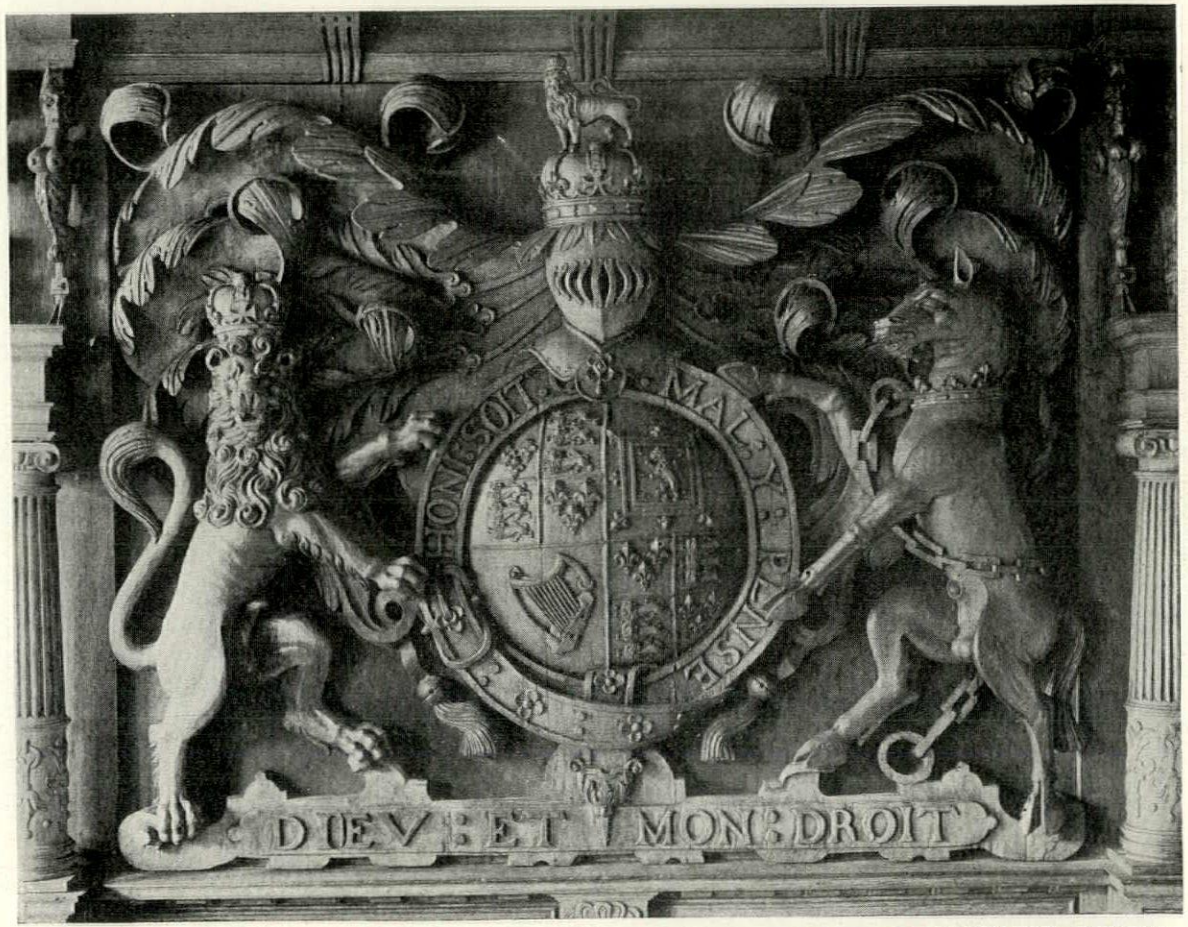


OVERMANTEL FROM CLIFFORD'S INN, LONDON. (IN VICTORIA AND ALBERT MUSEUM.)

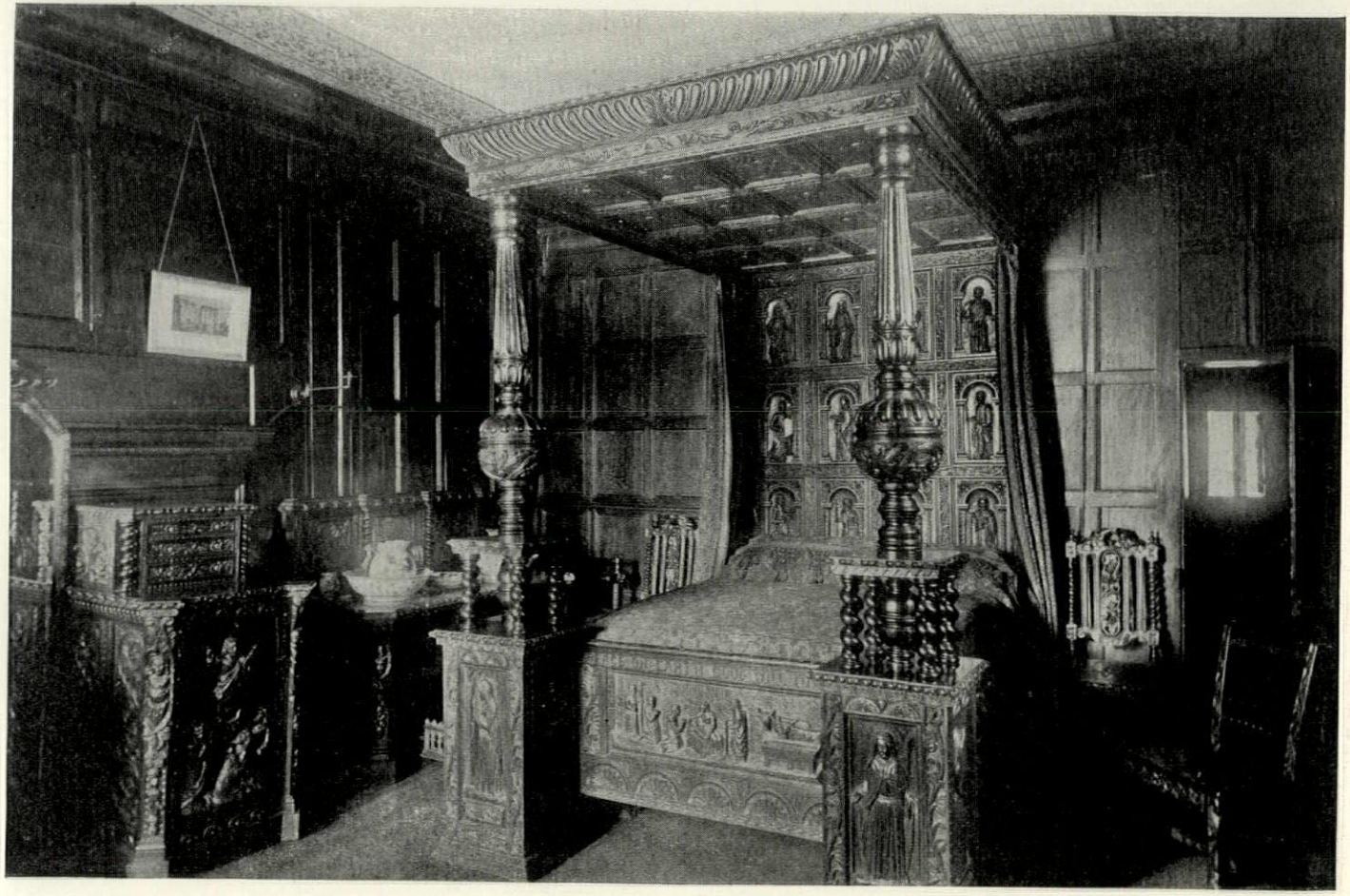
Carving became an increasingly important element of decoration. The large turned balusters gave way to continuous carved and pierced balustrading with closed molded strings to sides of staircases. There is such a staircase at Forde Abbey upon which Simon Gibbons is said to have worked, probably under the direction of Philip Webb, the nephew and pupil of Inigo Jones.

Inigo Jones was born in 1573 and lived seventy-nine years. During his later years he seems to have left much of the activity of the supervision of his practice to Webb, who doubtless completed the work at Forde Abbey and Coleshill. Philip Webb sustained an extensive clientele after the death of his master and was responsible for work at Cobham Hall, Kent; Drayton House, Northamptonshire; Amesbury House, Wiltshire, and Tyttenhanger in Hertfordshire. In addition he executed the mansion known as Thorpe Hall, near Peterborough, together with Uppington Manor and Walcot Hall in the same county. His ability is exhibited the better in his work at Ramsbury Manor, Wiltshire, executed for a member of the Pembroke family, which is an example of the reign of Charles II, and at once marks the transition and highwater mark of seventeenth century decoration.

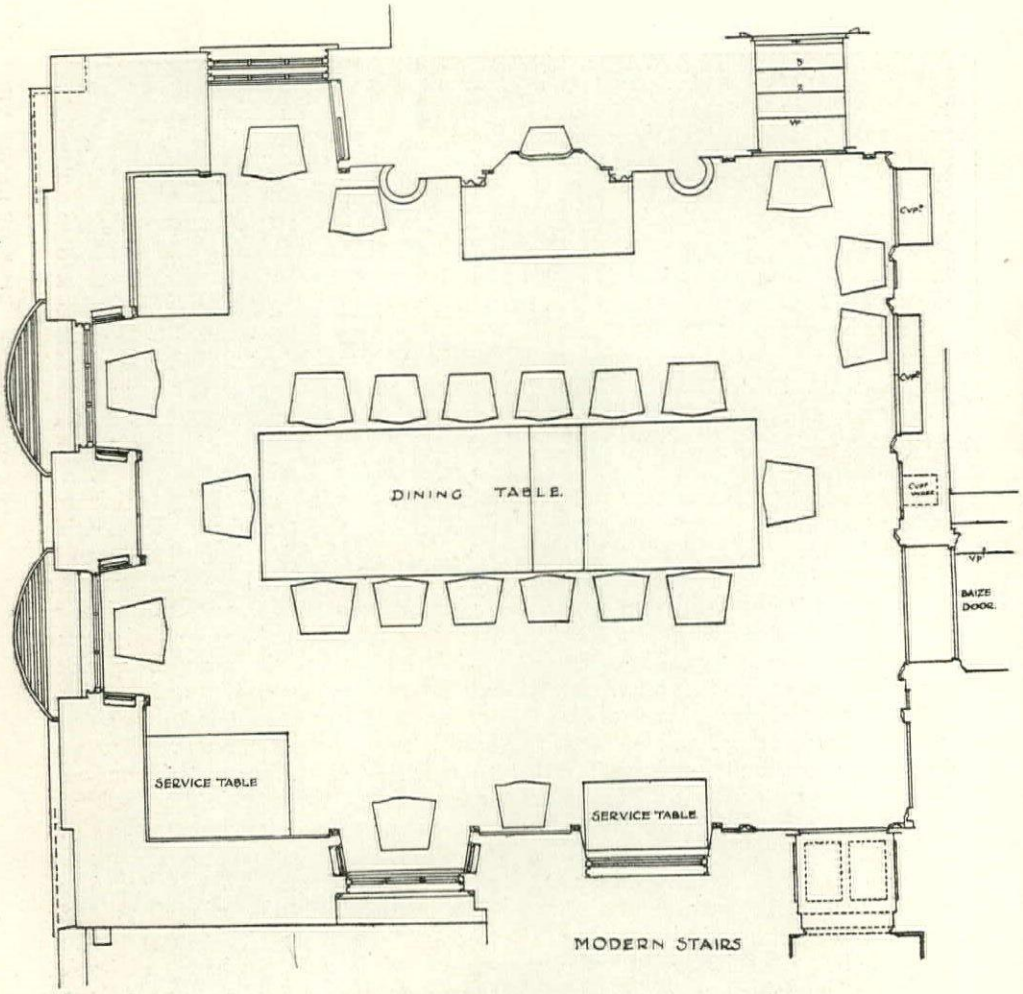
The great fire of London in 1666 has been called Sir Christopher Wren's opportunity; it brought out the best qualities of a remarkable architectural genius. Wren instilled in all his productions a refinement and a stately dignity which were commendable to king and courtiers alike; and these productions have since been preserved, because of the elegance and charm that they exhibit, for the education and interest of posterity. Wren's first works were executed during the reigns of William and Mary and Queen Anne. His project, in competition with Evelyn, for rebuilding the city of Lon-



COAT OF ARMS IN CARVED OAK OVER-MANTEL—BROMLEY-BY-BOW PALACE. (IN VICTORIA AND ALBERT MUSEUM.)

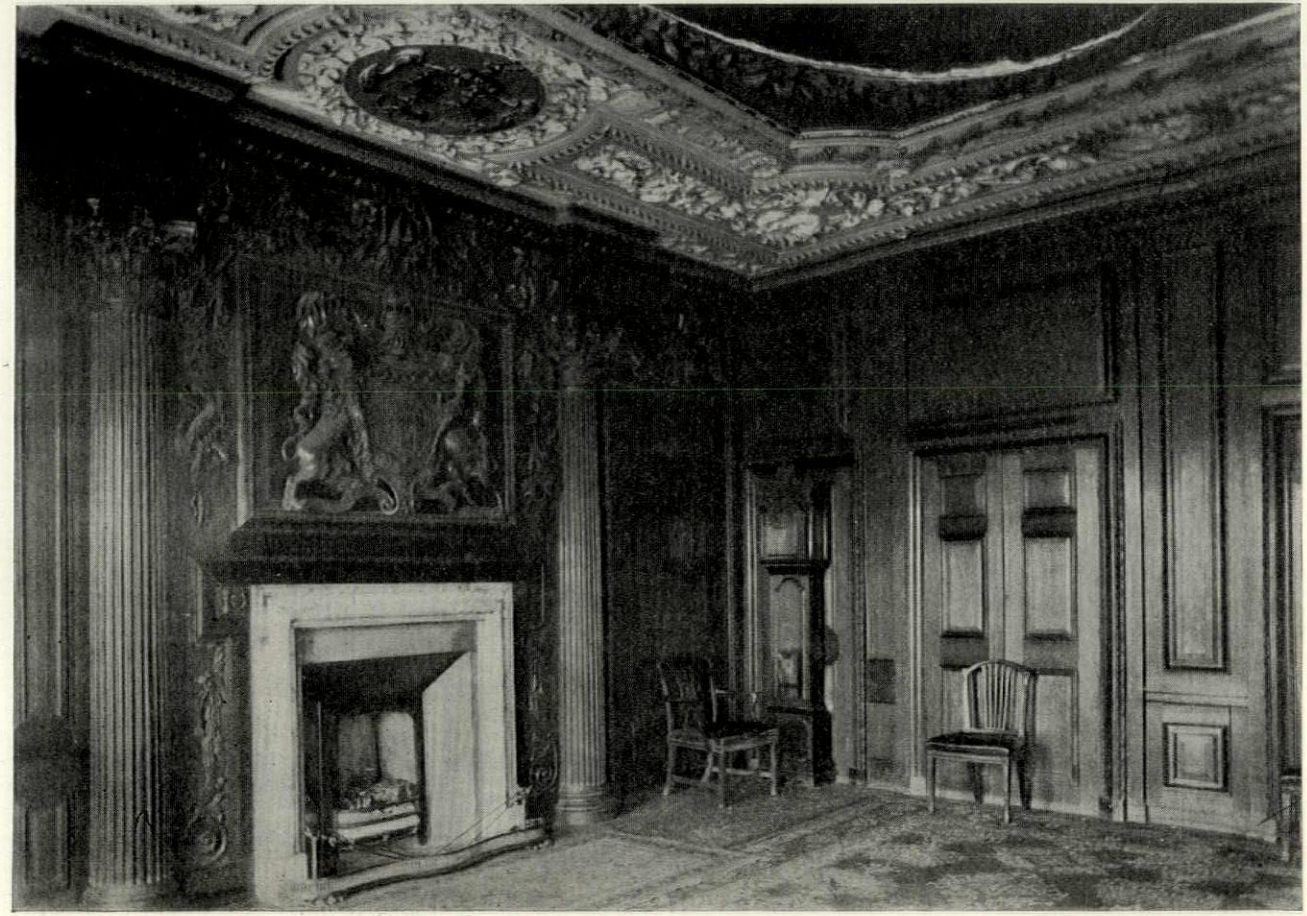


TUDOR BEDROOM AT THE COMMANDERY, WORCESTER. TIME OF HENRY VIII.



PLAN OF WITHDRAWING ROOM
NEW RIVER COMPANY'S OFFICES.

PLAN OF WITHDRAWING ROOM, NEW RIVER COMPANY'S OFFICES. FOR MEASURED DRAWINGS OF OAK ROOM, SEE OPPOSITE PAGE 384.



BOARD ROOM, NEW RIVER
COMPANY'S OFFICE, LONDON.

don after the fire, was a masterful plan, showing an arrangement by which the many churches which he subsequently built could be placed to great advantage, although giving full regard to traffic considerations. Wren's plans and model for St. Paul's Cathedral were submitted for approval in 1673, and this noble fane was commenced about two years later on a new design, the fabric taking thirty-five years to complete.

During the interim Hampton Court Palace and Chatsworth were erected, two of the most palatial buildings of the time in England.

Chatsworth was built for the Duke of Devonshire by William Talman, a famous architect of much artistic taste, who had previously assisted Wren at Hampton Court Palace. Having regard to this fact it is not surprising to note similar characteristics between the two places, especially as regards planning. They both have internal courtyards, and the inner doors of the state rooms open opposite each other in order to give a long vista through the rooms on the plan of Versailles and elsewhere. This era is notable for a special change in the methods adopted in the treatment of joinery and the large scale obtained by increasing the size of the divisional panels of the rooms. As wood could not be obtained in sufficiently large sizes without shrinking unduly, it was necessary to join lengths together to make out the full widths required. This led to quartering the panels and the use of parquetry to obtain decorative features without the aid of sculpture and carving.

The utmost advantage, however, was taken of every salient point to exhibit fine carvings, of which a great variety is to be seen at the places above mentioned. Space would fail to tell of the beautiful pendants by Grinling Gibbons in the chapel at Chatsworth, of the pen of Watson in the principal state room, and the violin painted on the central doors. The art of that day was full of tricks and surprises, and Grinling Gibbons has left at Chatsworth a masterpiece in the finely carved cravat and game which ornaments the wall of the angle state room. It is questionable whether Gibbons ever visited Chatsworth. He was fully occupied with his assistants at St. Paul's Cathedral and Hampton Court Palace, and doubtless sent the chapel carvings by road when completed.

Samuel Watson and his assistants fully justified the notoriety and admiration they acquired in striving to outdo the master, and the forty years' labor spent continuously by Watson on one mansion is sufficient evidence of the trust and confidence placed in him by the Duke of Devonshire. Nor was he the only famous artist there; Gabriel Cibber, the sculptor of the fine reredos in the chapel, was also possibly the author of the monument in the Estate church, for he was employed extensively at Chatsworth, as was also Antonio Verrio, who was responsible for the chapel ceiling and work in the great hall and the "Verrio" bedroom, which has not a single molding, but is painted from ceiling to floor and over the gib-door.

Unfortunately, a large portion of the Verrio ceiling to the chapel gave way a few years ago, but was very faithfully restored by the present Duke's architect, Mr. Romaine Walker.

There are at Hampton Court Palace many interesting chimneypieces in the state rooms, some of the anterooms having nicely designed and executed angle chimneypieces with stepped shelving over to hold china and nicknacks. A favorite example is that in William III's closet, which has in addition some good limewood carving above the shelves where the top is curved back to the angle of the wall. Near this room is the Queen's Chapel, a delightful composition with coved octagonal ceiling, vaulted up, so to speak, to a central skylight, which latter unfortunately makes it very difficult to photograph, as it is practically the only source of light to the room.

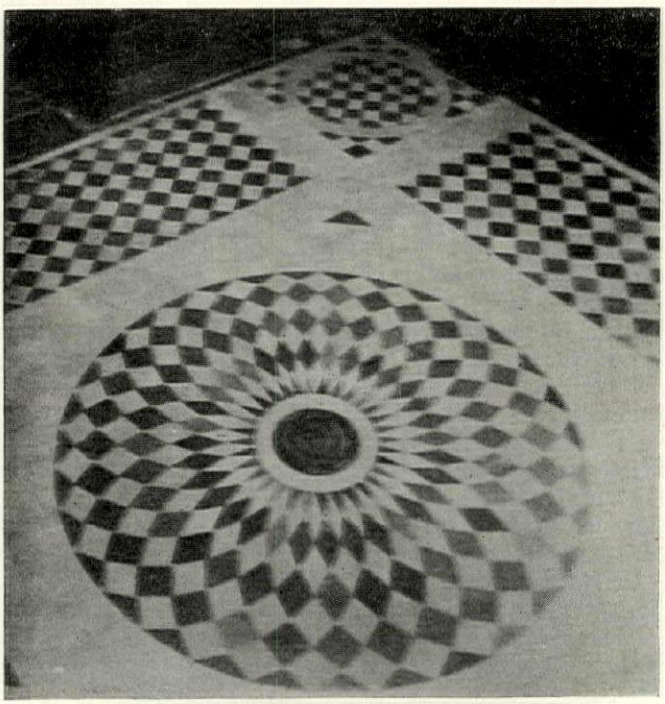
There are many other features and rooms of interest in the palace: the paneling to reredos and pews in the Royal Chapel; the many private apartments of royal guests; the relics from bygone ages, such as the Charles I carved altar rails, the ceilings, and joinery details, the patterns of stone paving on the stairs and the wrought iron

work—all of which it would take many pages to illustrate and describe.

This movement in the direction of carving moldings and spaces to chimney-pieces and overdoors became general. It was followed by Hawksmoor in his charming composition at the Orangery at Kensington Gardens; while there is preserved in the Victoria and Albert Museum, London, a fine room from No. 3 Clifford's Inn, known as the Penhallow Room, dated 1686. The chimney piece contains the Penhallow arms quartering Penwarin in the centre of the carved composition. The room was paneled by one of the law students residing in Clifford's Inn Chambers, London; it being then the practice to lease certain chambers in the Inn for the lifetime of the tenant, in consequence of which the students felt justified in incurring some expenditure upon their leasehold property, even when that property was confined to only a portion of a house.

Previous to this, in 1670 to 1673, the Hall of the Brewers' Company and many other of the Livery Halls of London received additions by way of oak paneled board rooms or banqueting halls. The Brewers' Company's Hall is situated in Addle street, City of London, and has a somewhat quaint finish, lacking the refined detail of work supervised by Wren, while exhibiting much decorative interest. The ceremonial chairs and furniture are also of the period and add considerable value to the rooms from this fact.

There is a fine screen at the end of the hall, over which is the minstrel gallery; while adjacent to it is the board room, where an inscription over the mantel-piece contains the information that Samuel Starling, Lord Mayor, caused the room to be wainscoted in 1670.



MARBLE PAVEMENT—QUEEN'S HOUSE, GREENWICH.

INDVSTRIAL HOVSING DEVELOPMENTS IN AMERICA

By LAWRENCE VEILLER
Secretary of the National Housing Association

PART II
THE GOVERNMENT'S STANDARDS FOR WAR HOUSING

Mr. Veiller, who is the foremost authority in the United States on housing legislation, not only prepared the framework for the Government's Standards, but took part in working out the final determinations.—EDITOR.

ONE of the many interesting and unexpected by-products of the war has been the inauguration in this country of the policy of building workingmen's dwellings by the Federal Government. For years Great Britain and other European countries have carried on such a policy. Although a few persons have urged the adoption of a similar policy in America, America has been slow to follow this suggestion. It has seemed to many that the building of houses for workingmen by the Federal Government was an undue interference with the rights of the individual, and those of a conservative mind have feared greatly the inauguration of such a policy and what might come from it.

But war changes everything. Now, irrespective of what should be the Government's policy in normal or peace times—whether it should follow the example of Great Britain, France, Belgium, Germany and other countries in aiding the building of workingmen's dwellings, or whether it should still continue to hold its former position of aloofness—the exigencies of war have forced the Federal Government to take up the building of workingmen's dwellings. Those in the seats of the mighty have had forced upon them the conclusion that if the war is to be won by the Allies and is not to be drawn out and prolonged indefinitely, a thing, apparently so remote as the housing of the workers, may be a determining factor.

As early as last spring farsighted men began to realize the situation. They pointed out then that unless steps were taken to properly house the workers in shipyards and war industries the production of ships and munitions would be greatly retarded. Various official bodies took the matter up, commissions were appointed, testimony was taken at Washington and a vast fund of information accumulated showing the absolute necessity of action along these lines. Then came unending delays—conferences with high officials, hesitation upon the part of the Government in embarking on this new policy—finally, but not until February, the introduction in Congress of legislation, appropriating in two different bills, $100,000,000 to be expended for the purpose of housing workingmen in the shipyards and in other war industries,

One of these bills is now law. It appropriates $50,000,000 for this purpose to be expended by the Shipping Board and gives to that board broad and far-reaching powers to enable it to house workers in the shipping industry: the power to commandeer buildings; to acquire land by condemnation or otherwise; to develop transportation facilities; to build entire communities, if necessary, and finally to construct buildings and either rent or sell them, or hold and manage them, for the housing of the workers.

ONE HUNDRED MILLIONS FOR HOUSING.

A second bill appropriating an additional $50,000,000, and granting similar powers to the Secretary of Labor to be exercised by him through a Housing Administrator and to perform for the Army, the Navy, the Aviation Board—in short for all war industries other than shipping—the same functions as are performed by the Shipping Board in the housing of workers, was introduced in Congress early in February and was expected to have become a law weeks ago. At the time of going to press with this article this bill still hangs fire in the House. No one apparently knows why. The whole war is being delayed and imperilled by the failure of Congress to act in this respect.

While waiting Congressional action, however, the Housing Administration of the Labor Department has not been idle. Otto M. Eidlitz, the well known New York builder, who was appointed last fall by Secretary of War Baker as a Housing Committee of the Council of National Defense and who in February was appointed by the Secretary of Labor as Housing Administrator, has been working literally night and day at Washington as a "dollar a year man" for the past six months in an endeavor to anticipate the action of Congress and be prepared to act immediately upon receiving from Congress the powers and appropriation necessary to enable him to act. With Mr. Eidlitz has been associated a devoted group of public-spirited professional men—architects, city planners and others—who, as his aides, have similarly been working night and day under high pressure.

While, of course, the most important function to be performed through the Government's taking over the building of houses for workers in shipyards and war industries resides in the speeding up of the war, there is an important by-product to come out of all this effort which students of housing are vitally interested in.

Every one has recognized that workingmen's dwellings built by the Government, or with Government funds, would influence construction in this field for many years to come. As one observer put it, the Government's action will stamp for the next hundred years the type of house that is to be built for industrial workers. Irrespective of whether this statement is correct or not, there can be no question but that the standards adopted by the Government for the housing of workers will have a potent influence upon the housing of the workingman in this country for many years to come.

Partly because of the recognition of this fact, but primarily because of the recognition of the fact that unless houses of the right kind were built, it would not be possible to attract and *hold* the right kind of workers in many communities, the Housing Administration at Washington has set itself for many months past to the task of formulating standards which should govern in the construction work to be undertaken with governmental funds.

THE ADMINISTRATION'S POLICY.

The policy of the Housing Administration, as thus far announced, is to encourage the formation in each locality of a responsible housing corporation, organized and financed by the leading business men of that community, and to loan to that corporation a very considerable proportion of the funds needed for the building of workingmen's dwellings; as a rule, the Government plans to lend 80 per cent. of the total capital required. While the Housing Administration expects to function chiefly in this manner it also recognizes that there will be cases where it will be necessary for the Government to do all the work itself; for, there will be communities where there

are isolated plants and where there is no possibility of local capital being interested or secured.

Under whatever system it operates the Housing Administration has recognized the following principles:

First: That in order to attract and hold the right kind of skilled worker it must build houses of an attractive type; houses that will not only provide the essentials of light and air, shelter, warmth and convenience of living, but also be reasonably attractive.

Second: That in order to protect the Government's investment in the property the houses must be built substantially and well.

Third: That in order to have the property of use after the war the houses must similarly be built substantially and attractively.

STANDARDS OF TYPES OF HOUSES.

For all of these reasons the Housing Administration has been hard at work for some months past formulating "Standards of Types of Houses for Permanent Construction," which it expects to have followed where houses are built with Government money. The ARCHITECTURAL RECORD has been privileged in obtaining an advance copy of these Standards, which it is expected will be issued to the general public as we go to press with this issue. The Standards as presented in this article represent the Standards suggested by the Housing Administration, although there may be in several respects minor changes subsequently to be adopted by the Department of Labor.

While the Standards thus adopted are not intended as inflexible requirements, it is announced that any plans which fail to conform to them are not likely to be accepted unless supported by very strong reasons. Local building codes, housing laws and similar ordinances, where they exist, are to be followed except where they permit lower standards than those of the Housing Administration.

The architectural profession of the country will be vitally interested in the Standards that have been adopted, not only because of their bearing on such work as individual architects may expect to have with the Federal Government, but because of their wider significance as marking the standards which should be attained in the construction of workingmen's dwellings.

NINE TYPES OF HOUSES.

The Standards provide for nine different types of buildings, as follows: the single-family house; the two-family house (one family upstairs—one family down; where two families are side by side with a division wall between, the type is known as the "semi-detached single-family house"); the single-family house with rooms for not more than three lodgers or boarders; lodging house for men; hotel for men; lodging house for women; hotel for women; the tenement house, and the boarding house.

There are some 18 standards or provisions which have been grouped under the title "General Provisions" which are common to all of these types of buildings. In addition there are certain special provisions that have been laid down for each type. Types 1, 2 and 3—viz., the Single-Family House, the Two-Family House and the Single-Family House with rooms for not more than three lodgers or boarders—are grouped together and come under practically the same requirements.

The Lodging House for Men and the Hotel for Men are grouped together and come under practically the same requirements. Similarly with regard to the Lodging House and Hotel for Women. These two types come under practically the same requirements though they differ in some important respects from the requirements for the housing of men. The Tenement House and Boarding House have each their own special requirements.

SIGNIFICANT PRINCIPLES.

The significant things in these Standards, some of which really mark revolutionary changes in the housing of workers, are the following:

1. The declaration against the tenement house as a means of housing workers set forth as follows:

"Tenement houses and apartment houses are considered generally undesirable and will be accepted only in cities

where, because of high land values, it is clearly demonstrated that single and two-family houses cannot be economically provided, or where there is insistent local demand for this type of multiple housing. In any case, they will be accepted only where the Housing Board is convinced that local conditions require or justify their use. They must conform in general to local building ordinances, to the general provisions of these standards and to other special provisions to be issued by the Housing Board."

2. The requirements for light and ventilation, viz., the enunciation of the principle that in most cases, especially in the case of row or group houses and tenement houses, the houses shall not be more than two rooms deep, thus doing away with long and narrow courts. In fact the court as generally known is outlawed even in the case of tenement houses. For such buildings a treatment with a large interior park is the treatment required.

3. The declaration that there shall be an adequate space between adjacent buildings, that either such side yards shall be adequate or that the houses shall be built in rows or groups. This standard marks a high-water mark in the housing practice of the country and if followed throughout the country will revolutionize present practice. In place of the present inadequate narrow slits and alleyways—often 3 feet and generally not more than 6 feet between buildings—the new standard requires 20 feet between adjacent buildings and insists upon a minimum of 16 feet. Unless this can be provided the houses must be built in rows.

4. Similarly there has been an equally important recognition of the importance of an adequate open space between the backs of buildings. The Standards impose a requirement for a minimum distance of 50 feet, with a minimum backyard of 20 feet in all cases. The desirability of setbacks at the front of the house is also recognized.

5. The absolute prohibition of living quarters in basements and cellars.

6. The requirement for through or cross ventilation. Moving air has come to be the vital principle in the modern science of ventilation.

7. The barring out completely of barracks, bunk houses and dormitories of the usual type and the substitution for them of dormitories housing each man in a separate single room of adequate size.

In addition to these striking and fundamental advances in housing standards there are numerous details, all of which go to make for better living conditions, which mark distinct advances and which will be of material assistance to architects throughout the country in the planning of workingmen's dwellings, irrespective of whether they are to be built with Government funds or not. Some of these we believe are sufficiently interesting to be worth commenting upon here.

CLOTHES CLOSETS IN EVERY BEDROOM.

For instance, the Administration has felt it important to require that in all types of houses—boarding houses, lodging houses and hotels, as well as in private dwellings—every bedroom shall have a clothes closet opening from the room. It has barred out the built-in wardrobe dresser and it has even gone so far as to suggest a minimum depth for clothes closets and require them to be supplied with rods so as to take coat hangers. It also requires every closet to have a door. To many this may seem like going into matters of detail of comparatively minor importance, but it is just such details as these which make or break enterprises of this kind. In some parts of the country, partly for economy's sake, but also through a mistaken idea that the clothes of workers need special fumigation and airing, closet doors are omitted. This is a source of great discomfort and inconvenience to the tenants. A workingman's wife is no different from anybody's else wife. She dislikes just as much as does any other woman having dust or dampness pour in on her clothes. Similarly, so simple a thing as the requirement for providing rods in each closet to take coat hangers has an importance way out of proportion to its cost. In the first place, it more than doubles the capacity of the closet. There

are probably not five industrial housing developments in the country where such rods are provided and in many the clothes closets are built so narrow that even if a rod were provided a clothes hanger couldn't be used on it. For this reason the Administration has felt it necessary to impose a minimum depth of 22 inches in all closets.

ARRANGEMENT OF HALLS, STAIRS AND DOORS.

One of the things that will not be found so stated in the Standards, but which has had very careful consideration, is the arrangement of halls, stairs and door openings so that heavy pieces of furniture such as are common to workingmen's families, may be taken up and down stairs and inside of rooms without having to take the house apart as is sometimes the case in workingmen's dwellings of the commercial type. It ought not to be necessary in such houses to take the piano or the brass bed, like a safe, up through the outside windows, but it frequently happens. Moreover, the houses built with Government money will be such that the decencies of life and death can be observed and a coffin can be taken down stairs without standing it on end. If any one thinks that this is not an important matter he has little knowledge of the feelings which control the workingman. He resents such an indignity to the remains of some one dear to him just as much as would any of us. And so the Government requires that "halls, stairs and doors shall permit the easy moving of furniture."

In very recent years a few architects, especially those who have had their training in Paris, have adopted the practice of planning the furniture in the rooms. It is a most important practice. In the average workingman's dwelling it is honored more in the breach than in the observance. It too frequently happens that, when the workingman puts his furniture in his nice little house, he finds no place for his beautiful brass double bed, which is the chief article of furniture in the average mechanic's home and is to be found quite as often in the home of the foreign laborer as it is in the home of the American mechanic.

Consequently, windows that have been provided to furnish light and ventilation are practically useless, for the bed is jammed up against them and the window as a result is never or seldom opened and the shade is kept pulled down, thus defeating the architect's purpose. Similarly, closet and room doors are often so placed as to get in the way of nearly all of the furniture. In the new Standards these difficulties have been anticipated and it is required that beds shall be indicated on plans, to scale, and it is pointed out to the architects, some of whom seem to be without that domestic knowledge, that double beds are 5 feet in width by 6 feet 6 inches in length and single beds three feet wide. It might at first blush seem to the ordinary observer that it was hardly necessary to go into so much detail on this matter, but the Administration has already received plans from responsible architects of good standing where every double bed was too narrow and was really a three-quarter bed—something that is seldom found in workingmen's homes—with a result that the bed when shown on the plans in the proper size did get in the way of doors and windows.

The Standards also add this important provision: "It is recommended that beds be free-standing and not located in a corner or with the side against a wall." Here again a necessary warning has been served upon the architectural profession. The writer recently saw a very attractive and charming industrial housing development, one of the best in the country, where the architect had prided himself upon his forethought and intelligence in planning in all of the beds in the bedrooms, but he was either a bachelor or had never had the experience of helping his wife make the bed. The result was that all of his beds were shown jammed up in a corner with one side against the wall. He was greatly surprised to learn that the housewife didn't like beds located in that manner; that it was impossible to make a double bed thus situated without pulling out the bed and pushing it back again, and that this was a nuisance. In addition, from the point of view of health, it is highly desirable that people

should not be asked to sleep with their noses up against the wall. These defects, so frequently encountered in the workingman's dwelling, have been anticipated in the new Standards and it is hoped will be obviated.

ARRANGEMENT OF SINKS AND WASHTUBS.

A similar consideration of the convenience and comfort of the housewife is found in the requirement that sinks and washtubs shall have the rim 36 inches above the floor. This will prevent many an aching back.

OUTWARD APPEARANCE.

Coming to the question of outside appearance, we find that board fences are barred out and hedges or open metal fences encouraged. Provision for drying clothes is to be made and it is suggested that where metal fences are used the fence standards can be advantageously designed for this purpose. The backyard vegetable garden is not to be so much considered as to make the dividing up of the property into deep lots a desideratum to be sought after. It is suggested instead that the European practice of centrally located and conveniently accessible allotment gardens be followed rather than attempting in new developments to provide deep lots for the purpose of giving each man his own garden at the back of his house. Porches are stated to be desirable, but must be built of durable construction with proper foundations and must not encroach on the side yard or unduly darken rooms.

When it comes to the question of materials of exterior walls, the Standards very properly state that this question is dependent upon local supplies. Brick, terra cotta, stone or concrete are preferred for all outer walls. In the case of buildings housing a number of people, such as lodging houses and hotels for men and women, outer walls of frame, except in the case of one-story buildings, are absolutely prohibited and frame tenements are similarly prohibited. Wood frame, either clapboard, shingled or stuccoed, is permitted for detached or semi-detached single-family and two-family houses not over two and one-half stories high. Division walls between houses built in rows or groups are required to be either of brick, terra cotta, stone or concrete.

ELIMINATION OF WINDING STAIRS.

One of the questions which will make many architects put more study upon the plan of a workingman's dwelling than they have ever put before is the elimination of winding stairs. These are absolutely barred out for all classes of buildings; for, it has been found in practice that by a little bit more careful study the winder can be avoided, and it is the general experience among those familiar with dwellings of this kind that such stairs are very objectionable, that not only children fall down them and get injured, but that adults find great difficulty in getting accustomed to them and frequent accidents result. A maximum height of 8 inches for risers and a minimum width of 9 inches for treads is required.

VENTILATION.

When it comes to questions of ventilation and light and air, there is nothing very startling or new in the Standards adopted. Obviously the Federal Government could not bring itself to loan money upon houses containing dark rooms, or even on houses with rooms inadequately lighted or ventilated. The Standards require that every room in every type of building shall have at least one window of not less than 10 square feet in area opening directly to the outer air. In tenement houses and in lodging houses and hotels 12 square feet is the minimum required. This doesn't mean that *every* window must be 12 square feet in area, for there has been no thought of putting such a straitjacket upon architectural design. All that is required is that there shall be in every room at least one window containing this minimum area. The greatest latitude is given architects in utilizing windows as an essential part of the design of the house, and casement, pivoted and double-hung sash are all permitted and encouraged. While one window is required in every room, it is stated that two windows in each room are generally preferred; though it is recognized that in

the small bedrooms one window is sufficient. Special emphasis is placed upon the desirability of cross-ventilation to secure moving air, and it is pointed out that this should be as direct as possible and it is suggested that where practicable communicating doors be provided between bedrooms for this purpose; that where this is not possible transoms be provided, and doors and windows be so located as to make cross-ventilation as nearly direct as possible.

PLUMBING.

The best practice in plumbing requirements is followed. The house drain under the house and 5 feet outside of it is required to be of extra heavy cast iron. Soil and waste lines similarly are recommended to be either extra heavy cast iron or genuine wrought iron and are required to be extended through the roof. One departure from the usual plumbing practice, and one which will appeal to architects as an economy and as a practical measure, is the permission to use a 3-inch soil stack where not more than two waterclosets are placed on one stack. Antiquated types of fixtures are naturally barred out. Plunger, pan, long-hopper and range closets are prohibited; and waterclosets are required to be of porcelain and either wash-down, syphon or syphon-jet type, in all cases with an individual flush tank. The new type of open-front seat so important in preventing venereal disease is recommended. Outdoor waterclosets are absolutely prohibited, as are privies; cellar waterclosets are to be permitted only where they are supplementary to the accommodations required under the Standards, and even then must be constructed under conditions which will not give rise to abuse. One very important requirement is that access shall be had to all watercloset compartments either from a hall or vestibule and never solely from a room. This is essential for privacy. Wooden sinks and wooden washtrays are barred out. Hot and cold water supply is to be provided for all fixtures. Exposed pipes are preferred, though not always required, and when exposed preference is expressed for the use of wrought iron. Special emphasis is laid upon the desirability of concentrating pipes where possible, and especially in Northern climates, in keeping them away from outside walls so as to avoid freezing.

HEIGHT OF BUILDINGS.

Single-family houses are to be kept down to two and one-half stories in height and two-family houses are limited to two stories. All other types of buildings—namely, tenement houses and hotels and lodging houses—are limited to four stories. While cellars are not required in all cases, nor are they to be deemed essential under the whole house in the case of private dwellings and two-family houses, a minimum height of 6 feet 6 inches is required and all cellars must be well lighted with good cross-ventilation and dry and well paved. Where cellars are omitted the house has to be set up on posts, stones or a wall, at least 2 feet above the ground, and this space is required to be drained, enclosed and ventilated.

ROOMS.

An attempt is made to guide the architectural profession as to what is the best practice and the desires of the working population with regard to room accommodation. In workingmen's dwellings that have been commercially built in this country a mistake has often been made in the past in providing too many rooms; the six-room and seven-room house predominating to a very large extent. The average workingman does not want so many rooms. With a normal family he cannot use so many rooms and the result is that he is often induced to take in roomers or lodgers; the temptation to use the extra rooms in this way being almost irresistible. Moreover, the average mechanic does not wish to spend the money necessary to furnish so many rooms, nor can he afford to heat them, nor does his wife wish to take care of so many rooms. In the case of "common labor," as a rule the workingman cannot afford to pay for more than four rooms, though he generally is forced in most parts of the country to rent a house containing either five, six or seven rooms.

With full recognition of these facts the Housing Administration has suggested in the case of the single-family and two-family houses that the best type of house for the higher paid worker is a five-room type consisting of parlor, large kitchen, three bedrooms and bathroom. As an alternative type of house it is suggested that in place of a large kitchen a dining room and kitchenette may be provided. Architects are cautioned against providing many houses of the four-room type for the higher paid workers. In some cases where there are small families these will be desired, but as a rule the higher paid worker should have at least five rooms. A similar caution is urged with regard to the six-room type of house consisting of parlor, dining room, kitchen and three bedrooms and bath. The Administration states that such a type is suited only for abnormally large families and should be provided sparingly. It adds that for the lower paid workers the four-room type of house is the desirable type and that it should consist of a parlor, a kitchen, two bedrooms, and a bathroom. An interesting provision is found in the requirement that where a house has more than seven rooms it is to be treated as Type 3, viz., a single-family house with rooms for lodgers or boarders. This means that the additional bedrooms must be so arranged and located as to insure privacy of access for boarders, and privacy of toilet accommodations. In such houses it is required that lodgers shall have access to their bedrooms and to a separate watercloset compartment without having to pass through the rooms designed for the use of the family. This will do away with very serious evils that now exist in connection with the practice of taking roomers in workingmen's dwellings.

SIZE OF ROOMS.

In many workingmen's houses that have been built in the past the rooms are frequently too small. In order to bring about economy of construction, and also sometimes because of disadvantageous lot units, and in the case of the speculative builder a desire to "skin the job" as much as possible, has led to the construction of houses with rooms of inadequate size. The Housing Administration, in order to prevent this kind of evil in Government construction, imposes a minimum size for bedrooms in private dwellings, two-family houses and tenement houses, of 80 square feet, with a minimum width of 7 feet. In lodging houses and hotels it permits individual bedrooms as narrow as 6 feet in width and as small as 60 square feet in area, though it recommends in such types of buildings bedrooms of 70 square feet in area with a 7-foot width as a minimum. In all family dwellings, whether private house, two-family house or the tenement, one large bedroom is required to be provided of a size not less than 10 by 12 feet and preferably not larger than 12 by 14 feet.

Some architects in their desire to give ample space, sometimes provide rooms that are too large. In order to avoid this certain maximum sizes are indicated. This is quite important; for, the bedroom that is too large encourages the taking in of roomers and lodgers and is used practically as a dormitory. The house that has too large rooms is also unattractive to the workingman, who finds it difficult and expensive to heat, and he also finds that the ordinary furniture, such as he can buy in the department store or such as he possesses, will not fit it. This is an important consideration to the workingman; in fact, a room that will nicely take a 9x12 rug will be found to be the size room that the workingman will generally desire. For these reasons the Administration has suggested a maximum size for all of the large rooms—namely, parlor, dining room, kitchen and large bedroom—of 12 by 14 feet, with a minimum size for these rooms of 10 by 12 feet. Kitchenettes are permitted only where there is a separate dining room. In such case the kitchenette may be as small as 6 feet in width with a minimum area of 70 square feet.

HEIGHT OF ROOMS.

In private dwellings and two-family houses, as well as in lodging houses and hotels, rooms 8 feet high are permitted. In the latter class of buildings the public rooms are required to be from 9 to 12

feet in height. In tenement houses, following the practice in most cities and the standards of most tenement house laws, a clear height of 9 feet is required for all rooms. Attic rooms are encouraged in order to make possible the greater use of houses with pitched and gambrel roofs; but an attempt is made, however, to prevent such rooms from becoming either unsanitary or uncomfortable because of lack of proper ventilation, or of inadequate height, or too great heat in summer.

In all cases a roof air space of at least 8 inches is required between the top of the ceiling and the under side of the roof; this space to be provided with adequate waterproof openings for ventilation at both ends, if practicable. In addition, where there are attic rooms it is required that there shall be a height of 8 feet throughout a floor area of at least 40 square feet; that there shall also be a clear height of not less than 6 feet over an area of at least 80 square feet, with a minimum width of 7 feet throughout that area. The practice of filling up the attic in a private dwelling with roomers is discouraged by the requirement that in two and one-half story houses a single bedroom only may be provided in the attic.

FIRE PROTECTION.

Every building over three stories high must be a fireproof building throughout. In the hotels and lodging houses for both men and women the buildings are required to be divided up at intervals of approximately 3,000 square feet by fire walls of brick, terra cotta, stone or concrete, with fireproof self-closing doors at all openings. In hotels and lodging houses the stairs and stair halls are required to be fireproof and enclosed in walls of brick, terra cotta, stone or concrete with fireproof self-closing doors at all openings. Dumb-waiters and elevators are not permitted in stair enclosures, but are required to be enclosed in separate fireproof shafts with fireproof doors, those for dumb-waiters to be self-closing. In these types of houses inside cellar stairs are permitted, but are required to be enclosed similarly with fireproof walls with self-closing fireproof doors.

MEANS OF EGRESS.

In hotels and lodging houses for both men and women additional means of egress to the street or yard must be provided either by an additional flight of stairs, by a fire tower or by a stair fire-escape. The fire-escape is considered the least desirable method. Such additional means of egress are required to be remote from the main stairs and to be separated from it and from the other parts of the building by fireproof walls, with fireproof self-closing doors at all openings, and to be so located that no room shall be more than 40 feet away from a means of egress. Similar provisions are made with regard to tenement houses except that, of course, in this class of building the egress is required to be direct from each apartment or flat instead of from a public hall.

SOME UNIQUE FEATURES.

Hotels and lodging houses for both men and women, especially for women, present some novel features which the writer believes will become the accepted type for buildings of this kind. The type of building itself, a city hotel for working men and working women, is a new type and there has been comparatively little experience on which to base conclusions. What experience there has been, however, has been freely availed of. Some of the interesting features of the women's lodging house and hotel which may be cited are the following :

First, the suggestion that a girl's lodging house or hotel should provide accommodations for not less than 75 girls; that it is uneconomic to house less, and that similarly it should not contain more than 150 girls, as it has been found with more than that number the difficulties in management and supervision are too great. The same considerations do not apply in the case of men.

The providing of so called "beau parlors" in the women's lodging houses or hotels where the girls can receive their men callers under proper conditions and yet be under the observance at least of the matron, without embarrassing the girl, is one of the interesting and admirable features that have been worked out.

In addition, the arrangement is suggested that on the first floor of such

buildings there shall be provided a matron's office so placed as to oversee the single entrance and the access to the sleeping quarters. A kitchenette, a sitting room and a sewing room are to be provided on at least alternate room floors so as to give the girls a chance to make candy and to cook up such midnight messes as are dear to the heart of youth. The opportunity also to sit and do their mending without having to go down stairs is an important one. Similarly, provision is made for a room, preferably in the basement, where the girls can wash their clothes.

The hotel type corresponds very closely to the lodging house type except that in addition it is required to have a dining room and cafeteria with the necessary pantry, service rooms and kitchen.

One interesting detail that differentiates the women's lodging house from the men's is the requirement that in the women's general lavatory on each floor there shall be partitions between washbasins extending up five feet from the floor so as to give privacy. This is not found necessary with the men. Similarly, with the men, showers are provided, but for the women these are required to be body showers.

The Standards contain so many interesting details that we print them in full, believing that the architects of the country will care to see in precise form the standards that have been adopted.

While these Standards have been adopted by the Housing Administration of the Department of Labor we understand that the same Standards will practically be enforced by the Shipping Board, for the two departments of the Federal Government are functioning together in this matter.

TO SUM UP.

The country is to be congratulated upon the care, skill and wisdom with which Mr. Eidlitz and his associates in the Housing Administration have done their work. While the Standards which they have adopted represent in some respects important departures and advances over practice in the past, none of them can be said to be either extreme or idealistic. They are all eminently practical and represent sound common sense. The work has been well done.

TEXT OF THE GOVERNMENT'S STANDARDS FOR WAR HOUSING OF PERMANENT CONSTRUCTION.

THESE standards are not intended as inflexible requirements, but any plans which fail to conform to them are not likely to be accepted unless supported by very strong reasons. Local building codes, housing laws, and similar ordinances are to be followed except where they permit lower standards than herein set forth.

I. TYPES OF HOUSES (Principal types only).

Type 1. Single-family house.
Type 2. Two-family house.
Type 3. Single-family house with rooms for lodgers or boarders.
Type 4. Lodging house for men.
Type 5. Hotel for men.
Type 6. Lodging house for women.
Type 7. Hotel for women.
Type 8. Tenement house.
Type 9. Boarding house.

GENERAL PROVISIONS.

All types of houses to conform to these general provisions and in addition to certain special provisions as later indicated.

1. *Arrangement.* Row or group houses normally not to be more than two rooms deep.

2. *Basements.* No living quarters to be in basements.

3. *Closets.* Every bedroom to have a clothes closet, opening from the room. Built-in wardrobe dressers will not be accepted. Normally such closet to be not less than 22 inches deep and with door. Closets to be supplied with rods to take coat hangers.

4. *Cooking.* Gas preferred, but flue for coal stove to be provided, all flues to be lined. The question of whether or not cook stoves are to be provided with the house to be considered at the time materials are being ordered.

5. *Fences.* Board fences will not be accepted. Hedges or open metal fences desirable. Suitable arrangements for drying clothes to be provided. Where there are open metal fences the fence standards can be designed for this purpose.

6. *Furniture Space.* Beds to be indicated to scale on plans (double beds, 5 feet by 6 feet

6 inches; single beds, 3 feet by 6 feet 6 inches). Location of beds not to interfere with windows or doors. It is recommended that beds be free standing and not located in a corner or with the side against a wall. Space to be provided for two pieces of furniture in addition to bed. Halls, stairs, and doors to permit easy moving of furniture.

7. *Gardens.* Allotment gardens, conveniently accessible, preferable to increasing the size of the lot to provide for individual back-yard vegetable gardens.

8. *Lighting.* Electricity preferred.

9. *Materials of Exterior.* Materials dependent on local supplies; brick, terra cotta, stone, or concrete preferred. Outer walls to be insulated against dampness and condensation. Rat nogging to be provided. Roof to be fire resistive; leaders and gutters not essential unless drip will do harm.

10. *Open Spaces.* Side-yard space between adjacent buildings to be preferably 20 feet; minimum, 16 feet; such space to be increased proportionately for each additional story, or part of story, above two stories. If this space is not obtainable because of lot sizes or land values, houses should be built in rows or groups.

Rear-yard depth not to be less than height of building, nor in any case less than 20 feet. Minimum distance between backs of houses to be 50 feet. Layout should contemplate future location of garages, which, when not an integral part of the house, should preferably be at the rear of the lot, should not be located closer than 15 feet to the nearest part of house, and should not exceed one story in height.

Front yards or setbacks desirable where practicable; minimum distance from front wall of house to front wall of opposite house to be 50 feet.

11. *Plumbing.* House drain under house and 5 feet outside to be extra heavy cast iron. It is recommended that soil and waste pipes be extra heavy cast iron or genuine wrought iron. Soil and waste pipes to be extended through roof. A 3-inch soil stack preferred where not more than two water-closets are placed on one stack.

Water-closets to be porcelain and washdown, siphon, or siphon-jet type, with individual flush tank. Open-front seat recommended. Outdoor water-closets will not be accepted. Privies will not be accepted. Cellar water-closets not permitted except where supplementary to accommodations herein required.

Access to water-closet compartments to be from hall or vestibule, never solely from a room. Plunger, pan, long-hopper, and range closets will not be accepted.

Hot and cold water to be provided to all fixtures, with proper drains and shut-offs. Wooden sinks and wash trays will not be accepted.

All fixtures to be separately trapped except in batteries of wash trays and combined sink and wash tray, where one trap is sufficient.

Venting of traps to conform to approved practice, except that the back venting of the top or only fixture on a line is not required. Sink and lavatory traps to be connected direct to the vertical wastes, and not to floor branches. Exposed pipes preferred, and, when exposed, wrought iron preferred. Where possible, lines to be concentrated and kept from outside walls.

12. *Porches.* Desirable. To be of durable construction, particularly the foundations; to be restricted from encroaching on minimum side yard or unduly darkening rooms.

13. *Rear Entrances.* In the case of row or group houses there may be access to the rear through minor one-way public streets. Such streets to be not less than 12 feet wide; to be properly paved, curbed, drained and lighted. Private alleys will not be accepted.

14. *Roof Air Space.* In every house there shall be a minimum clear air space of 8 inches between the ceiling and the roof; this space to be provided with adequate waterproof openings for ventilation, at both ends if practicable.

15. *Rooms, Number of.* Bathrooms are not to be counted as rooms.

16. *Stairs.* Risers to be not more than 8 inches high and treads to be not less than 9 inches wide. Winding stairs will not be accepted except in types 1, 2 and 3. Not more than two winders will be allowed in series. Treads must measure at least 9 inches wide 18 inches from rails.

17. *Ventilation.* Every room to have at least one window opening directly to the outer air. Two windows in each room generally preferred; one window sufficient in small bedrooms. Each room to have a window area of not less than 12 square feet.

Cross ventilation as direct as possible to be provided for all rooms through windows, transoms, or doors; communicating door recommended between bedrooms in row houses.

Every bathroom to have a window of not less than 6 square feet in area opening directly to the outer air.

Every water-closet compartment to have a window of not less than 4½ square feet in area opening directly to the outer air. A skylight in the roof, with an equal amount of glass area and provided with adequate ventilators, will be accepted in lieu of such window, but skylights are not desirable.

18. *Windows.* Minimum area to be meas-

ured between stop beads. Window head to be as near ceiling as practicable. Windows may be double-hung, pivoted, or casement. If double hung, upper and lower sash to be the same size. In cities with soft-coal smoke nuisance, minimum area to be increased.

Window frames to be designed to accommodate screens and outside shutters. In cold climates, weather strips are recommended.

II. SPECIAL PROVISIONS FOR TYPES 1, 2, AND 3.

In addition to complying with all general provisions, types, 1, 2, and 3 are to comply with the following provisions:

Type 1. Single-family house.

Type 2. Two-family house. ("Two-flatter," one family upstairs, one down. For "double house," see "Single-family house, semi-detached.")

Type 3. Single-family house with rooms for not more than three lodgers or boarders.

1. *Agreement.* Types 1 and 3 not to be over 2½ stories high. Type 2 not to be over 2 stories high.

When detached or semi-detached, types 1, 2, and 3 normally not to be over 3 rooms deep; when in rows or groups, not to be over 2 rooms deep except that the end house of row may be 3 rooms deep.

2. *Cellar.* To be well lighted, cross ventilated, dry, and paved or cemented. Minimum clear height under joists, 6 feet 6 inches. When hot-air furnaces are used, minimum height 7 feet. Cellar not essential under whole house. Where climatic or soil conditions make cellar inadvisable it may be omitted, in which case adequate provision is to be made for storing fuel. Where cellar is omitted, house to be set up on masonry piers or walls 2 feet clear from ground; space to be drained, inclosed, and ventilated.

3. *Grouping.* Single-family houses of the more expensive type preferably to be detached houses, but may be semi-detached or even attached in rows or groups. In other cases where land values permit, detached or semi-detached are desirable; otherwise attached in groups.

4. *Heating.* Provision to be made for heating houses. If not otherwise heated, bathroom to be heated from kitchen stove.

5. *Materials of Exterior.* Brick, terra cotta, stone, or concrete preferred; but wood frame clapboarded, shingled, or stuccoed permitted for detached or semi-detached houses not over 2½ stories high. Party walls between attached houses in rows or groups to be of brick, terra cotta, stone, or concrete.

6. *Plumbing.* Bathtub (shower is not sufficient).

Lavatory, to be preferably in bathroom.

Sink to be in kitchen; rim 36 inches above floor.

Washtubs with covers, preferably two, rim 36 inches above floor, to be set in kitchen or in well-lighted, dry, and ventilated cellar.

Water-closet to be inside the house in well-lighted and ventilated compartment, with window of 4½ square feet minimum area to outer air, and preferably with impervious floor not of concrete.

7. *Rooms, Height of.* Minimum, 8 feet.

Sloping ceilings and "knee walls" will be accepted only under the following conditions: Roof space above flat portion of ceiling to be of ample size and adequately ventilated; spaces between rafters of sloping portion to be adequately ventilated into roof space; bedroom to have greater window area and better cross ventilation than the minimum permissible for a standard flat-ceiling room; bedroom to have a minimum height of 8 feet over an area of at least 40 square feet with a minimum flat-ceiling width of 3½ feet, and a clear height of not less than 6 feet over an area of at least 80 square feet with a minimum width of 7 feet.

8. *Rooms in Attic.* As a rule, in 2½-story houses, only one bedroom to be provided in the attic.

9. *Rooms, Number and Use of.* In types 1 and 2: For higher-paid workers, five-room type preferred, with parlor, large kitchen, 3 bedrooms, and bathroom. Dining room and kitchenette may be provided in place of the large kitchen. Four-room type to be provided sparingly for higher-paid workers. Six-room type, with 4 bedrooms, or 3 bedrooms and parlor convertible into fourth bedroom, suited for abnormally large families only, and should be provided sparingly. Six-room type should normally have parlor, dining room, kitchen, 3 bedrooms, and bathroom.

For lower-paid workers, four-room type desirable, with parlor, kitchen, 2 bedrooms, and bathroom.

Any house having more than seven rooms to be treated as type 3.

In type 3, in addition to family quarters indicated above, single rooms for lodgers to be provided. In addition to the family water-closet accommodations, a water-closet compartment containing lavatory to be provided for the sole use of the lodgers. Lodgers to have access to their bedrooms and to their water-closet compartment without going through rooms designed for use of family.

10. *Rooms, Size of.* One large bedroom to be provided, size 10 by 12 to 12 by 14 feet.

Small bedrooms, minimum size, 80 square feet; minmum width, 7 feet.

Parlor, 10 by 12 to 12 by 14 feet.

Dining room, 9 by 12 to 12 by 14 feet.

Kitchen (where there is no separate dining room), 10 by 12 to 12 by 14 feet.

Kitchenette (only where there is a separate dining room), minimum width, 6 feet; minimum area, 70 square feet.

III. Special Provisions for Types 4 and 5.

In addition to complying with all general provisions, types 4 and 5 must comply with the following special provisions:

Type 4. Lodging house for men.

Type 5. Hotel for men.

1. *Arrangement.* Provision to be made for 75 men or more. Height limited to 4 stories, except in large cities.

2. *Cellar.* Minimum height, 7 feet; to be well lighted, cross ventilated, dry, and paved or cemented. Cellar not essential under whole building. Where omitted, building to be set up on masonry piers or walls 2 feet clear from ground; space to be drained, inclosed and ventilated.

3. *Fire Protection.* If over four stories high to be fireproof throughout.

If over 3 stories high, first floor construction to be fireproof.

If over 2 stories high, non-fireproof building the area of which exceeds approximately 3,000 square feet to be divided by fire walls of brick, terra cotta, stone, or concrete into areas not exceeding approximately 3,000 square feet each. All openings in such walls to be provided with fireproof self-closing doors. Adequate means of egress to be provided to street or yard by an additional flight of stairs, or by fire tower or stair fire escape (fire escape less desirable). All such additional means of egress to be remote from the main stairs and separated therefrom and from the other parts of the building by walls of brick, terra cotta, stone, or concrete, with fireproof self-closing doors at all openings. Such additional means of egress to be so located that no room shall be more than 40 feet from a means of egress. All main egress doors to swing out.

All stairs and stair halls to be not less than 3 feet wide in the clear and to be inclosed in walls of brick, terra cotta, stone, or concrete, with fireproof self-closng doors at all openings. All doors to stair halls to swing into stair hall without obstructing free passage.

Dumb-waiters and elevators will not be accepted in stair inclosure; they should be inclosed in fireproof shafts with fireproof doors, those for dumb-waiters to be self-closing. Inside cellar stairs to be inclosed with walls of brick, terra cotta, stone, or concrete, with self-closing fireproof doors. Standpipes with hose reels on each floor to be so located that any point can be reached with 75 feet of hose.

4. *Heating.* Except where connected with a central plant, provision to be made for independent heating.

5. *Material of Exterior.* To be brick, terra cotta, stone, or concrete, except that wood frame will be accepted for one-story buildings.

6. *Plumbing.* Minimum provision: One water-closet per 12 men; one urinal per 16 men; one lavatory per 8 men; one shower per 10 men; one bathtub per floor, provided there is not less than one per 50 men. Ratio to be increased where there are less than 50 men per floor. Floor and base of toilet rooms to be waterproof not of concrete. Sufficient water-closets to be provided in the cellar or basement for the accommodation of engineers, firemen, and laundry workers.

7. *Rooms, Height of.* Height for public rooms, 9 to 12 feet; minimum for bedrooms, 8 feet.

8. *Rooms, Number and Use of.* Each lodger to have separate room. Two-men rooms not permitted. (Cubicles and dwarf partitions will not be accepted.)

Each floor to have a general bathroom containing required showers, tub, and lavatories. Each floor also to have a general toilet room containing required water-closets and urinals. Each of the two rooms to have windows opening directly to the outer air, and to be separate but adjoining and communicating. Service closets with slop sinks and space for brooms and pails to be provided on each floor.

Smoking room, reading room, billiard room, physician's room, laundry for washing clothes, superintendent's office and adequate quarters for superintendent to be provided. Unless provided elsewhere in the community, bowling alleys to be in basement.

Hotel (type 5) also to have dining room and cafeteria with outside access thereto, and with pantry, service rooms, kitchen and toilet facilities for men and women employees. An additional general toilet room is to be provided conveniently accessible.

9. *Rooms, Size of.* Single bedrooms to have an area of 70 square feet and be 7 feet wide minimum.

10. *Ventilation.* Bedroom doors preferably to be placed opposite each other and to have transoms or slat panels.

11. *Windows.* One window in each room to have minimum area of 12 square feet between stop beads.

IV. SPECIAL PROVISIONS FOR TYPES 6 AND 7.

In addition to complying with all general provisions, types 6 and 7 must comply with the following special provisions:

Type 6. Lodging house for women.

Type 7. Hotel for women.

1. *Arrangement.* Provision to be made for 75 to 150 women (with less than 75 the unit is not economical; with more than 150 there are difficulties in management and supervision).

Height limited to 4 stories, except in large cities.

2. *Cellar.* Minimum height, 7 feet; to be well lighted, cross ventilated, dry, and paved or cemented. Cellar not essential under whole building. Where omitted, building to be set upon masonry piers or walls 2 feet clear from ground; space to be drained, inclosed and ventilated.

3. *Fire Protection.* If over four stories high, to be fireproof throughout.

If over 3 stories high, first floor construction to be fireproof.

If over 2 stories high, a non-fireproof building the area of which exceeds approximately 3,000 square feet to be divided by fire walls of brick, terra cotta, stone, or concrete into areas not exceeding approximately 3,000 square feet. All openings in such walls to be provided with fireproof self-closing doors. Adequate means of egress to be provided to street or yard by an additional flight of stairs, or by fire tower or stair fire escape (fire escape less desirable). All such additional means of egress to be remote from the main stairs and separated therefrom and from other parts of the building by walls of brick, terra cotta, stone or concrete, with fireproof self-closing doors at all openings. Such additional means of egress to be so located that no room shall be more than 40 feet from a means of egress. All main egress doors to swing out.

All stairs and stair halls to be not less than 3 feet wide in the clear and to be inclosed in walls of brick, terra cotta, stone, or concrete, with fireproof self-closing doors at all openings. All doors to stair halls to swing into stair hall without obstructing free passage.

Dumb-waiters and elevators will not be accepted in stair inclosure; they should be inclosed in fireproof shafts with fireproof doors, those for dumb-waiters to be self-closing. Inside cellar stairs to be inclosed with walls of brick, terra cotta, stone, or concrete, with self-closing fireproof doors. Stand-pipes with hose reels on each floor to be so located that any point can be reached with 75 feet of hose.

4. *Heating.* Except where connected with a central heating plant, provision to be made for independent heating.

5. *Materials for Exterior.* To be of brick, terra cotta, stone, or concrete, except that wood frame will be accepted for one-story buildings.

6. *Plumbing.* Minimum provision: One water-closet per 10 women, one lavatory per 6 women, one body shower per 10 women, one bathtub per 25 women. Ratio to be increased where there are less than 50 women per floor. Floor and base of toilet rooms waterproof, not of concrete. Dwarf partitions between lavatories to extend at least 6 feet above the floor and have curtains. Sufficient water-closets to be provided in the cellar or basement for the accommodation of engineers, firemen, and laundry workers.

7. *Rooms, Height of.* Height for public rooms, 9 to 12 feet; minimum for bedrooms, 8 feet.

8. *Rooms, Number and Use of.* Each lodger to have separate room. (Cubicles and dwarf partitions will not be accepted.) Rooms for two women not permitted. Each floor to have a general bathroom containing required body showers, tub, and lavatories. Each floor also to have a general toilet room containing required water-closets. Each of these two rooms to have windows opening directly to the outer air, and to be separate but adjoining and communicating. Service closet, with slop sink and space for brooms and pails to be provided on each floor.

First floor to have matron's office so placed as to oversee the single entrance and access to sleeping quarters; to have reception parlors or alcoves (one for every 20 women), or large parlor with furniture arranged for privacy in conversation; also assembly hall with movable partitions and set stage.

Kitchenette, sitting room, and sewing room to be provided on at least alternate room floors. Matron's quarters, physician's room, and infirmary, laundry in which lodgers can wash their clothes, and trunk room to be provided.

Hotel (type 7) also to have dining room and cafeteria, with outside access thereto, with pantry, service rooms, kitchen and toilet facilities for employees. An additional toilet room is to be provided conveniently accessible.

9. *Rooms, Size of.* Single bedrooms to have an area of 70 square feet and be 7 feet wide minimum.

10. *Ventilation.* Bedroom doors preferably to be placed opposite each other, and to have transoms or slat panels.

11. *Windows.* One window in each room to have minimum area of 12 square feet between stop beads.

V. Special Provisions for Type 8.

Type 8. Tenement house (including flats or apartments), a building occupied in whole or in part by three or more families.

Tenement and apartment houses are considered generally undesirable and will be accepted only in cities where, because of high land values, it is clearly demonstrated that single and two-family houses can not be economically provided, or where there is insistent local demand for this type of multiple housing. In any case, they will be accepted only where the Bureau of Industrial Housing and Transportation is convinced that local conditions require or justify their use. They must conform in general to local building ordinances, to the general provisions of these standards, and to other special provisions to be issued by the Bureau of Industrial Housing and Transportation.

1. *Arrangement.* Buildings are not to be more than 2 rooms deep. This means either that rooms shall open on a street or on a rear yard, or on an interior park sufficiently large for grass and trees to grow in it and of a sufficient size to admit direct sunshine into all rooms opening on it, at some period of the day, except rooms with northerly exposure. Buildings not to be over four stories high.

2. *Cellar.* To be under whole building, minimum height, 7 feet; to be well lighted, cross ventilated, and paved.

3. *Fireproofing.* If over 3 stories high, to be fire-resistive throughout; if over 2 stories high, a non-fireproof building, the area of which exceeds 3,000 square feet, to be divided by fire walls of brick, terra cotta, stone or concrete into area not exceeding approximately 3,000 square feet each. All openings in such walls to be provided with fireproof self-closing doors.

Adequate means of egress to be provided direct from each apartment to street or yard by additional stairs, or by fire tower or stair fire escape (fire escape less desirable). All such additional means of egress to be remote from the main stairs and separated therefrom and from the other parts of the building by walls of brick, terra cotta, stone or concrete, with fireproof self-closing doors at all openings.

All stairs and stair halls to be fireproof and inclosed in walls of brick, terra cotta, stone or concrete, with fireproof self-closing doors at all openings.

Dumb-waiters and elevators will not be accepted in stair inclosure; they should be inclosed in fireproof shafts with fireproof doors, those of dumb-waiter to be self-inclosing. Inside cellar stairs to be inclosed with walls of brick, terra cotta, stone or concrete with self-closing fireproof doors

In a flat-roofed, non-fireproof tenement house containing more than 4 families, all stairs to extend to the roof, and to be provided with a bulkhead. If 4 families or less, scuttle with ladder is sufficient.

4. *Heating.* Normally central system.

5. *Material of Walls.* Walls to be of brick, terra cotta, stone or concrete.

6. *Plumbing.* Each apartment to be provided in the kitchen with set washtubs with covers, preferably two, rim 36 inches above floor.

Sink to be in kitchen, rim 36 inches above floor.

Water closet to be in well-lighted and ventilated compartment with window of 4½ square feet minimum area to outer air, and with impervious floor, not concrete.

Bathtub (shower is not sufficient).

Lavatory, preferably to be in bathroom.

Sufficient additional water closets to be provided in the cellar or basement for the accommodation of engineer.

7. *Rooms—Height of.* Minimum height 9 feet in the clear.

8. *Rooms—Number and Use of.* For higher-paid workers, five-room type preferred with parlor, large kitchen, 3 bedrooms and bathroom. Dining room and kitchenette may be provided in place of large kitchen. Four-room type to be provided sparingly for higher-paid workers. Six-room type, with 4 bedrooms, or 3 bedrooms and parlor convertible into fourth bedroom, suited for abnormally large families only, and should be provided sparingly; six-room type should normally have parlor, dining room, kitchen, 3 bedrooms and bathroom.

For lower-paid workers, four-room type desirable, with parlor, kitchen, 2 bedrooms, and bathroom. A few three-room tenements may be provided.

One-room and two-room apartments will not be accepted.

No apartment of over six rooms accepted.

9. *Rooms—Size of.* One large bedroom to be provided, size 9x11 to 12x14 feet.

Small bedrooms, minimum size 80 square feet; minimum width 7 feet.

Parlor, 10x12 to 12x14 feet.

Dining room, 9x11 to 12x14 feet.

Kitchen (where there is no separate dining room), 10x12 to 12x14 feet.

Kitchenette (only where there is a separate dining room), minimum width 6 feet; normal minimum area 70 square feet.

10. *Windows.* Each room to have at least one window opening directly to the outer air, to be not less than 12 square feet in area between stop beads. Each public hall and stair hall to have window with minimum area of 12 square feet, opening directly to the outer air, at each story.

VI. Special Provisions for Type 9 (Boarding House).

Where more than 3 and less than 25 rooms for lodgers are provided, building to be classed as boarding house. If 3 lodgers or less, building to be classed as Type 3; if 25 or more to be classed as Types 4, 5, 6 or 7.

In addition to complying with all general provisions, buildings of type 9 must comply with the following special provisions:

1. *Access.* Lodgers to have access to their bedrooms and to their watercloset compartments and bathrooms without going through rooms designed for use of family. Separate outside entrance for lodgers recommended.

2. *Arrangement.* Not to be over 3 stories high. Not to be over 2 rooms deep, except that the end houses of rows may be 3 rooms deep.

3. *Cellar.* To be well lighted, cross-ventilated, dry and paved or cemented. Minimum clear height under joists 7 feet. Cellar not essential under whole house; where omitted, house to be set up on masonry piers or walls 2 feet clear from ground; space to be drained, inclosed and ventilated.

4. *Fire Protection.* If frame, not to be over 2 stories high. If over 2 stories high, adequate means of egress to be provided to street or yard by an additional flight of stairs, or by fire tower or stair fire escape (fire escape less desirable). All such additional means of egress to be remote from the main stairs and separated therefrom and from the other parts of the building by walls of brick, terra cotta, stone or concrete, with fireproof self-closing doors at all openings. Such additional means of egress to be so located that no room shall be more than 40 feet from a means of egress.

All stairs and stair halls to be not less than 3 feet wide in the clear and to be inclosed in walls of brick, terra cotta, stone or concrete with fireproof self-closing doors at all openings.

Dumb-waiters and elevators will not be accepted in stair inclosure; they should be inclosed in fireproof shafts with fireproof doors, those for dumb-waiters to be self-closing.

5. *Heating.* Except where connected with a central plant, provision to be made for independent heating.

6. *Materials of Walls.* Brick, terra cotta, stone or concrete preferred, but wood frame, clapboarded, shingled or stuccoed permitted for detached or semi-detached houses not over 2 stories high.

7. *Plumbing.* For family living quarters:

Bathtub (shower is not sufficient).

Lavatory, to be preferably in bathroom.

Sink to be in kitchen; rim 36 inches above floor.

Washtubs with covers, preferably two, rim 36 inches above floor, to be set in kitchen or in well-lighted, dry, and ventilated cellar.

Water-closet to be inside the house in well-lighted and ventilated compartment, with window of 4½ square feet minimum area to outer air, and preferably with impervious floor not of concrete.

A watercloset compartment containing lavatory to be provided for the sole use of the lodgers. The following minimum provisions to be made: For men, 1 bathtub per 24 lodgers, 1 water closet and 1 lavatory per 8 lodgers, 1 shower per 10 lodgers; for women, 1 bathtub per 16 lodgers, 1 body shower per 10 lodgers, 1 lavatory per 5 lodgers, 1 water closet per 8 lodgers. Dwarf partition between lavatories for women to extend at least 6 feet above the floor and have curtains.

In addition to above, floor and base of toilet rooms to be waterproof not of concrete.

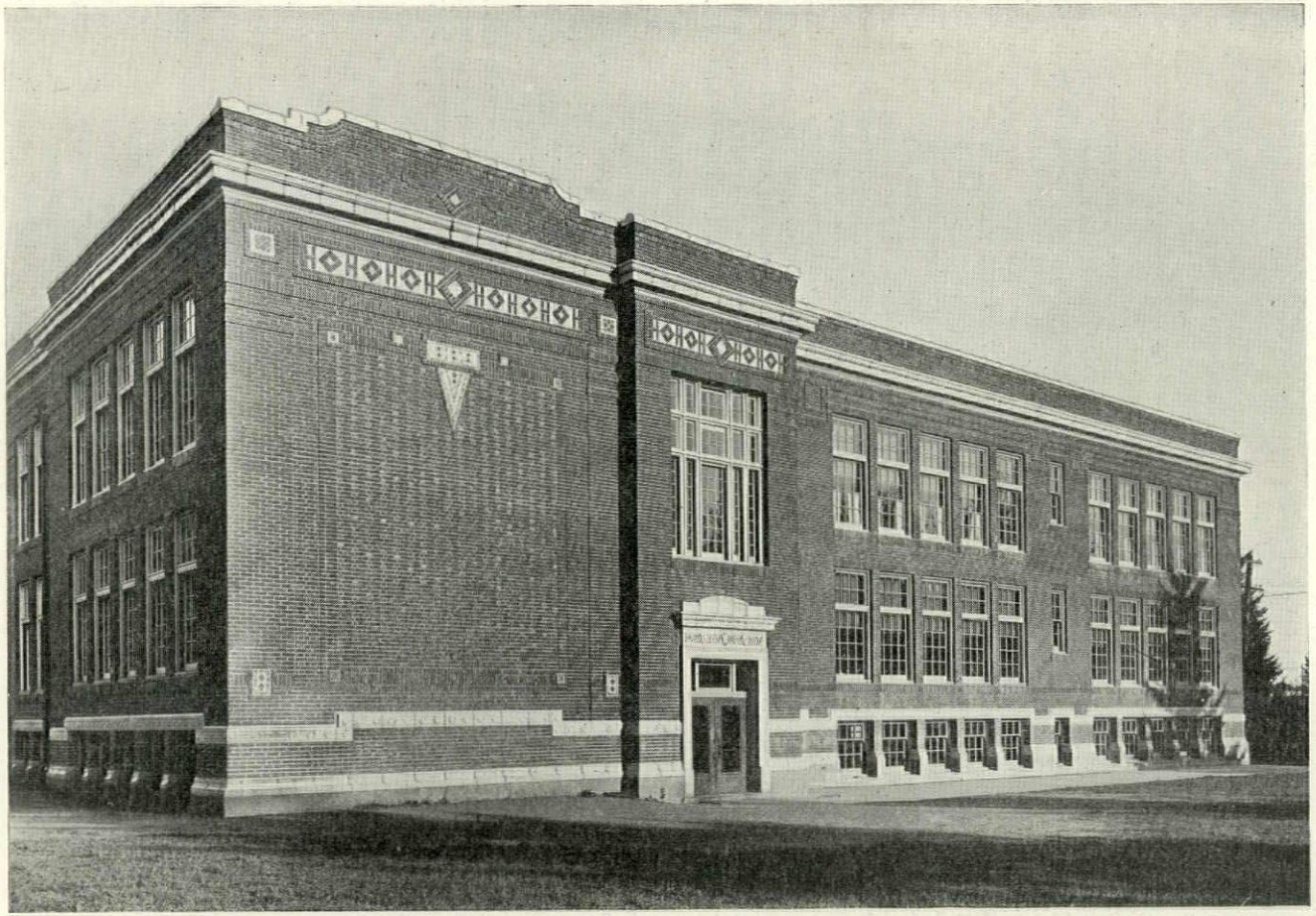
8. *Rooms, Height of.* Minumum 8 feet.

9. *Rooms in Attic.* No lodgers' rooms in attic accepted.

10. *Rooms, Number and Use of.* Each lodger to have separate room. Rooms for two lodgers not permitted. (Cubicles and dwarf partitions will not be accepted). Building to contain more than 3 and less than 25 rooms for lodgers, in addition to living quarters for one family, lodgers' bath rooms and toilet rooms containing showers, tubs, lavatories, waterclosets to be provided; preferably, bath room containing showers, tub, and lavatories to be separate but adjoining and communicating with water closet compartment. One of each such rooms preferably on each floor. Each of these two rooms to have windows opening directly to the outer air. Lodgers to have a common room, also dining room; the latter to be located near family kitchen; the common room to be conveniently accessible from the outside.

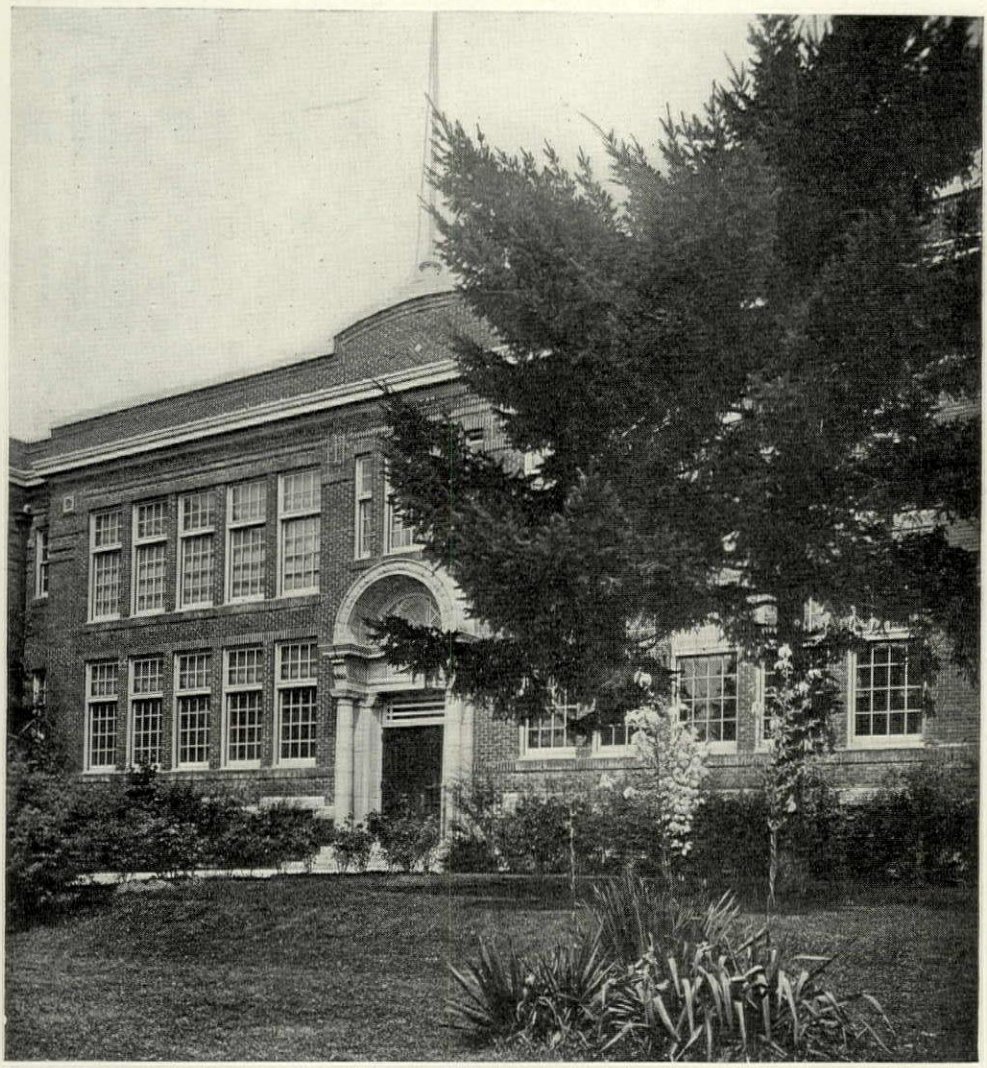
11. *Rooms, Size of.* Single bedrooms for lodgers to have an area of 70 square feet and be 7 feet wide minimum. Size of common room and dining room each to be proportionate to the number of boarders.

12. *Ventilation.* Bedroom doors preferably to be placed opposite each other and to have transoms or slat panels.

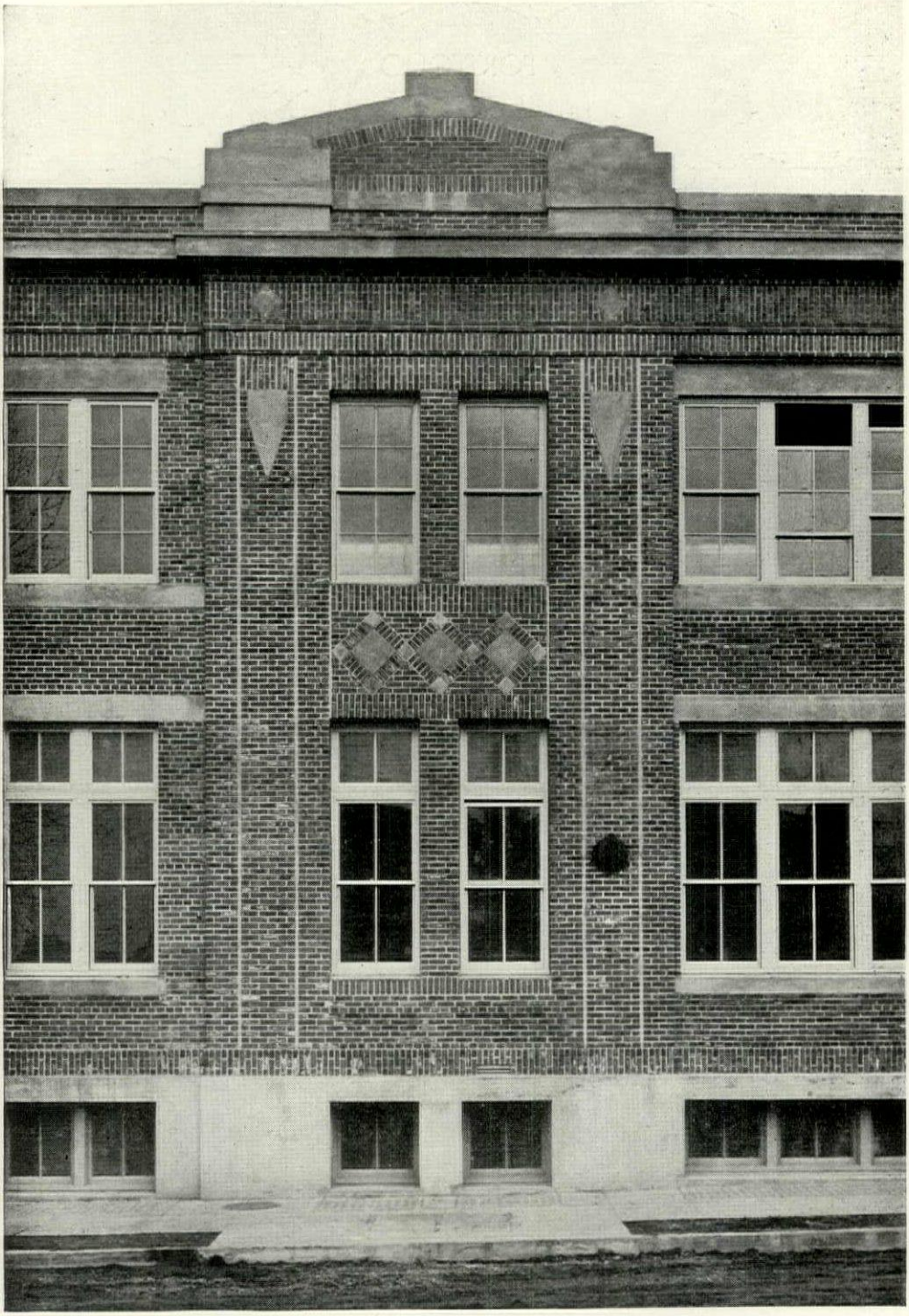


FERNWOOD GRAMMAR SCHOOL, PORTLAND, OREGON. LAWRENCE & HOLFORD, ARCHITECTS.

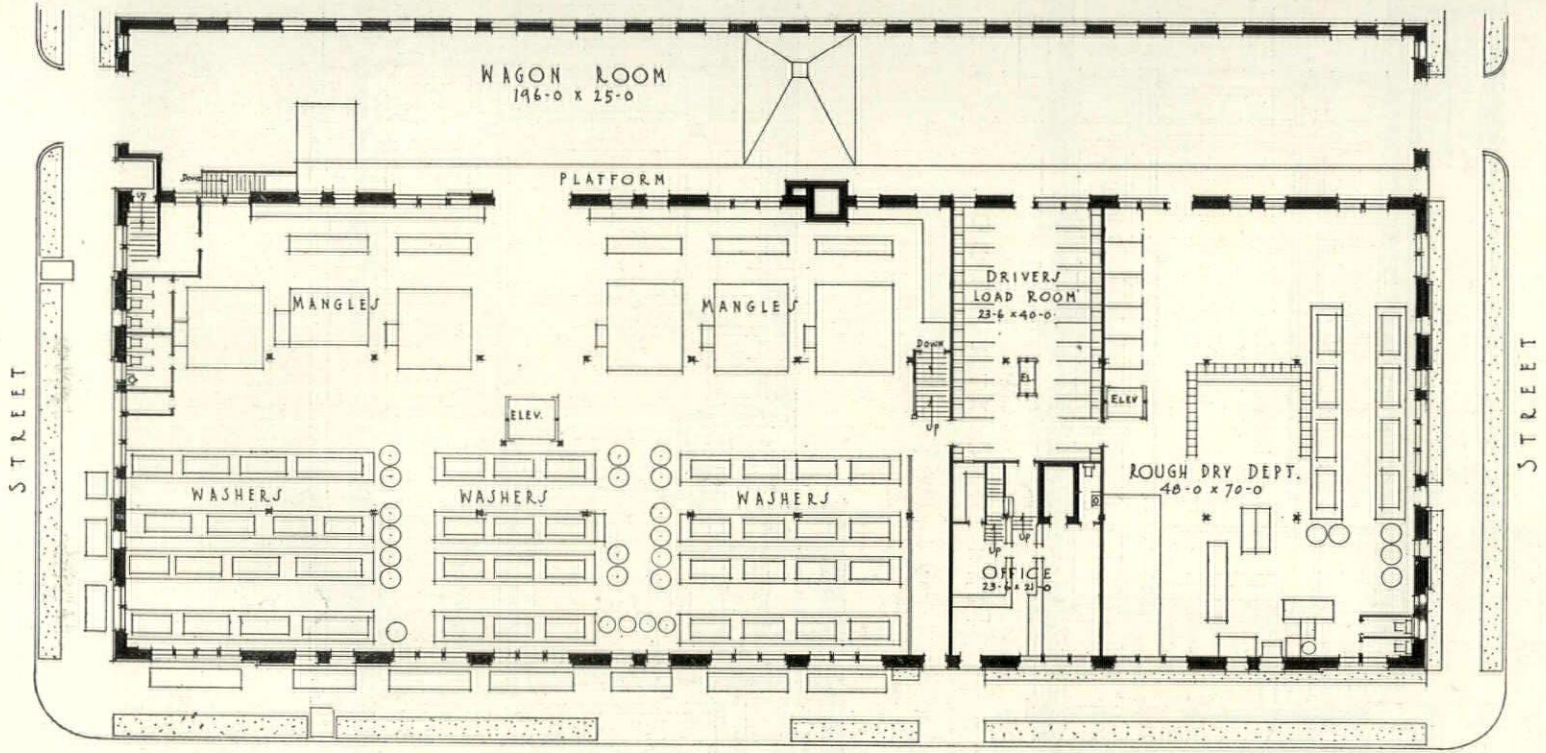
PORTFOLIO OF CVRRENT ARCHITECTVRE



FERNWOOD GRAMMAR SCHOOL, PORTLAND, OREGON. LAWRENCE & HOLFORD, ARCHITECTS.

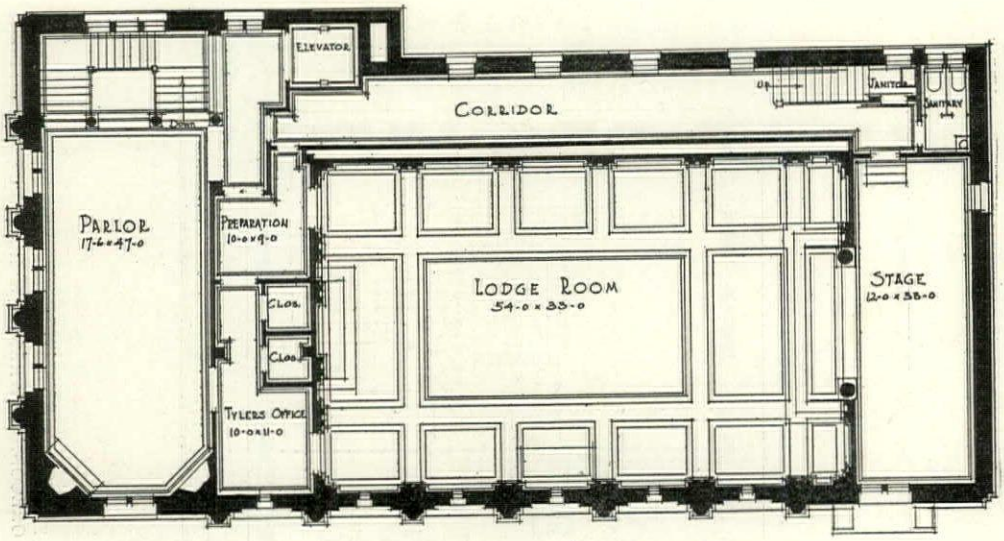


TROY LAUNDRY, PORTLAND, OREGON.
LAWRENCE & HOLFORD, ARCHITECTS.

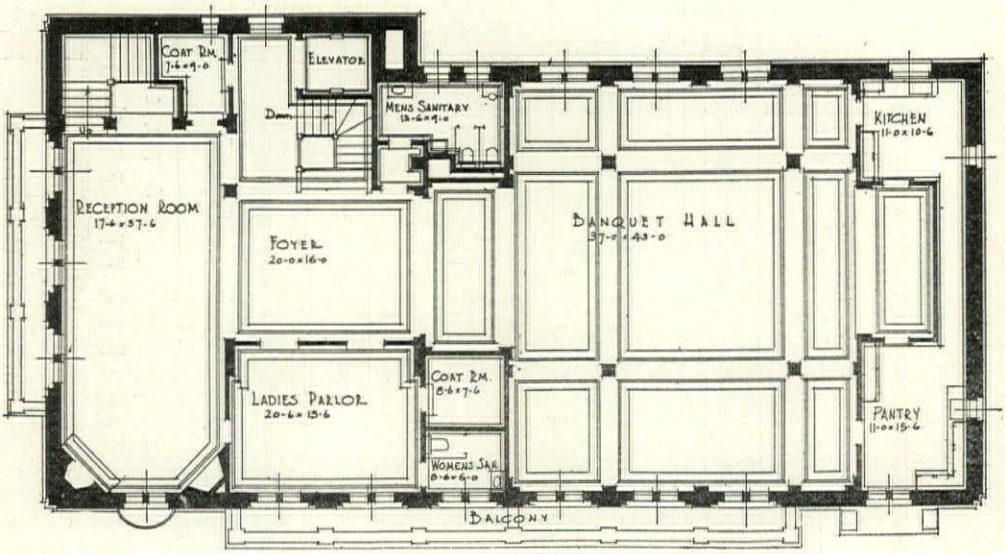


FIRST FLOOR PLAN

FIRST FLOOR PLAN—TROY LAUNDRY, PORTLAND, OREGON. LAWRENCE & HOLFORD, ARCHITECTS.



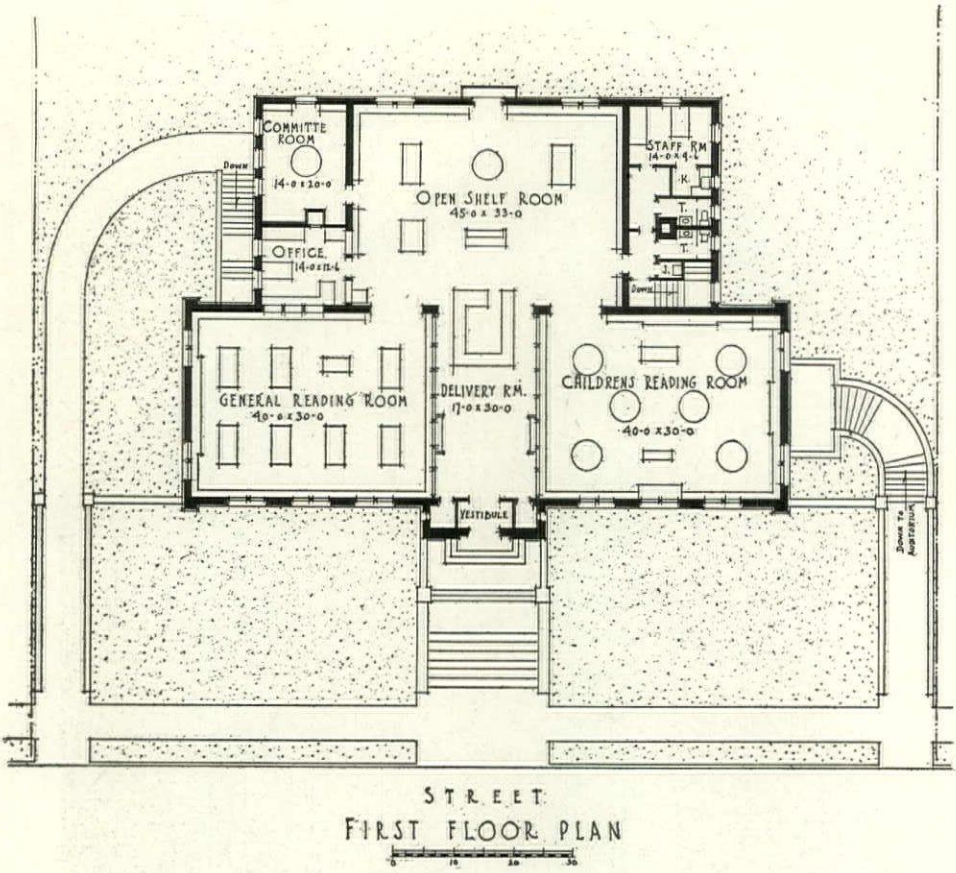
PLAN OF SIXTH FLOOR



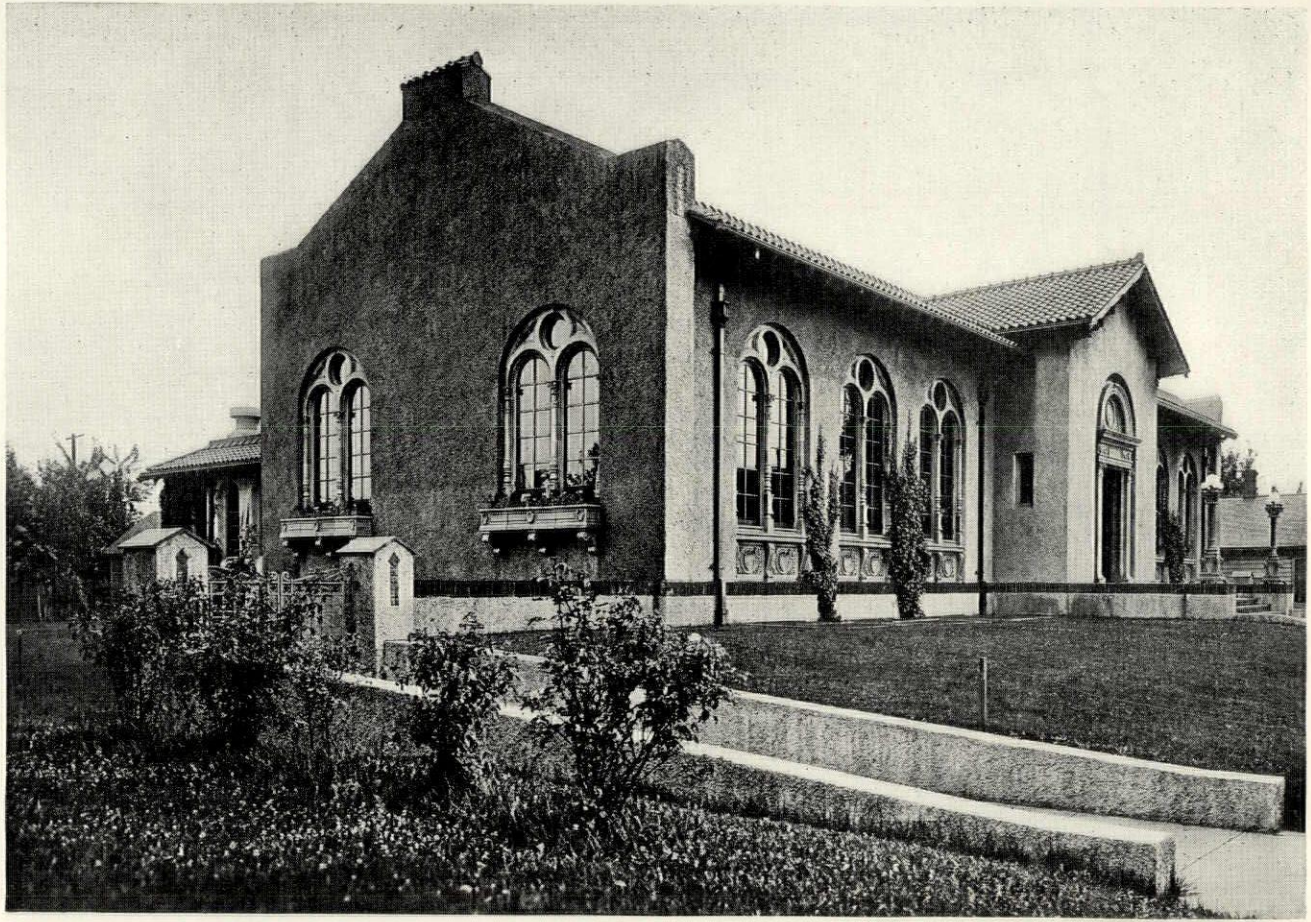
PLAN OF FIFTH FLOOR

FIFTH AND SIXTH FLOOR PLANS—MASONIC TEMPLE BUILDING, SALEM, OREGON. LAWRENCE & HOLFORD, ARCHITECTS.

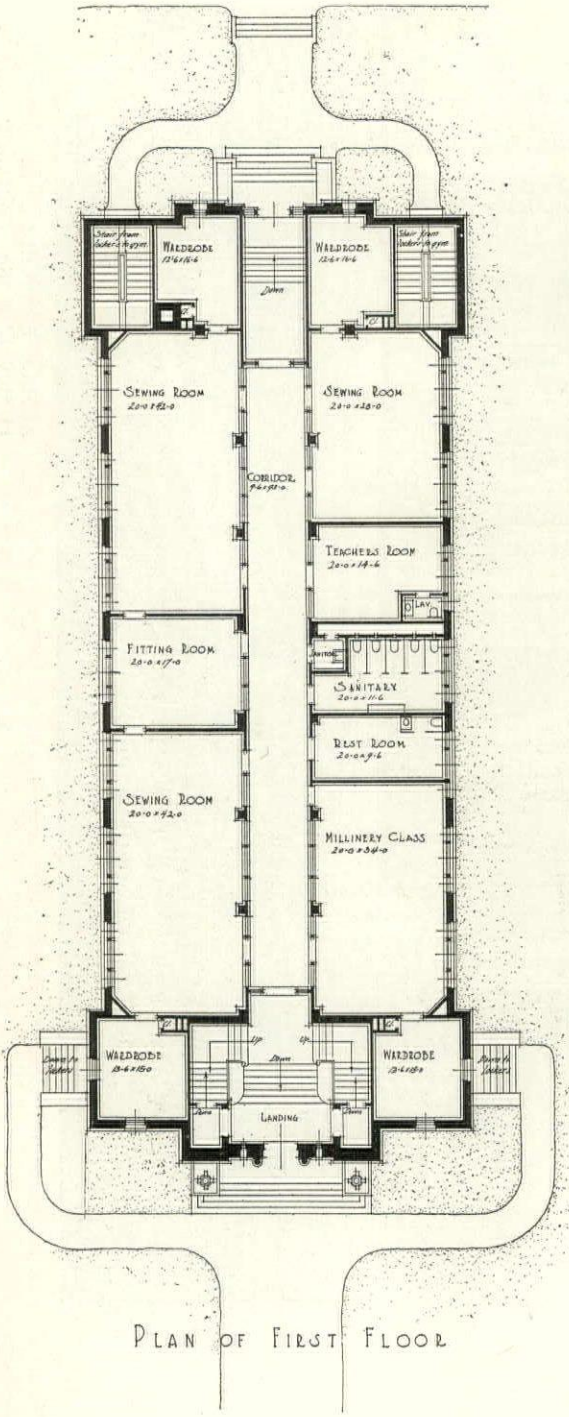
MASONIC TEMPLE BUILDING, SALEM, OREGON. LAWRENCE & HOLFORD, ARCHITECTS.



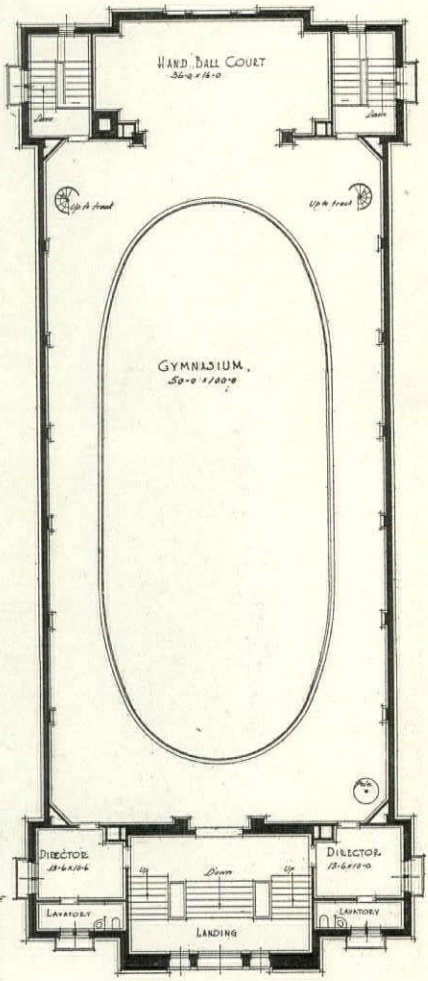
FIRST FLOOR PLAN—ALBINA BRANCH OF THE PORTLAND PUBLIC LIBRARY, PORTLAND, OREGON. LAWRENCE & HOLFORD, ARCHITECTS.



ALBINA BRANCH OF THE PORTLAND PUBLIC LIBRARY, PORTLAND, OREGON. LAWRENCE & HOLFORD, ARCHITECTS.

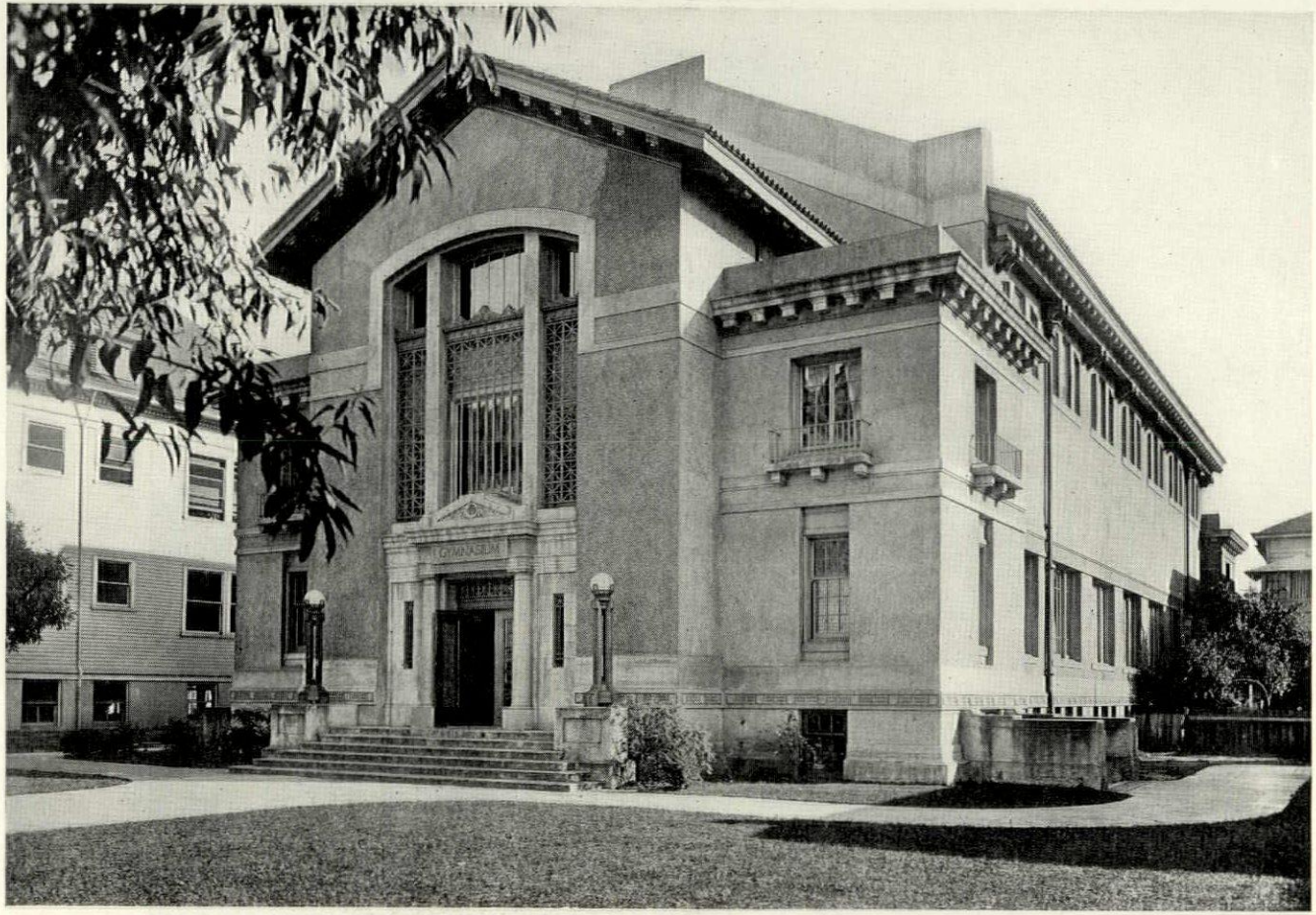


Plan of First Floor



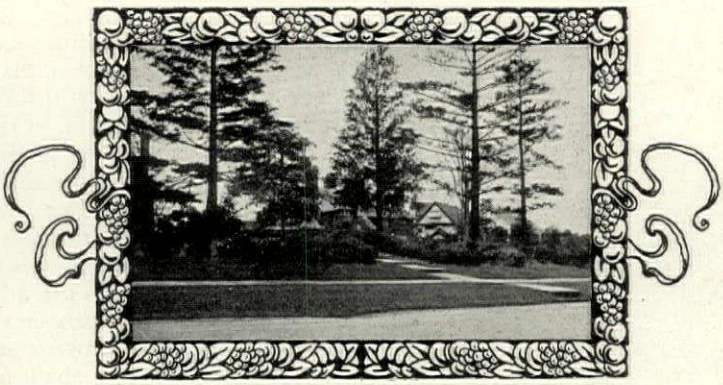
Plan of Second Floor

WASHINGTON HIGH SCHOOL GYMNASIUM AND DOMESTIC SCIENCE BUILDING, PORTLAND, OREGON. LAWRENCE & HOLFORD, ARCHITECTS.



WASHINGTON HIGH SCHOOL GYMNASIUM AND DOMESTIC SCIENCE BUILDING, PORTLAND, OREGON. LAWRENCE & HOLFORD, ARCHITECTS.

EUCLID GOLF ALLOTMENT, CLEVELAND, OHIO.



Suburban Landscape Planning in Cleveland

By

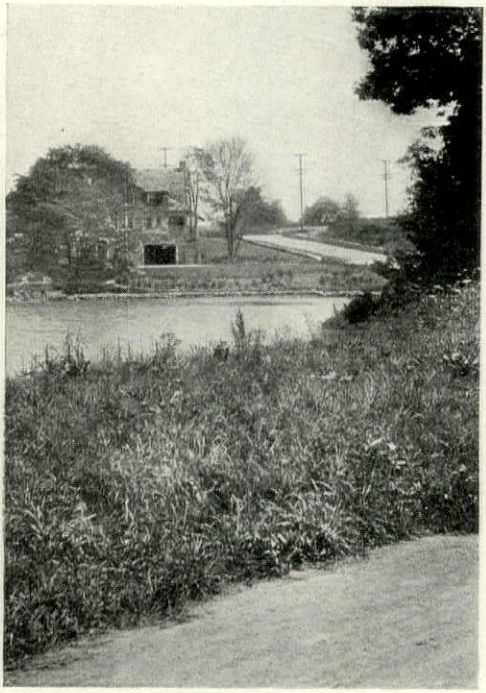
I. T. Frary

THERE is a constantly increasing tendency on the part of city dwellers to rebel against the uninteresting and monotonous regularity of gridiron street planning. The economy of space, while unquestionably desirable from an economic standpoint, is equally undesirable from the esthetic. The whole trend of city life at best is to mold us into uniform types, and the endless repetition of cast-in-a-mold streets and houses only emphasizes the tendency toward loss of individuality. Fortunately, however, there is every evidence of a strong and rapidly growing aversion to this sort of environment, and the suburban development of many of our large cities is showing most encouraging signs of progress along the lines of park rather than gridiron planning.

A large proportion of real estate development seems to be, unfortunately, in the hands of promoters whose vision does not extend beyond the realm of dividends; and, as a result, we are all familiar with the painful but profitable districts, which might have been attractive, homelike neighborhoods, but which, instead, have been cut up into lots of minimum size, outraged with houses of minimum cost and artistic merit, and then sold to innocent people, who are thereby doomed to a minimum opportunity for developing individuality in either themselves or their surroundings. In the remote past, exigencies of mutual defence and transportation necessitated compact housing of the population; but with the present day social conditions, and with the advent of electric cars, suburban railway service and automobiles, this necessity has been removed.

Already many progressive citizens have emancipated themselves from city life and have transplanted themselves and their families bodily into the country, for the summer at least. Their less fortunately circumstanced neighbors have watched this exodus enviously and, in an endeavor to make the best of their fate, have taken up the task of securing, in or near the city, as much of rural charm as possible.

Realizing the force of this movement,



SHAKER HEIGHTS.

which is everywhere in evidence, men of vision have broken the bonds of tradition and have developed suburban and even urban properties along natural, artistic lines, so that, instead of destroying all natural beauty by so-called "modern improvements" and making the progress of city expansion a blight, they are preserving and enhancing such charm, converting waste spaces into beauty spots, and, by the judicious preservation of natural lakes, ravines, patches of woodland and other attractive bits of landscape, they not only are contributing to the beauty of adjacent property, but are actually increasing its value, thus more than compensating themselves for the loss of tracts withdrawn from sale.

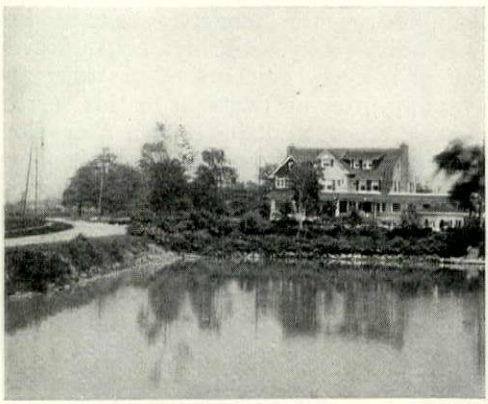
The city of Cleveland is an interesting example of a determined campaign to redeem, as far as possible, the beauties which a past generation did its best to destroy, and to preserve that which the "devouring hand of progress" has overlooked.

Located as it is on the south shore of Lake Erie, a wonderful opportunity was presented for riparian development; but as is customarily the case, the appreciation of esthetic possibilities came too late and, as a result, much of its most beautiful lake front is now in the clutches of railroads and factories. Of late years, however, a wholesome public spirit has been awakened, and considerable tracts of lake front and other property have been secured for park purposes and a broad policy of park extension has been established, which has already developed 2,180 acres of park property (valued at $30,000,000), and aims to surround the city eventually with a chain of parks and boulevards. This development has been fostered largely by men interested in real estate, and it is to their breadth of vision and grasp of the city's esthetic possibilities that much of its present beauty is due.

The residential expansion to the north being sharply restricted by the waters of Lake Erie and to the south by the industrial district, the city has of necessity spread with great rapidity to the east and west. Including the suburbs (which, though politically separate, are practically a part of the city) it stretches along the lake shore for a distance of about fifteen miles.

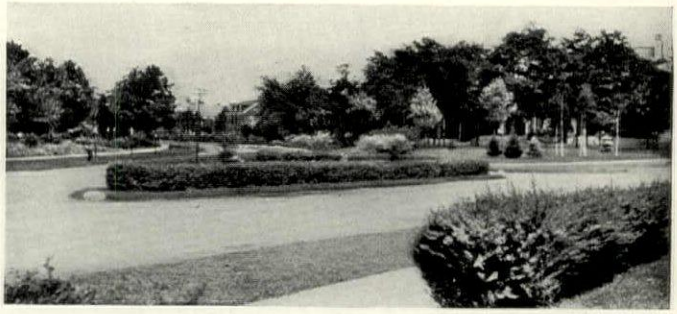
The older portions of the city are laid out largely on the gridiron plan, or as near it as conditions would permit; but within the past decade or two several extensive, outlying tracts have been developed in such a manner as to merit more than passing notice.

Of these, the territory covering the



SHAKER HEIGHTS.

heights which fringe the eastern edge of the city stands preeminent because of its great extent, its natural beauty and the intelligent, comprehensive plans which have carefully retained and enhanced so much of its original character. A large portion of the property in question was bought in the year 1826 by the United Society of Believers, or Shakers, as they were commonly called because of a shaking or dancing movement which was part of their religious service. This peculiar sect, in whose life marriage had no place and which held all property in common, operated its own sawmill, grist mill, broom factory and tannery, as well as cultivating its extensive farm lands, and to a large degree lived its life independent and aloof from the surrounding world. Marriage being forbidden, the existence of the community depended upon converts from the outside world; and as they were not aggressive proselyters, the membership gradually dwindled to a mere handful of aged people, and in course of time the survivors joined a stronger community located in the east, and the property, embracing 1,393 acres, was sold to a syndicate in 1892.



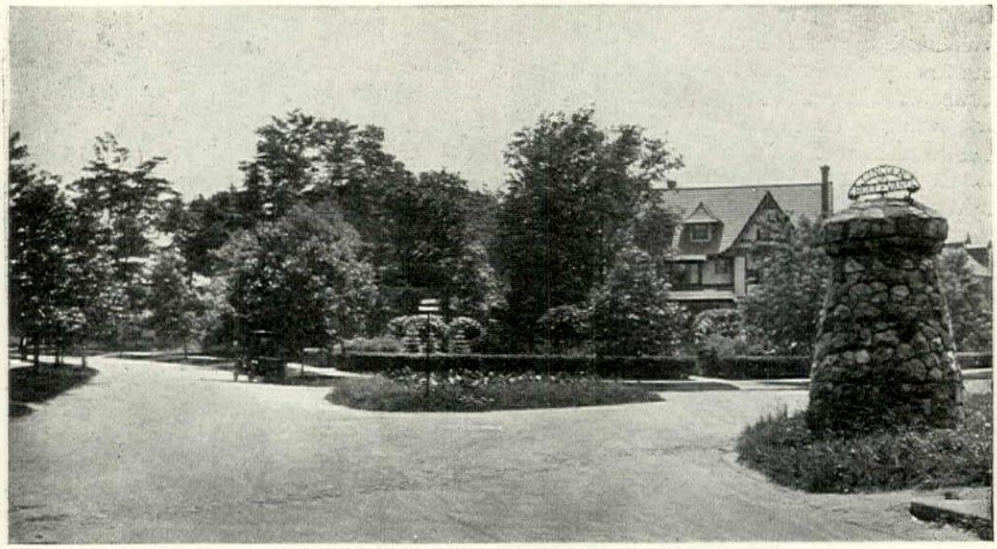
SHAKER HEIGHTS, CLEVELAND, OHIO.

The men in whose hands was placed the development of this great tract were fortunately men of vision and taste, who appreciated the picturesque as well as the commercial value of their property, which consisted of cultivated fields, orchards, woodland and a chain of small lakes. Under their direction the engineer's plans were drawn so that the beauty spots were carefully preserved, roads were laid out in conformity with the natural topography, lakes were enlarged and beautified, and in every way possible the charm of nature was preserved.

In pursuance of this policy, tracts aggregating three or four hundred acres were deeded outright to the city for park extension purposes and another large tract was given to a golf club, the only financial returns from these gifts being derived from the anticipated enhancement of values in the adjacent property.

It must not be thought that this striving for beautiful park-like effects resulted in cutting the district into an aimless hodgepodge by erratic winding drives; far from it. Indeed, a study of the plan will show that the greatest care was taken to provide arteries of traffic, which give direct service through the entire tract and to every section of it. Moreover, the apparently aimless meanderings of the roads are in reality nicely calculated, not only to preserve existing peculiarities of topography and secure the utmost beauty in curvature of roadway and charm of home sites, but also to secure the maximum of salable real estate and the most efficient intercommunication between all portions of this extensive and diversified territory.

SHAKER HEIGHTS, CLEVELAND, OHIO.



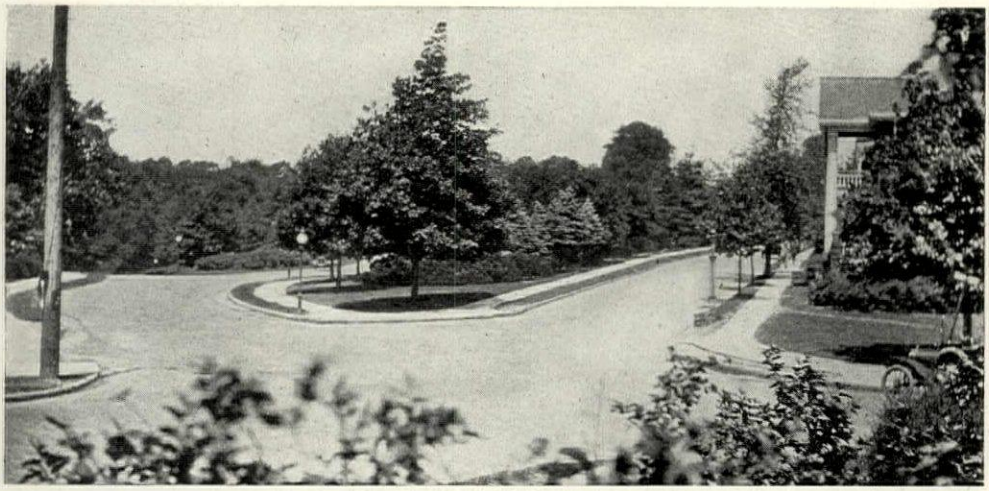
CLEVELAND HEIGHTS, CLEVELAND, OHIO.

Despite the beauty resulting from so irregular a layout, it must be confessed that, to a stranger endeavoring to find his way, it seems a hopeless tangle, and many a belated driver has, like a babe in the woods, traveled around and around in endless circles. The devotee of efficiency will of course find much to criticise in such a plan, for, so long as a straight line constitutes the shortest route of travel between two points, the graceful curve will be to him a source of irritation. For such minds Cleveland's suburbs would possess no charms. However, even though we do acknowledge that it is all as confusing to a stranger as the labyrinth of Hampton Court, we admire it just the same—for most of us do not build our homes to suit the convenience of strangers; we build them for our own use and convenience—and if our taste dictates a quiet secluded nook in an out of the way corner, that is our affair, and it is up to the delivery boy, the book agent or the bill collector to find us as best he can—that is his affair.

All property was hedged about with stringent restrictions regulating the character of houses to be erected, their relation to street and party lines, and excluding business blocks and other objectionable features. As this property was disposed of, other tracts were secured and laid out in conformity with the original plan until, today, there is embodied in the territory known as Shaker Heights an area of approximately 4,000 acres.

Closely adjoining this territory are several other districts in which the same general ideas of planning have been followed. The oldest and most important of these is Euclid Heights, though it is in no way comparable to the vast area of the Shaker territory. Ambler Heights, Cedar Heights, Cleveland Heights (which includes Mayfield Heights and Forest Hill) and the Euclid Golf Allotment are other divisions—all of which have been laid out with the same outstanding idea of giving an environment of beauty and individuality. So vast and comprehensive have been the plans in connection with this territory that the expansion of many years to come has been anticipated.

The altitude (in places over 400 feet above the lake level), atmospheric purity and freedom from any possibility of manufacturing and commercial aggression make of this entire heights territory an ideal location for a residential district, and it has the additional advantage, not found in many large cities, of being approached through streets of good character and not through slums or crowded commercial districts, as is so often the case.



EAST BOULEVARD, CLEVELAND, OHIO.

At the extreme western limits of the city and about equally distant from the business centre another but much smaller district has been developed which is known as Clifton Park. It is reached from the business centre by an almost unbroken stretch of boulevard and parkway skirting the lake shore. On this side of the city the shore is fringed most of the way by residences instead of by the factories which disfigure the eastern shore. This difference is due to the high bluffs, which make the water inaccessible, and have diverted the railroads with their accompanying factories to territory further inland.

The conditions at Clifton Park are radically different from those obtaining in the Shaker Heights district. Instead of the limitless rolling country awaiting future expansion, there is here a comparatively small area, the limits of which are sharply defined on the north and west by lofty bluffs which drop precipitately to the waters of the lake and of Rocky River, on the south by a railroad, and on the east by the regulation gridiron layout of Lakewood village. This property, which a generation ago was used as a picnic resort, is still thickly wooded with forest trees which have been carefully preserved.

In planning the roadways, first consideration was given to the extraordinary beauty and value of the lake and river frontage, for here the cliffs have an almost sheer drop of seventy-five feet to the water; and as the feature of this district is the beautiful view over lake and river, the choicest residences are naturally to be found along the cliff's edge. The main roadway, upon which these places face, practically encircles the property, enclosing an irregular tract, which is in turn cut through by other curving roads. Although the entire area of this tract is less than 200 acres, the winding roads and the heavy screen of trees, by cutting off continuous vistas in any direction, give an exaggerated impression of its extent. Within the confines of the city itself are to be found numerous interesting bits of landscape planning due to the irregular topography and to the parkways. These irregularities of topography, which have been carefully preserved by the Park Commission, have served as an inspiration to many owners of adjoining property, who, by harmonious development, have not only enhanced the value and attractiveness of their own holdings but have at the same time increased the apparent extent of the park areas.

The most important of these is known as the Wade Park Allotment and is located north and east of and adjoining Wade Park. It is an exclusive residential district, some of whose winding, well shaded roadways are but continuations of the park drives. This affords another illustration of the far-sighted

CLIFTON PARK, CLEVELAND, OHIO.

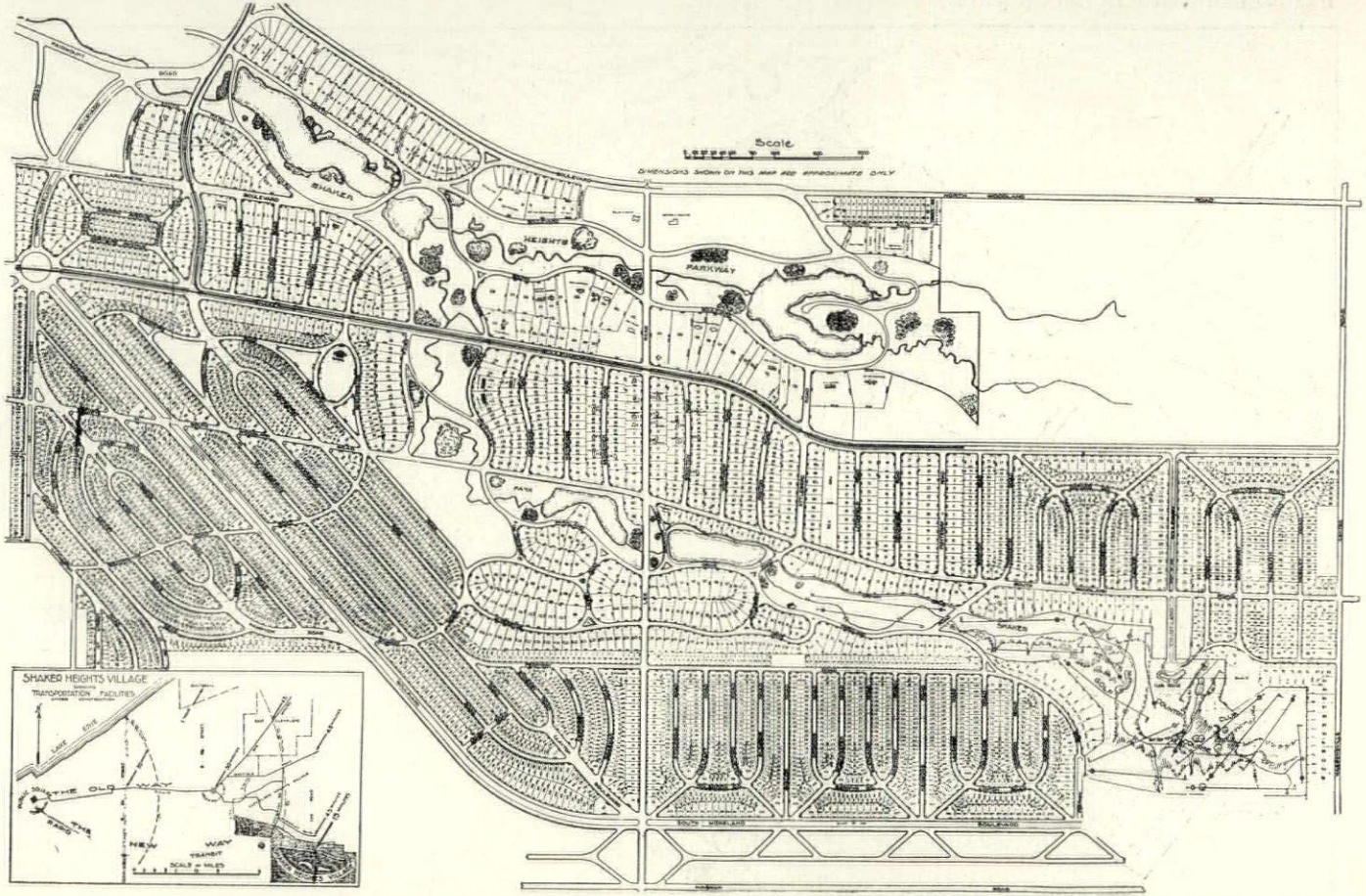
policy of turning over to the city valuable land for park purposes, and depending upon the enhancement of adjoining property as a means of reimbursement.

It might be noted in this connection that, owing to the jealous fear on the part of certain narrow-minded politicians, lest the donors reap vast profits, several other park sites of great value were lost to the city, and that this particular one was secured only because of the patience and public spirit of the donor. The Wade Park territory assumes added importance because of the educational and ecclesiastical institutions which now exist or are about to be located in its vicinity, reference to which was made in an article descriptive of the Cleveland Museum of Art, which appeared in the Architectural Record of September, 1916.

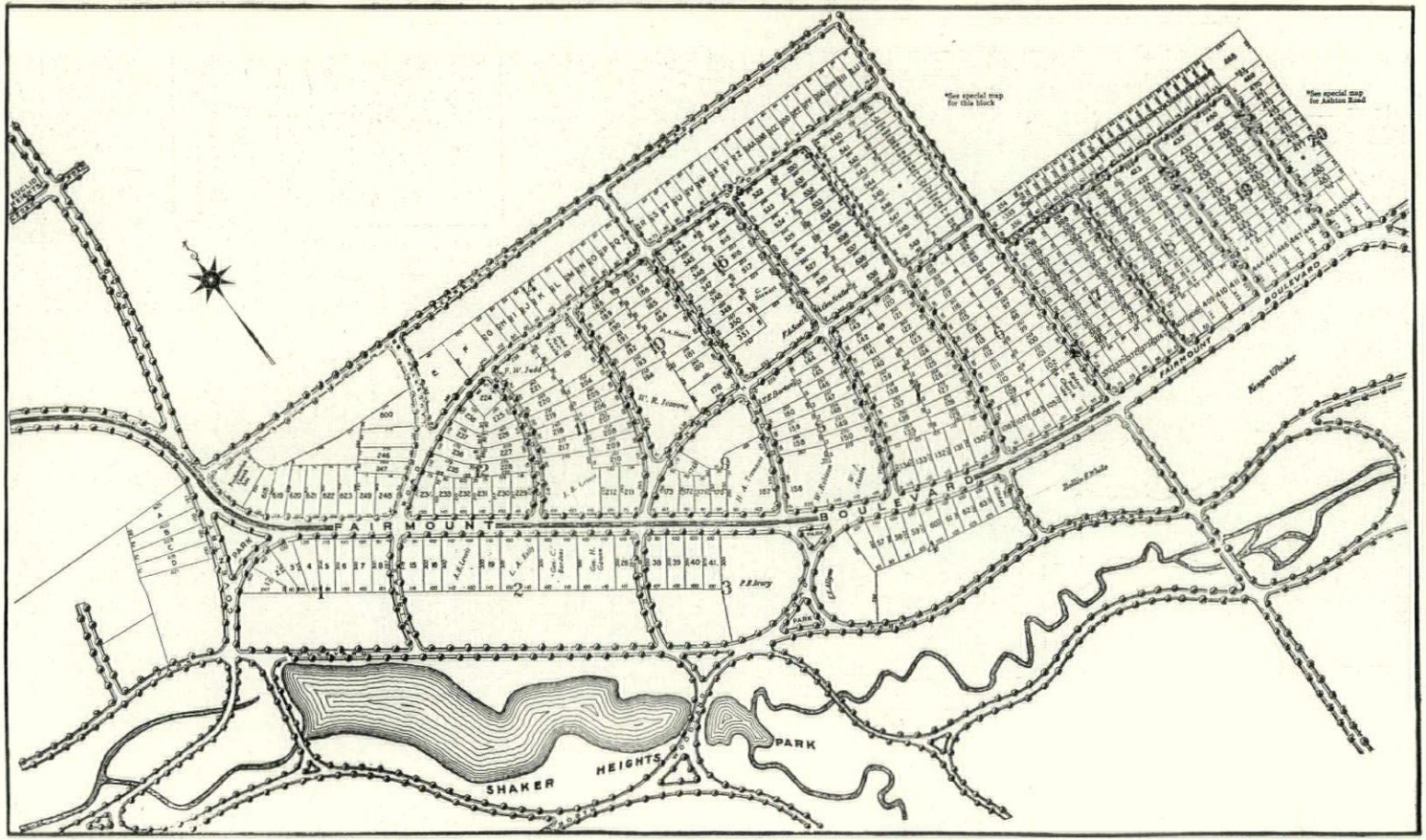
The photographs shown on these pages give the effect, in many instances, of park drives, but actually were taken in well built-up localities, and in the majority of instances, though apparently the edge of deep woodland, the heavy foliage is in reality but a screen concealing houses surrounded by well kept grounds.

The artistic value of the park system of planning for real estate development is so obvious that it scarcely requires mention. The mental and moral value to the community, while less obvious, is unquestionable and might well be dwelt upon at length; and the financial value cannot be doubted even by the most conservative real estate dealer. In vindication of the claim that the public does want beauty, does want to live in a beautiful environment, and is willing to pay for it when it can be procured, the rapidity with which these districts are being built up offers most convincing proof. With the commercial growth of the city gradually encroaching upon former fashionable districts and necessitating the removal of their former occupants, it is most noticeable that, to a large extent, the houses of importance and character are being built in the districts which are not laid out upon grid-iron lines, and the further the departure from the commonplace and the more picturesque its surroundings, the greater is the price which the prospective purchaser is willing to pay for a home site.

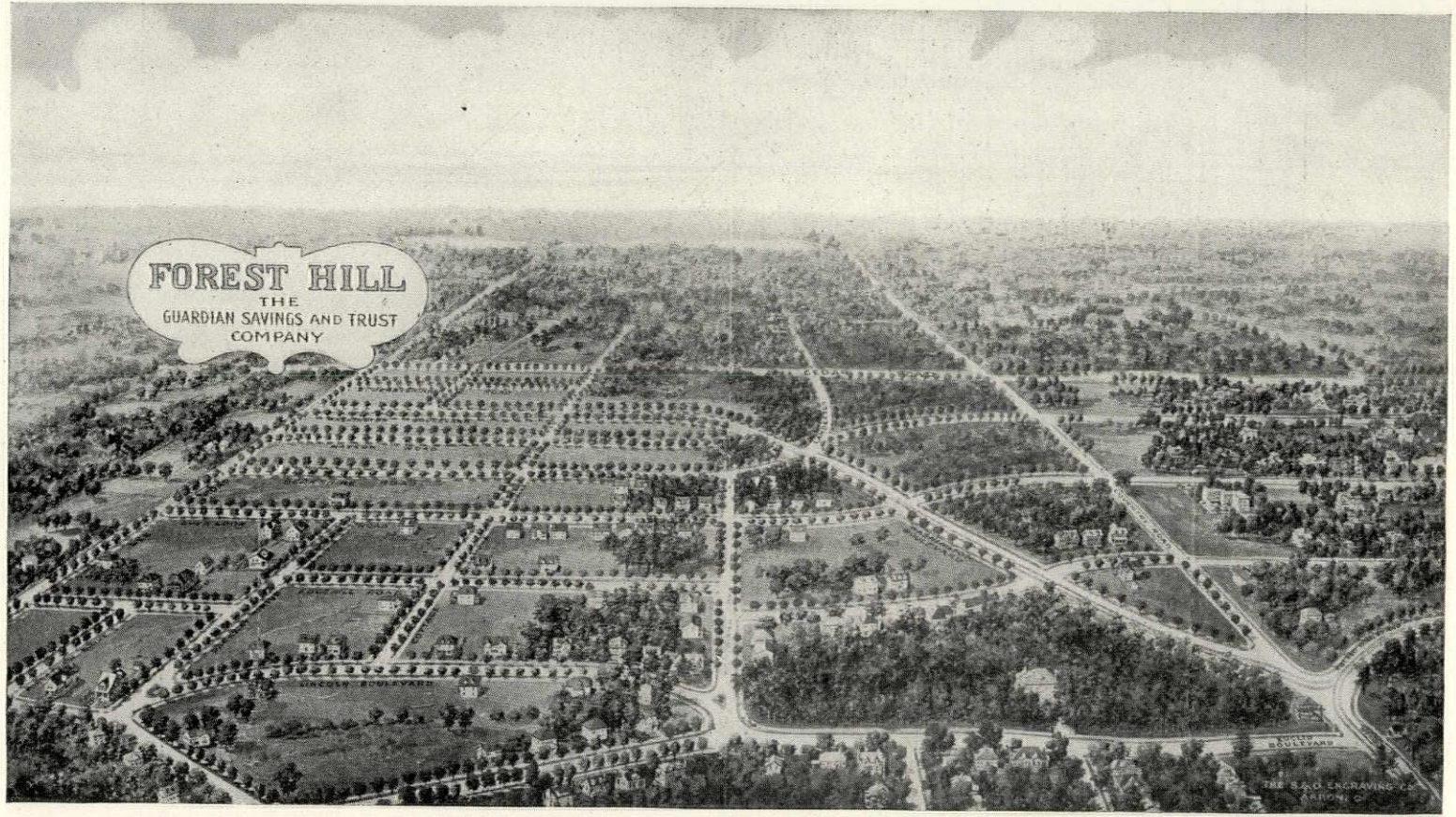
Looking back and contrasting this



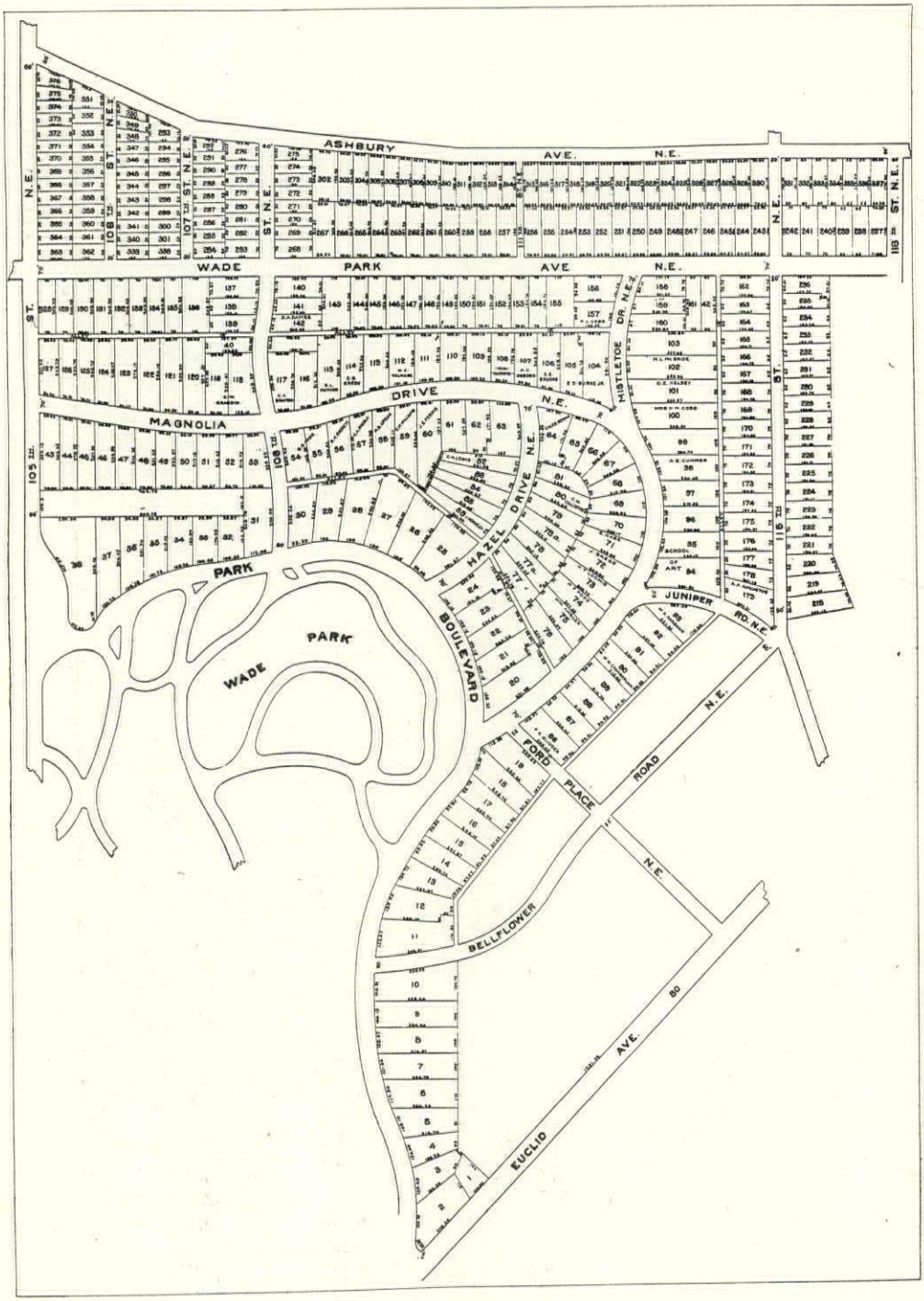
PLAN OF SHAKER HEIGHTS,
CLEVELAND, OHIO.



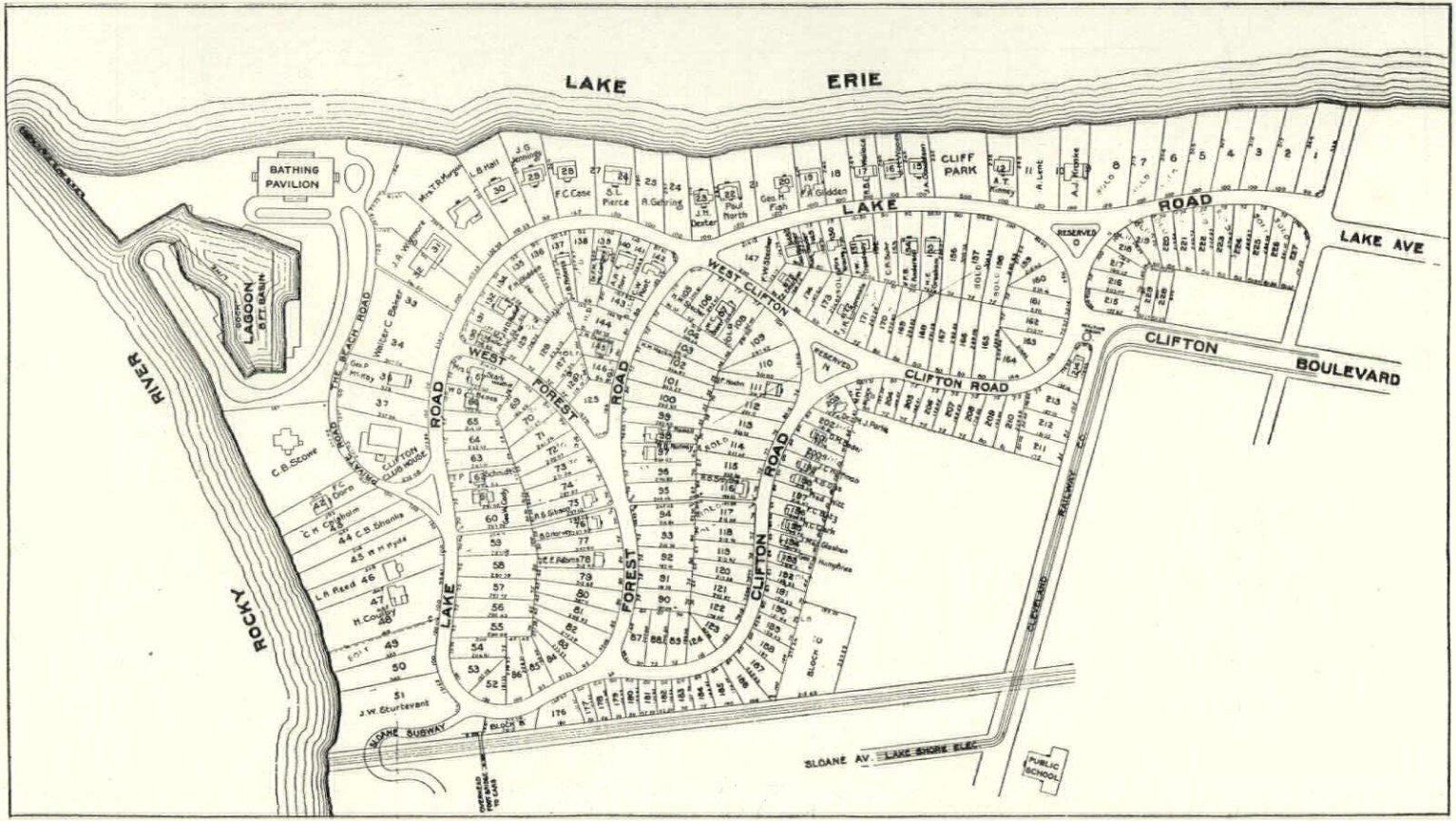
PLAN OF SHAKER HEIGHTS (NORTHERN SECTION), CLEVELAND, OHIO.



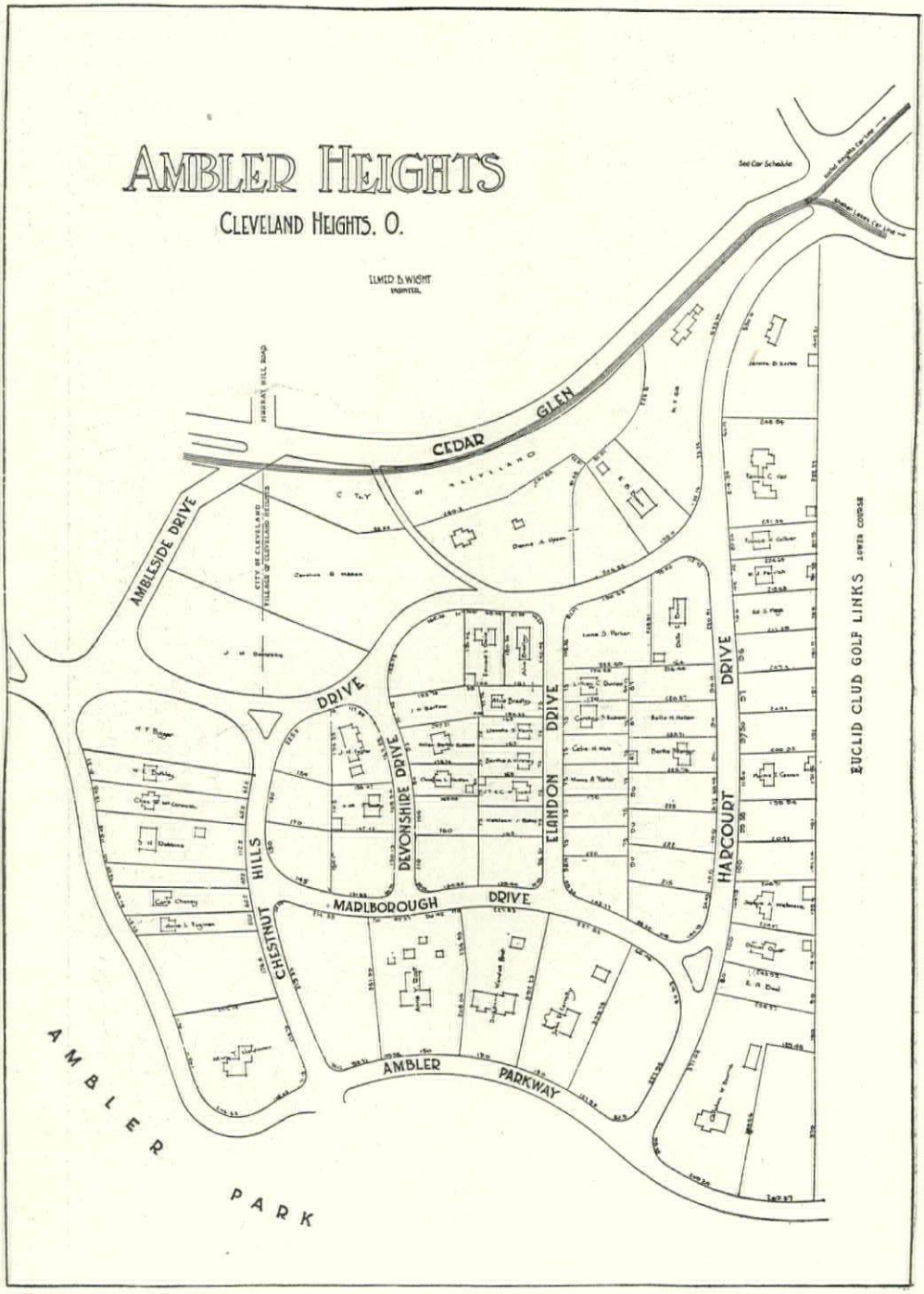
PLAN OF FOREST HILL,
CLEVELAND, OHIO.



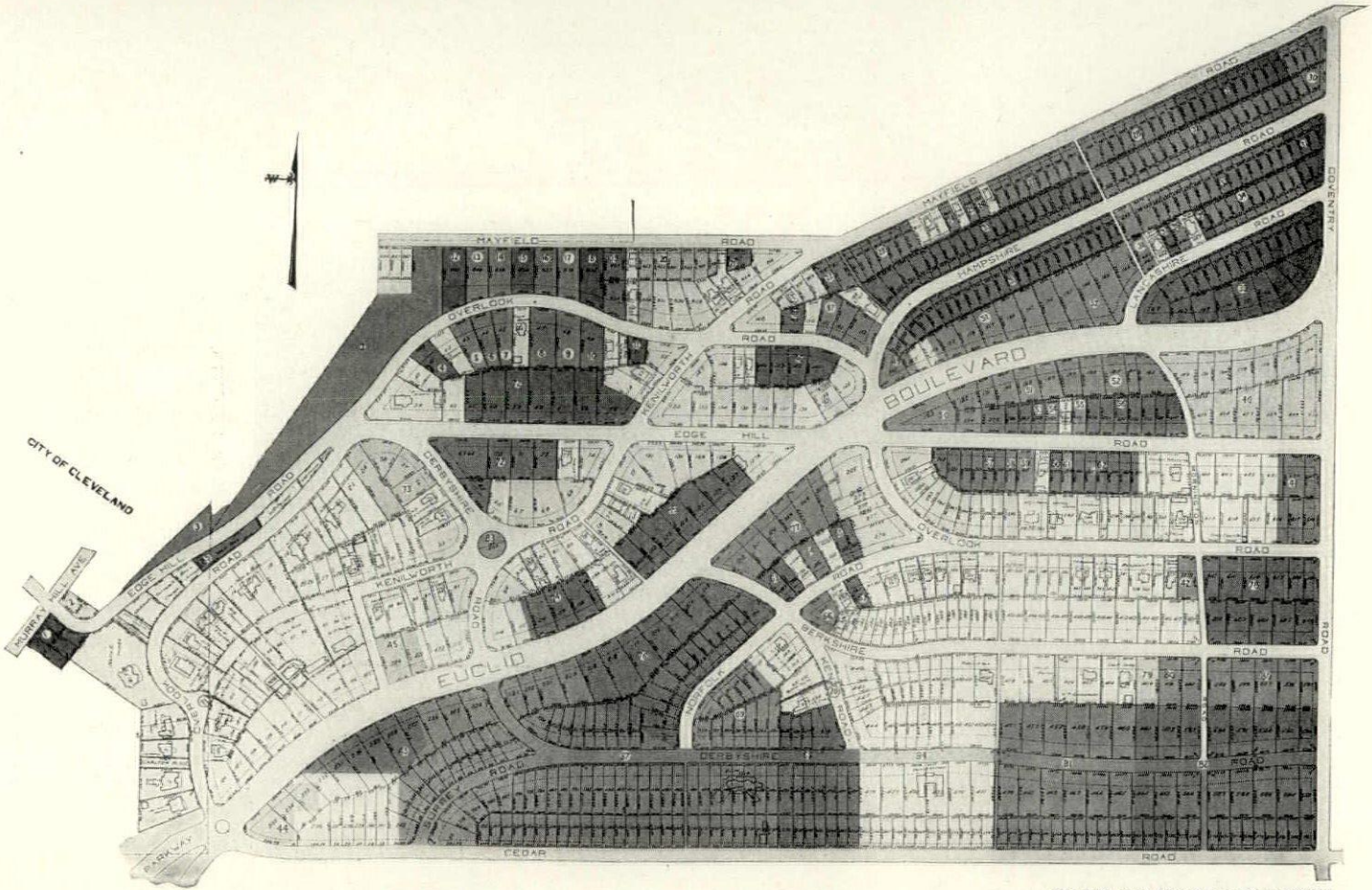
PLAN OF WADE PARK ALLOTMENT, CLEVELAND, OHIO.



PLAN OF CLIFTON PARK,
CLEVELAND, OHIO.



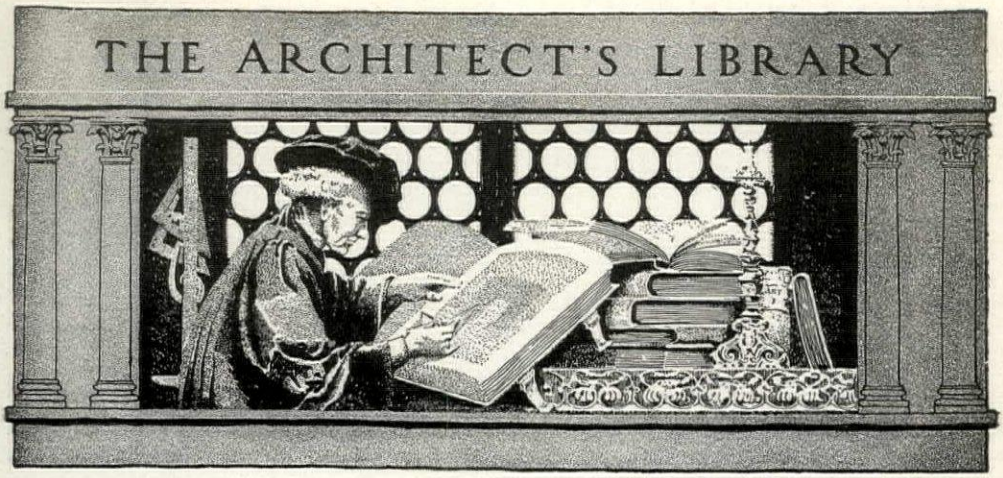
PLAN OF AMBLER HEIGHTS,
CLEVELAND, OHIO.



PLAN OF EUCLID HEIGHTS,
CLEVELAND, OHIO.

tendency of today with the established custom a generation ago, of huddling huge piles of brown stone masonry alongside narrow, crowded, downtown streets, a most encouraging improvement is seen in our ideals of living. Looking forward, we see most hopeful prospects of an infinite betterment in the mental, moral and esthetic conditions of our future cities.

AMBLER HEIGHTS.



WAR BOOKS OF THE CATHEDRALS

By BARR FERREE

II. VERDUN (Continued from February)

ALTHOUGH the siege of Verdun is still in progress, and the great conflict that has centered around it is scarce more than a year old, its literature is already voluminous. The books of special value that have appeared are those particularly concerned with the fighting at Verdun. These were naturally the first to be published, for the struggle was carried out on such a titanic scale that there was an eager world ready to absorb any book that offered definite information. Hence it was that, while the guns were still firing, a whole shelfful of books on Verdun issued in rapid succession from the French presses.

Additional impetus to this multitudinous publication was given by the French successes. The Germans failed at Verdun, and, as the battle proceeded, met with serious reverses. These later phases of the conflict have hardly, at this writing, made their entrance into books. A notable exception, however, is the story of the French triumph at Douaumont and Vaux, accomplished between October 21 and November 3, and graphically described by Capt. Henry Bordeaux in his beautiful book *Les Captifs délivrés*, already referred to.

But a secondary phase of the world-interest in Verdun is apparent in the publication of books by those who have participated in the battle at one time or another. Such books relate rather to the war as a whole; their authors have taken part in many episodes in many parts of the front; Verdun, in a measure, is secondary. That is to say, they are books that refer to Verdun rather than are directly concerned with it. Notwithstanding the magic of the glorious name, Verdun is, after all, to these writers, only an episode in a crowded military experience. It would be a mistake, however, to designate these books as without value or without Verdun interest. They have both.

A case in point is *Sur les Routes du Front de Meuse* by J. M. Bourceret. The author is a priest who served with the ambulance corps, and gives to his book the sub-title of *Souvenirs d'un Infirmier-Major*. He has both fine descriptive powers and a keen eye for ladies, that neither the hardship of the war nor his sacred office diminished. He writes with engaging frankness, and does not hesitate to tell us that once he was so exhausted he forgot his prayers before going to bed. "Vite à genoux. Un petit mot à Dieu pour lui demander de nous protéger, une invocation à la Vierge, et puis comme les autres, en avant pour dormir." One

takes warmly to the good man with his little word to God, and follows with interest his exhausting career, even though his stay at Verdun was but brief.

Somewhat similar, in that it is concerned with ambulance work, and also by a priest, is *Le Train Rouge: Deux ans en Train sanitaire* by Albert Bessières. It has already run into two editions. The story begins with the commencement of the war in August, 1914, and extends to Verdun, where he saw some days of service in March, 1916, and again in August. The two years covered by the book represent service at many points of the front and presents many graphic pictures of the constant throb of war, its many privations, and the enormous difficulties under which the sick and wounded were cared for.

Capt. André Pavie, who has several books to his credit in the pre-war period, has prepared a capital account of army life in his book *Mes Troupiers: Artois, Argonne, Verdun.* Like the Abbé Bessières, he begins with the commencement of the war, and tells the story of two years, 1914 to 1916, ending his account with August in the latter year. It is an admirably composed book, of fine literary quality, and gives many carefully drawn scenes of army life. He did not reach Verdun until August, 1916, and therefore did not take part in the fierce fighting in the early days. His book is alive with interest and has a proper place in the extensive literature of Verdun.

Only the opening section of André Dollé's *La Cote 304 et Souvenirs d'un Officier de Zouaves* is concerned with the colossal conflict around Hill 304. But these are vital pages, overflowing with experiences. Heroes lived but a single day at this dread spot, many not so long; our author himself was wounded there and naturally could not continue his account beyond the time of his personal participation. His last experience would seem bizarre were it not so horrible. The chauffeur of the ambulance in which he was taken away was killed by a shell after the car had been loaded with wounded. Without removing the dead body, the task of driving was quietly taken by a wounded Parisian who brought it to safety. Then only were the double drivers, one dead, one alive, discovered. The balance of the book is filled with sketches of various episodes in the war, written at many widely spaced places. The illustrations by P. Magnaldi and the author deserve more than passing mention.

No book on the war can escape the horrible, much less one that deals with Verdun; but *Les Poissons morts* by Pierre Mac Orlan may rightly be designated as a sprightly, lively book; at times it is downright amusing. His chapters on adventures with rats, the methods of killing them and their escapes from concerted, almost regimental attacks, are highly diverting. Rats have always been a serious menace to troops in the trenches, but although constant annoyances, they cannot well be seriously treated. Here they are shown with delightful humor. The author draws many pictures of war in Lorraine, Artois, Verdun and the Somme. Lightly drawn, his sketches admirably supplement more ambitious works. Verdun fills but a small place in the book, but neither the skill nor the amiability of the writer can hide, or seek to hide, the grim visage of war that looks out from the strange people he met and the singular adventures that befell him. The book is delightfully illustrated with many sketches by Gus Bofa; sketches that really illustrate, and which are in fine harmony with the quiet humor of the text.

There is no humor in *Les Campagnes ardentes* by Levis Mirepoix. This is a masterpiece of the war, crowned by the French Acadamy. War in all its ghastly modern horror lives again in these blood-dripping pages. The author conceals nothing and modifies nothing in the least. Why should he? To him, and to all Frenchmen, the war is not only the most dreadful reality, but the most dreadful thing the human mind has conceived. This book is not only a serious document of the war, but an exceedingly able plea against war at all! M. Mirepoix suggests nothing of the sort; he is much too concerned with the realities of the events he describes to debate any ques-

tion of peace or of war's relation to humanity. But one cannot read his amazing pictures of war's realities without thinking that if, indeed, this be war, as it is, of what advantage is it?

The book is a series of sketches, of which the chapter on Verdun is but one episode of many; sketches strongly drawn by a skilled and practised hand; sketches of absolute horror in conflict; sketches of the utter ruin of humanity. It is a book that stands, if not quite alone, at least with but two or three others in depicting war as it is. Here is the true war as it is lived in the early years of the twentieth century.

Just what may be the best time in which to put forth a general history of the war is difficult to say. The theme is so vast, it covers so much territory and is concerned with so many peoples that the relationship of a campaign in one sector to that in another or to the whole is too complex and varied to be readily comprehended. These difficulties are not lessened by the continuation of the war; for sectors rise into importance and sink into forgetfulness, more lands and peoples are involved and the whole world is aflame. Well ordered accounts of the war as a whole may, therefore, have a real value in clarifying the remembrance of events forgotten for the moment. Some such useful task as this has been attempted by General Malleterre in his *Etudes et Impressions de Guerre,* of which two volumes have appeared at this writing. He covers all fronts, both in the East and the West, treating them not continuously, but as they assumed special importance. In the end it will probably be found that this method is the most satisfactory one for this gigantic topic. The battle of Verdun from February to June, 1916, occupies a substantial place in the second volume.

L'Assassin Innombrable by Félicien Champsaur is described by its author as a "dramatic symphony of hate against William II, King of Prussia, Emperor of Germany." Its preface is concerned with *l'Enfer de Verdun.* The author was fortunate enough to be accorded an opportunity of visiting Fort Douaumont soon after its capture by the French on October 24, 1916. This lively account of this deeply interesting adventure is, with the exception of Henry Bordeaux's remarkable book, the latest in point of description that has appeared at this writing. With the capture of Douaumont and Vaux, and the attendant defeat of the German campaign, the world-interest in Verdun ceased for a time. Other sectors rose into fresh activity; the interest of the whole world was no longer absorbingly centered on this sacred spot. But though we may hope the worst is over, the battle has not ceased, and at the time these notes were written the Verdun front still appears almost daily in the *communiqués officiels.* Meanwhile the twin towers of the cathedral, in themselves of no beauty, still rise high above the mighty battlefield and have become new symbols of a glory never to be forgotten.

BOOKS RECEIVED FROM PUBLISHERS.

Memoirs of the American Academy in Rome, 1915-16. 54 plates, 167 p., 11 by 14 inches. New York: American Academy in Rome.

Planning Sunlight Cities. By Herbert S. Swan and George W. Tuttle. 9 p., reading matter, 9¾ by 6¾ inches. No. 167. New York: The Civic Press. Price 20c.

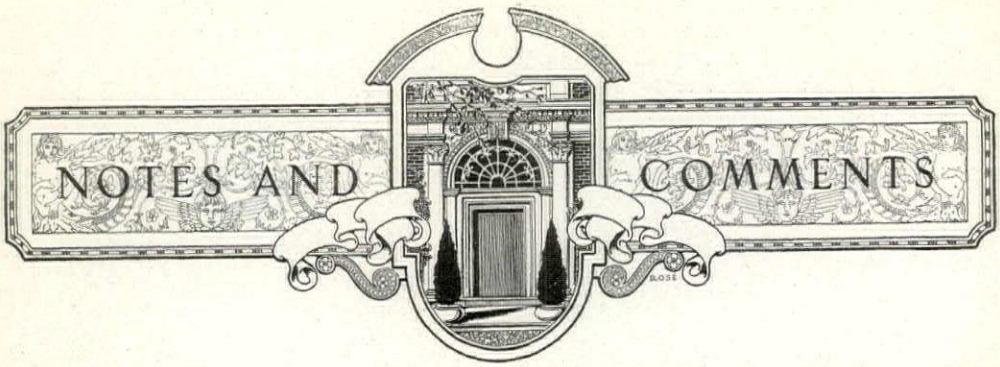
The Bombardment of Reims. By Barr Ferree. 121 p., 1 map and 4 ills. 5 by 7½ inches. New York: Leonard Scott Publication Company. Price $2.00.

The Lighting Art: Its Practice and Possibilities. By M. Luckiesh. 224 p., 43 ills., 9 tables. 9¼ by 6¼ inches. New York: The McGraw-Hill Book Co., Inc. Price $2.50 net.

An Introduction to the Study of Landscape Design. By Henry Vincent Hubbard and Theodora Kimball. 406 p., many plate ills. 12 by 9 inches. New York: The MacMillan Company. Price $6.00.

Housing Problems in America. Proceedings of the Sixth National Conference on Housing, Chicago, 1917. Articles on "Housing" by various authors. 462 p., 9 by 6 inches. New York: National Housing Association.

The Strength of Structural Elements: A Text-Book for Students, Engineers and Architects. By Ernest H. Sprague, A. M. Inst. C. E. 200 p., with examples, 5 plates and 112 ills. 7½ by 5 inches. London: Scott, Greenwood & Son.



The Architectural League Exhibition.

In connection with recent exhibitions of the Architectural League, those conversant with architecture and its attendant arts in New York have maintained an expectant attitude. For this reason, in discussing the exhibition for 1918, it should be borne in mind that the membership of the Architectural League of New York is not confined to architects. While it may be the purpose of the League to advance the cause of architecture, it is also its purpose to advance the cause of the accessory arts which aid in giving it grace. Of the major arts we usually can get together a representative exhibition in America; of certain minor arts we also succeed in making an excellent showing; but of the relation of these minor arts to the building no record has hitherto been made in exhibition form. Architecture exists largely by the grace and good will of many other arts, which, though functioning as its handmaidens, must nevertheless be granted an independent encouragement if they shall be made to flourish for the benefit of architecture. It is to afford such encouragement that the League has seen fit to broaden the scope of its exhibitions. It must be borne in mind that in the League there are craftsmen whose arts demand appropriate recognition, and without whose efforts architecture itself retains no immediate attraction. While there may be some question as to the advisability of the particular methods by which decorators and manufacturers have been asked to exhibit, there surely should be no question whatever about the advisability of demonstrating the best and latest products of all the arts ancillary to architecture.

The current exhibition has been described by some facetious critic as a good example of how far a nail may be driven by striking beside it. If the purpose were to improve architectural design, especially exterior design alone, this criticism might be said to apply. It has also been said that the League exhibition is a recognized stamping ground for decorative artists (happy figure!) afflicted with the germ of some particular type of art expression. To be sure, something of eccentricity will always appear in such an exhibition. If a shot is fired across the water to bring up from the bottom some submerged object, it is probable that the findings will be full of surprises. The depths of the artist mind, like the depths of the sea, cannot be stirred without incurring this danger; but is it not better to bring out such unwelcome features and methods and show them their place in order at the same time to bring forth true achievements worth recording? The efforts of the League are distinctly creditable in its purpose to bring out latent American cratfsmanship as allied to architecture. Even a cursory examination of this year's exhibition abundantly demonstrated the feasibility of the present methods for encouraging craftsmanship.

Shall we say that fields of other organizations have been usurped? Shall we say that minor arts have been popularized at the expense of architecture as a whole? These are questions which this year's show will not solve for us, chiefly because the war has laid such a heavy hand upon the architectural profession, reducing building itself and at the same time seeming to encourage decoration. This condition should explain the general predominance of furnishings and furniture, and to a certain degree the willingness of manufacturers and dealers to enter the exhibition as it was planned this year.

The regular run of framed photographs and drawings was not below par by any means. For those who sought them out, these exhibits were as good an indication

of American architectural advance as those of any previous year. However, the real interest of the exhibition was to be found in the scheme of alcove and complete room exhibits by various firms of manufacturers and of decorators. As to the alcove or small-room plan of exhibition, as demonstrated this year, various criticisms have been made. Naturally the first had to do with the size of the space assignments, and in this we must agree. It is to be admitted at once that no adequate scheme of furnishing can be carried out in a small alcove; yet in these very alcoves is the germ of the ultimate solution. We in America have taken a long time to come to the realization that the various items of furnishing are in themselves weak and unconvincing for any but the *cognoscenti,* unless shown in proper relation to their various supporting and adjacent features. In this direction, well illustrated by many European exhibitions, this year's League showing has made a distinct advance. Considered in conjunction with the Better Homes Exhibition at Grand Rapids, held in December, it may be said that the League has at last struck out in the right direction. But here again, while many good things were brought to light, many poor ones were given a place in the sun which they did not deserve. The fact remains that space must be paid for, and when space has been contracted for it is somewhat difficult to persuade a manufacturer that he really ought not to show at all. It is also to be admitted that a number of firms capable of excellent results were willing to sacrifice real quality to novelty. We have yet to reach that point where an exhibition loses the garishness of rank advertising; exhibitions should be construed as graceful advertising, not as shrieking efforts to elbow the competitor out of the track. However, the beginning has been made and subsequent showings may be expected to contribute some interesting sidelights on American industrial art design and its handicaps.

Above all, the League exhibitions have been able to prove that the innate art feeling of the American layman will find a way out of its shell if suitable provocation is offered. The layman made it clear —any one listening to comments at the exhibition would say the same—that he is gradually coming to a certain appreciation of things in the arts, of which the alleged experts are certainly not fully aware. The layman has learned to point to this or that, and call it good for a certain assigned reason; and again he has repeatedly put his finger on specific items of unpleasant design that should make some manufacturers uncomfortable. And finally, the layman always has ready that pertinent question in regard to utility and availability and ultimate quality which will sooner or later get to the factories and have its due effect there. It is in such reflection that the purpose of this project comes to the fore. Given the principle laid down this year, make certain modifications as to arrangements and as to control and harmony of design, add the greater quantity of architecture which a normal year would bring, and we may be safe in saying that an ideal exhibition would result.

The education of the layman is a responsibility that lies upon all artists. The schools do not help out in this respect. It is well that the layman should learn, as he can from such an exhibition, that architecture is the mistress art and not the only art.

The education of the manufacturer is another matter. Such exhibitions will help in that direction as well, but it is an uphill road. Still, standards can be established only by careful comparison of values; and standards can be maintained only by competition in making individual values approximate the standard set. Collaborative exhibition assuredly sets a high standard, and should also give ample opportunity to permit individual values to appear to advantage. The idea of "get together" is an admirable one, provided always the architect himself does not hold aloof, as present conditions almost forced him to do this year, so far as the League exhibition seems to show. It is a happy day when craftsmen and artists of many different clans are willing to rub elbows and compare results. By such process the relative effectiveness of each will appear; and it is relative effectiveness that counts in the end. The sovereignty of the individual arts is very much like the sovereignty of the several States of the Union. What is more, there is the item of good fellowship, which it might be well to consider; for we all know too well how little there is of interchange of ideas among artists of different pursuits.

We distinctly do not believe that good judgment will permit the exhibition policy of the League to continue to offer an outlet for all sorts of art creeds in the galleries under its aegis. But, then, who shall judge finally as to what is exotic or ridiculous or farfetched? And again, who shall judge as to what is so utterly traditional as to be banal? There are heretics in both camps.

As to the arrangement generally, it may be said that the decoration dwarfed the

exhibits in the large halls. We are old fashioned enough to believe that bold general schemes of decoration should not be permitted to compete with the crowded colors and varied forms of the exhibits themselves, necessarily restricted to limited quarters for each display.

The conception of a collaborative exhibit is fraught with great possibilities. It is hoped that in another year there may be an even better concert of efforts of all branches, perhaps even in the decoration of large rooms. A whole gallery devoted to the needs of two or three splendid rooms will carry a message as no aggregation of small exhibits can. The smaller exhibits would not need to be crowded out. Let the manufacturers and dealers and designing craftsmen collaborate in the fine rooms proposed, and then exhibit in an adjacent gallery other items of their respective lines. It is in this collaborative type of exhibition that the modern crafts of Europe have been given a new life. What is more, let there be more rendered drawings, showing the use of materials in actual examples; or let there be careful color plates or color transparencies to show relations of selected objects to others furnished by manufacturers in other branches. Such views shown with sample exhibits have a salutary effect.

The attention of the critic must center on the quality of craftsmanship brought out by the League exhibit. It is for this that the collaboration of all the crafts was arranged. To criticise the treatment of the galleries themselves is secondary. We may safely say that the desired result was achieved. Mr. Magonigle and his lieutenants in this project have rendered a service to architects as well as to craftsmen.

RICHARD F. BACH.

Save Your Discarded Cotton and Linen Cloth for the Red Cross.

American manufacturers, architects, and all draftsmen are called upon to render an important service to their country. When the workman has finished with a piece of cotton or linen cloth used in his trade it is flung aside to be destroyed. The Red Cross is asking now for that discarded material. All over the country thousands of women are earnestly engaged in the manufacture of surgical dressings to be used in the hospitals for our wounded soldiers and sailors. The problem of getting enough white goods for this work is enormous. As long as the war goes on the work must go on if we are to live up to the humanitarian ideals typified to the world today by the Red Cross.

Two kinds of cloth are available—draftsmen's tracing cloth and old linen and cotton articles to be donated from private households and, often in large quantities, from hotels. These can be easily collected and handled by the modern laundries, which have now been called upon to perform this work for the Red Cross. With their facilities for collecting, washing, sterilizing and delivering to the local chapters, the laundries are in a position to perform an invaluable service, and the least that other trades can do is to help them in every way. If any manufacturer, architect or draftsman will go to the slight trouble of calling up either the local Laundryowners' Association or one of the large laundries of his city he will find them only too glad to send for such cloth as he can give them.

These materials the laundry will handle with the greatest possible care, because, as the National Laundry Journal for December 15, 1917, says: "Remember, it is a matter of life and death—first, that you do this work, and second, that you do it right."

Taking up the task, therefore, in such a spirit, the Journal goes on to give the practical details for treating this draftsmen's cloth:

"Some of the tracing cloth is thin linen fabric and some is thin cotton, but whether it is linen or cotton makes no difference in the washing process. The cloth has been treated with a gelatinous dressing, to make the material take ink and at the same time be transparent. The dressing seems to resemble starch that has been ironed in the goods, in that it is softened by water, but does not completely dissolve, and comes out and leaves no trace of stiffness in the goods. As the goods are to be used as surgical dressings, it is desirable that no starch remain and that the goods be as soft as possible. This end is best attained by the use of malt extract, or diastase, which is an inexpensive starch solvent. A short breakdown of malt extract, which is familiar under manufacturers' trade names, at a low temperature, will remove most of the drawing ink and at the same time take out all of the dressing that is in the tracing cloth. Those who have not the malt extract at hand will be able to do this work by use of a cold rinse, followed by a hot suds, but the goods will not be as soft as when the malt extract is used. The goods should be given a fairly strong bleach, followed by a sour,

to remove the trace of bleach that may remain. Then there should be a good rinse, to remove every trace of the sour. The bleach will completely sterilize the goods; hence a boil is not necessary.

"The goods should be extracted as usual, after which the material should be put through the drying tumbler, if one is available, as then the pieces will be soft and pliable. If a drying tumbler is not available, the pieces may be put through the flat work ironer. If it should happen that some drawing ink remains on a piece, it should be put aside and laundered again with another lot of white goods. Tests have indicated, however, that ink comes out almost entirely with the wash and the bleach."

The greatness of the demand for old linen and cotton cloth is being measured up to by the willingness of the laundries to take over this work. Be sure, then, to notify them if you have any of this much-needed material.

Your promptness to respond to this call may, in sober earnest, become a matter of life or death to some of our wounded men across the sea.

AMERICAN RED CROSS,
Washington, D. C.

THE MORE MODERN EUCLID AVENUE.

The Passing of a Famous Avenue.

One of the unfortunate features incident to the development of a growing city is the sacrifice of many a once beautiful residence street to the demands of commercial expansion. New York has seen the splendid mansions which once lined Fifth avenue gradually give way to shops and office buildings, and every big city can point to busy thoroughfares which were once the seat of fashion.

The city of Cleveland was famous a generation ago for its Euclid avenue, which was referred to as one of the most beautiful thoroughfares in the world. Today, strangers in the city are wont to make this avenue the first object of their sight-seeing and are disappointed at finding that the residences which were its pride are gradually being shouldered aside by the aggressiveness of trade.

A decade or two ago an attempt was made to preserve Euclid avenue from the fate which has overtaken so many of its kind by removing from it all business blocks and street cars and boulevarding it from East Ninth street to the city limits. It was a splendid project and, had it been carried out, would have given to Cleveland a residential boulevard un-

THE OLDER EUCLID AVENUE.

equaled by any in the world. But like many another worthy enterprise dependent upon the intelligence (or otherwise) of politicians, it failed of support. The type of intellect that is generally found in charge of municipal affairs is not the type which possesses vision. In this case it could see the difficulties involved in moving street railways and heavy traffic to parallel streets, it could see the drawbacks involved in razing a few commercial buildings and interrupting the business of a few saloons, but it was hopelessly unequal to the task of visualizing the benefits to be obtained by establishing a restricted residential boulevard stretching five miles from East Ninth street to the city limits, with the possibility of another five or ten miles of extension through the adjoining suburbs.

THE AVENUE AS IT IS BEING TRANSFORMED.

Today the avenue is still beautiful, but the first downtown mile is wholly given over to business; at the intersection of many of the important crosstown streets a little nucleus of business blocks has sprung up, from which there is noted a steady, gradual growth in both directions; the families that would have built beautiful residences along the proposed boulevard are building instead on the Heights or along the Lake Shore and the fine old houses are one by one disappearing or being converted into boarding houses, clubs and artists' studios.

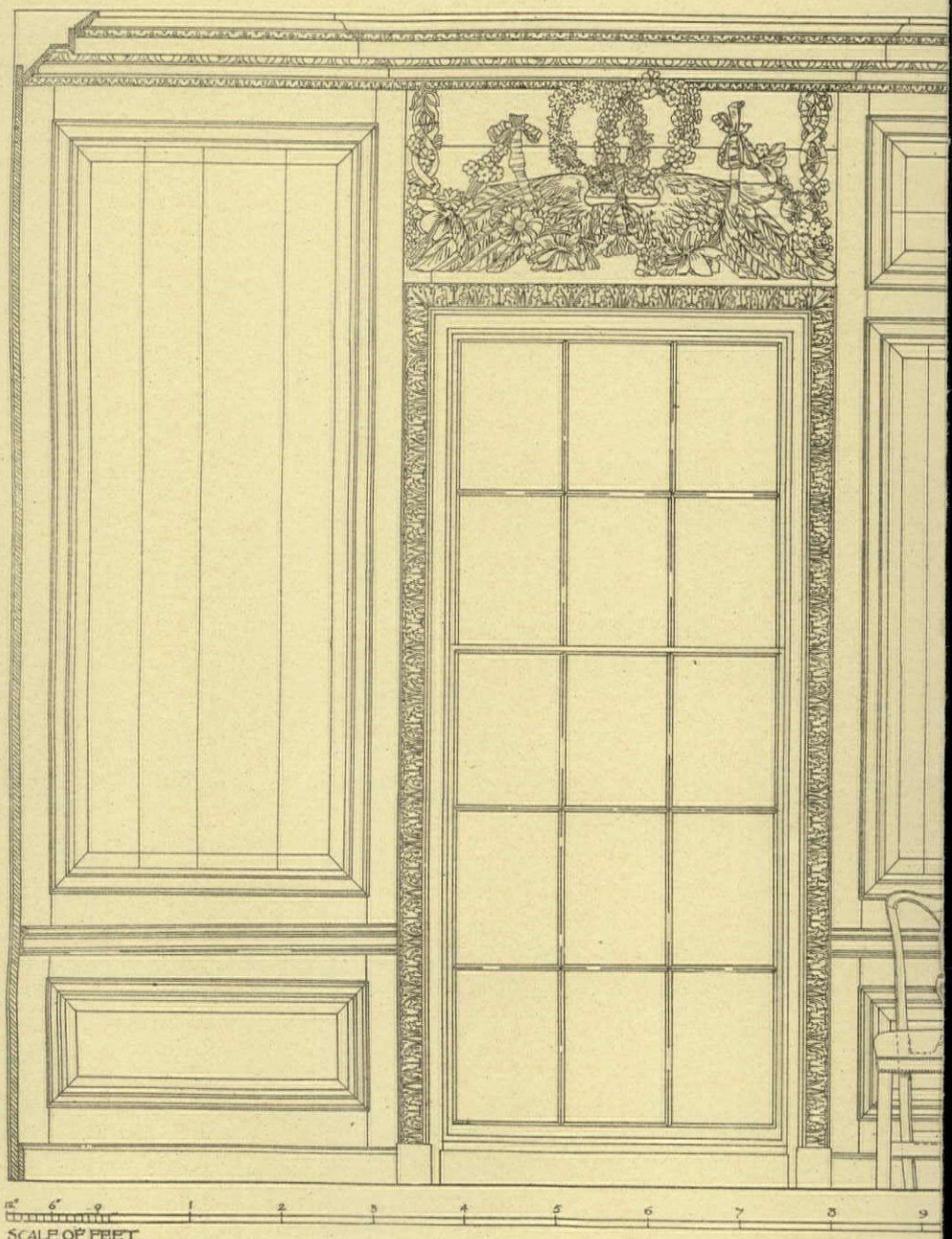
It is but two or three years since the last bars were let down and the trolley cars permitted to run through the exclusive section, familiarly known to the Philistines as "Millionaire's Row." The next logical step is being taken at the very time this is being written and the broad grass plots and shade trees, which added so much to the beauty of this portion of the street, are being cut away and the pavement widened to the line of the down town business section.

A few illustrations are given which show sections of the old avenue as it was pictured in the school books of our childhood, and also of the new avenue as it is being transformed by the touch of business.

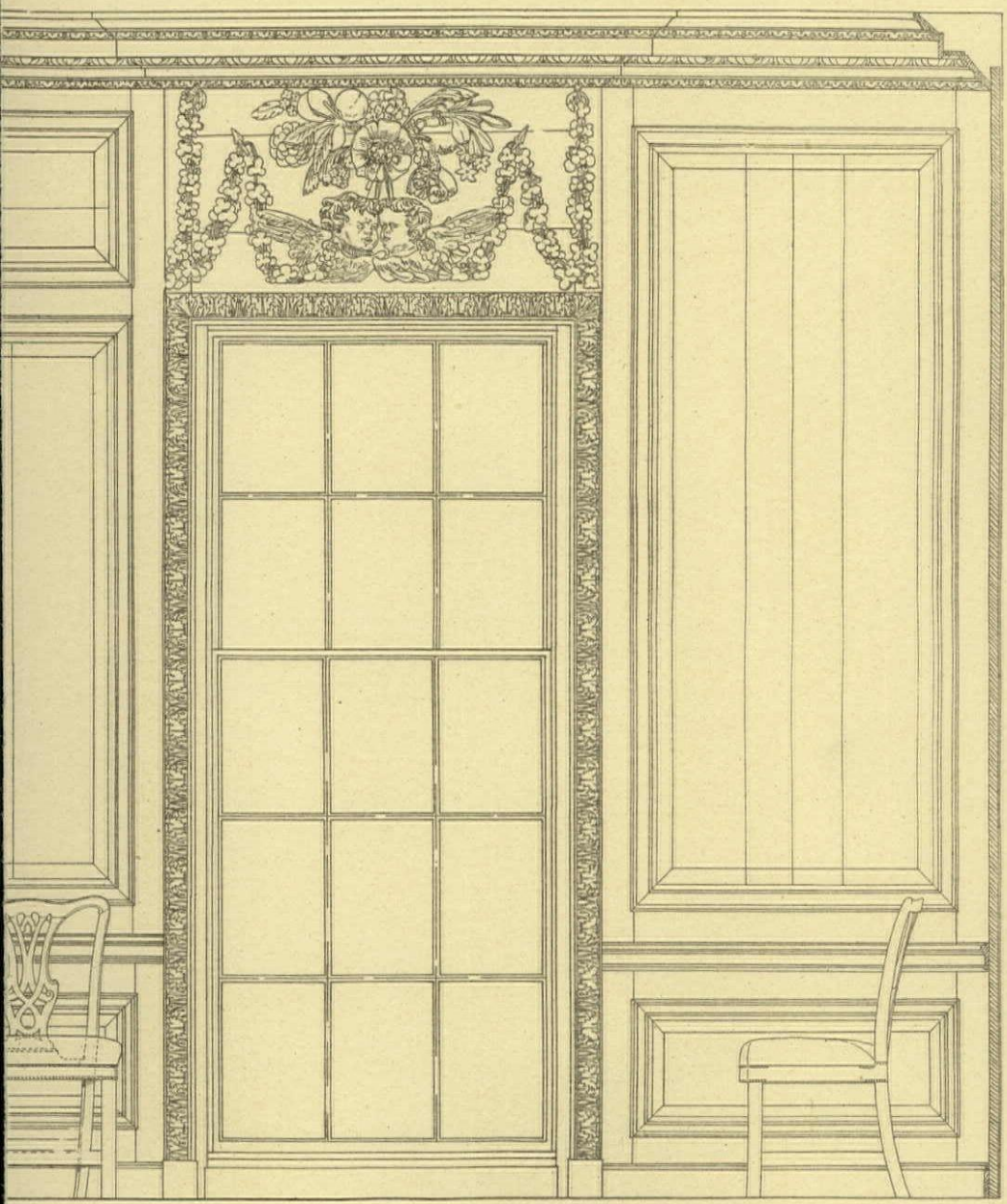
It will doubtless become a great commercial street, but Cleveland possesses other streets which could have been developed just as well. It had but one Euclid avenue; no other street could take its place. As a commercial street it will be a great asset to the city, but could the stream of business and heavy traffic have been diverted in another direction and the avenue developed into a magnificent boulevard and artery of light traffic, three of the city's problems (business expansion, traffic and housing) would have been materially lightened, and Cleveland, with its great park system and slowly developing group of public buildings, would have ranked with the best cities of Europe in point of beauty.

It is too late now to redeem this lost opportunity, but it is to be hoped that the departing glory of Euclid avenue may prove an object lesson to other communities and bring home to them the necessity for more intelligent control of municipal planning and development. The Zoning Law of New York should be introduced in all cities.

I. T. FRARY



SUPPLEMENT TO ALBERT E. BULLOCK'S ARTICLE

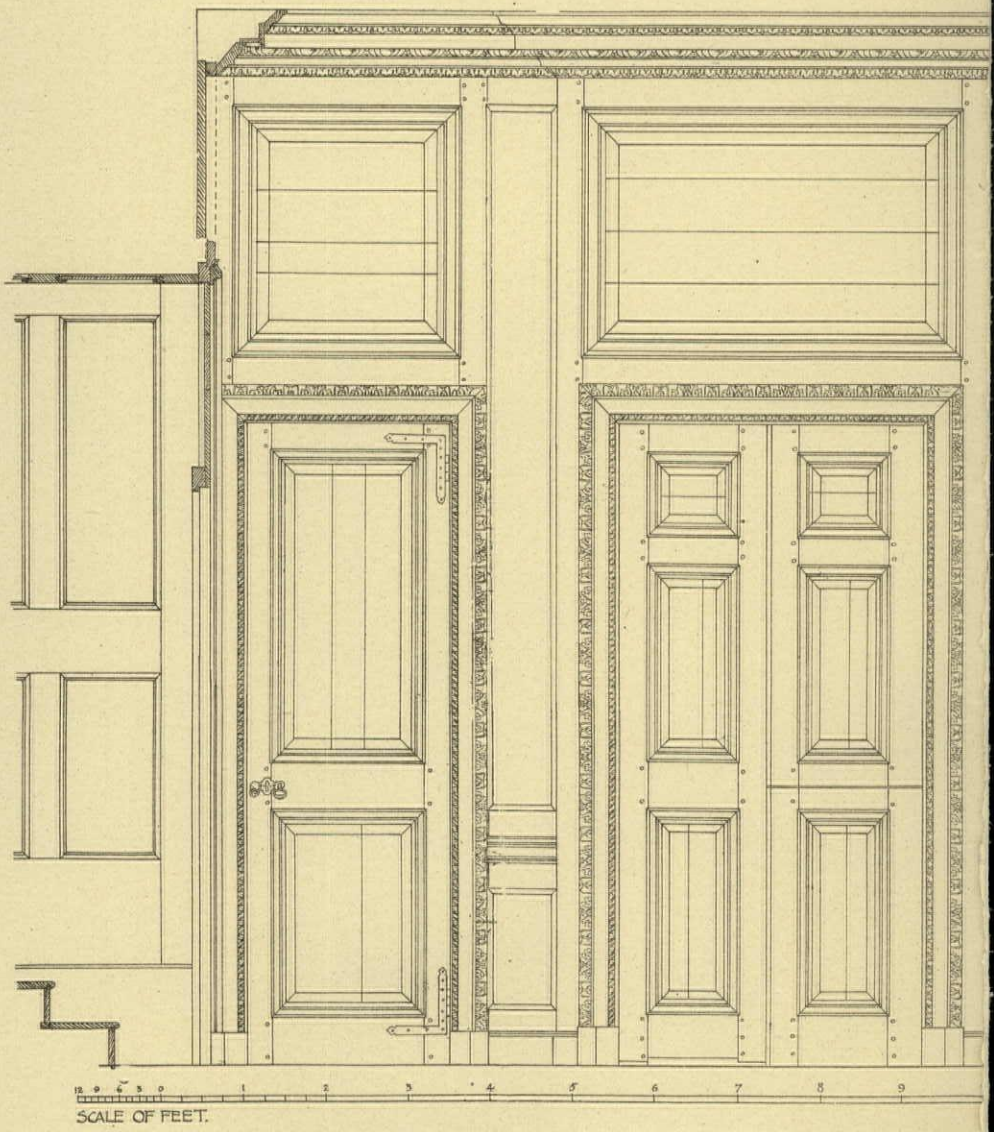


NEW RIVER OFFICES : SOUTH SIDE OF OAK ROOM · 1693.

CHIPPENDALE CHAIRS, c 1750.

MEAS & DELT T.F. GREEN 1908-6
TRACED BY A.E. BIVI. LOCK 1917

ON "ENGLISH ARCHITECTURAL DECORATION," PAGE 335.



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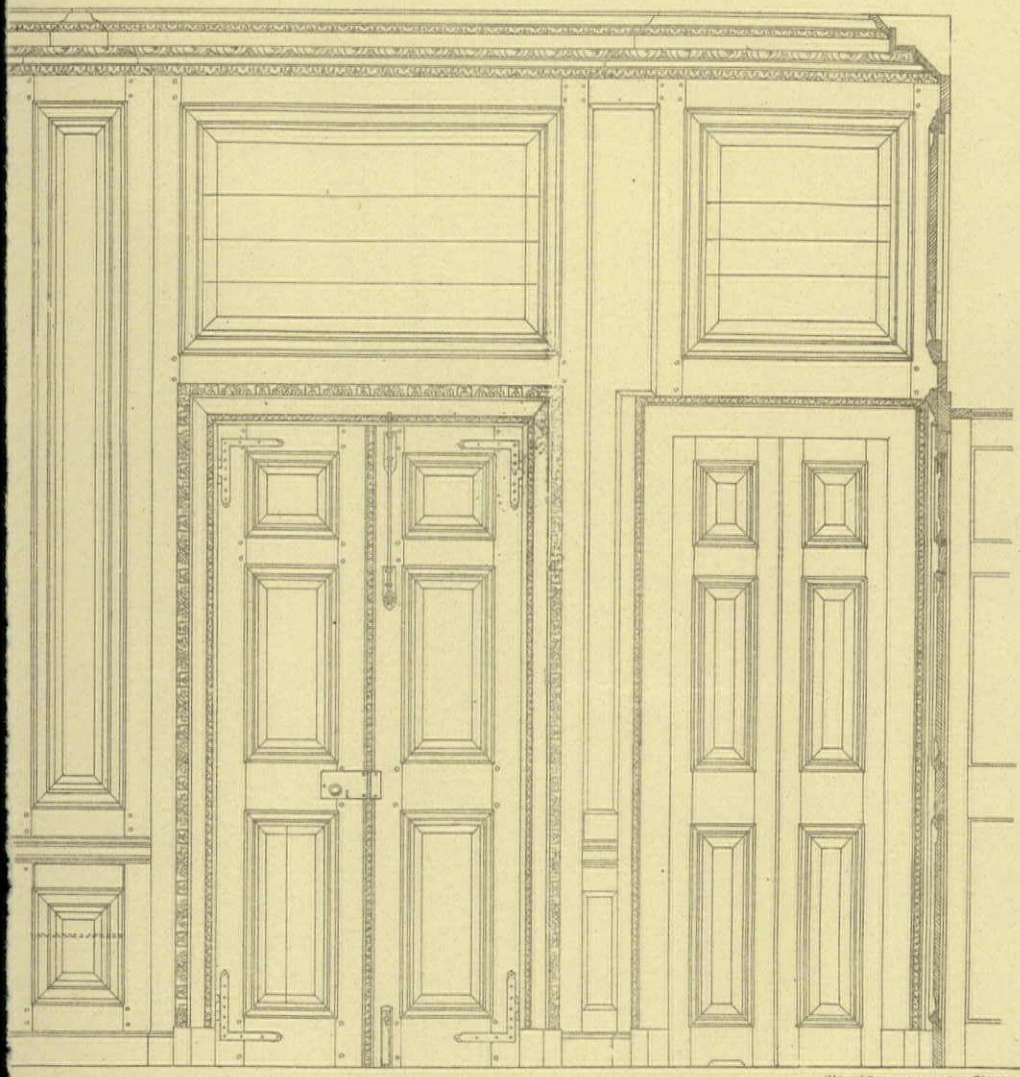
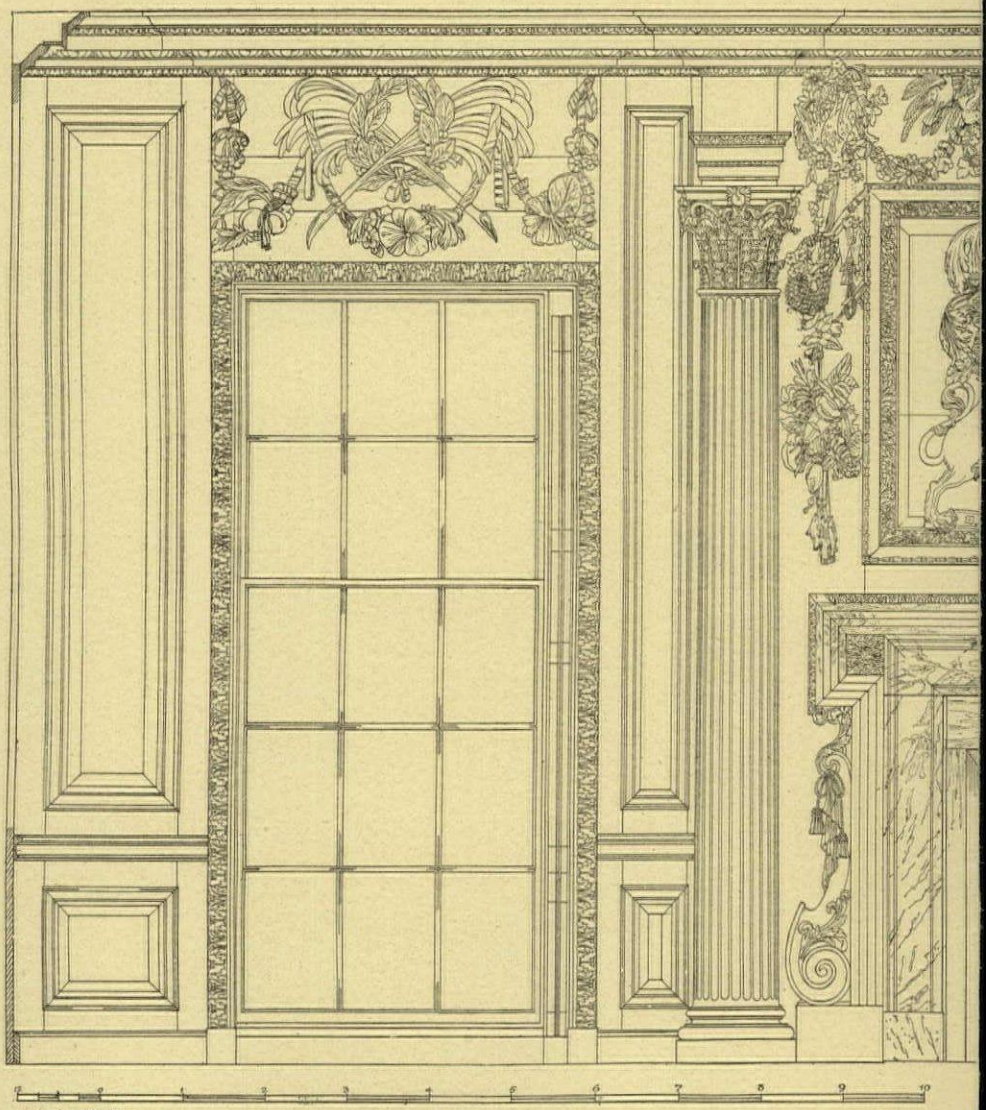


NEW RIVER OFFICES NORTH SIDE OF OAK ROOM.

ON "ENGLISH ARCHITECTURAL DECORATION," PAGE 335.



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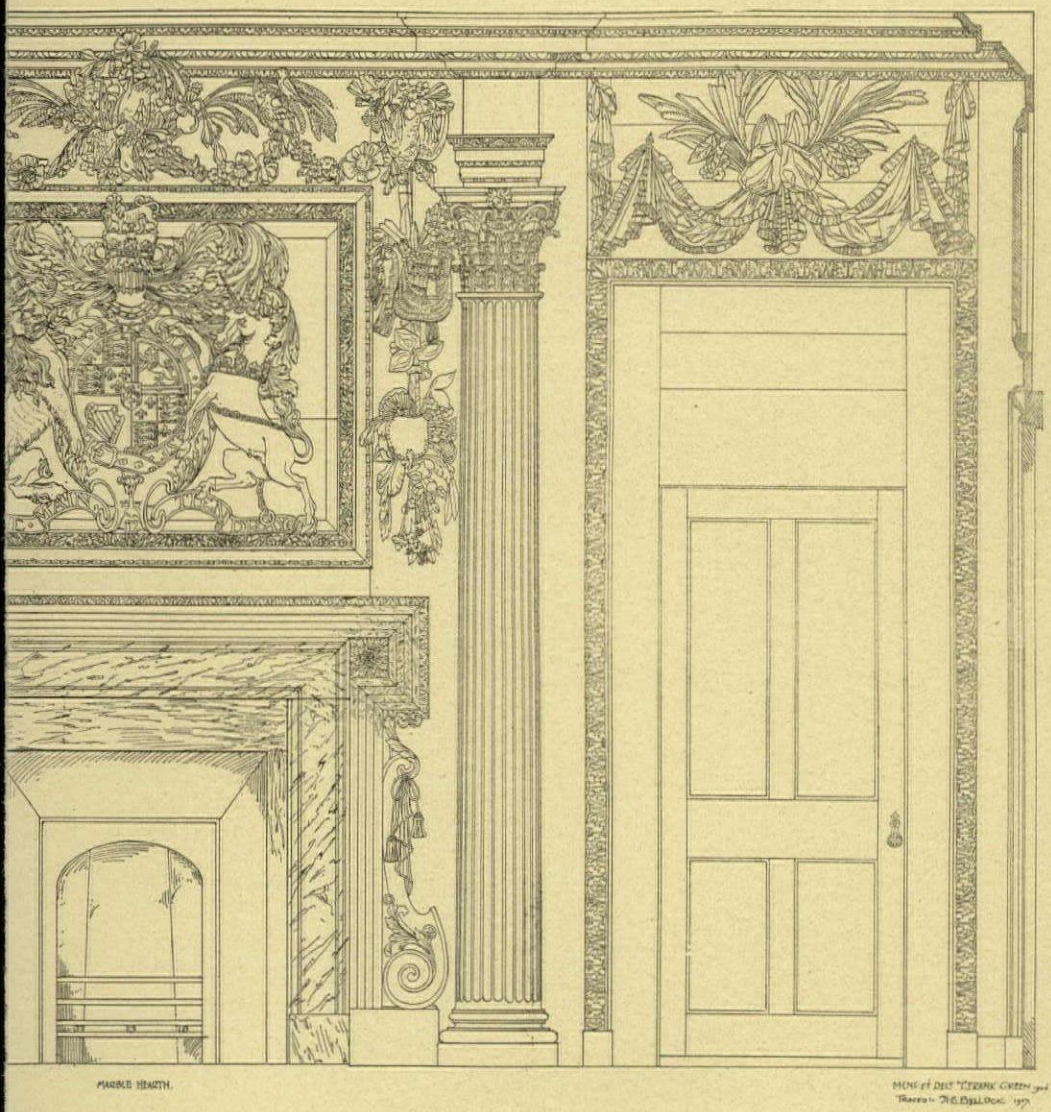
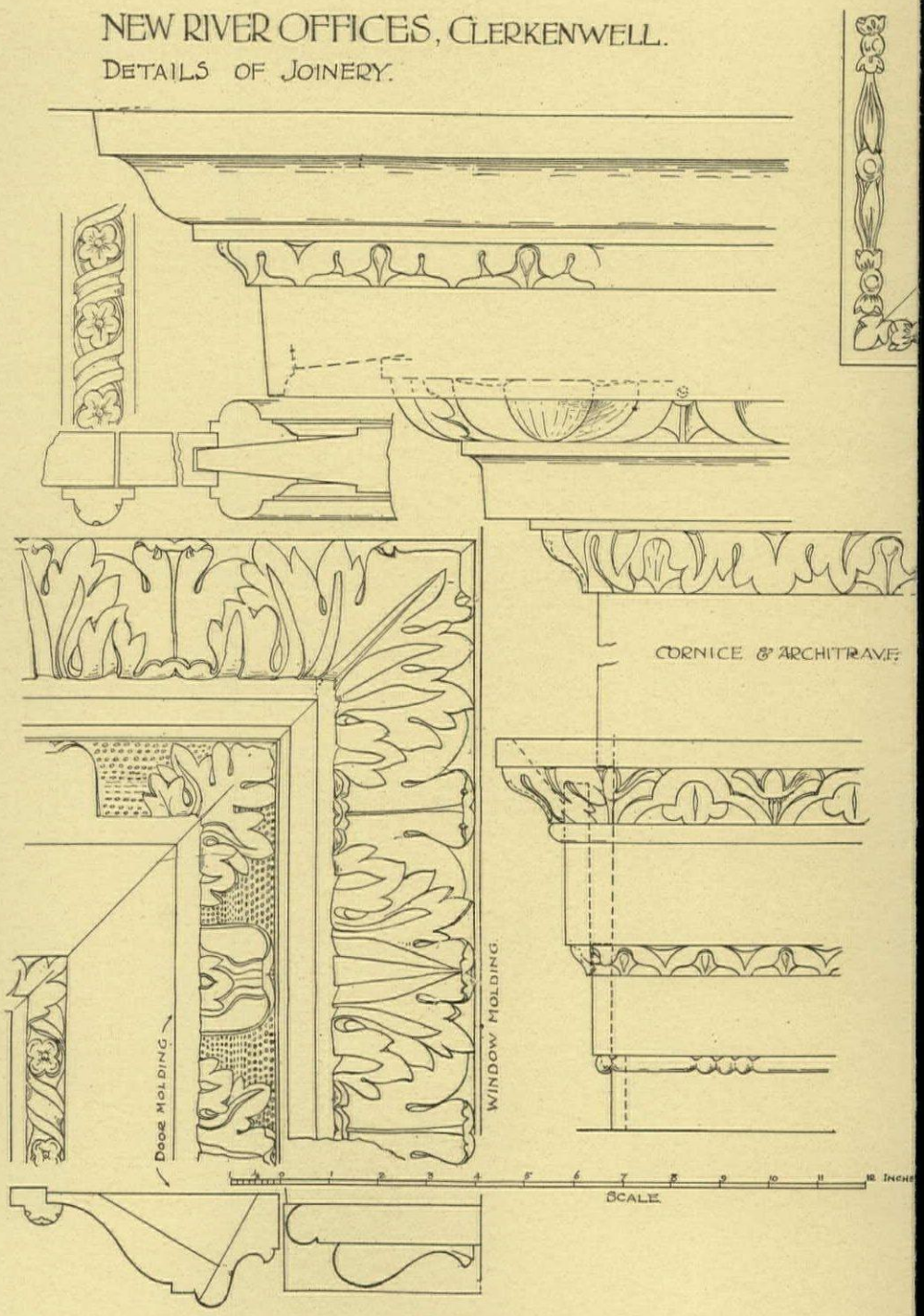


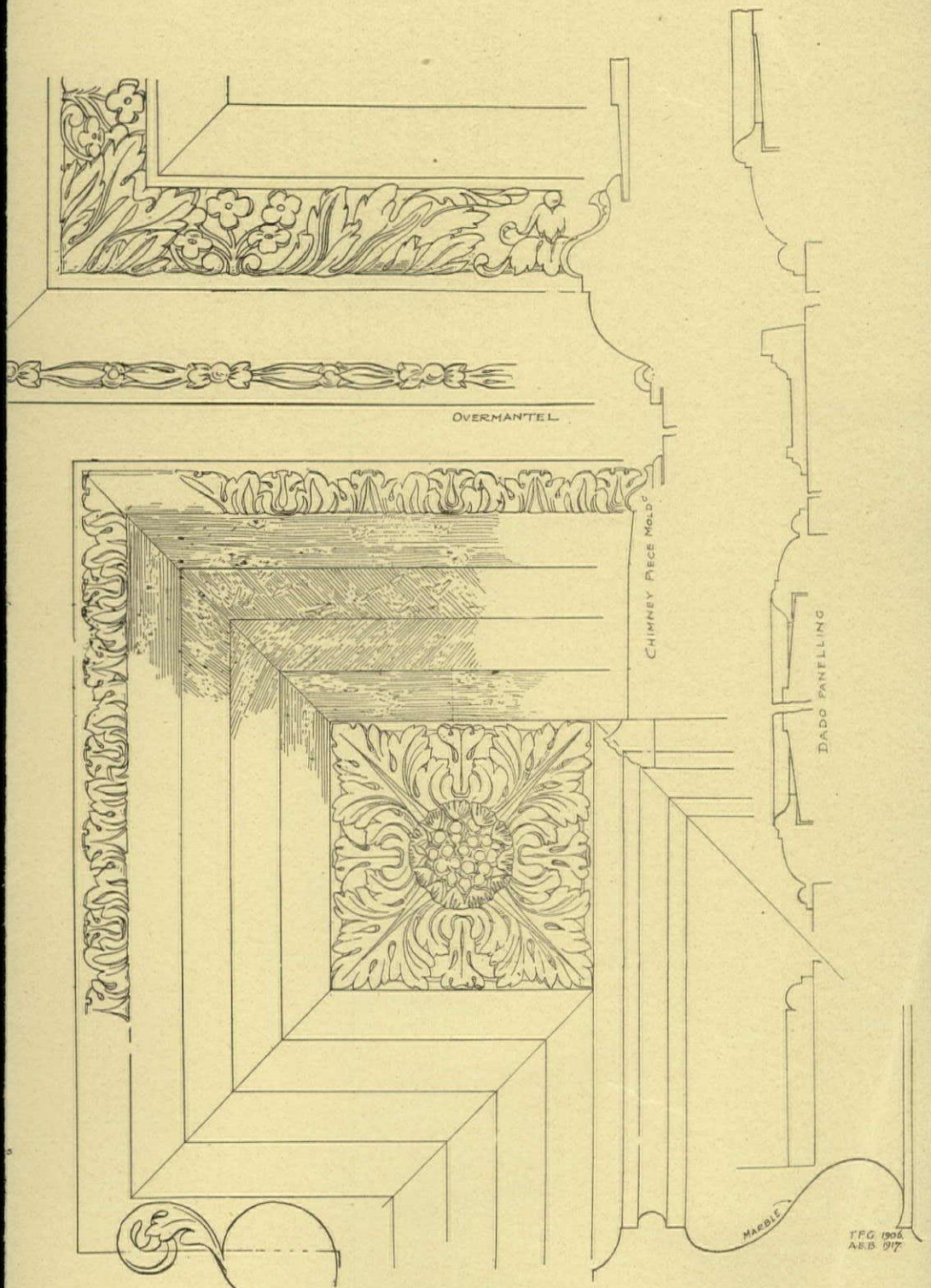
EST SIDE OF OAK ROOM.
EW RIVER Co's OFFICES.

ON "ENGLISH ARCHITECTURAL DECORATION," PAGE 335

NEW RIVER OFFICES, CLERKENWELL.

DETAILS OF JOINERY.





ON "ENGLISH ARCHITECTURAL DECORATION," PAGE 335.