

97

# THE ARCHITECTURAL RECORD



Vol. XLIX No. 2

FEBRUARY, 1921

Serial No. 269

*Editor:* MICHAEL A. MIKKELSEN

*Contributing Editor:* HERBERT CROLY

*Business Manager:* J. A. OAKLEY

	Water	PAGE
COVER—ENTRANCE AT GREYSTONE-ON-HUDSON, N. Y. Color by Thomas C. Stapleton		
THE RESIDENCE OF JULIAN ELTINGE, Esq., Los Angeles, Cal.; Pier- pont and Walter S. Davis, Architects <i>By Elmer Grey</i>	- - - -	99
THE VILLA CAPPONI, at Arcetri, near Florence, Italy <i>By Harold Donaldson Eberlein</i>	- - - -	115
THE EARLY ARCHITECTURE OF PENNSYLVANIA. Part III <i>By A. Lawrence Kocher</i>	- - - -	135
PORTFOLIO OF CURRENT ARCHITECTURE	- - - -	156
PORTO RICO'S NEW CAPITOL <i>By Sylvester Baxter</i>	- - - -	173
A SHORT BIBLIOGRAPHY AND ANALYSIS OF HOUSING <i>By John Taylor Boyd, Jr.</i>	- - - -	180
NOTES AND COMMENTS	- - - -	186

*Yearly Subscription: United States, \$3.00; Foreign, \$4.00; Single Copies, 35 cents. Copyright, 1921, by The Architectural Record Co. All rights reserved. Member Audit Bureau of Circulation.*

PUBLISHED MONTHLY BY  
**THE ARCHITECTURAL RECORD COMPANY**

115-119 WEST FORTIETH STREET, NEW YORK

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



MOORISH FOUNTAIN—RESIDENCE OF JULIAN  
ELTINGE, ESQ., LOS ANGELES, CAL. PIER-  
PONT AND WALTER S. DAVIS, ARCHITECTS.

# THE ARCHITECTURAL RECORD

VOLUME XLIX



NUMBER II

FEBRUARY, 1921

————— *The* —————  
RESIDENCE of JULIAN ELTINGE, *Esq*  
LOS ANGELES, CALIFORNIA  
PIERPONT AND WALTER S DAVIS, ARCHITECTS



By ELMER GREY

HE who attempts to reach the main entrance gates of Mr. Julian Eltinge's house by automobile—at least the gates which were originally intended to be the main entrance gates—takes his life in his hands. Three persons only have so far attempted the feat and they were reckless drivers. When we visited this enchanting spot, we therefore left our car at the bottom of the hill and climbed the rest of the way on foot; and we could easily have imagined ourselves mounting to some mediaeval baron's home or to some impregnable fortress that had been so placed for defensive purposes.

It is not to be supposed from this that Mr. Eltinge himself is unapproachable,

or that the abode does not fit the man; for many genial persons have loved seclusion in their homes, and there were ample additional reasons for selecting the site on account of its remarkable views. Although situated in the midst of Los Angeles, in fact not more than ten minutes' ride from its very center, the views are such as to make it seem miles from any large city.

The approach to what was originally intended to be the main entrance gates leads up a street at a terrific grade. At its top it immediately drops again at an even more frightful angle; and it is down this latter dangerous descent that one would have to start were one to attempt to enter the grounds with a car. Soon

after starting, the driver would have to swerve, drop into what looks something like the dry moat of a castle, and then if he were still in equilibrium take a gambler's chance of running through the gates on the opposite side. Fortunately there is another entrance and a safer approach (albeit not so picturesque a one) on another street.

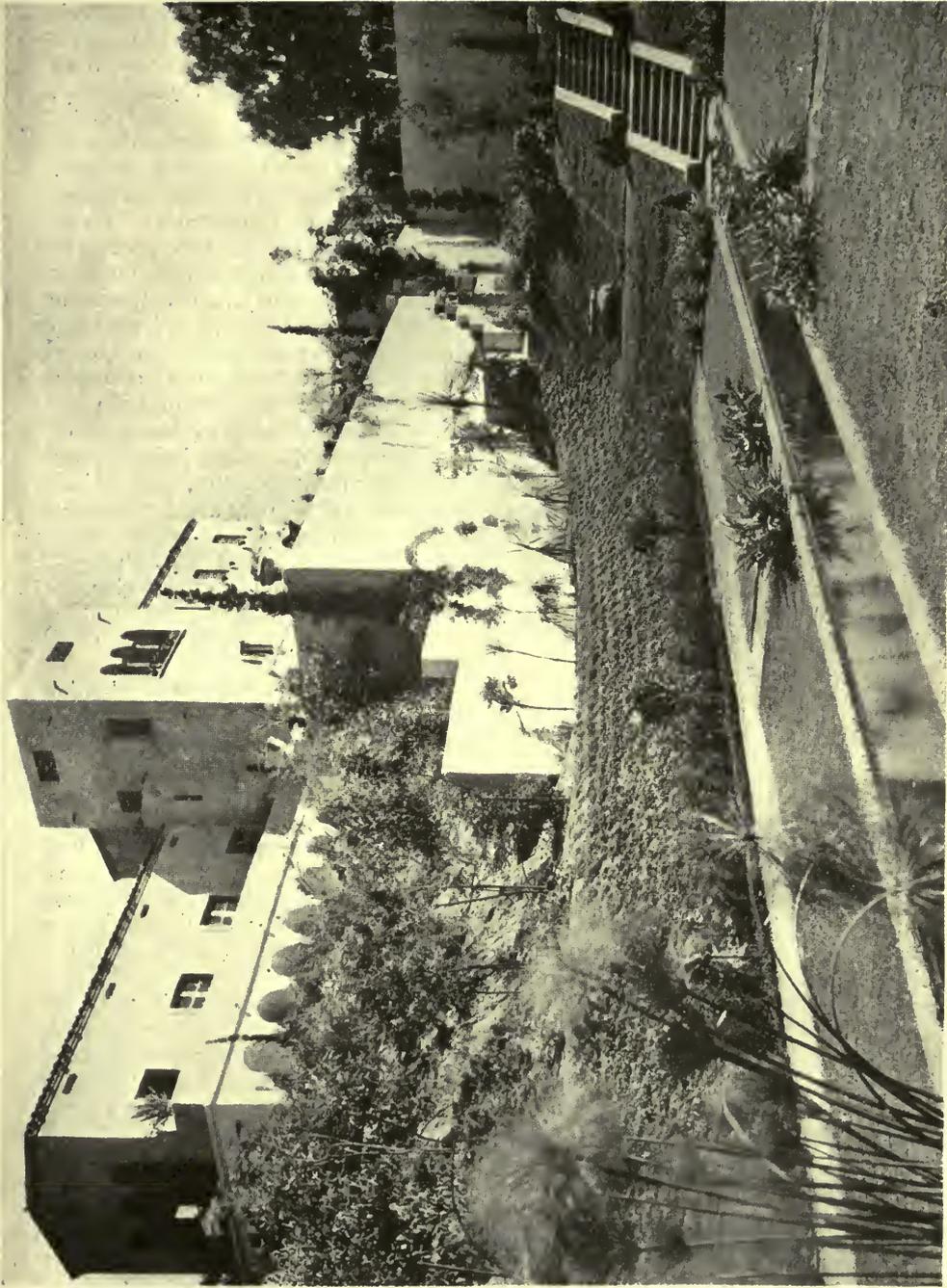
When one finally reaches the spot, however, one is amply repaid for the effort. The views are incomparable. I recently had sent me from abroad some colored postal cards showing views of the Italian lakes. They were taken through columned balconies looking out over shimmering bodies of water surrounded by little villages and further on by beautiful snow-capped mountains. The views from the Eltinge place remind me of those of the Italian lakes. By a fortunate arrangement of topography they comprise a beautiful inland lake, rolling hills beyond it with here and there little villas tucked away amongst them, and beyond those a range of mountains also frequently covered with snow.

Mr. Eltinge's garden largely commands these views and is distinctive and unusual in consequence. I once heard it said that a garden should never be placed where there is a fine view on account of the danger of the view and the garden competing. I do not think that is true. Some of the finest gardens in the world are at Ravello, where the outlook over Amalfi and the Mediterranean is wonderful, and both they and Mr. Eltinge's garden are refutations of any such theory. I think rather that a garden may be one of two different things. It may be either a place built around and dependent for its success upon flowers (in which case the aforesaid theory might somewhat hold) or it may be principally a place of observation, but adorned with greenery, etc., as an adjunct in order to make it beautiful. The Eltinge garden to a certain extent includes both of these types. One portion of the grounds from which the views are less inclusive is walled in by itself and is laid out in flower beds; another with finer views has few if any flowers but has been embellished in ways which make it very beautiful. This por-

tion lies several flights of steps below the other and the marked difference in elevation, and perhaps also a large octagonal fountain one passes on the way (situated amidst luxuriant arboreal growth), recalls similar effects in the Villa d'Este at Tivoli. Extending down the center of this lower garden is a long rectangular pool, beyond which is a vine-covered pergola backed up against one of the walls surrounding the grounds. At the opposite end is a raised terrace in the middle of which the aforesaid fountain is located, and back of this fountain is a beautiful fragment of sculpture rescued from the Court of Abundance at the San Francisco Fair.

The forecourt of the grounds is midway in elevation between the upper flower garden and the lower garden just described and commands the same fine views. It was originally intended, of course, for the reception of automobiles, but now since so few of Mr. Eltinge's guests have shown themselves to be daredevils, is no longer used for that purpose. It seems to me that in consequence it might well some day be converted into a very charming out-of-door sitting space, paved, and fitted up with chairs, tables, awnings, etc., in order to bring it more in keeping with its present altered purpose. This is merely a suggestion, however, for it is very good-looking and tells an interesting story as it is.

The style of the Eltinge house is the so-called "Spanish" now so much in vogue in Southern California. The outstanding features of the design are a centrally located tower over the entrance, a graceful recessed balcony in the upper portion of this tower, a long row of huge mediæval looking corbels at one side, a good-looking covered balcony at one end, and an arched porch at the other end. The plastered walls are of an interesting texture, the trowel marks showing slightly, and are colored an ivory white on the first story and a dull half-orange, half-red on the upper stories. There is much wrought iron work of good design. The situation of the house on the summit of a hill and the juxtaposition of the above main features combine to form an extremely interesting ensemble.



GARDEN FACADE — RESIDENCE OF JULIAN  
ELTINGE, ESQ., LOS ANGELES, CAL. PIER-  
PONT AND WALTER S. DAVIS, ARCHITECTS.

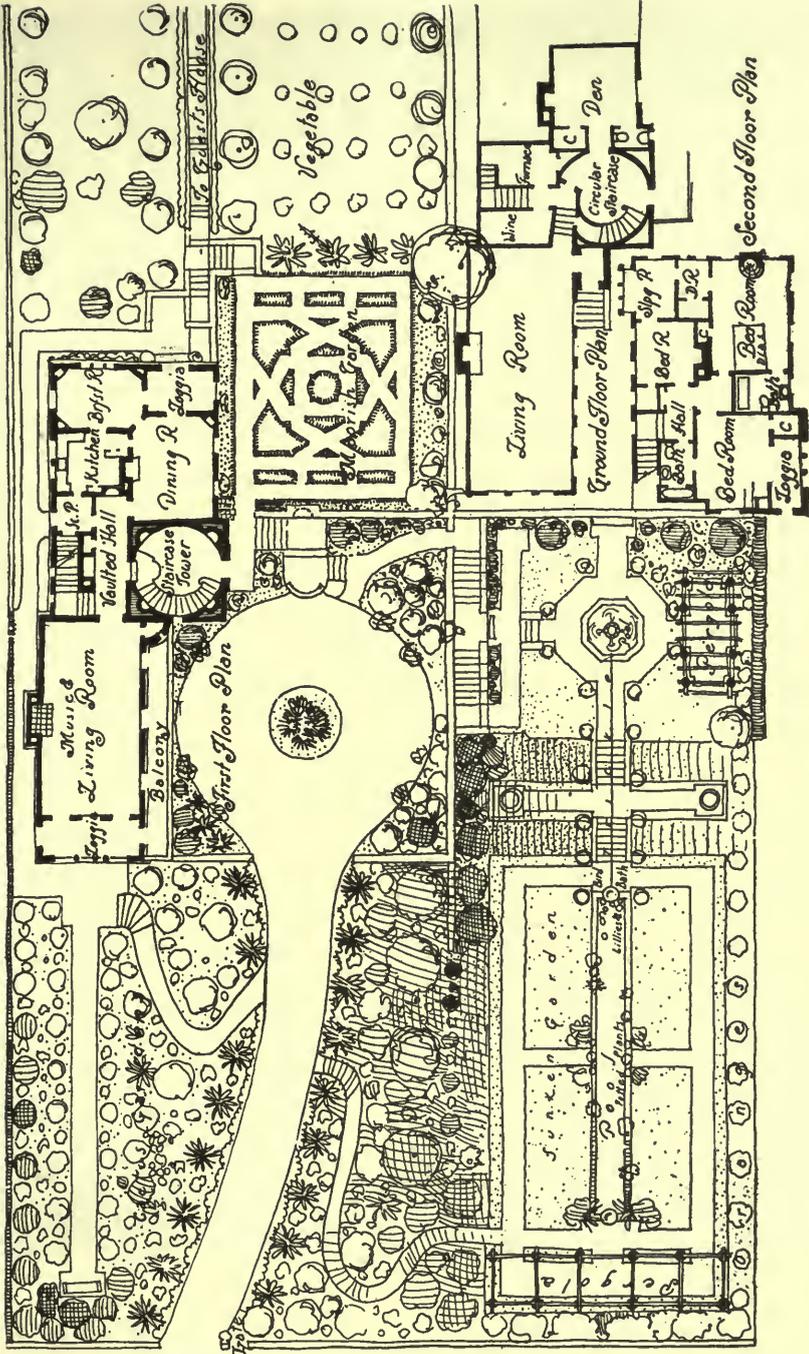
Right here perhaps a brief digression may be ventured. Myriads of houses presumably in this same Spanish style are now being built in Southern California in which certain ear-marks of the style are being copied from the more successful examples, but in which its spirit (the result of skilful design and careful handling of detail) is totally lacking. In several of the good examples certain departures in the way of color and texture were made, and made with success. In the poor imitations I refer to these departures were copied, but not with intelligence and good taste, and the result—well, plaster surfaces in which the trowel marks are emphasized out of all semblance to naturalness, walls tinted various shades of cold raw pink, and roofs covered with tile so widely differing in color that one striking example has been appropriately dubbed "the house with the snakeskin roof"—such eccentricities combined with very ordinary design and meaningless detail do not make good houses, and some day I hope more people than now will realize that fact. The same thing is happening as happened with the Mission style. The original Missions were and are, of course, beautiful, but many imitations which followed were so poor that the style soon fell into disrepute. And so with this Spanish style. Mr. Eltinge's house and many other fine examples will always be beautiful, but so many have followed which are not beautiful that already the general impression being created by them in Southern California is unpleasant. No other style seems quite so appropriate, and I doubt if any can quite fill its place; so perhaps the public will have to discriminate between the good and the poor, as it has had to do with the Colonial, the English and other types of architecture.

It has been suggested that the interior of the Eltinge house should be described by a woman, it being so distinctly a man's house. It could also be said, however, that a man's house might fairly be interpreted by a man. With that as an excuse, therefore, I shall proceed to describe it. One enters a circular hall which has a brick floor and a winding staircase running up on one side. The steps of the stairs are of brick and there

is a wrought iron handrail, which has been touched up with polychrome and gold here and there. At the top of the stairs is a lovely little wrought iron balcony, which overlooks the entrance door below, and from which Mr. Eltinge could welcome his guests if he chose without coming downstairs and before they mounted to the more intimate rooms above. Overhead is a domed ceiling entirely covered with mural paintings, which have been so treated as to appear about a thousand years old. The plastered walls have been done in such a way as to show the trowel marks slightly and have been colored a warm bluish gray to tone in with the ceiling. There is no great amount of light in the hall, not much being necessary; there are no pictures and their absence is not felt. There are four niches, in which have been placed well selected figures of bronze. Just enough light filters through the few narrow high windows properly to illumine the ceiling paintings and carry out the effect of a dim, misty, but attractive interior.

I should have stated that a considerable flight of steps leads from the level of the outer forecourt up to that of the entrance door. From there one mounts a full story's height in order to reach the level of a hall above from which several more steps lead down to the living room. The effect of these various flights of steps is to contribute greatly toward picturesqueness and the unusual. Some women might not like them—but this is not a woman's house!

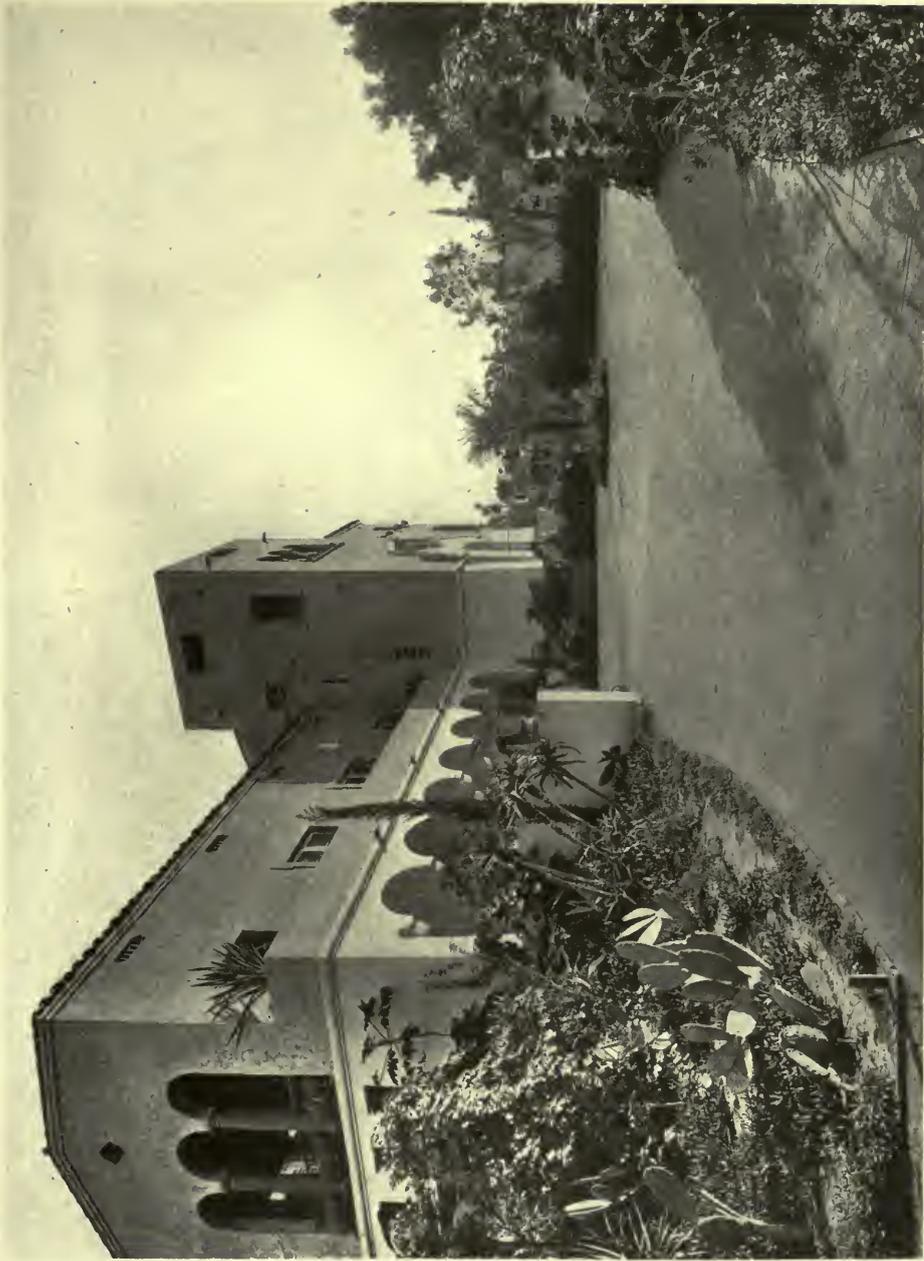
The living room has a high, partially vaulted ceiling entirely covered with murals, also made to appear old. There is a large, high, good-looking stone mantel of Italian design on one side, a very lovely covered balcony at one end (with an outlook from it toward the lake and mountains), a very finely designed piano, also antiqued, a beautiful harp, some large well selected pieces of tapestry, and much equally well selected bric-a-brac, all of which looks as though it belonged where it stands. These latter things are not architecture, but architecture without some such properly combined adjuncts is a bald and lifeless thing; and many a house, good architecturally, has been rendered ineffective for a lack of them. The



PLAN OF HOUSE AND GARDENS—RESIDENCE OF JULIAN ELTINGE, ESQ., LOS ANGELES, CAL. PIERPONT AND WALTER S. DAVIS, ARCHITECTS. CHARLES G. ADAMS, LANDSCAPE ARCHITECT.



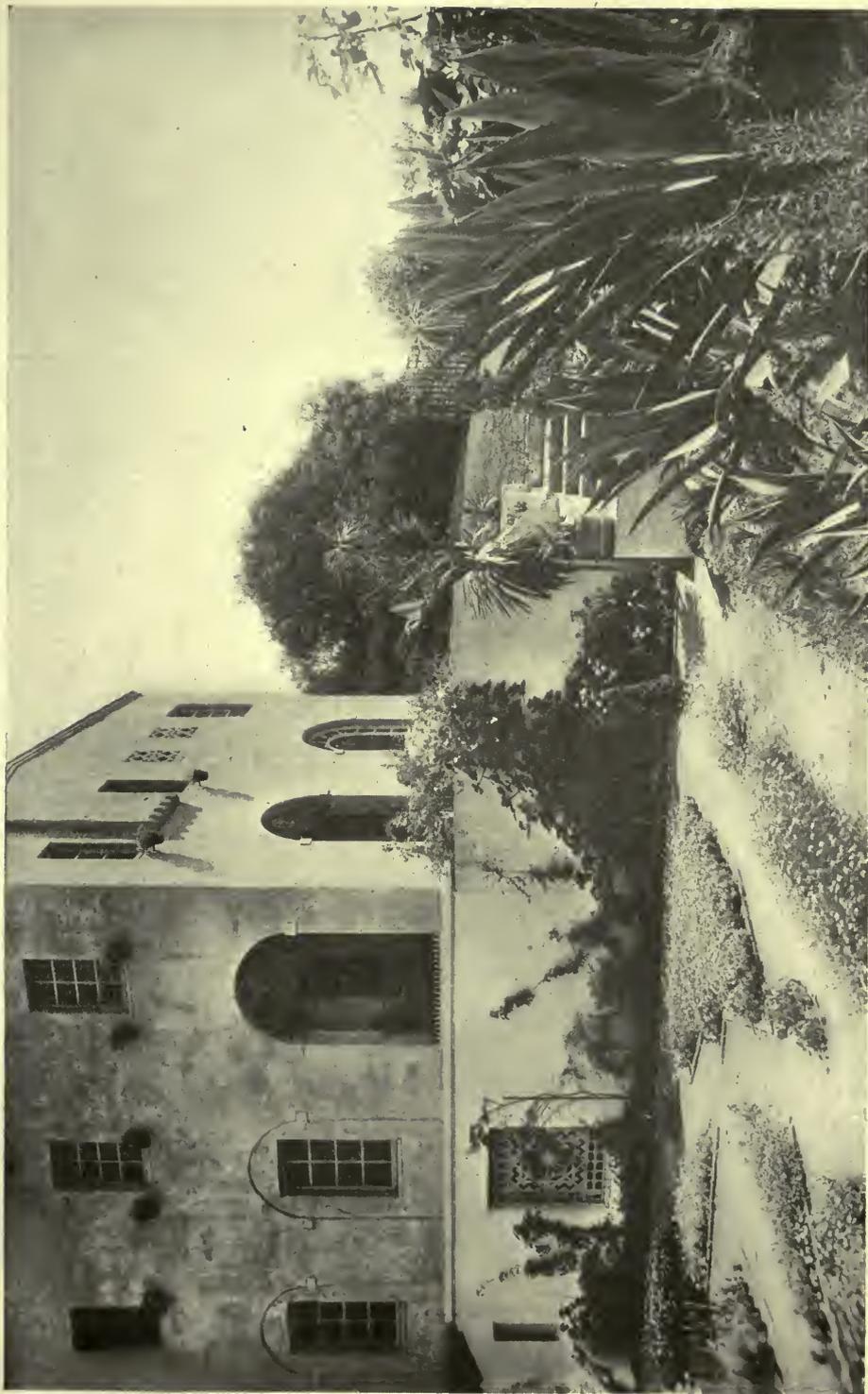
MAIN ENTRANCE (TO STAIRCASE TOWER)  
—RESIDENCE OF JULIAN ELTINGE, ESQ.,  
LOS ANGELES, CAL. PIERPONT AND  
WALTER S. DAVIS, ARCHITECTS.



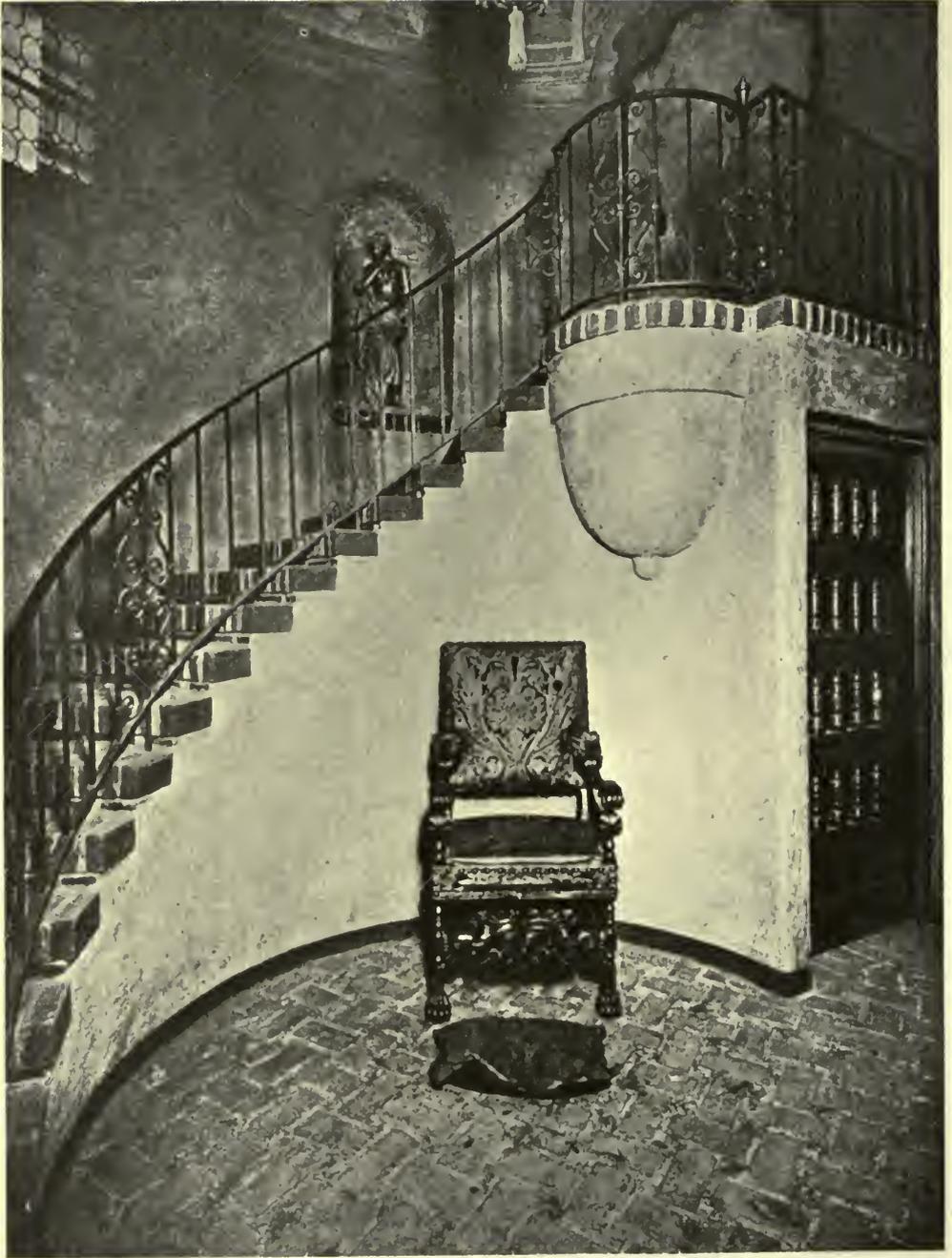
FORECOURT — RESIDENCE OF JULIAN  
ELTINGE, ESQ., LOS ANGELES, CAL. PIER-  
PONT AND WALTER S. DAVIS, ARCHITECTS.



SOUTH APPROACH (TO DINING ROOM LOGGIA)—  
RESIDENCE OF JULIAN ELTINGE, ESQ., LOS ANGELES,  
CAL. PIERPONT AND WALTER S. DAVIS, ARCHITECTS.



DINING ROOM LOGGIA FROM GARDEN—  
RESIDENCE OF JULIAN ELTINGE, ESQ.,  
LOS ANGELES, CAL. PIERPONT AND  
WALTER S. DAVIS, ARCHITECTS.



ENTRANCE HALL AND STAIR—RESIDENCE OF  
JULIAN ELTINGE, ESQ., LOS ANGELES, CAL.  
PIERPONT AND WALTER S. DAVIS, ARCHITECTS.



MUSIC AND LIVING ROOM - RESIDENCE OF  
JULIAN ELTINGE, ESQ., LOS ANGELES, CAL.  
PIERPONT AND WALTER S. DAVIS, ARCHITECTS.



DINING ROOM—RESIDENCE OF JULIAN ELTINGE, ESQ., LOS ANGELES, CAL.  
Pierpont and Walter S. Davis, Architects.



BREAKFAST ROOM—RESIDENCE OF JULIAN ELTINGE, ESQ., LOS ANGELES, CAL.  
Pierpont and Walter S. Davis, Architects.



DEN—RESIDENCE OF JULIAN ELTINGE, ESQ., LOS ANGELES, CAL.  
Pierpont and Walter S. Davis, Architects.

success of the Eltinge house is in fact due not alone to its architecture but to a combination of influences all playing their part toward a beautiful whole. These were the choice of able architects, the discovery of a clever decorator, a Mr. Martin Syvertson, who had been working on the outside as a house painter but had been a mural decorator at the San Francisco Fair; a very capable landscape man, Mr. Charles Adams, and finally Mr. Eltinge himself, who has a natural aptitude for combining color and texture in ways which tell, and whose deft hand in this regard has left a pleasant wake everywhere throughout the house.

The dining room has very pronounced trowel marking on the wall—too pronounced it would have been had it not been redeemed with a very beautiful color which is a sort of green burnished gold, and with a delicately modeled frieze also finished in gold. There is a very lovely painted mantelpiece on one side in blue and yellow; the doors are of plain smooth boards colored to match the walls, and in place of knobs there are

very simple iron latches. The floors have been finished with the planer marks showing, but done with studied method in effective manner, and are stained dark. Opening off the dining room is a lovely little breakfast room.

The bedrooms are on the next floor and are three in number. Two of them might be considered small, but this is compensated for by the richness of their treatment. Mr. Eltinge's own room is of goodly size and has a bed of interesting Italian design done by the architects, which stands on a dais suggestive of the European throne-room. The rest of the furniture in the room is painted in polychrome and has been extremely well done. A bath room opens at one side, the floor consisting of irregularly shaped brown tile laid with wide joints. One of the guest rooms has a very charming covered balcony opening off from it (the tower balcony) from which the views over the lake and mountains may be enjoyed. All of the bedrooms have trowel marked plastered walls, but attention has been paid to having it appear natural and



BEDROOM WITH LOGGIA—RESIDENCE OF JULIAN ELTINGE, ESQ., LOS ANGELES, CAL.  
Pierpont and Walter S. Davis, Architects.

the coloring is exceptionally good. In the room with the balcony it is almost iridescent, while in Mr. Eltinge's own room the pattern of the brocade window hangings has been stencilled upon the walls in such a manner as to have it faintly appear in places and disappear in others in a most effective manner. In all these rooms the wall color does not extend to the ceiling, but has been terminated near it with an outline of different kinds suggestive of mediaevalism, one pattern being that of castellation and the others equally appropriate.

One very interesting room passed by in my description of the ground floor opens off the entrance hall. Mr. Eltinge calls it the "trick room." In a way it is appropriately named, for its walls are covered with photographs of famous actors and actresses with various personal inscriptions upon them which make it very interesting; a description of the house would not be complete without mention of it. It is comfortably furnished and plays the part of a man's smoking or retiring room.

Taking it altogether Mr. Eltinge's house is distinctly the home of an actor. Southern California has in the last few years become a mecca for moving picture people, and while Mr. Eltinge's reputation was made on the "legitimate," long before the "screen" became so popular, he has nevertheless made brief excursions into filmdom and so may be considered in that connection. Much money has been made out of the "pictures" and a good deal of it put into homes. His house is one of the few of these which are distinctly creditable. It has received much comment, not all of which I regret to say has been favorable; but I think this is because it has not been understood. It seems to me that an actor's home should be romantic and picturesque, and different from the homes of other men and women. Actors deal in their work with the romantic and picturesque, they must perforce become saturated with it; and it is appropriate and natural, therefore, that such spirit be reflected in their homes. Mr. Eltinge's house does express the romantic spirit in a beautiful manner.



VIEW FROM TERRACE OF DINING ROOM  
LOGGIA—RESIDENCE OF JULIAN ELTINGE,  
ESO., LOS ANGELES, CAL., PIERPONT  
AND WALTER S. DAVIS, ARCHITECTS.



LANE DOWN TO VILLA CAPPONI, AT  
ARCETRI, NEAR FLORENCE, ITALY.

# The VILLA CAPPONI at ARCETRI NEAR FLORENCE, ITALY



By HAROLD DONALDSON EBERLEIN

THE Villa Capponi, at Arcetri, near Florence, belonged at the beginning of the fifteenth century to Piero di Bartolommeo di Bonaccorsi. In 1572 Gino di Lodovico Capponi bought it and in the ownership of his heirs and descendants it continued until a comparatively recent date. It was during the long ownership of the powerful and wealthy Capponi family that the villa, by sundry enlargements and embellishments, assumed virtually its present condition.

The west front lies directly along a narrow road that plunges abruptly downhill into the valley. The three doors close together on this road front are the house door, the chapel door, and the stable door. The south, east and west sides of the house face into the gardens. As is the case with nearly all of these Tuscan villas, the coloring is an essential part of the charm. Here the walls are of a warm salmon tone, the shutters are light green, and the Capponi arms, enclosed within cartouches high on the walls of the tower, are in white and black. The door and window trims are wrought in the grey *pietra serena*.

The floors are of brick painted and varnished, save in the halls, which are paved with slabs of chequered black and white marble. The ceilings of the rooms are beamed and painted, and the halls are

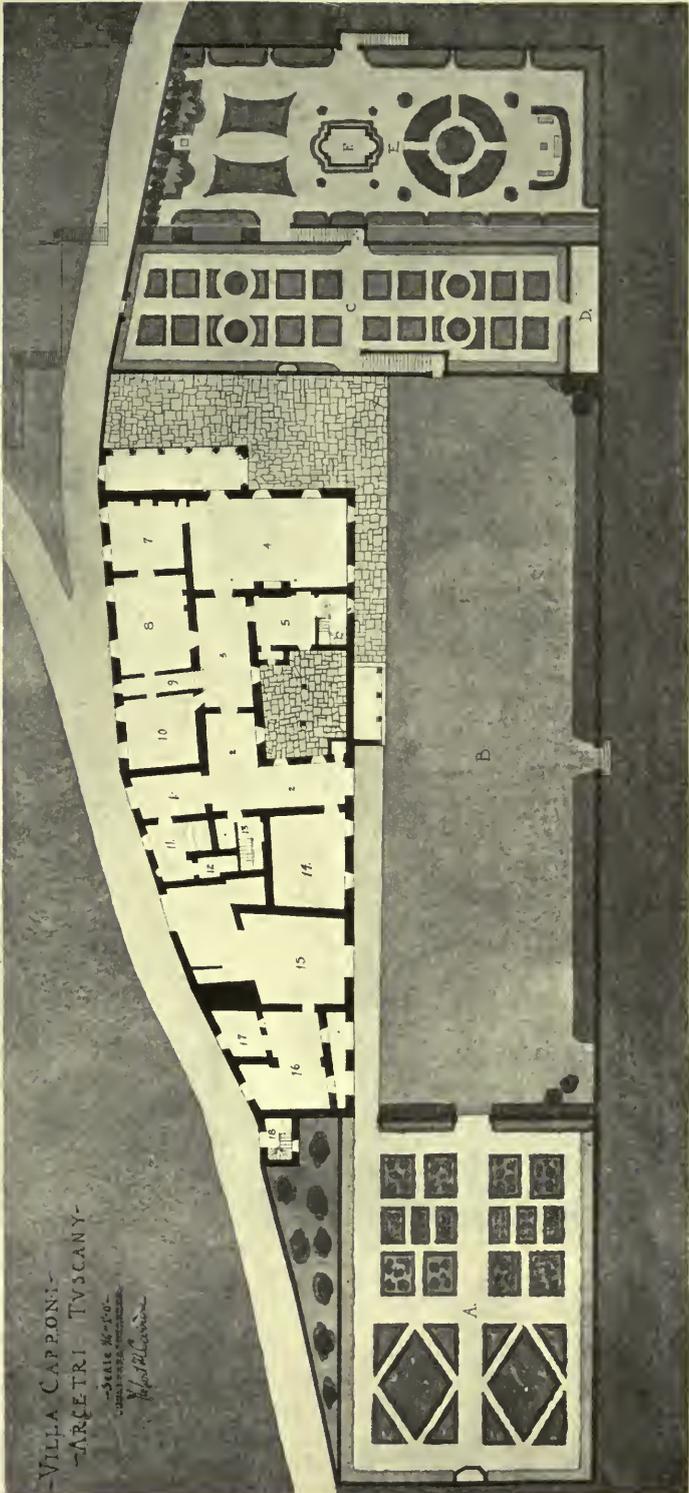
vaulted. In the dining-room, the cornice above the door, which appears in the illustration to be moulded, is merely a clever bit of painting on a flat surface in perspective in the characteristic Italian manner. The vaulting of the hall from the house door to the cross arm has painted coffering wrought on a flat surface in the same ingenious fashion.

There are three gardens, the upper, middle and lower. The upper garden is on the same level with the ground floor of the villa, and at the southern end of it is a box pleasaunce, the entrance to which is marked by rusticated stuccoed gate posts with wyverns atop. These posts and also the walls of all three gardens are of the same salmon color as the walls of the house. A flight of steps descends from the northern end of the upper garden to the middle garden, and another flight, after passing through a gateway, brings one from the middle to the lower garden. The window with a bulging grille, in the west wall of the middle garden, looks down upon the road many feet below. From the lower garden a short flight of steps goes down into the olive orchard.

The gardens are not at all lacking in a full and varied equipment of flowers, but their chief horticultural emphasis is derived from the effective arrangement and massing of foliage.



LANE UP TO VILLA CAPPONI, AT  
ARCETRI, NEAR FLORENCE, ITALY.



VILLA CAPPONI -  
 TASCANY -  
 ARCHITECT  
 J. H. B. C. 1880

KEY TO PLAN OF VILLA CAPPONI.

- |                         |                  |                          |                       |
|-------------------------|------------------|--------------------------|-----------------------|
| 1. Vestibule.           | 7. Morning Room. | 13. Servants' Staircase. | A. Box Pleasance.     |
| 2. Hall.                | 8. Dining Room.  | 14. Servants' Hall.      | B. Lawn.              |
| 3. Inner Hall.          | 9. Staircase.    | 15. Coach House.         | C. Middle Garden.     |
| 4. Drawing Room.        | 10. Library.     | 16. Stable.              | D. Lemon House.       |
| 5. Kitchen.             | 11. Chapel.      | 17. Box Stalls.          | E. Lower Garden.      |
| 6. Servants' Staircase. | 12. Sacristy.    | 18. Outside Staircase.   | F. Fountain and Pool. |



CROSS ARM OF HALL—VILLA CAPPONI,  
AT ARCETRI, NEAR FLORENCE, ITALY.



HALLWAY, TOWARDS ENTRANCE—VILLA CAP-  
PONI, AT ARCETRI, NEAR FLORENCE, ITALY.



HALLWAY, FROM ENTRANCE—VILLA CAP-  
PONI, AT ARCETRI, NEAR FLORENCE, ITALY.



LIVING ROOM—VILLA CAPPONI, AT  
ARCETRI, NEAR FLORENCE, ITALY.



END OF LIVING ROOM—VILLA CAPONI,  
AT ARCETRI, NEAR FLORENCE, ITALY.



FIREPLACE IN LIVING ROOM—VILLA CAP-  
PONI, AT ARCETRI, NEAR FLORENCE, ITALY.



DINING ROOM—VILLA CAPPONI, AT  
ARCETRI, NEAR FLORENCE, ITALY.



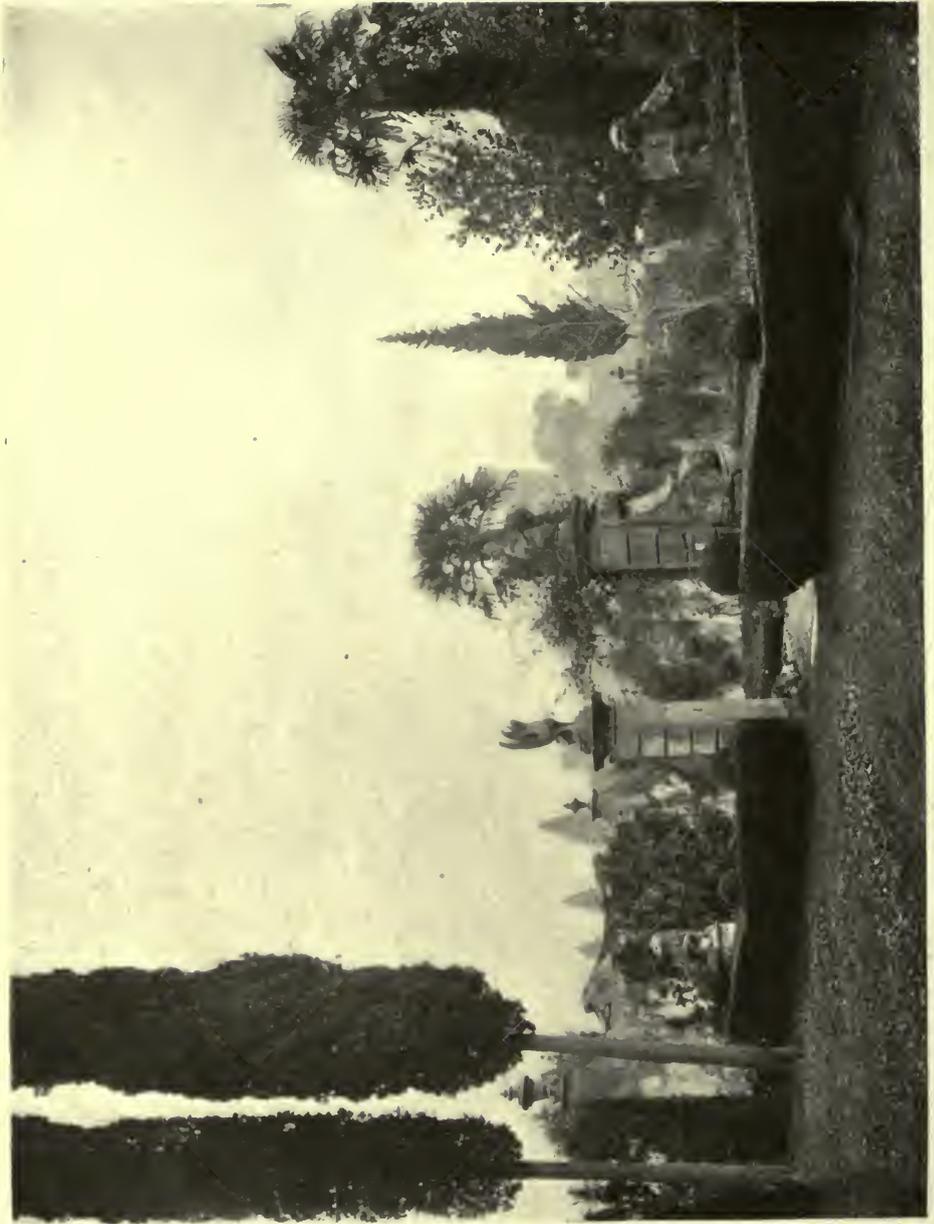
GARDEN FRONT, EAST—VILLA CAPPONI,  
AT ARCETRI, NEAR FLORENCE, ITALY.



GARDEN FRONT—VILLA CAPPONI, AT  
ARCETRI, NEAR FLORENCE, ITALY.



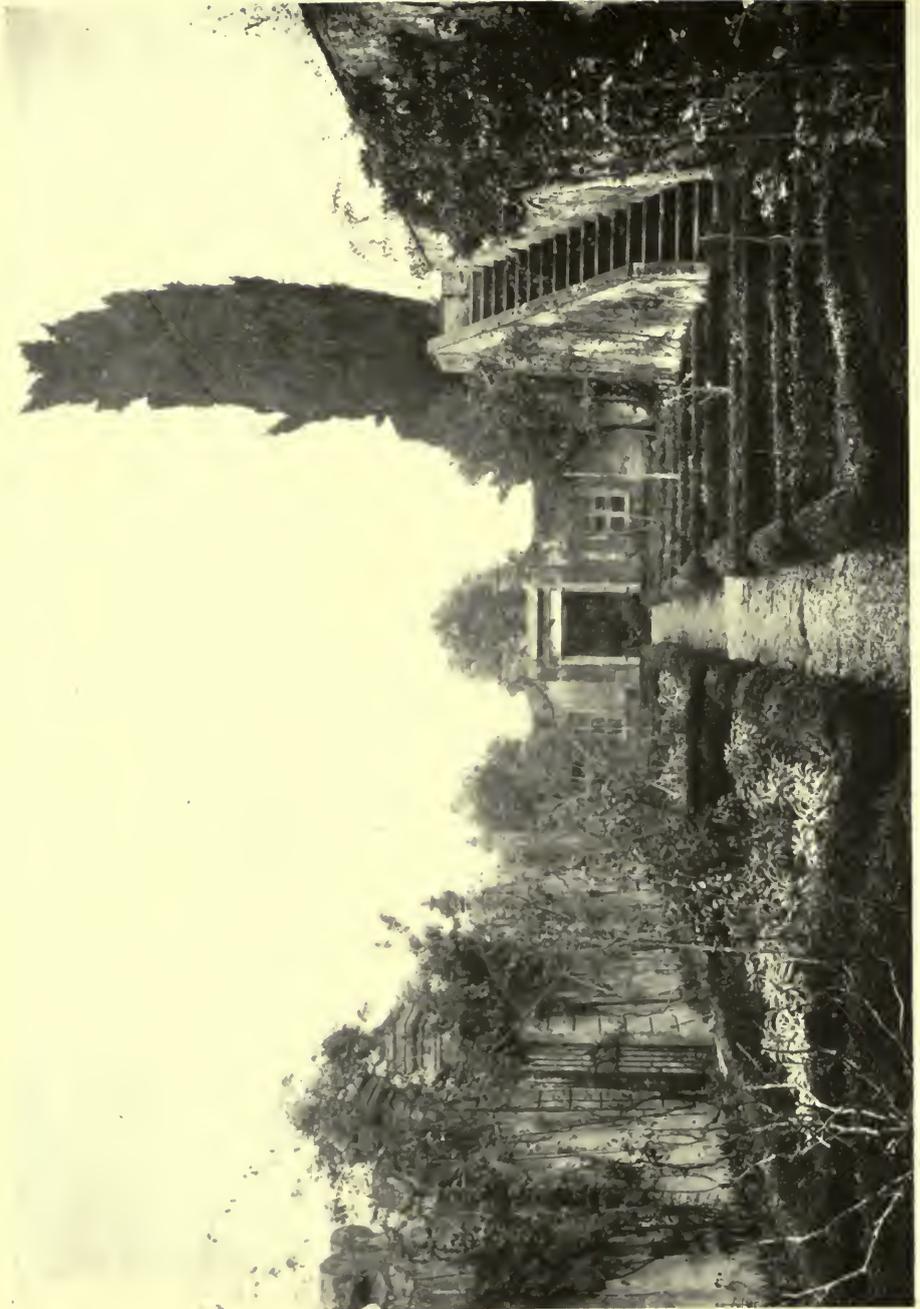
LOGGIA — VILLA CAPPONI, AT  
ARCETRI, NEAR FLORENCE, ITALY.



BOX PLEASANCE—VILLA CAPPONI,  
AT ARCETRI, NEAR FLORENCE, ITALY.



ENTRANCE TO BOX PLEASAUNCE—VILLA CAP-  
PONI, AT ARCETRI, NEAR FLORENCE, ITALY.



MIDDLE GARDEN - VILLA CAPPONI,  
AT ARCETRI, NEAR FLORENCE, ITALY.



END WALL, MIDDLE GARDEN—VILLA CAP.  
PONI. AT ARCETRI, NEAR FLORENCE, ITALY.



LOWER GARDEN—VILLA CAPPONI, AT  
ARCETRI, NEAR FLORENCE, ITALY.



POSTERN GATE IN LOWER GARDEN — VILLA  
CAPPONI, AT ARCETRI, NEAR FLORENCE, ITALY.



WYCK HOUSE, GER-  
MANTOWN, PA. 1690.

The  
EARLY ARCHITECTURE of PENNSYLVANIA

PART III - WITH PHOTOS by FRANK COUSINS  
HORACE M<sup>AC</sup>FARLAND & OTHERS



By A. LAWRENCE KOCHER

**D**ID America contribute something to the practical knowledge of mankind before 1800? Did the new world merely receive new ideas and give nothing in exchange? In literature it gave but little: Benjamin Franklin in prose, Jonathan Edwards in theology, John Woolman in ecclesiastical literature, and Philip Freneau in poetry almost complete the list. In art, Benjamin West, Charles Wilson Peale, and Gilbert Stuart are counted as "The Primitives." European critics of literature and art questioned whether any good could come out of this new country, for it was the common belief in Europe that, as Irving humorously put it, "all animals degenerated in America and man among the number." Certainly the prospect of success was not encouraging to the artist of the day. Trumbull assured a friend that it would be better for him to dig potatoes or to make shoes than to paint pictures in America. Sidney Smith in 1819 disdainfully asked in the *Edinburgh Review*: "Who, in the four quarters of the globe, reads an American book, or goes to an American play, or looks at an American statue? What does the world owe to American physicians or surgeons? What new constellations have their astronomers discerned? Who drinks out of American glasses? Who eats from American plates? Who wears an American coat, or lies down to sleep in an American blanket?"

These taunting remarks may be true with regard to literature, painting, industry and sculpture, but a similarly adverse

judgment of early American architecture would be in error. In architecture alone were results achieved which, a hundred and fifty years later, are looked back upon with pride and emulation. In architecture alone were models created which have outlived the generation in which they were conceived, and that serve as an inspiration for an age other than their own. In America there was no exception to the assertion that architecture is the mother of the arts. The art of architecture had examples to its credit before literature had its classics or painting its recognized masters.

It is to be expected that building should lead the way in attaining distinction, for it arose from necessity. Architecture was evolved from the primal need for shelter and protection. It is, perhaps, the most materialistic of all the arts. Its very inception came from the meeting of material necessities, and in the various steps in its evolution it has the satisfaction of these for its object. Sculpture and painting and poetry are an aim in themselves, while architecture serves as a background and as an environment to the various forms of human society, and is an outgrowth of its spiritual and physical pursuits.

The value of our architectural heritage has been but recently recognized. With the rise and fall of various tendencies we have been blinded to the value of the results achieved in the years of our colonial beginnings. We have turned to the correct but unimaginative Greek revival and later to the vagaries of the Victorian period.

It was during this benighted era that James Fergusson, the historian of architecture, penned his disparaging judgment of the worth of American architecture. He said that "from the time of the earliest colonization of this country till after the termination of the war of 1812-14, there was hardly one single building erected in Northern America which is worthy of being mentioned as an example of Architectural Art." It was not until the late eighteenth century that a revised and truer valuation was placed upon our achievements.

In our admiration of colonial architecture, it is easy to deceive ourselves as to the relative importance of the monuments erected during the years in which, as Cooper said, "the nation was passing from the gristle to the bone." We have no world-names of master builders or architects secure in the sense in which the cathedral builders or the designers of the Greenwich Hospital or of the Banqueting Hall are secure. Rather, America has the results and not the names of country carpenters and masons who built up a style

which outlived its age by recognized merit and which brought forth men gifted with the recognition of the worth and appropriate use of materials and who understood the proprieties and the limitations of architectural design. To record the kinds of buildings in Pennsylvania during these years is the object of this paper.

There are in Pennsylvania three distinct kinds of buildings which have their origin in the eighteenth century. They are: (1) the farm house; (2) the city residence; (3) the manor house.

Of the Pennsylvania farm house, the Fisher dwelling, near Reading, may be considered typical. The Fisher house was erected during the last quarter of the eighteenth century. The outside walls are of stone, with gables at the lateral ends. There is a pedimented doorway at the center of the broad front and two regularly spaced windows on either side of the door opening. The windows have twenty-four lights on both the first and second floors. Panelled shutters are below, painted white in accordance with the custom dating from the time of the original erec-



Photo by A. W. Fegley.

THE FISHER FARM HOUSE, NEAR READING, PA.



THE MILL HOUSE, LANCASTER, PA. 1767.

tion; and louvered shutters are above, painted a shade of green resembling early spring foliage. The stone arch above the window openings deserves mention, because a similar form frequently occurs in houses throughout Pennsylvania. A flat arch is fashioned of cut stone, with the central key block of greater height than the adjoining stones. The cornice, which possesses a robustness in keeping with the rough stone walls, encircles the main portion of the dwelling. A modified and simpler form of cornice terminates the vertical walls of the wing that projects to the rear as an "ell." The gable roof, as exemplified in the Fisher house, was almost never used in English Georgian architecture. It is an indigenous feature that was probably suggested by the primitive log cabin. The enrichment of moldings of the cornice followed the membering of pediments on contemporary buildings, such as Port Royal in Frankford, Philadelphia, and Woodford in Fairmount Park.

The plan of the Fisher house is similar to the arrangement of the majority of the dwellings of this type within the

colony. It possesses a main rectangle which includes the house proper, and, in addition, the kitchen wing. The first floor plan of the large rectangle is divided into two parts by a spacious hallway. There are rooms on either side of the hall devoted to living and dining purposes.

The arrangement of plan in this case, as in the colonial house in general, was dictated by a desire to gain external effect. Isaac Ware, in his "Complete Body of Architecture" (1756) advises that it is "always best to accommodate the inner distribution of a house to the outer aspect when that can conveniently be done." The exact and checkerboard spacing of windows precluded the use of rooms of varying widths. The mediæval method of floor planning, on the other hand, placed rooms where they were wanted, with the result that they were of different sizes, commensurate with their use. In the mediæval house in Europe there was a total disregard of regularity of appearance. Convenience was the first consideration. The colonial builder seems to have first conceived the symmetrical outline and



HOUSE AT ALLPORT, PA.

then sought to gain the necessary accommodation within.

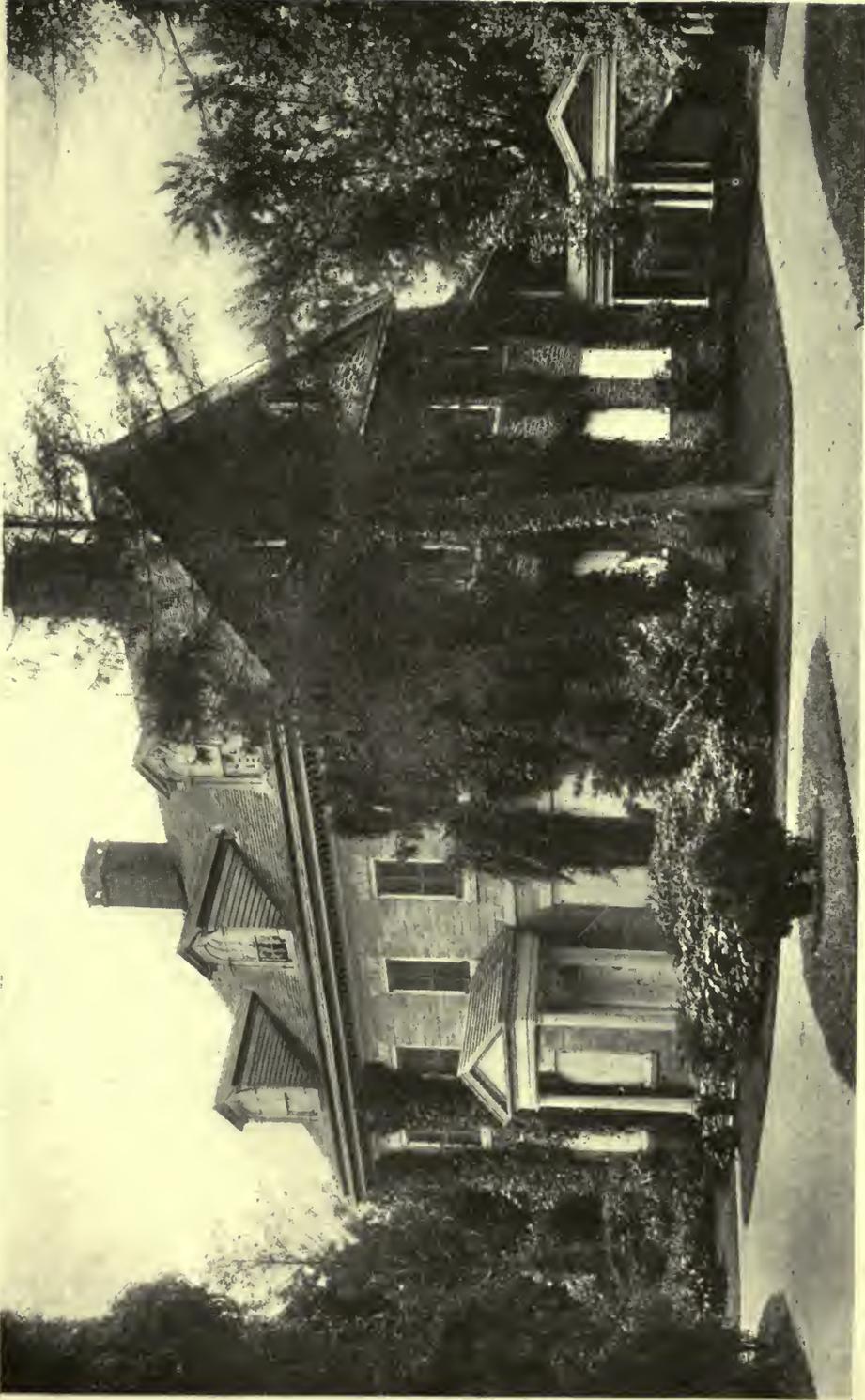
The simplicity of the Pennsylvania house had the advantage of being adapted to design by the layman. Due to its regularity and its slightly varying uniformity, rules were readily adopted to govern external ordnance. For instance, the height of the cornice was specified to be in proportion to the height of the building, and the size of the doorway in relation to the wall surface on which it was placed. The formulas were simple so that the builder or the amateur architect could readily see the applications and put them to use.

This same uncompromising simplicity of the colonial house was a disadvantage because it was so inflexible. While it was appropriate and thoroughly suited to the rugged life of the eighteenth century, it is not so well adapted to all of the involved requirements of our life today.

The Mill house, erected about 1767 in the environs of Lancaster, is almost an exact replica of the Fisher house, already mentioned. It differs in not having the cornice molding continue across the base

of the end gables, and here there is a less attractive use of stone work around the windows. The porch is an addition of recent times.

Houses similar to the foregoing were frequently erected in towns where the conditions of living were not congested: Germantown, Carlisle and Northumberland each had several specimens. Upsala, on the corner of Germantown Road and Upsala Street, is well-known. Here a greater effort to attain external effect is evident, with the elements of the design remaining the same. Upsala, begun in 1798 by Norton Johnson, attracts by its distinctive use of dressed and coursed ashlar at the front and random rubble stonework on the remaining walls. The tendency to give a greater importance to the front façade by means of a labored and fanciful treatment found expression in Hope Lodge through the use of Flemish bond on the front and stucco applied to brick at one end. It was a common practice in brickwork to use Flemish or English bond on the front and the common or running bond at the ends and



U P S A L A, GERMANTOWN, P. A.  
BUILT BY NORTON JOHNSON, 1798.



HOUSE AT 6105 MAIN STREET, GERMANTOWN, PA.

rear. This over-emphasis of the main elevation has been attributed to the not very far-seeing practice of the day of erecting dwellings with a single drawing of the exterior planes, and that, naturally enough, of the frontal view. The other walls were not deemed of sufficient importance to receive cut stone or special bonds. The projecting porch of Upsala, sheltering the round-headed doorway, is a late addition, and appears exotic and not in full sympathy with the style and practices of the eighteenth century.

Wyck house, Germantown, shows closest affinities with the Pennsylvania farm house type. It is, in fact, an example most delectable in appearance, but of chance origin. The story of Wyck discloses a broken history. The oldest part was erected in 1690 by Hans Millan, while the added section dates from the first half of the following century. To William Strickland are attributed certain minor changes made in 1824, including the addition of the chimney at the gable end toward Main Street.

Built for a Welsh citizen of Germantown, it possesses attributes both excep-

tional and accidental. It would be to strain excessively and without warrant should we ascribe this house in a sentence to a definite phase of the Pennsylvania style. In the irregular spacing of the windows, the interrupted roof-line, the latticed walls there is delicacy and charm, if not evidence of studied forethought. It would be difficult to find in any region or in any country a more delightful and lovable or more habitable dwelling than this stuccoed stone house with its informal trellised walls contrasting with neatly panelled shutters and blinking panes of irregular surfaced glass.

After all it is the exceptional specimen such as this which gives zest to architecture. It is the house which makes no pretense to attain the ambitious, but that owes its origin to the town carpenter, which arrests our attention and makes its lasting appeal.

There is at Allport another unusual and rambling house, full of homely picturesqueness—another instance of this varied style that is not to be classified with definiteness.

It would seem that in some instances



THE EPHRAIM BLAINE  
HOUSE, CARLISLE, PA. 1792-97.



THE MORRIS HOUSE,  
PHILADELPHIA, PA. 1786



PENNINGTON HOUSE, WATER AND RACE STREETS, PHILADELPHIA, PA.



FIREPLACE ON FIRST FLOOR—GOVERNOR KEITH'S MANSION, GRAEME PARK.

houses were built piecemeal; that is, a part would be erected at one date with the intention or practice of completing the construction at a later time. Many examples of this incomplete and one-sided façade are met with in Pennsylvania. The house at 6105 Main Street, Germantown, is a case in point. The Ephraim Blaine house, in Carlisle, also suggests such an intention. The evidence of an unwindowed wall on the apparently unfinished side strengthens this view.

The second form of dwelling characteristic of the domestic architecture of Pennsylvania is the city residence. Dwellings within the crowded confines of the city assumed an appearance in keeping with their situation on the city thoroughfares, where land values were high and where a greater housing capacity was a desirable feature. The Morris house, at 225 South Eighth Street, is representative of this second type. The Morris house

has three superposed stories, the lower two being similar in height, the upper considerably lower and with sash fitted with sixteen panes of glass instead of the twenty-four enframed in the sash of the lower stories. The almost exact square of the façade, which is forty feet, two inches in width and thirty-four feet, five inches in height, is given the effect of a greater breadth by the use of two horizontal bands between the two stories. The broad expanse of wall seems to need quoins to terminate the ends of the façade. A pleasing variegated texture and a heightened interest result from the Flemish bond of the brickwork with the dark headers and warm red stretchers. A clean-cut primness and dignity are added by the contrasting whiteness of wood and stone against the darker brick background.

It is just such a city house as this that Dr. S. Weir Mitchell describes in "Hugh



FRONT ELEVATION—GOVERNOR KEITH'S  
MANSION, GRAEME PARK. 1731-22.

Wynne:" "The house was of black and red brick, and double; that is, with two windows on each side of a white Doric doorway, having something portly about it. I use the word as Dr. Johnson defines it: a house of port, with a look of sufficiency, and, too, of ready hospitality."

The Pennington house on the corner of Race and Water Streets, Philadelphia, was formerly a city residence with the gable end designed in accord with the front. In this instance belt courses of stone were used instead of brick to define the separation of the floor levels. It is probable that such houses as this were commonly used to accommodate the business interests on the first floor while the upper stories provided living quarters.

The popularity of wrought iron stair rails during the last quarter of the eighteenth century was responsible for the setting back of the front plane of the building away from the property line. The white marble steps, which we associate with the scrubbing propensities of the Philadelphia housewife, were likewise an innovation of the times and

proved an effective accompaniment to the handiwork of the wrought iron craftsmen.

A third type of dwelling was designed for the well-to-do. The half century preceding the Revolution produced a group of wealthy and influential citizens who gave expression to their well-being and prosperity by erecting country residences of dignity and pretentiousness, about Philadelphia. They were usually of size and importance, comparable to the manor houses of the gentry in England. The conscious imitation of Georgian prototypes of the home country marks this phase of the Pennsylvania mode of building as less free and not so distinctly our own as the pleasing variants of the farm house.

Graeme Park, Horsham, was the earliest in point of time, being begun in 1721 by Sir William Keith, one time Lieutenant Governor of the province. It was also the most rugged and unassuming in external appearance. The absence of tangible evidence of design reflects either the pioneer epoch with its meagre-



PANELING—GOVERNOR KEITH'S MANSION, GRAEME PARK. 1721-22.



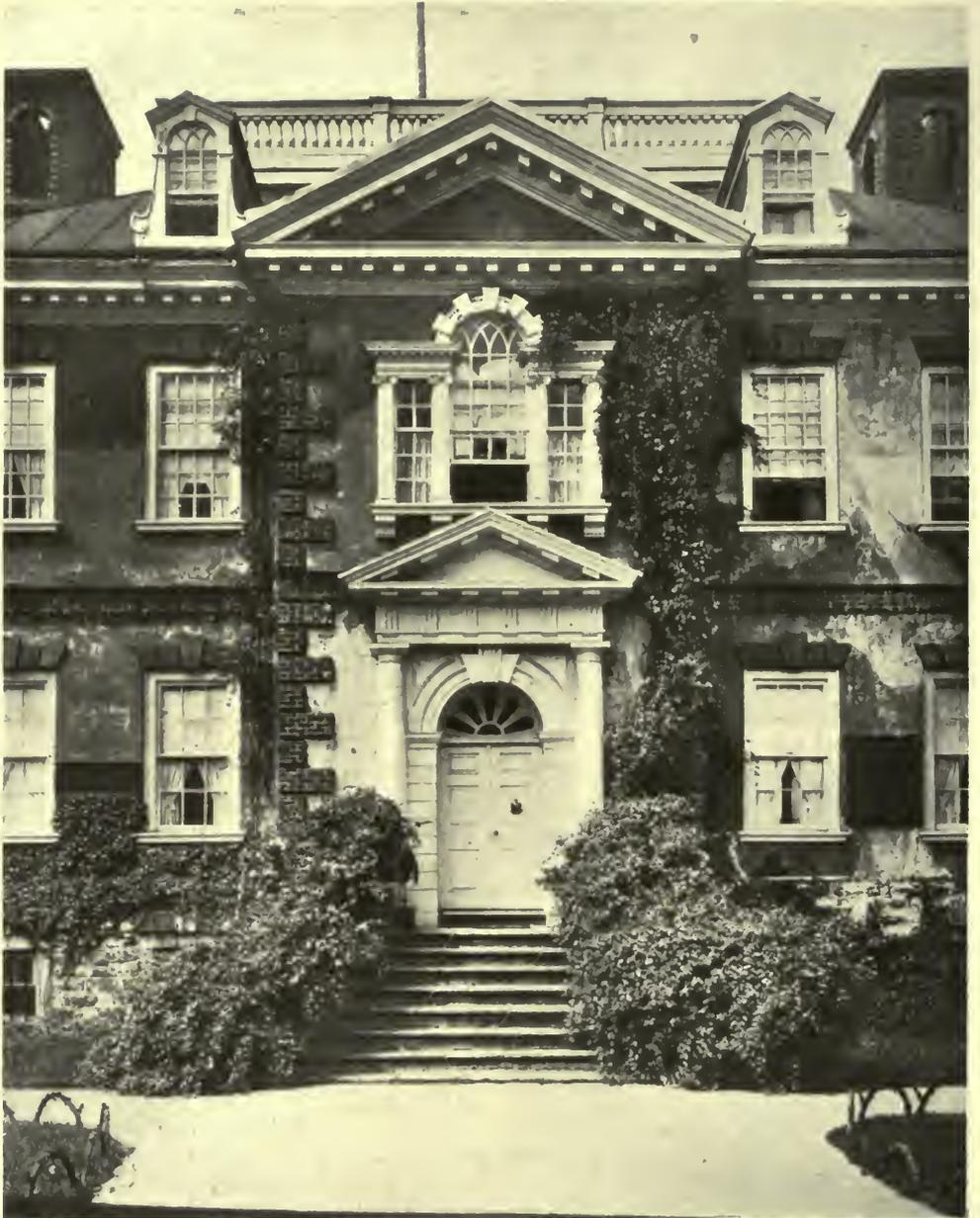
DETAIL SHOWING CORNICE AND STAIR HALL—MOUNT PLEASANT, FAIRMOUNT PARK, PHILADELPHIA, PA.

ness of architectural knowledge or the need of haste in raising the four walls. In contrast with the stern exterior, the inside of this house discloses an elaboration of woodwork distinctly surprising for the period. Here for the first time were paneled walls put to extensive use in this colony as a means of producing richness and dignity. The popularity of wainscot and paneled walls may be ascribed to the vogue for such work in England and to the abundance of pine forests which were cleared in making place for habitation. The wood panels of Graeme Park were relatively narrow, averaging twenty inches in width. The chair rail was not used here, but, instead, two rows of panels; a low one below and a lofty one above, fashioned for walls of importance, particularly on the side on which the fireplace occurred. The practice of panelling an entire room does not seem to have been favored in Pennsylvania.

The panels of Graeme Park are of the

flush type, with a very narrow molding kept within the face of the surrounding stiles. This differs from the contemporary English method of using a wide raised mold, which in some instances was as great as three inches. The wood carver had not yet found a place in this province in connection with house building. It was the carpenter who shaped these walls and devised the rather angular and somewhat bold treatment of mantels and pedimented doors.

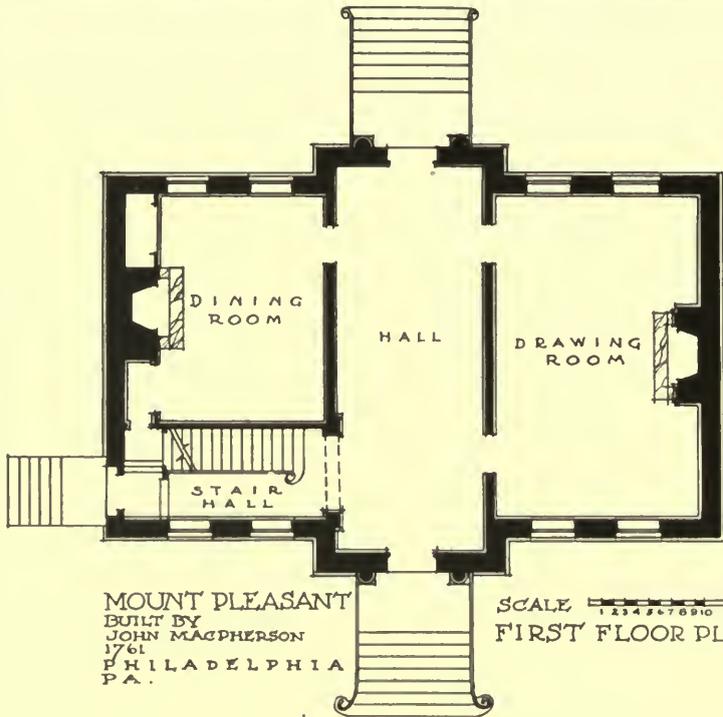
The characteristic form assumed by the third type is summed up in Mount Pleasant, built in 1761 for the merchant and shipowner, James MacPherson. The gable ended roof is here replaced by a hip roof of low pitch, which is surmounted by a balustrade of wood. The front façade is interrupted by a slightly projecting central pavilion crowned by a pediment, giving importance as well as adding dignity of mien to an otherwise regular and symmetrical treatment. The doorway is of ample size, with engaged



DETAIL OF FAÇADE—MOUNT PLEASANT,  
FAIRMOUNT PARK, PHILADELPHIA, PA. 1761.

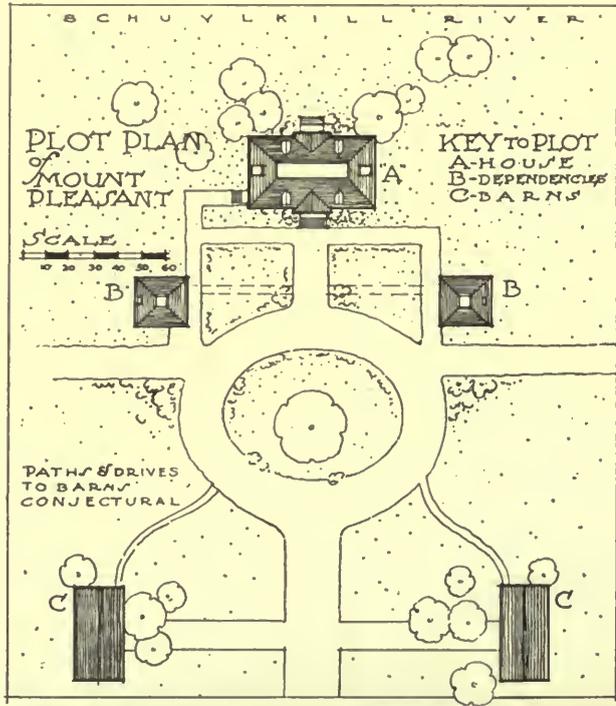


MOUNT PLEASANT, FAIRMOUNT PARK, PHILADELPHIA, PA. BUILT BY JOHN MACPHERSON, 1761.



MOUNT PLEASANT  
 BUILT BY  
 JOHN MACPHERSON  
 1761  
 PHILADELPHIA  
 P.A.

SCALE 1 2 3 4 5 6 7 8 9 10 15 20  
 FIRST FLOOR PLAN



PLOT PLAN  
 of  
 MOUNT  
 PLEASANT

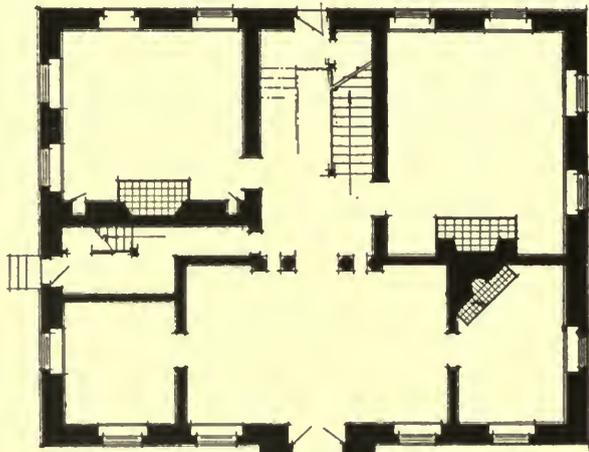
KEY TO PLOT  
 A-HOUSE  
 B-DEPENDENCIES  
 C-BARN'S

SCALE 10 20 30 40 50 60

PATHS & DRIVES  
 TO BARN'S  
 CONJECTURAL

MEASURED &  
 DRAWN BY  
 A.L. KOCHER



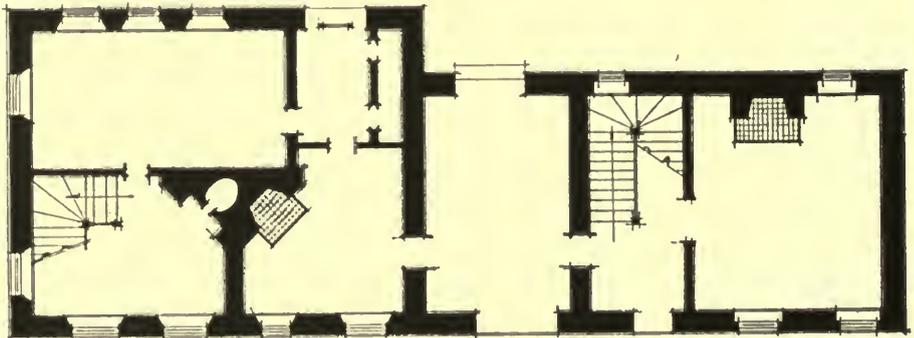


FIRST FLOOR PLAN



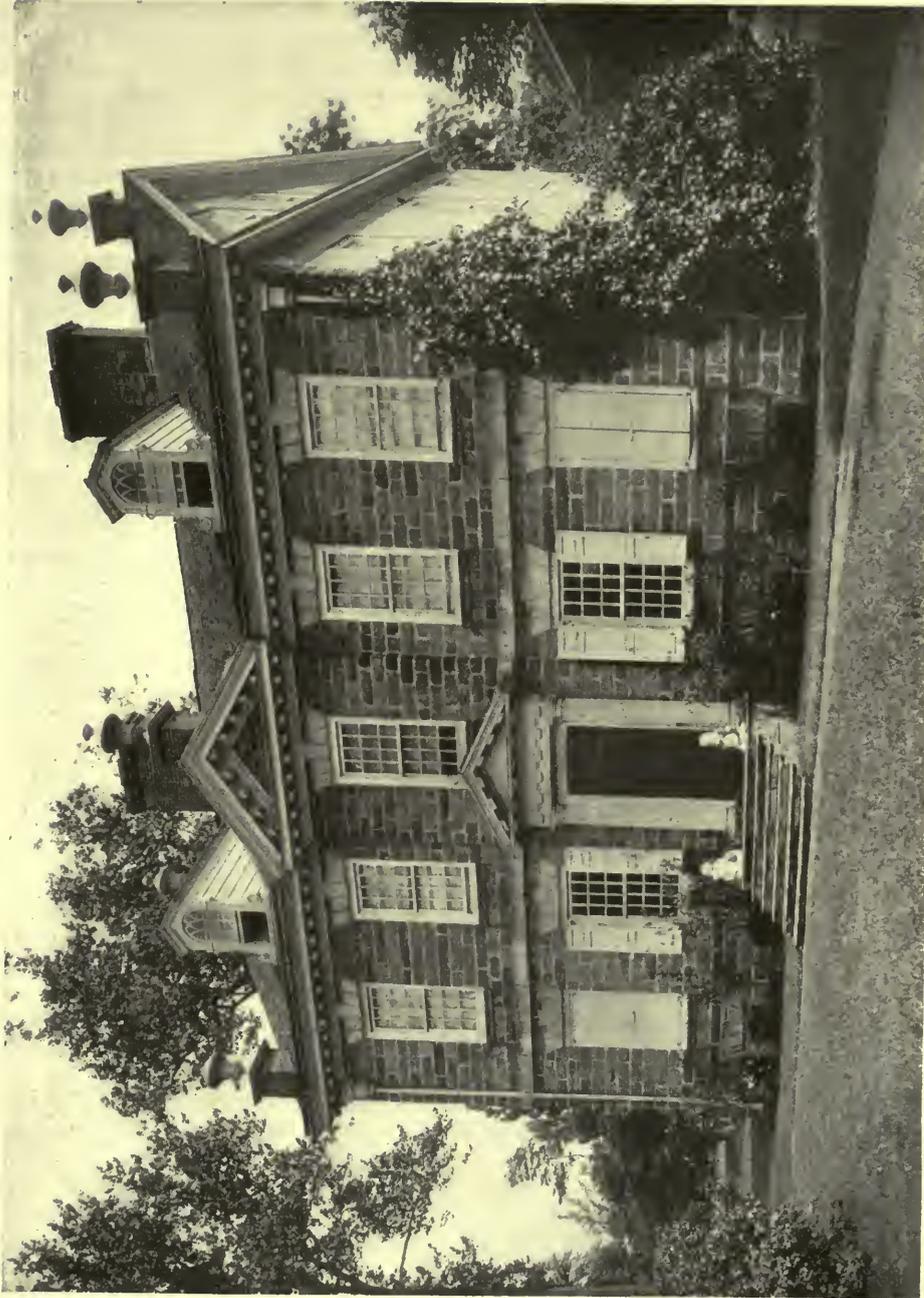
SCALE 0 5 10 15 FT

CLIVEDEN 1763  
GERMANTOWN, PA



FIRST FLOOR PLAN

WYCK  
GERMANTOWN, PA  
FIRST PART 1690



CLIVEDEN, GER-  
MANTOWN, PA. 1763.

Doric columns supporting a correctly proportioned Roman entablature and pediment. The Palladian window of the second story completes a composition which recalls the stair tower of the old State House in Philadelphia. It is probable that the grouping was suggested by the State House, which in date preceded Woodford, Mount Pleasant, and Port Royal, all of which used the feature. The State House Tower was begun in 1750, while the apparently imitative examples range from 1756 to 1762. The feature may also be traced to Georgian antecedents, such as the entrance to the Manor House at Rothwell, Northamptonshire, dating from 1720.

The emphasis given to the central bay, with the concentration of interest massed at the doorway, is a most commendable method in design. It is generally recognized as being more correct to mass or concentrate ornament at a doorway and window than to scatter it.

The formal turn given to the design of Mount Pleasant precluded the use of local stone and determined the adoption of brick combined with smooth surfaced stucco. No builders of any age have shown a finer feeling for the appropriate use of materials or have revealed in building a keener understanding of organic expression in construction than the colonial craftsmen. The local stone formation known as "trap rock" with its irregular surface and varied color was associated in their minds with simplicity of mass and regularity of ordnance, and therefore would be ill suited to this formal arrangement. Brick with its regular size and even surface was suited to the formal nature of this design. The skilful use of brick quoins is one of the most delightful parts of this most excellent mansion.

The grouping of the buildings at Mount Pleasant is exceptional. The main building, with its principal living rooms, is in the center, flanked on either side by a separate and lesser building housing the rooms devoted to service. This was a favorite device in England in the eighteenth century. Isaac Ware illustrates such an arrangement and sets forth in his third book the manner in which this kind

of group should be designed, stipulating that in a house of sixty-five foot frontage the wings should stand twenty-eight feet distant from the right and left, and thirteen feet forwards.

The block plan with detached, subordinate wings, or with the dwelling connected to the service buildings by means of a colonnade or low roof, never became firmly established in New England or the Central States as in the South. By the latter part of the eighteenth century the oblong plan, with the kitchen projecting to the rear, proved to be the most common form.

In regard to the internal arrangement of the main part of Mount Pleasant, the placing of rooms was unusual. A wide central hall, with wainscot and classically treated cornice, extends from the front to the back of the building, but, instead of the stairway being housed in the main hallway, a secondary stair hall projects to one side and occupies the southeast angle. The latter is separated from the main hall by a square-headed arch with fluted pilasters on each side supporting a heavy entablature.

The north end of the first floor is occupied by the drawing room, which is seventeen feet, ten inches wide and twenty-six feet, ten inches long. The dining room is in the southwest corner and is entered by a doorway from the main hall. The second floor is almost a duplicate of the first. Delicately detailed woodwork adorns the fireplace side, use being made of central mantels and adjoining cupboards. The great chamber of the second floor is of extreme beauty and refinement. Over the marble framed fireplace opening is a great wood panel, enriched at the angles and above by delicate carving, credited with having been brought from England, but more probably the work of local craftsmen.

Traditions pointing to panelled and carved wall decoration carried by the early merchant ships from England, are as ill founded as are the numerous accounts of "brick brought from abroad." Careful investigation indicates that there were in Pennsylvania skilled woodworkers of almost as great proficiency as the wood craftsmen of England of the late eight-

eenth century. Philadelphia was the chief "furniture city" of all the American colonies at the time of the Revolution. Furniture of the "period styles" was being made in Philadelphia of so refined a nature and in so close an accord with the traditions of the craft in London as to have passed for genuine specimens from the workshops of Chippendale, Shearer and Sheraton. It is only within the present decade that the true origin of these pieces has been placed by such men as Mr. Alfred Prime, of the Pennsylvania Museum in Philadelphia. The American origin of certain carved overmantels, long attributed to British workshops, is proved or at least made most probable by the evidence of the wood of which such mantels were made. With one or two exceptions they are of white pine. The white pine tree, so abundant in the domain of William Penn, was not imported into England until after 1700, and it is improbable that it would have developed to a sufficient size to have been put to the uses of panelling and carving.

Port Royal in Frankford, Philadelphia, Woodford in Fairmount Park, and Cliveden in Germantown are other representatives of the third type, but none of these has the adjacent buildings to form a forecourt. They possess minor variations, such as the gable roof of Cliveden, the molded belt course separating the first from the second story at Woodford, and, in addition, the adoption of brick and stone as the material of which the walls were built.

This brief summary of the prominent characteristics of the three readily recognized kinds of domestic dwellings in early Pennsylvania does not pretend completeness. The prevailing form rather than the exceptional example has been given attention.

The subsequent consideration of the mutations of detail, the evolved growth of forms, animated at first by environment and use and later altered by the more intimate contact with England, will add to a fuller understanding of the Pennsylvania style.

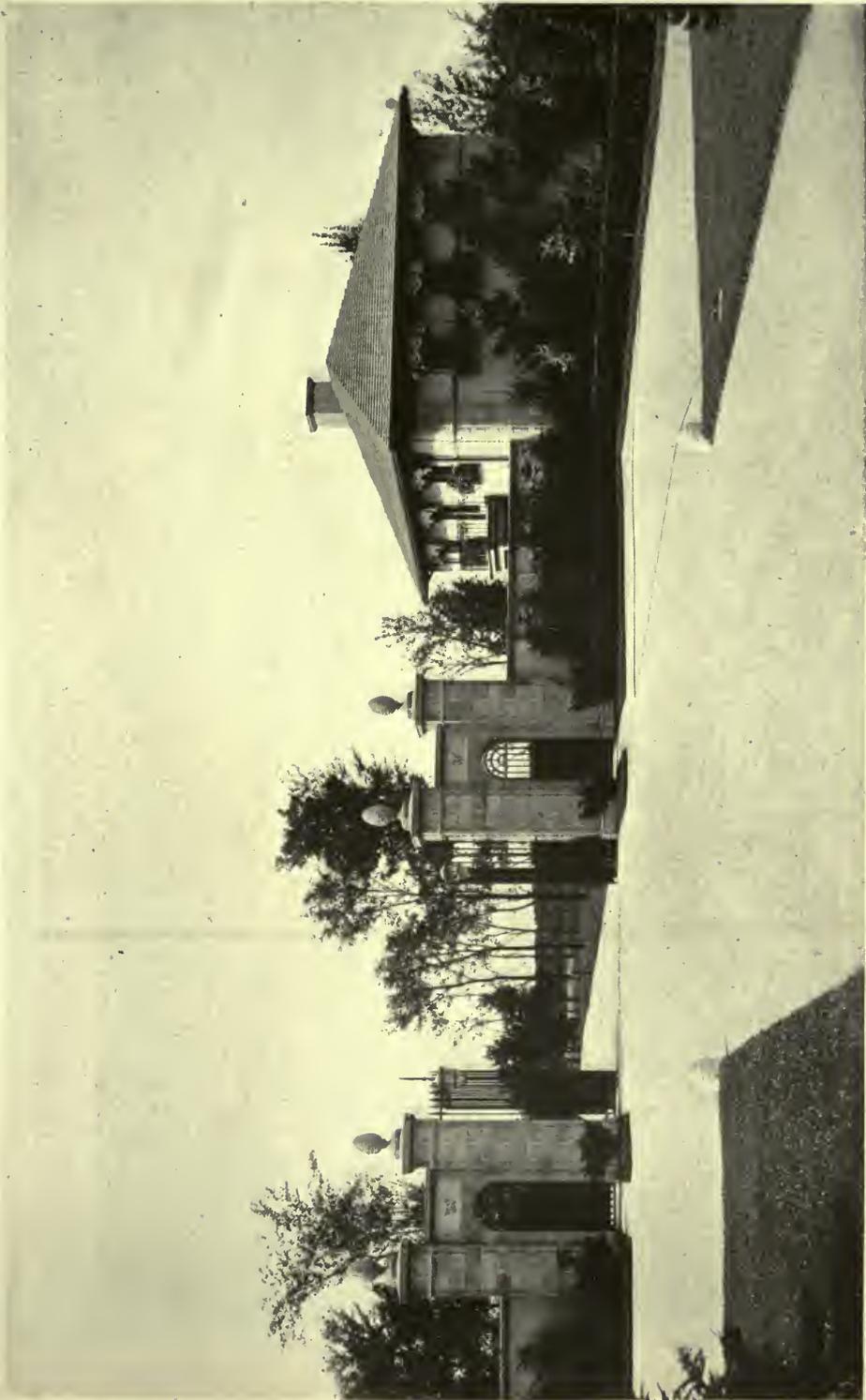


DATE STONE, HOUSE IN LANCASTER, PA. 1767.

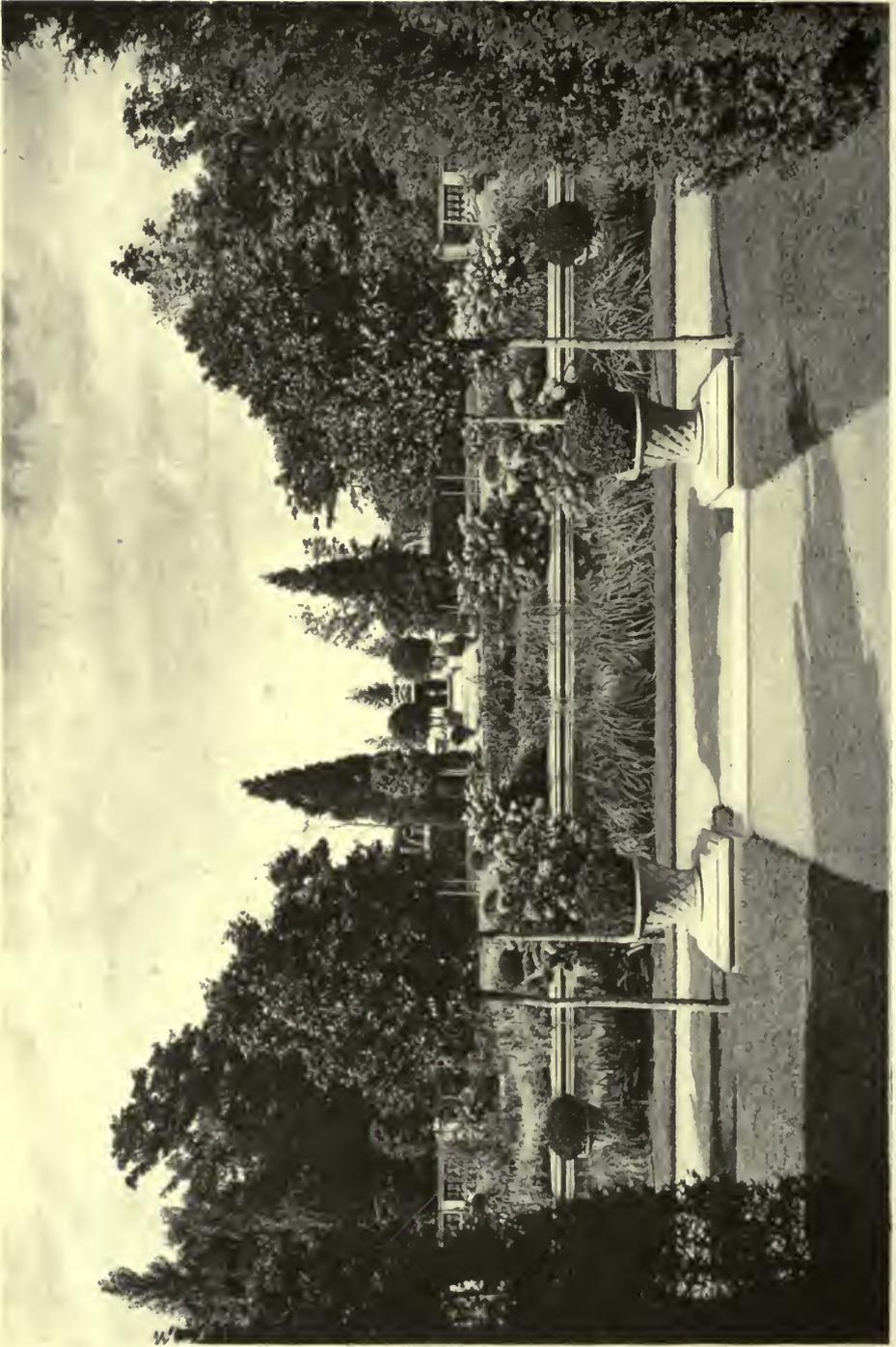
PORTFOLIO  
OF  
CURRENT  
ARCHITECTURE



WELL HEAD—MELODY FARM, RESI-  
DENCE OF J. OGDEN ARMOUR, ESQ., LAKE  
FOREST, ILL. ARTHUR HEUN, ARCHITECT.



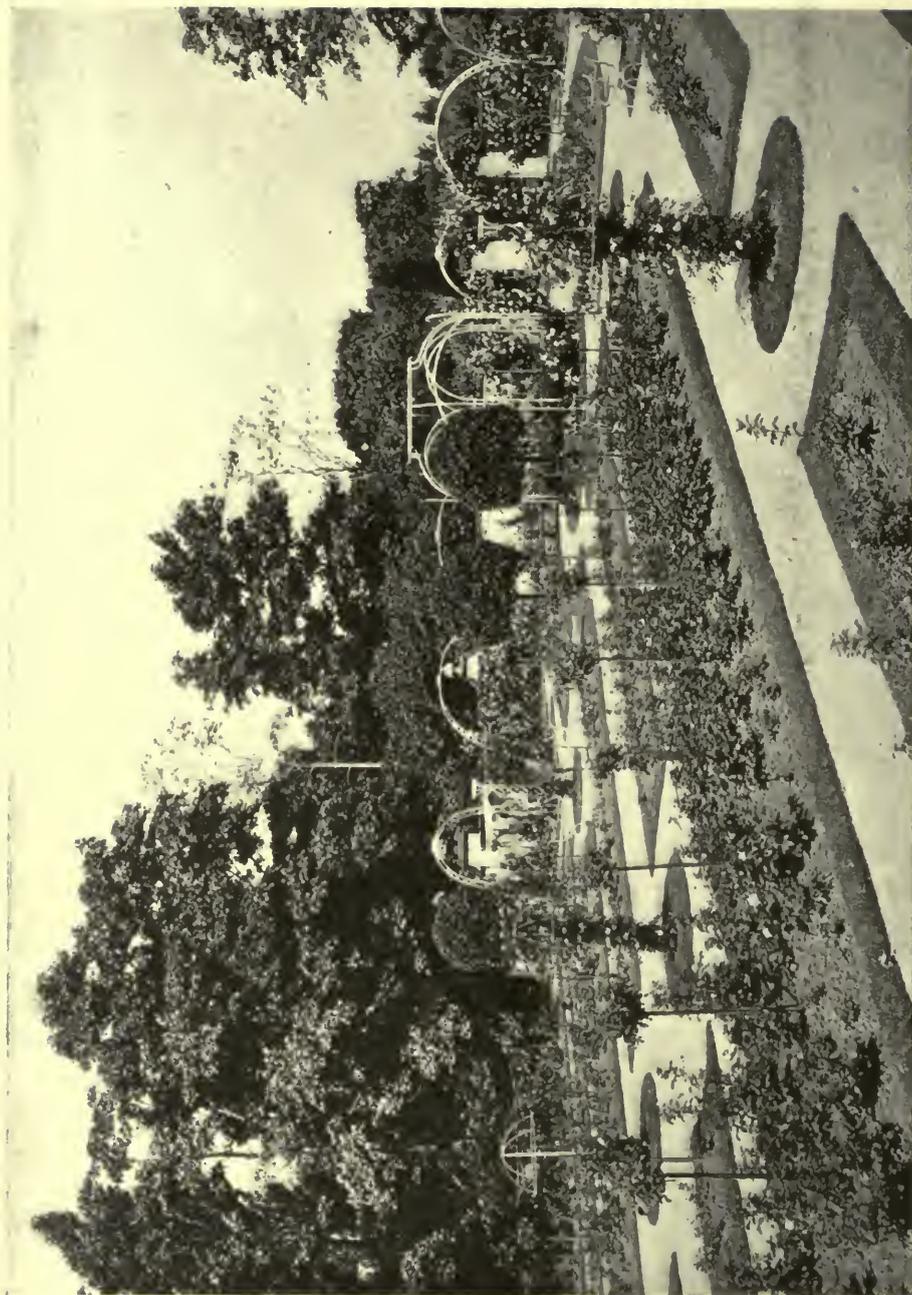
MAIN ENTRANCE GATES AND LODGE—MELODY FARM, RESIDENCE OF J. OGDEN ARMOUR, ESQ., LAKE FOREST, ILL. ARTHUR HEUN, ARCHITECT.



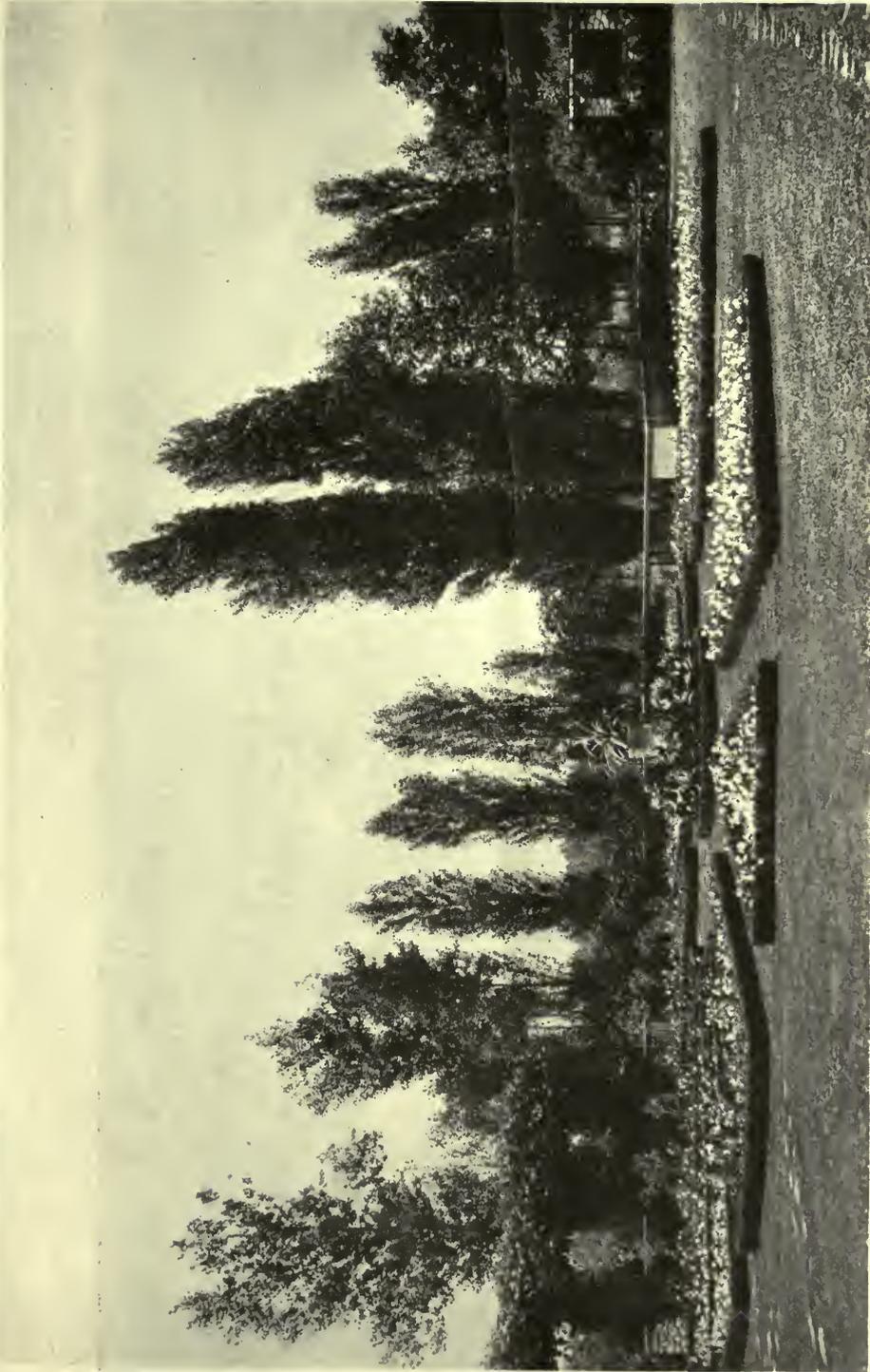
LOOKING ACROSS THE WATER GARDEN  
TOWARD THE ROSE GARDEN—MELODY FARM,  
RESIDENCE OF J. OGDEN ARMOUR, ESQ., LAKE  
FOREST, ILL., ARTHUR HEUN, ARCHITECT.



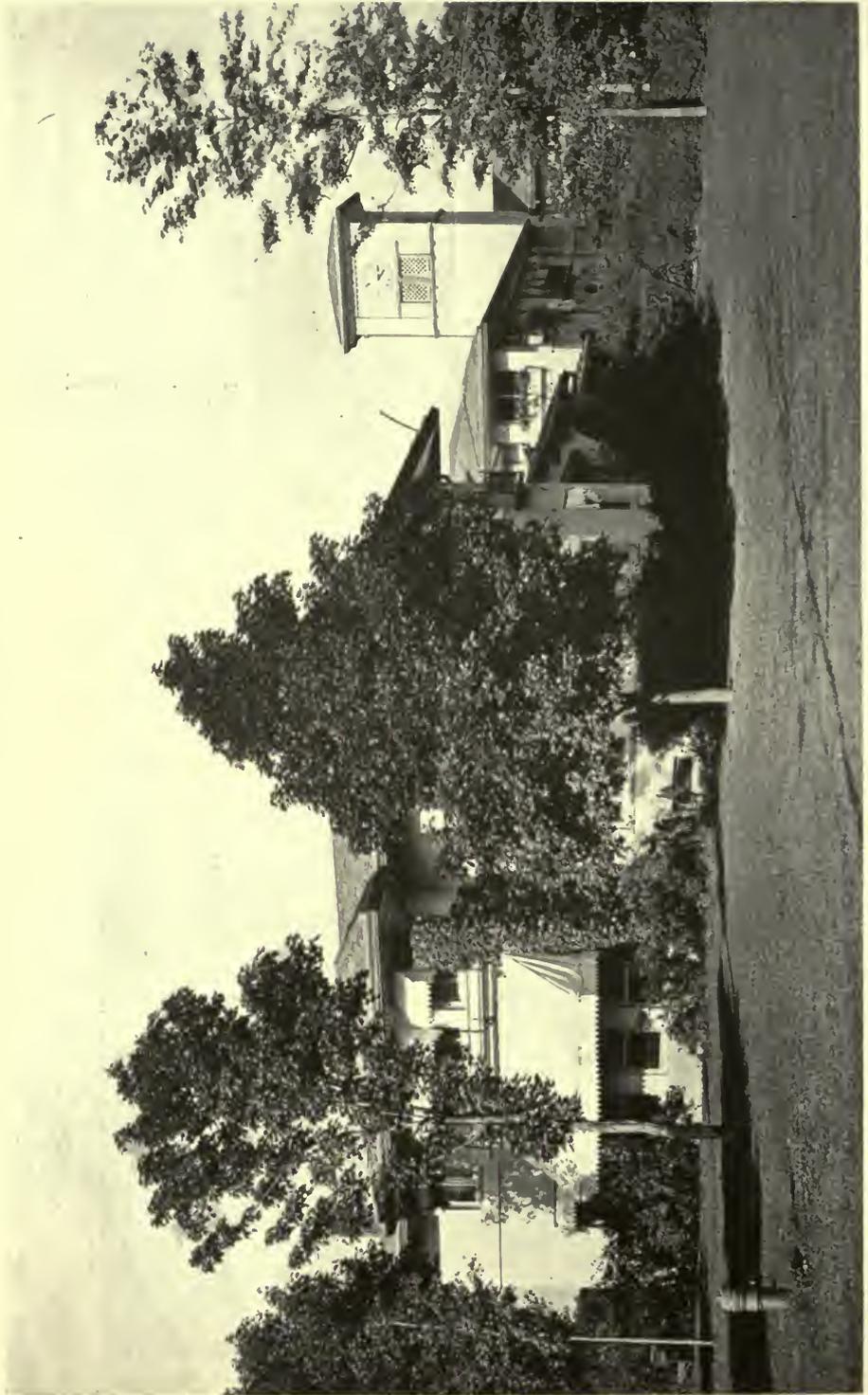
THE WATER GARDEN, FROM TERRACE IN REAR OF HOUSE—MELODY FARM, RESIDENCE OF J. OGDEN ARMOUR, ESQ., LAKE FOREST, ILL. ARTHUR HEUN, ARCHITECT.



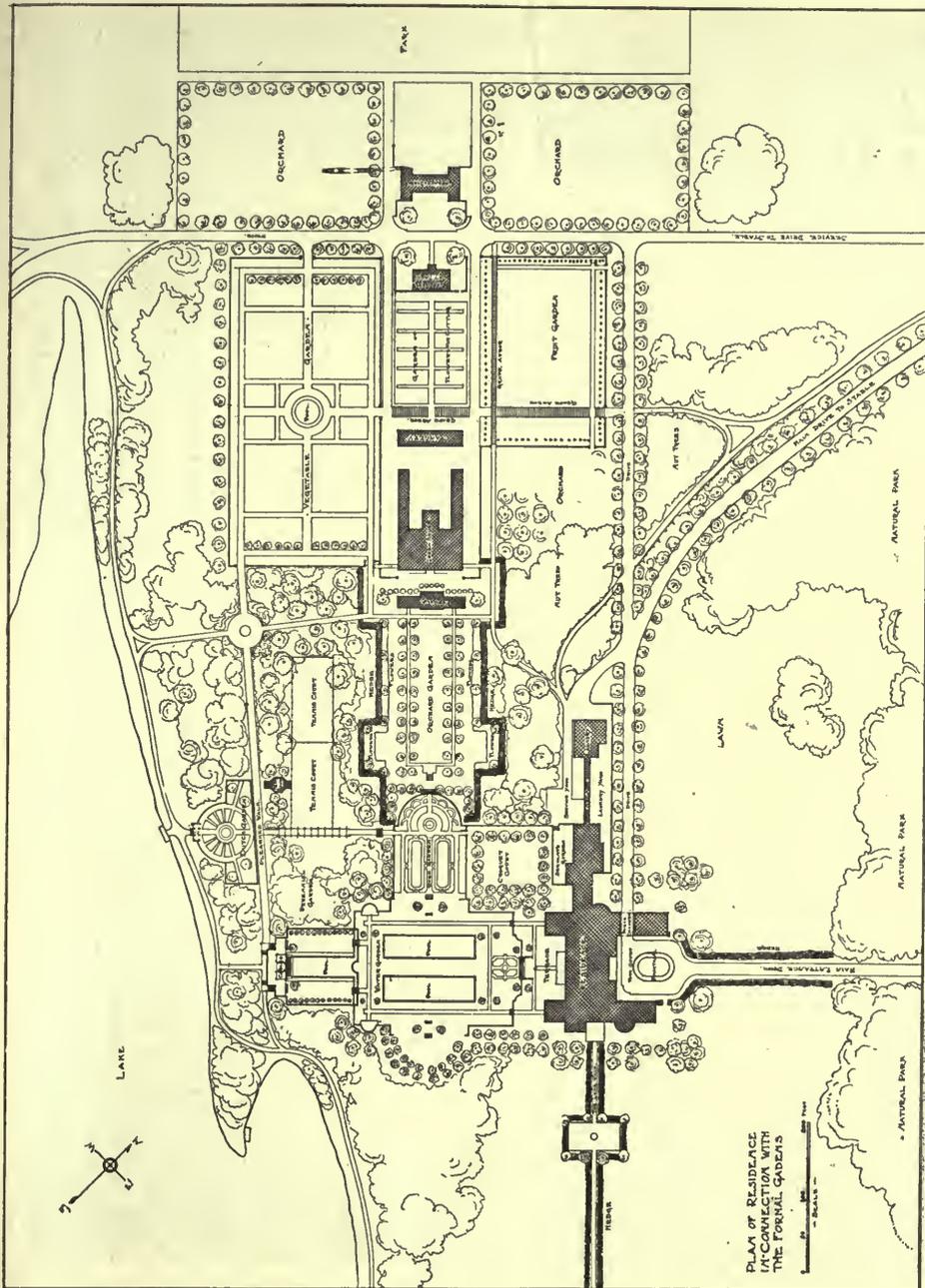
THE ROSE GARDEN—MELODY FARM, RESIDENCE OF J. OGDEN ARMOUR, ESQ., LAKE FOREST, ILL. ARTHUR HEUN, ARCHITECT.



THE DUTCH GARDEN—MELODY FARM, RESIDENCE OF J. OGDEN ARMOUR, ESQ., LAKE FOREST, ILL. ARTHUR HEUN, ARCHITECT.



CHAUFFEUR'S AND COACHMAN'S QUARTERS, WITH STABLES AND GARAGE IN BACKGROUND—MELODY FARM, RESIDENCE OF J. OGDEN ARMOUR, ESQ., LAKE FOREST, ILL. ARTHUR HEUN, ARCHITECT.



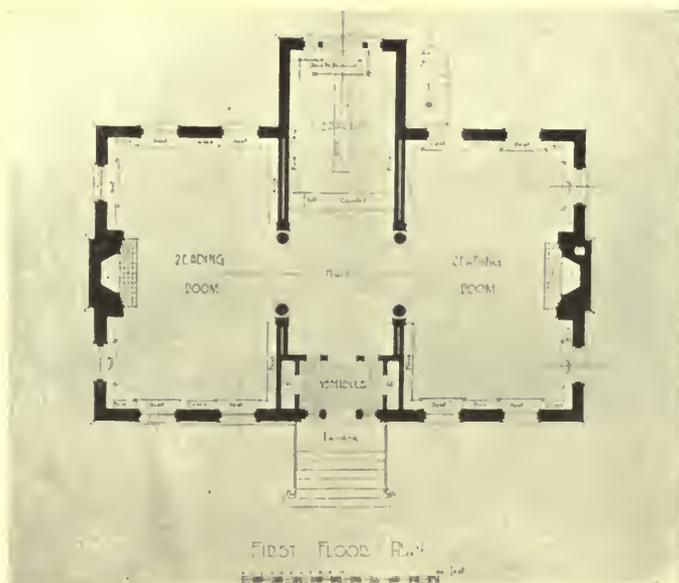
GARDEN PLAN—MELODY FARM, RESIDENCE OF J. OGDEN ARMOUR, ESQ., LAKE FOREST, ILL., ARTHUR HEUN, ARCHITECT.



CITY NATIONAL BANK, GALVESTON,  
TEXAS. WEARY & ALFORD, ARCHITECTS.  
(For Description, See Page 186.)



CITY NATIONAL BANK, GALVESTON,  
TEXAS. WEARY & ALFORD, ARCHITECTS.



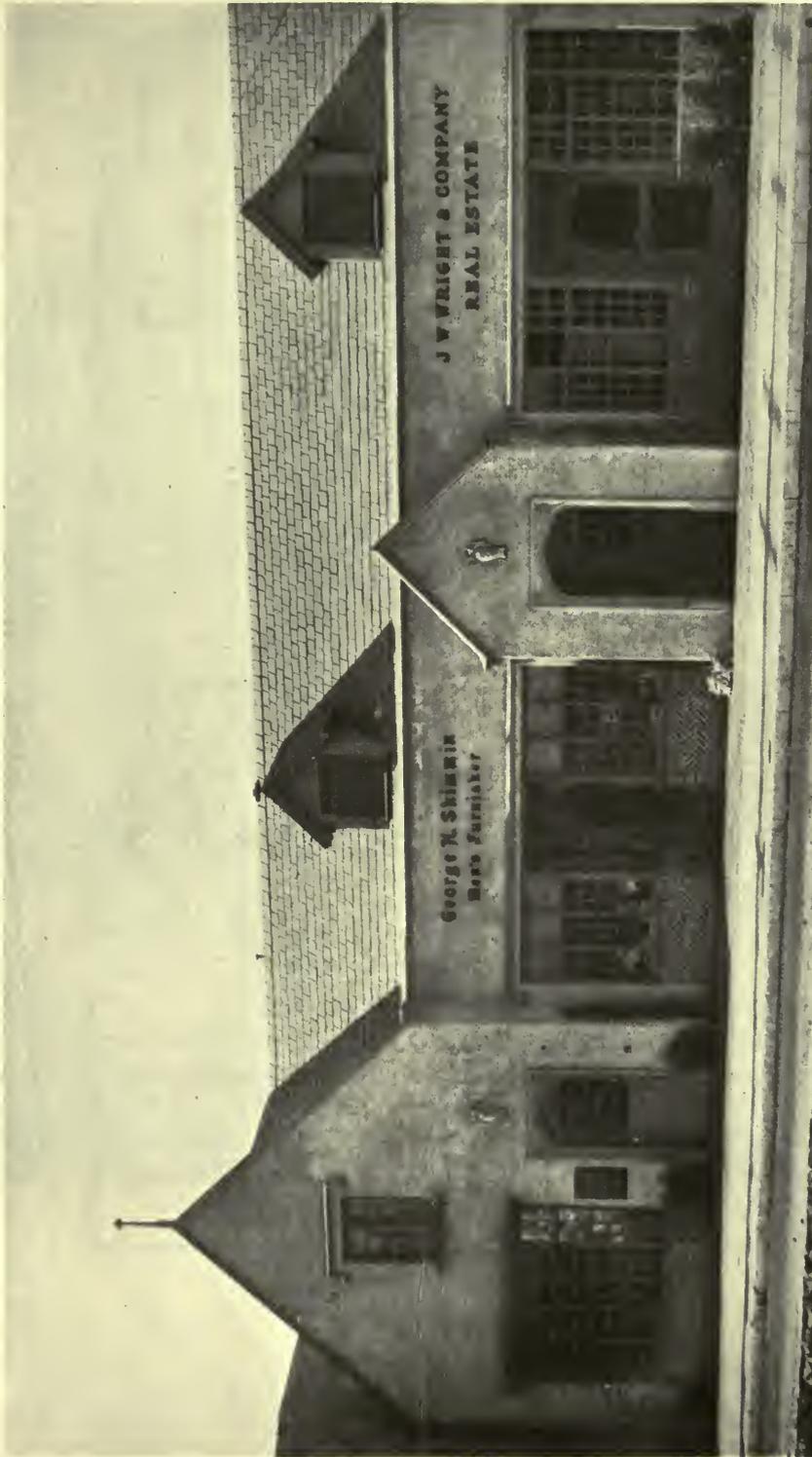
EAST HADDAM LIBRARY, EAST HADDAM,  
CONN. ORR & DEL GRELLA, ARCHITECTS.



EAST HADDAM LIBRARY, EAST HADDAM,  
CONN. ORR & DEL GRELLA, ARCHITECTS.

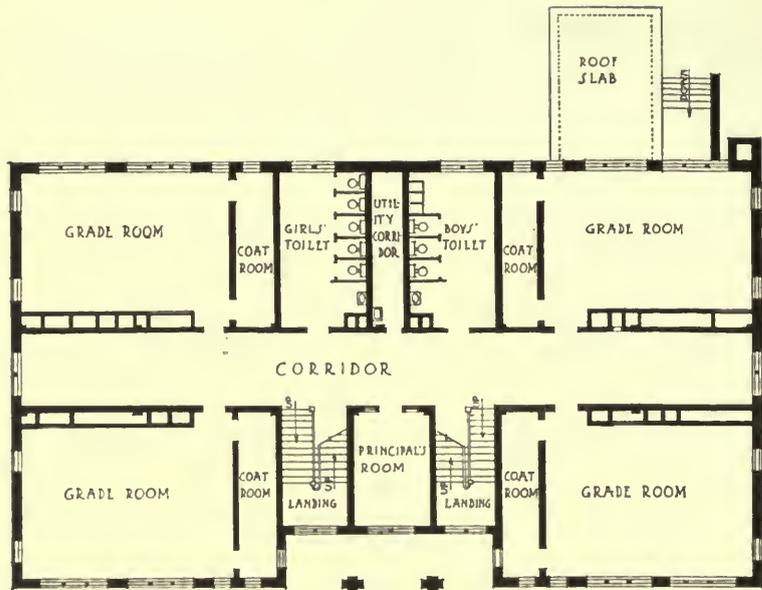


ENTRANCE TO THE CHEESEWRIGHT STUDIOS, OCCUPY-  
ING ONE OF A BLOCK OF THREE TUDOR SHOPS IN PASA-  
DENA, CAL. DESIGNED BY EDGAR CHEESEWRIGHT.

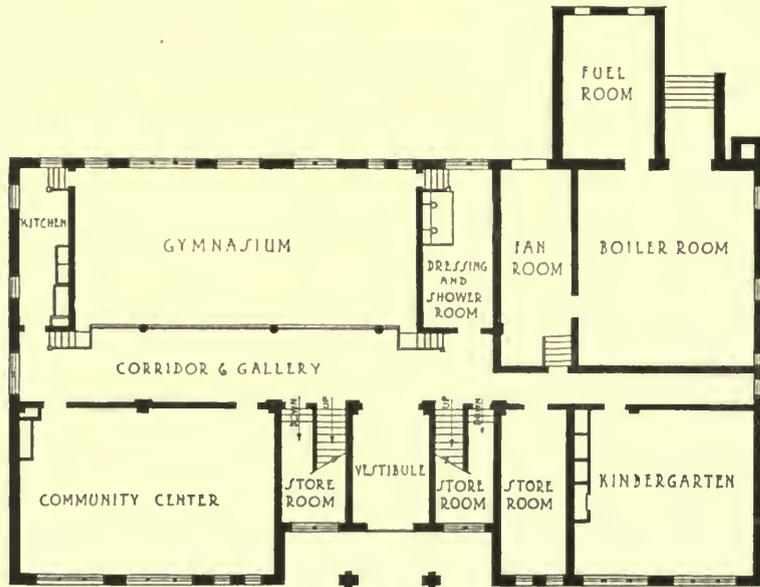


*Photo by Oscar Maurer*

A BLOCK OF THREE TUDOR SHOPS IN PASADENA,  
CAL., DESIGNED BY EDGAR CHEESEWRIGHT.  
(For Description See Page 189.)



SECOND FLOOR PLAN

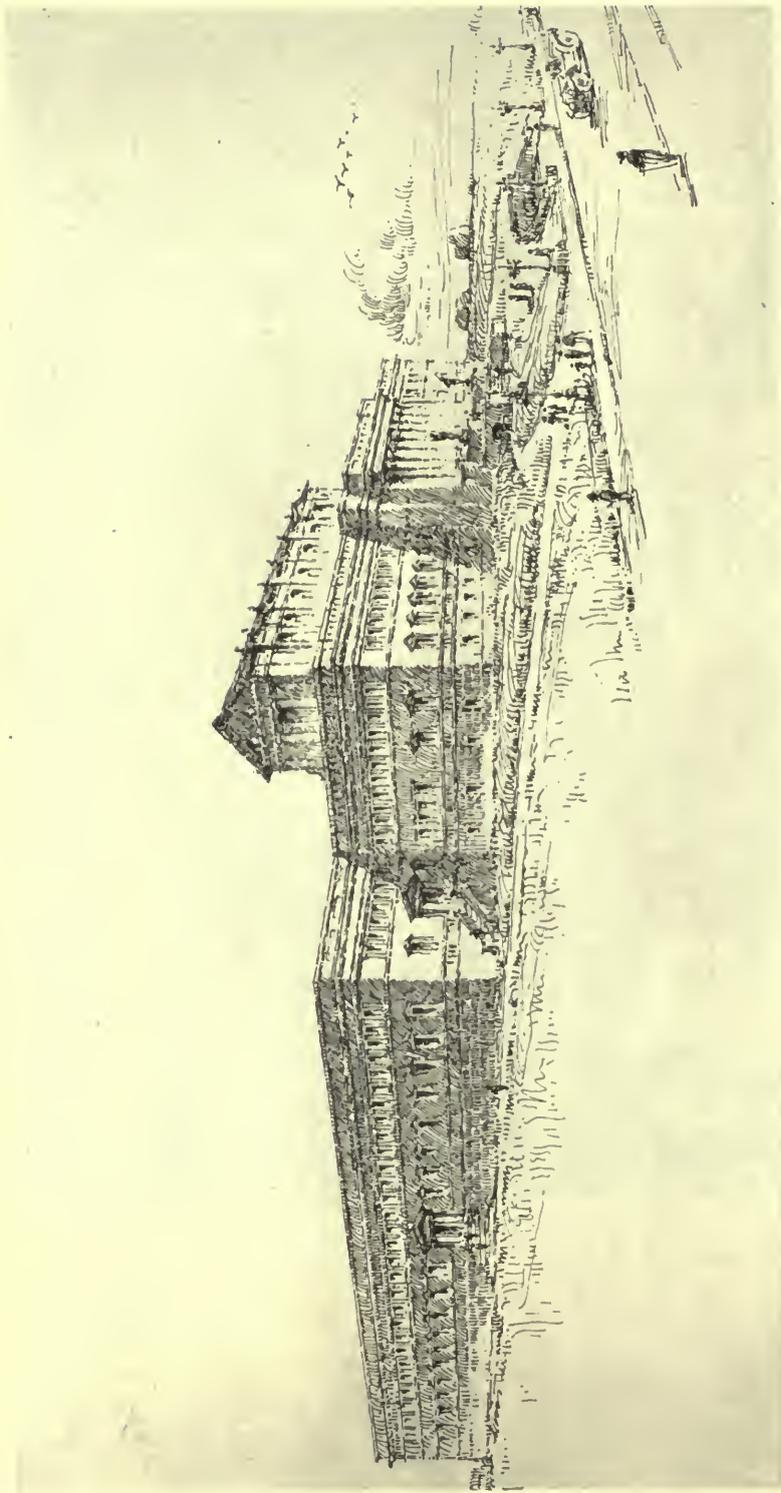


FIRST FLOOR PLAN

ROUND PRAIRIE GRADE SCHOOL, FORT DODGE,  
IOWA. DAMON & O'MEARA, ARCHITECTS.



ROUND PRAIRIE GRADE SCHOOL, FORT DODGE,  
IOWA. DAMON & O'MEARA, ARCHITECTS.



PERSPECTIVE—DESIGN FOR CAPITOL OF PORTO RICO. ADRIAN C. FINLAYSON, ARCHITECT.

# PORTO RICO'S NEW CAPITOL



By SYLVESTER DAXTER

THE new capitol for the insular territory of Porto Rico about to be erected at San Juan is fortunate in having a site admirably fitted by nature in relation to its urban environment, and the design by Mr. Adrian Finlayson, the architect of the Insular Government's interior department, does justice to the opportunity for a monumental building thus presented. Indeed, the site compares favorably with those of such state capitols as the Massachusetts State House at Boston and the Rhode Island State House at Providence, in its command of broad prospects on all sides, by land and by sea.

A territorial government in the United States has always been considered a rather small affair, having to do with a sparse and widely diffused population living under frontier conditions with limited administrative needs. But in Porto Rico we have to do with an ancient community which historically, in its possession of a European civilization, far outdates any portion of the Continental United States, being, with one exception, the first region settled by Europeans in the New World. Again, in proportion to area, Porto Rico is densely inhabited. The island has about seven-tenths the area of the State of Connecticut, and its population is almost equal to that of Connecticut. It has, therefore, a large volume of public business.

The several departments of the Insular Government have been housed, ever since the transfer from Spanish to American rule, in various buildings that belonged to the Spanish Government. But the growth of these departments has been such that the need of more room and better accommodations has long been felt. So when the Food Commission of Porto Rico, constituted by the Insular Government to meet the emergency of an isolated community whose sources of supply were endangered by the entrance of the United

States into the war, made its extraordinary record and turned into the public treasury something like \$600,000, representing the profits from its operations, and recommended that the money be devoted to the erection of a suitable capitol, the proposition was heartily endorsed, and the Legislature appropriated the money to that end.

Beside the profits in money handed over to the public treasury, the Insular Government also gained a valuable asset in the shape of a good office building. When the Food Commission had needed larger quarters for its considerable staff it purchased out of the profits on its transactions the Masonic Temple in San Juan at a cost of \$30,000. Since all customs duties are turned over to the Insular treasury by the Federal Government, Porto Rico also derived large revenues from the dutiable food supplies imported by the commission from foreign countries. Moreover, the saving in costs of food to the local public, through the prices that were kept down, amounted to several million dollars. This record is unique; no other food commission, Federal or State, can show anything like it. It would seem quite in order to commemorate the public-spirited war work that made possible this monumental edifice by a suitably inscribed tablet at the entrance.

The capitol will naturally be the cardinal feature of a notable civic center, several elements of which already exist. First let us glance at the topographical aspect of San Juan itself. The municipality comprises the city proper, or old San Juan, and two outlying sections, or districts—*barríos* they are called in Spanish. Old San Juan, together with the *barrio* called Puerto de Tierra (Gate of the World), occupies a long and narrow island that forms the northerly side of a large land-locked bay—the only natural harbor on the north side of Porto Rico. A long chain of old

Spanish fortifications, built at enormous cost and once correspondingly formidable, skirts the ocean side of the island, extending from El Morro, at the harbor entrance on the northwest, to Fort San Gerónimo at the easternmost point. The old city, which is very densely built, with narrow streets on a rectangular plan (the cross-streets running steeply up hill towards the ocean front), comes abruptly to an end with the Plaza de Colón, where stands a columnar monument to Columbus, crowned with a statue of the discoverer, who on his second voyage landed on the western shore of Borinquen, as Porto Rico was originally called. Locally the aboriginal designation is still in universal use as a name of endearment.

Close by, the chain of fortifications has its most conspicuous feature in the ancient Fort San Cristóbal—a work of noble aspect in its dominating mass with towering, irregular battlements. The Plaza de Colón, paved with broad flagstones, slopes southward; and at its lower side the Municipal Theatre faces it with an air of homely monumentality.

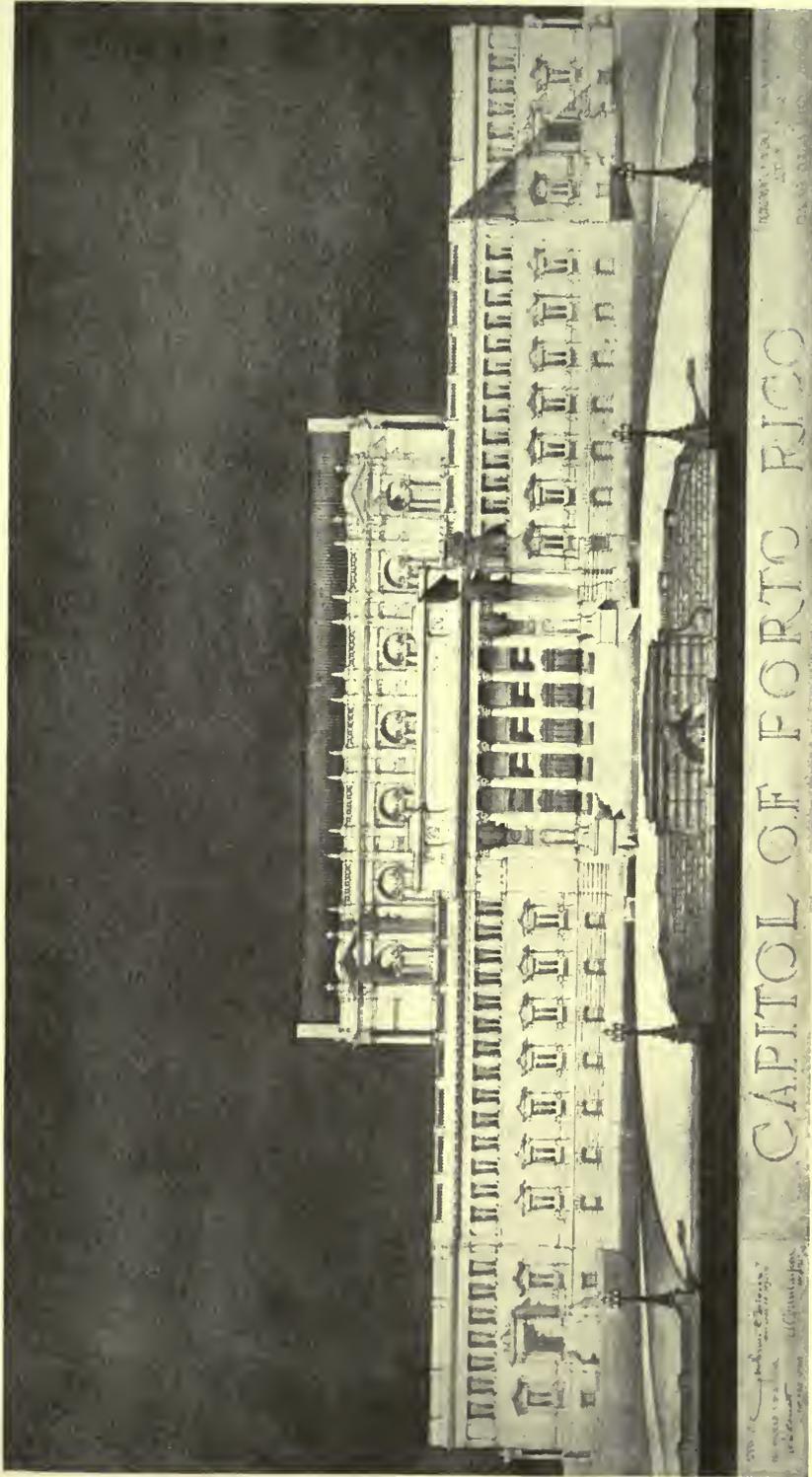
From this point runs the upper of the two broad, asphalt paved roadways of the important Paseo de Covadonga. The Paseo, with its broad open space between the two roadways, has possibilities that have yet only slightly been developed. It runs across the long field-like open space that formerly belonged to the military reservation occupied by the fortifications. The Paseo skirts the northerly side of the densely built industrial *barrio* of Puerta de Tierra. The upper road of the Paseo continues the narrow longitudinal street that begins at the Fortaleza, or Governor's palace. Some years since it was renamed Allen Street, in honor of the popular Governor Charles Allen, the first civil Governor of the island, but it is still known by its ancient name: Calle de Fortaleza. The lower roadway of the Paseo begins about a half mile farther to the westward in the embellished open space on the water-front, or La Marina, where stands the handsome Federal building in a slightly position overlooking the beautiful bay. Passing the terraced rear elevation of the Municipal Theatre and the monumental terminal station of the

important American Railroad that follows the coast line about two-thirds of the circumference of Porto Rico (notwithstanding the circumstance of having been designed in Paris for the French company that until recently owned the railroad, this station is by no means a felicitous example of modern French Renaissance), the lower road joins its mate just beyond the railroad station in the formal beginning of the Paseo.

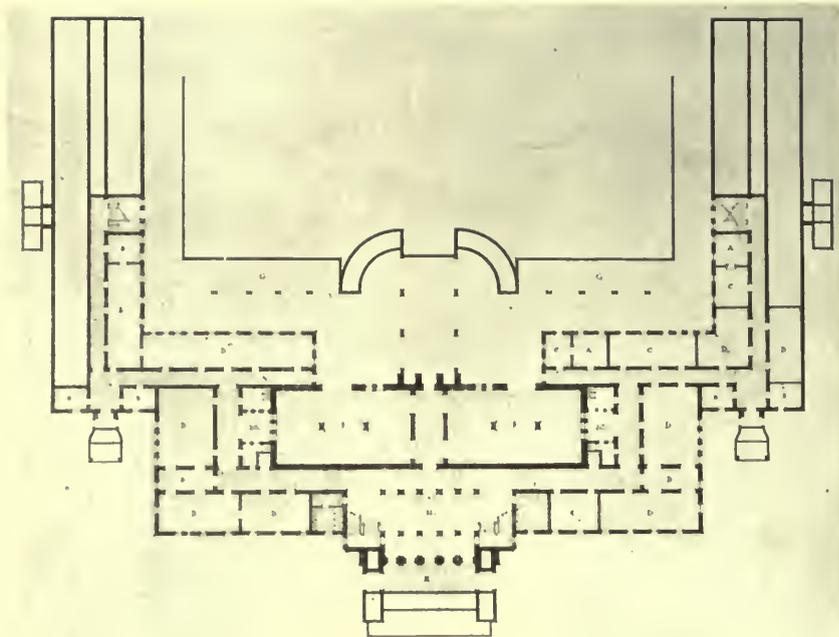
The first of the civic group aforementioned is the Municipal Theatre. Diagonally opposite is the recently built Porto Rico Casino, more successful than the railway station in its French Renaissance, and appropriately festive in design as it faces the Plaza de Colón. Opposite the Casino a fine school house stands between the two roadways, a handsome terraced garden in its rear. Beyond the schoolhouse, on the same side, is the old Masonic Temple which, since it was turned over by the Food Commission, has been devoted to the Insular Archives and other governmental offices.

Further on, on the opposite side of the upper road, is the stately building of the Young Men's Christian Association, between which and the Casino a space has been set aside for a building to be erected by the Ateneo de Puerto Rico, an admirable institution for the fostering of literature and the fine arts. Next to the Young Men's Christian Association is the Carnegie Library, established for the benefit of the entire island.

Here at the Library the Paseo in its formal beginning is marked by monumental gate-posts on either side of the upper road. An excellent opportunity for a landscape architect in the development of its mall-like extent has been long neglected, except in a few fragmentary improvements here and there, as in the exedra on the lower roadway called the Plaza de los Leones, the Place of the Lions, from the reproduction of Barye's lions that distinguish the design at that point. With the construction of the capitol it is to be hoped that a good planting scheme for the Paseo de Covadonga will be adopted and carried out. Such inviting factors as the main approach (indeed, at present the only approach) to San Juan

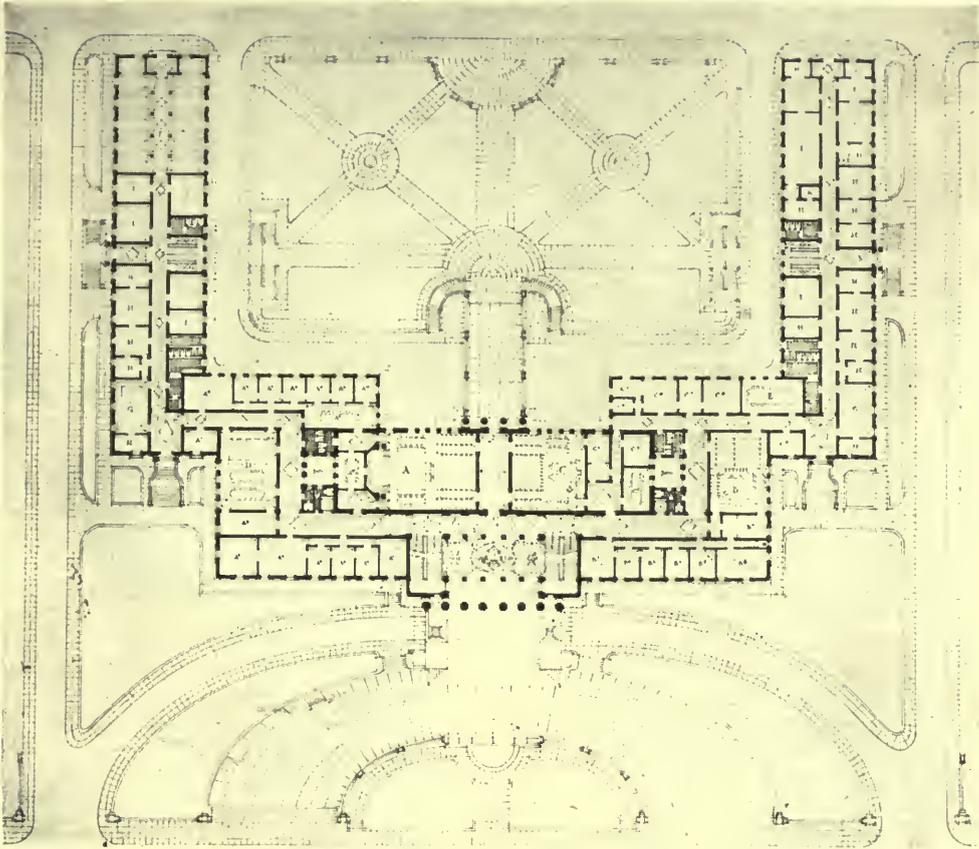


DESIGN BY ADRIAN C. FINLAYSON, ARCHITECT FOR THE  
INSULAR DEPARTMENT OF THE INTERIOR, PORTO RICO.



PLAN OF BASEMENT FLOOR—CAPITOL OF PORTO RICO.

- |   |                 |   |                   |
|---|-----------------|---|-------------------|
| A | Waiting Room.   | F | Storage Space.    |
| B | Private Office. | G | Parking Space.    |
| C | General Office. | H | Lobby             |
| D | Archives.       | K | Vehicle Entrance. |



PLAN OF FIRST FLOOR—CAPITOL OF PORTO RICO.

SUPREME COURT.

- |   |   |   |
|---|---|---|
| A Court Room.                             | A <sup>5</sup> General Office.          | A <sup>10</sup> Robing Room.              |
| A <sup>1</sup> Attorney General's Office. | A <sup>6</sup> Lawyers' Waiting Room.   | A <sup>11</sup> Waiting Room and Library. |
| A <sup>2</sup> Marshall's Office.         | A <sup>7</sup> Archives.                | A <sup>12</sup> Consultation Room.        |
| A <sup>3</sup> Secretary's Office.        | A <sup>8</sup> Secretaries' Office.     |   |
| A <sup>4</sup> Property Clerk's Office.   | A <sup>9</sup> Judges' Private Offices. |   |

DISTRICT COURT, FIRST SECTION.

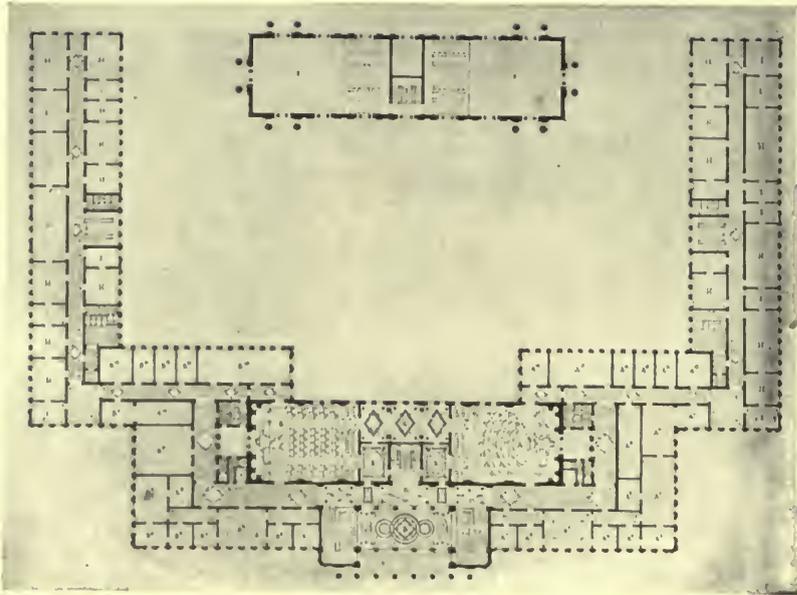
- |                                    |   |                                |
|------------------------------------|---|--------------------------------|
| B Court Room.                      | B <sup>3</sup> Marshall's Office.       | B <sup>8</sup> Jury Room.      |
| B <sup>1</sup> General Office.     | B <sup>4</sup> Witnesses' Waiting Room. | B <sup>9</sup> Judge's Office. |
| B <sup>2</sup> Secretary's Office. | B <sup>5</sup> Lawyers' Waiting Room.   |                                |

OTHER ROOMS.

- |                    |                   |
|--------------------|-------------------|
| D Law Library.     | G Waiting Room.   |
| E Grand Jury Room. | H Private Office. |
| F Museum.          | I General Office. |

DISTRICT COURT, SECOND SECTION.

- |   |                                    |                                |
|---|------------------------------------|--------------------------------|
| C Court Room.                           | C <sup>4</sup> Prisoners' Room.    | C <sup>8</sup> General Office. |
| C <sup>1</sup> Judge's Office.          | C <sup>5</sup> Marshall's Office.  | C <sup>9</sup> Archives.       |
| C <sup>2</sup> Jury Room.               | C <sup>6</sup> General Office.     |                                |
| C <sup>3</sup> Witnesses' Waiting Room. | C <sup>7</sup> Secretary's Office. |                                |



PLAN OF SECOND FLOOR—CAPITOL OF PORTO RICO.

SENATE.

- A Senate Chamber.
- A<sup>1</sup> Messengers.
- A<sup>2</sup> Sergeant-at-Arms.
- A<sup>3</sup> Office President of Senate.
- A<sup>4</sup> Stenographer.
- A<sup>5</sup> Stenographer.
- A<sup>6</sup> Secretary's Office.
- A<sup>7</sup> General Office.
- A<sup>8</sup> Bill Filing Room.
- A<sup>9</sup> General Archives.
- A<sup>10</sup> Office Bureau of Translations.
- A<sup>11</sup> Chief Bureau of Translations.
- A<sup>12</sup> Committee Room.
- A<sup>13</sup> Conference Room.
- A<sup>14</sup> Minority Room.

HOUSE OF REPRESENTATIVES.

- B Hall of Sessions.
- B<sup>1</sup> Messengers.
- B<sup>2</sup> Sergeant-at-Arms.
- B<sup>3</sup> Office President.
- B<sup>4</sup> Stenographer.
- B<sup>5</sup> Stenographer.
- B<sup>6</sup> Secretary's Office.
- B<sup>7</sup> General Office.
- B<sup>8</sup> Bill Filing Room.
- B<sup>9</sup> Conference Room.
- B<sup>10</sup> General Archives.
- B<sup>11</sup> Property Clerk's Office.
- B<sup>12</sup> Committee Room.
- B<sup>13</sup> Conference Room.

OTHER ROOMS.

- C Library
- D Foyer.
- E Lobbies.
- F Public Gallery.
- H General Offices.
- I Private Offices.

from the entire interior of the island, a tropical climate with a correspondingly luxuriant flora, and an environment of monumental architecture make the task exceptionally worth while. One has but to consider what has been done elsewhere to appreciate what may be realized here.

The extensive capitol grounds adjoin those of the Carnegie Library. From the long frontage on the Paseo they run back to the higher level of the projected new boulevard that will extend the line of the upper of the main longitudinal thoroughfares in the old city—now called the Calle de Salvador Bran, but still popularly known by its old name of San Francisco—from its present ending at the Plaza de Colón eastward close under the walls of Fort San Cristóbal, and along the bluffs of the ocean shore to the farther end of the island of San Juan, where ultimately it will cross by a new bridge to the Condado section of the *barrio* of Santurce, the great suburban residential district of the municipality.

As indicated in the front elevation and the perspective the main entrance of the capitol has a stately approach in the shape of a semicircular drive, with walks, enclosing an exedra with a fountain at the Paseo. On the boulevard side the two great wings flank a large quadrangular patio with an approach from the north

side. The main structure is devoted to the two legislative branches and also the Supreme and the local District court for the island. The wings are devoted to departmental offices.

Mr. Finlayson's admirable design, dignified, beautiful, and altogether meet for the purpose, speaks for itself, as depicted in the accompanying plans with front elevation and perspective. The material is reinforced concrete. A welcome departure from the conventional dome so much associated with our capitol buildings in the United States is the pavilion-like superstructure, or "monitor," as it might be called, which with the quality of conspicuousness served by the dome combines that of utility, which the dome seldom possesses. The dome, moreover, in countries whose antecedents are Spanish, is commonly more associated with ecclesiastical than with secular architecture. This pavilion is designed to carry the halls of the two legislative chambers, the Senate and House of Representatives, located in the second story, to an adequate height. In a wide setting of verdure, facing the blue of the smiling bay, the light gray of the walls will gleam almost white under the intense light of a tropical sun, while the red Spanish tiles of the pavilion roof will supply a sufficiently vivid completing accent.

# A SHORT BIBLIOGRAPHY AND ANALYSIS OF HOUSING



By JOHN TAYLOR BOYD, JR.

THE plan on which this combined bibliography and analysis was conceived should be kept in mind by the reader as he uses it. The bibliography aims to provide an architect with a short, compact introduction to the vast, complicated field of housing; while the analysis affords a bird's eye view of the subject, and also serves as a basis of classification for a filing system on housing. Both of them deal mainly with essentials. They are what is left after much elimination, in order to maintain perspective and clearness, and the reader should guard against too much further elimination, which might easily render his study superficial. The relation of town planning to housing is covered, but not fully, since town planning is so great a subject in itself that it would complicate the analysis if all of it were included.

## BIBLIOGRAPHY.

The literature of housing is new, somewhat fragmentary, and swiftly growing. Only four American books deal with the subject comprehensively. The rest of the publicity of American housing is in the form of magazine articles, pamphlets, and reports—a fluid, germinating field in which valuable products are constantly turned up. Nevertheless, in spite of its newness, this literature is approaching maturity, and the best of it is thoroughly sound. As a result, much priceless information is at hand concerning (a) fundamental principles of all the aspects of housing, (b) practical achievements in actual building projects, (c) a clear understanding of past failures and a knowledge of what problems are yet to be solved.

The chief obstacle to the progress of

sound housing in this country is the difficulty of its relationship to the public. Technical knowledge of design and construction is well advanced; but non-technical factors, such as the position of housing before the law, the financing of the building projects and the management of the projects after they are completed, are still much undetermined. The technical expert must be familiar at least with the principles of these non-technical elements if he is to co-operate successfully in his design. Especially must he appreciate the legal aspects of housing, for good housing must be carefully protected against the ruinous competition of bad housing. Also he should know the older forms of housing, in order to detect the sinister parentage of various schemes that may be urged as substitutes for newer and better standards.

To understand how far I have carried elimination in this bibliography, one may consult Miss Theodora Kimball's bibliography appended to Vol. II of the U. S. Housing Corporation's Report. Miss Kimball has made a discriminating choice of 250 writings from among a thousand references. Her work contains many references that refer only to war housing and also European authorities not of great value to Americans. It should be said, however, that while European experience is not so valuable to us in strictly technical matters, it is often helpful in stating general principles, particularly in non-technical factors.

## THE ANALYSIS.

The purposes of the analysis are similar to those of the bibliography to which it is so closely related. Like the bibliography, it might easily be swamped with detail—by developing further headings

and subheadings until it became confusing and of less practical value. How much further this detail could be carried will be seen in Vol. II of the U. S. Housing Corporation's Report, which contains many pages of classification on the subject of costs alone.

Nor have I followed logic strictly in excluding details. I have emphasized certain points where unsolved problems are met with, or where further progress is to be expected. For instance, nothing is more important than the plan of individual houses, and it is evident that further standardization and development may be expected here.

I had thought to add numbers to all the classifications of this analysis for use in filing writings under a decimal system of filing. But not everyone will use it for library filing, and those who do so use it may want to collect material in such detail that they will wish to develop and rearrange the classifications to suit their individual needs and their material. For library filing, therefore, the analysis is offered only as a suggestion.

## ANALYSIS OF HOUSING.

### NON-TECHNICAL FACTORS

#### I. *Bad Housing.*

- a. Slum areas.
  1. Characteristics.
    - (a) Poor design and construction of buildings.
    - (b) Overcrowding.
    - (c) Bad sanitation in design and maintenance.
  2. Causes.
    - (a) Absence of legal preventative system.
    - (b) Congestion and inflation of land values.
    - (c) Absence of town and city planning.
- b. Types of undesirable dwellings.
  1. New York "old law" tenements.
  2. New England three-decker.
  3. Philadelphia block houses, old type.
  4. Conversions of other buildings.
  5. Insanitary rural dwellings.
- c. Evils of bad housing. (Note: There are causes other than bad housing which are contributory to these evils.)
  1. Sanitary.
    - (a) Physical disease, epidemics, accidents, deterioration.
    - (b) Mental, nervous diseases and deterioration.
    - (c) Stunted growth of children.

- (d) High death rate.
2. Moral dangers.
  - (a) Causes.
    - (1) Overcrowding.
    - (2) No recreation or retiring space for adults.
    - (3) No playing space for children.
    - (4) Halls, toilets used by several families.
    - (5) Lodgers and boarding.
  - (b) Results.
    - (1) Increase in crime, delinquency, moral deterioration.
    - (2) Breeding of unrest.
    - (3) People who do not own their own homes are less apt to be of the highest type of citizen.
    - (4) Class distinctions.
3. Economic evils.
  - (a) Increase of labor unrest and social discontent.
  - (b) Inefficient and inferior work produced by badly housed labor.
  - (c) Increase of labor turnover.
    - (1) Among different classes of labor.
    - (2) Among young or unmarried men.
  - (d) Change in real estate values from investment to speculative.

#### II. *Prevention of Bad Housing Practices.*

- a. Popular organization.
  1. Co-operation of leading citizens, civic and professional organizations.
  2. Local Housing Betterment Associations.
    - (a) Organization.
    - (b) Policies.
    - (c) Publicity.
  3. National Housing Association.
    - (a) Organization.
    - (b) Policies.
    - (c) Publicity.
- b. Governmental organization. (The relation of government to housing in the United States has never been worked out. The items listed under this heading cover suggestions made by housing experts.)
  1. National.
    - (a) Legislation.
    - (b) Administrative clearing house for statistical information and standards.
  2. State.
    - (a) Legislation.
      - (1) Restrictive—Veiller Model Law.
      - (2) Constructive.
    - (b) Administrative.
      - (1) Supervision of local housing and town planning
      - (2) Clearing house similar to national agency.
  3. Local.
    - (a) Enforcing laws and ordinances.
    - (b) Making town plan.
    - (c) Forcing clearance of slum areas.
    - (d) Furnishing housing standards and information.

4. Policies in controversy.
  - (a) Extent of Government supervision.
  - (b) Uses of Government finance or credit systems.
  - (c) Excess condemnation.
  - (d) Principles of taxation.

### III. Finance.

- a. Agencies undertaking housing schemes.
  1. Private investors and speculators.
  2. Semi-public housing corporations.
  3. Industrial corporations.
  4. Building and loan associations.
  5. Philanthropic societies.
- b. Sources of capital.
- c. Underwriting and legal protection.
  1. Surveys, statistics.
  2. Legal protection of capital investment, incorporation.
- d. Plant investment.
  1. "Raw" land.
  2. Improved land, site utilities.
  3. Houses.
  4. Other buildings.
  5. Playgrounds and recreation spaces.
- e. Proportion of expense in site utilities shared by community.
- f. Carrying charges.
  1. Credit, interest, mortgages, amortization.
  2. Depreciation, obsolescence.
  3. Taxes, insurance.
  4. Sinking fund or undivided profits.
  5. Management and maintenance. (See IV, below.)
- g. Per cent. of wages as basis of rental in different classes of labor.
- h. Financial relations with people housed.
  1. Methods of selling or renting homes.
  2. Plans of payment.
  3. Provision for meeting demand of wage-earner for "mobility of labor": i. e., allowing him to dispose of his holding without undue sacrifice if circumstances compel him to move.
- i. Costs.
  1. Construction and promotion costs.
  2. Maintenance.
- j. Per cent. of gross and net return.
- k. Indirect benefits.
  1. Increased prosperity and values in area benefited.
  2. Amelioration of evils noted under 1 above.

### IV. Management.

- a. Organization and personnel.
  1. Training for management.
  2. Training for rent collectors, inspectors.
  3. Accounting. (See III, above.)
- b. Plans of management.
  1. Houses.
    - (a) Homes sold.
    - (b) Homes rented.
    - (c) Co-partnership plans—stockholding.
    - (d) Variations due to local conditions.
  2. Project as a whole.
    - (a) Managed by company.
    - (b) Managed by tenants.
    - (c) Managed by tenant stockholders.
    - (d) Management plans of streets, roadways, sanitation, etc.

- c. Management policies.
  1. Co-operation with householders.
    - (a) Tenant regulations and co-operation.
    - (b) Rent records.
    - (c) Methods of rent and sale payments.
  2. Co-operation with community.
    - (a) With municipality.
    - (b) Community centre—recreation, gardens, etc.

### TECHNICAL FACTORS.

#### I. Site Planning.

- a. Choice of site.
  1. Size.
  2. Topographical and geographical features.
  3. Relation to city plan—transportation.
  4. Economic factors.
- b. Classes of workers.
  1. Skilled.
  2. Unskilled.
  3. Young, unmarried workers; workers away from families.
  4. Women.
  5. Special classes.
- c. Buildings.
  1. Classes of dwellings.
    - (a) Detached, single-family house.
    - (b) Semi-detached, two-family house.
    - (c) Row or group houses.
    - (d) Flat houses—various types.
    - (e) Apartment houses.
  2. Other buildings.
    - (a) Community buildings, schools, churches, clubs, etc.
    - (b) Commercial.
- d. Arrangement of site plan.
  1. Placing of houses.
    - (a) Along streets.
    - (b) Grouped around courts, or parks, or greens.
    - (c) Setbacks, separation of lots, drying yards.
  2. Courts and public spaces.
    - (a) Interior service courts for groups of houses.
    - (b) Garden space on each lot, or allotment gardens.
    - (c) Parks and playground space—amount, location.
  3. Communications.
    - (a) Access to interior courts and spaces; to garages, alleys.
    - (b) Paths, easements.
  4. Transportation system.
    - (a) Roads, streets, sidewalks.
      - (1) Transportation streets—traffic avenues.
      - (2) Residence streets.
    - (b) Mechanical traffic system.

- (1) Railroads, car lines, water transportation.
- (2) Motor.
- (c) Marketing and freight.
- (d) Relation to town plan.
- 5. Site utilities. (See Engineering V., below.)
- 6. Community centers—situation, character, extent.
- 7. Design.
  - (a) Vistas, views, aesthetic factors.
  - (b) Sunlight, ventilation.
- 8. Costs. (See Finance III, above.)
- e. Planting.

II. *Design of dwellings.*

- a. Size.
  - 1. Number of rooms and conveniences for various classes of labor, without boarders.
  - 2. Same, with boarders.
- b. Design of various types of houses.
  - 1. Town and village type.
    - (a) Plan.
  - 1. Arrangement.
    - (a) Relation to arrangement of lot.
    - (b) Entrances.
    - (c) Surveillance, circulation.
  - 1. Saving steps for housewife.
  - 2. Access to bathroom as private as possible.
    - (d) Separation of boarders' quarters from family.
    - (e) Cellar.
    - (f) Kitchen.
  - 2. City type.
    - (a) Same factors as town types.
    - (b) Per cent. of ground area built on and its relation to recreation space.
  - 1. Mechanical equipment.
  - 2. Service.
- 2. Elevation and design.
  - (a) Design.
  - (b) Style and taste.
  - (c) Details.
    - (1) Exterior.
    - (2) Interior.
    - (3) Standardization.
- 3. Mechanical equipment.
  - (a) Heating, plumbing, electrical, gas, fuel oil.
  - (b) Use of central power stations.
  - (c) Other details.
- c. Planting lot and garden.
- d. Costs. (See Finance III, and Management IV, above.)

III. *Engineering and Construction.*

- a. Organization.
  - 1. Town planning.
  - 2. Architecture.
  - 3. Engineering.
  - 4. Building and other construction.
  - 5. Management.
- b. Site utilities.
  - 1. Grading.

- 2. Roads, paths, sidewalks, street furniture.
- 3. Mechanical.
  - (a) Drainage, sewage, water supply.
  - (b) Heating, electricity, gas.
  - (c) Transportation.
- c. Mechanical equipment of houses. (See Dwellings I, above.)
- d. Construction methods.
  - 1. Organization.
  - 2. Large scale and manufacturing methods, standardization.
  - 3. Accounting.
- e. Materials, labor.
- f. Costs.
  - 1. First cost.
  - 2. Maintenance cost.

A SHORT BIBLIOGRAPHY OF HOUSING.

Books.

- Housing Reform. By Lawrence Veiller. [Practical handbook on housing and tenement reform in America, by the foremost American housing authority.] 1911. New York: Russell Sage Foundation.
- The Housing of the Unskilled Wage Earner. By Edith Elmer Wood. [A sound treatment of non-technical side of housing.] New York: The MacMillan Company.
- Model Housing Law. By Lawrence Veiller. 1920 Revised Edition. New York: Russell Sage Foundation.
- United States Housing Corporation. Vol. II. Houses, Site-planning, Utilities. [A valuable, thorough and completely illustrated technical description of war housing of the United States Department of Labor.] Washington: Government Printing Office.
- Types of Housing for Shipbuilders. Constructed as a War Necessity Under the Direction of the United States Shipping Board Emergency Fleet Corporation Passenger Transportation and Housing Division. [A report parallel to the United States Housing Corporations' Vol II, but without text.]
- Report of the Ontario Housing Committee. [Thorough treatment of technical and non-technical factors.] Toronto, Canada: William Briggs, Queen and John Streets.

GROUP I.—*Writings Dealing with Evils of Present Housing Practices.*

- MAGAZINE ARTICLES, PAMPHLETS, REPORTS.
- What Bad Housing Means to the Community. By Albion Fellows Bacon. National Housing Association Publications, No. 6, 7th ed. New York: 105 East 22nd Street.
- Housing—Its Relation to Social Work. By Albion Fellows Bacon. National Housing Association Publications, No. 48
- Housing and Health. By Lawrence Veiller. National Housing Association Publications, No. 9, 4th ed.

- The Challenge of the Housing Problem. By Noble Foster Hoggson. National Housing Association Publications, No. 51.
- The Menace of the Three-Decker. By Prescott F. Hall. [Destructive effects on real estate values caused by speculative building of tenements in smaller cities and towns. Depreciation figures for wood and brick dwellings.] National Housing Association Publications, No. 39.
- Apartment Houses—Their Advantages and Disadvantages are Thoroughly Treated in Papers and Discussion in *Housing Problems in America*, which is a report of the annual conference of the National Housing Association for 1916.
- GROUP II.—Theory and General Aspects of Housing.**
- What is a House? By Richard S. Childs. [Relation of land to housing.] *Journal of the American Institute of Architects*, January, 1918.
- Ways and Means of Securing Improved Housing. By Edward T. Hartman. [Relation of housing to taxation. Compare Ontario Housing Committee Report, Chapter III. Land and Taxation.] *Journal of the American Institute of Architects*.
- World's Building Problem. By Charles Harris Whitaker. [Admirable statement of town-planning relations.] *Journal of the American Institute of Architects*, August, 1919.
- Co-Partnership Housing in England. By Herbert S. Swan. [Statement of co-partnership idea.] *Journal of the American Institute of Architects*, April, 1918.
- A Solution of the Housing Problem in the United States. Two prize essays. Milo Hastings and Robert Anderson Pope. *Journal of the American Institute of Architects*, June, July, 1919.
- Model Housing Law. By Lawrence Veiller. [A technical reference book on housing law. A work of the very highest value. It contains a working code that has already been enacted as the well known Tenement House Law of New York of 1901. The code is thoroughly discussed by Mr. Veiller, who shows its various applications and possibilities.] Sage Foundation, 1920.
- GROUP III.—Legal Side of Housing.**
- Houses or Homes. [Work of a local housing betterment league.] First report, Cincinnati Better Housing League, 1919.
- Organizing the Housing Work of a Community. By Bernard J. Newman. National Housing Association Publications, No. 44.
- The After-Care of a Housing Law. By Albion Fellows Bacon. National Housing Association Publications, No. 43.
- Model Housing Law.—Lawrence Veiller. [A technical reference book on housing law. A work of the very highest value. It contains a working code that has already been enacted as the well proven Tenement House Law of New York of 1901. The code is thoroughly discussed by Mr. Veiller, who shows its various application and possibilities.] Sage Foundation, 1920.
- GROUP IV.—Practical and Specific Aspects of Housing.**
- Industrial Housing. By Lawrence Veiller. [General summary of housing practice and principles.] National Housing Association Publications, No. 36.
- Industrial Housing. By John Nolen. [Real estate factors, surveys, wages, basis of calculating rentals.] National Housing Association Publications, No. 35.
- One Million People in Small Houses. By Helen L. Parrish. [Latest types of Philadelphia block housing. Plans, real estate factors.] National Housing Association Publications, No. 7.
- The Industrial Village. By John Nolen. National Housing Association Publications, No. 50.
- The Districting of Cities. By Lawson Purdy. [Chaos in New York City real estate, and how it was overcome by zoning law.] National Housing Association Publications, No. 38.
- Industrial Housing Developments in America. By Lawrence Veiller. *Architectural Record*, March, April, May, June, July and August, 1918.
- The Group House. Its Advantages and Possibilities. By R. H. Dona, Jr. *American Architect*, January 29, 1919.
- GROUP V.—Finance and Management.**
- Recent Developments of Housing Finance. By John Taylor Boyd, Jr., *Architectural Record*, November and December, 1920.
- Building and Loan Associations in the United States. By William Franklin Willoughby. [Summary of organization, policies and immense work of this American co-partnership movement.] Boston: Wright and Potter, 1900.
- Some Problems of Management. Two papers by Harold G. Aron and Fred C. Feld. [Also discussion. National Conference on Housing. Housing Problems in America, 1918.] (See also proceedings of conference in 1916.)
- Report of the United States Bureau of Labor Statistics. "Housing by Employers in United States." By Leifur Magnusson.
- GROUP VI.—Building Projects.**
- Low Priced Housing for Wage Earners. By Jacob G. Schmidlapp. [A most successful example of housing for unskilled wage earners. Gives real estate and management side.] National Housing Association Publications, No. 34.

Plumbing Standards for the Housing Projects of the Emergency Fleet Corporation. By William C. Tucker. *Architectural Record*, July, 1919.

Planning Sunlight Cities. By Herbert S. Swan and George W. Tuttle. [Angles of sunlight at different seasons of the year and shadows cast by buildings. Effect on orientation of streets and buildings.] *American Architect*, March 19, 1919.

Low Cost Housing. Papers and discussion National Housing Association Conference, 1916-1917, on possibilities of reducing costs by adopting new methods of construction of dwellings.

ADDITIONAL SOURCES.

*The Architectural Press.*

The architectural magazines contain much information about housing, mainly technical articles and data on construction and design of housing projects, particularly with regard to industrial housing. While none of the magazines confines itself strictly to any particular field, each emphasizes certain aspects of the subject. Taken together, the architectural magazines offer valuable information on housing.

*The Architectural Forum.*

Contains descriptions of actual building projects, and valuable special articles on design and construction.

*Architectural Review and Architecture.*

These two magazines resemble the Forum in treatment of housing. *Architecture* especially gives much space to articles on individual housing projects.

*American Architect.*

Emphasizes current news of housing design and publishes valuable special articles of technical interest.

*Journal of the American Institute of Architects.*

The Journal of the A. I. A. differs somewhat from the other magazines in its treatment of housing. It treats of the fundamental bases and relationships, rather than the more strictly technical side. It is indispensable to the architect.

*Landscape Architecture.*

Quarterly. Contains valuable information of town and city planning. It emphasizes particularly the trend of thought in this activity, which is still in a pioneer stage of progress. Its bibliographical references are particularly valuable.

*Publications of the Engineering Professions and of the Building Trades.*

One may find occasional information on housing in the pages of these magazines. They do not, however, take a keen, persistent interest in housing, and their treatment of the subject is apt to be cursory.

The more authoritative publications in the engineering field are:

Mechanical Engineering,  
Industrial Management,  
Engineering News-Record,  
Annual Proceedings of the National Engineering Societies and Institutes.

Among the magazines of the building trades and kindred interests are:

American Contractor,  
Record and Guide,  
Iron Age,  
Engineering and Contracting,  
American Builder,  
National Builder.

Among these are to be noted the publications dealing with cement and concrete construction, since for several years the concrete interests have followed with great zeal the development of a permanent low cost type of housing, wholly or partly of concrete construction. Such publications are:

Concrete,  
Concrete Age,  
Annual Proceedings American Concrete Institute.

Lists of articles on housing in these leading magazines in architectural, engineering, technical and trade fields may be found in the Industrial Art Index, which is published monthly, and may be consulted at the public libraries.

The following books and magazine articles have been published since this bibliography was set in type:

Industrial Housing. By Morris Knowles.

A complete technical description of standards for the housing and planning of industrial towns, with the engineering side emphasized. New York: McGraw-Hill Book Company, Inc.

The Housing Famine. Debate Between John J. Murphy, Edith Elmer Wood and Frederick L. Ackerman.

The political sides of housing reform. New York: E. P. Dutton & Co.

Housing Betterment.

Lawrence Veiller's summary of English housing since the war. New York: National Housing Association.

Platting City Areas for Small Homes. By Henry Wright.

Authoritative treatment of methods of sub-dividing land for individual housing. Journal of the A. I. A.

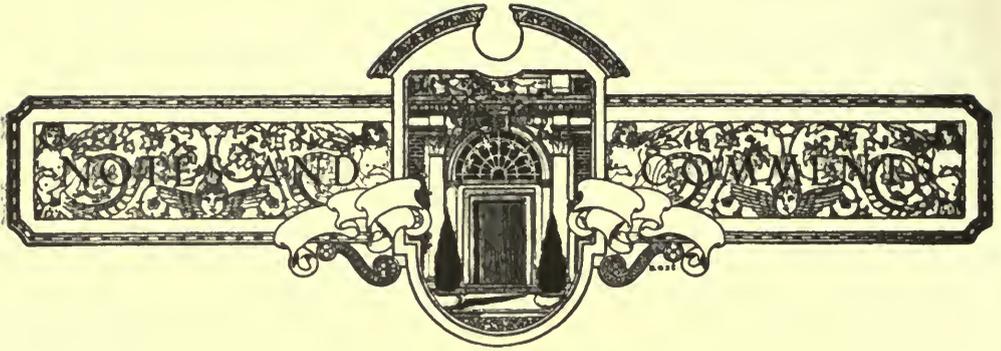
Garden Apartments in Cities. By John Taylor Boyd, Jr.

*Architectural Record*, July and August, 1920.

Is It Advisable to Remodel Slum Tenements? By Andrew J. Thomas.

*Architectural Record*, November, 1920.

These last two articles deal with city housing in multi-family dwellings, one of the most important sides of housing.



**A Manufacturers' Exhibition**

The fifth annual exhibition of industrial art, which is being held at the Metropolitan Museum of Art through January, reveals a noticeable improvement in the quality of the work displayed; and the improvement has a meaning which is not perhaps apparent on the surface. This exhibition, yearly gathered together, is not so much an end in itself as it is an index of work which has been carried on in the time intervening between the shows. It is directly the result of efforts on the part of the museum itself to offer its collections and its staff for the benefit of the manufacturer and the designer.

It is encouraging that many of the pieces shown are adaptations from the originals and not merely reproductions. This fact quickens our interest to distinguish which portion of the work holds museum inspiration. In some cases the designers have been the museum students, in some the craftsman, in others the chemist or other scientist whose experiments have produced a desired effect. The list of the sources would be a motley recital.

The exhibits, from designs and textiles for costumes to stained glass and mosaic panels, represent a wide range of the industrial arts. In viewing them a difference is felt between the machine manufactured articles and those into which craftsmanship has more largely entered. These two divisions of the industrial arts are shown together and little distinction between them is made, for the reason no doubt that a considerable amount of craftsmanship has entered into many of the machine made pieces, making the line hard to draw.

One weakness on the part of the designers is seen in such an exhibition as this; the designer, in selecting a model, frequently

does not choose the best examples of a type. If there are two Louis XV arm chairs, why does the designer choose the less fine of the two? No doubt he does so from a misconception of how a museum collection must be formed; many pieces must illustrate development of form and variations of type, all of which are not of equal artistic content.

It would be difficult to say which class of exhibitors has succeeded best in emulating the high quality seen in the older work. Metal-work and furniture would probably head the list, with stained glass and handloom textiles a close second. Many of the printed textiles do not stand comparison with contemporary European work.

Altogether, the group of objects gathered together points a direct moral to the use of museum collections by students and designers. Work executed from designs made from a study of good originals always shows a superiority to that studied from books or drawings alone, and it is this opportunity to study fine originals which is presented by the great museums.

CHARLES OVER CORNELIUS.

**The City National Bank of Galveston**

An interesting example of the tendency, under present market conditions, to depart from tradition in the choice of building materials is seen in the new home of the City National Bank of Galveston, Texas.

The site of the building is a comparatively narrow "inside" lot, so that the architect's problem, as to the exterior, consisted of designing a façade only. This was treated as a recessed portico with a monumental Corinthian order. The material used is terra cotta having the effect of granite, the severity of which is relieved by the verde bronze of the door and window trim and

the two large vases which have been placed between the columns. The vases add an effective decorative note to the design and, in connection with the bas relief ornament on the podium, give to the front an air of distinction which sets it apart from stereotyped classic bank architecture. (For illustrations see pages 164 and 165.)

The plan is of the simplest—a rectangular room surmounted by an unbroken barrel vault; a mezzanine at the front occupied by a director's room, and another at the rear, over the vaults, providing space for bookkeepers' desks. The floor of the banking room is raised eight steps above the sidewalk; a precautionary measure, as the city is built upon an island that is but slightly above sea level and has suffered from inundations.

The struggle of Galveston to maintain itself against the elements is one of the dramatic episodes of its history. As a protection from the fierce tropical storms which drive in from the Gulf, a vast sea wall has been built and much of the residential district has been raised fifteen to twenty feet by pumping in sand from the neighboring marshes, but the business district still remains at the old level.

The interior of the bank is in keeping with the façade. The wainscoting and pilasters are of Botticino marble, the walls are in Caen stone effect, and the richly ornamented plaster ceiling is in tones of gray. The monotony of gray is relieved by the introduction of gold backgrounds in the ceiling medallions and by the gilded metal work of the tellers' cages, check desks, etc. The gold plating has a utilitarian purpose as well, for it protects the metal work against the action of salt water, with which the atmosphere of Galveston is saturated. Unfortunately only one of the chandeliers was in place when the photograph was taken. They will add materially to the attractiveness of the room.

I. T. FRARY.

**Fellowship Competition of the American Academy in Rome** The American Academy in Rome announces its competitions for the Prizes of Rome in architecture, sculpture and painting, comprising the annual fellowship in architecture, of the value of \$1,000 a year for three years; the annual fellowship in sculpture, of the value of \$1,000 a year for three years, and the annual fellowship in painting, of the value of

\$1,000 a year for three years. The awards are made after competitions, which are open to all unmarried men, citizens of the United States, who comply with the regulations of the academy. Entries will be received until March 1. For detailed circular giving further particulars apply to C. Grant La Farge, secretary, American Academy in Rome, 101 Park avenue, New York City.

**Memorial Temple at Washington to the Men of '17 and '76**

Of the many plans under way to erect monuments to the men who fought in the great war, perhaps the most imposing is that which would make of the George Washington Memorial

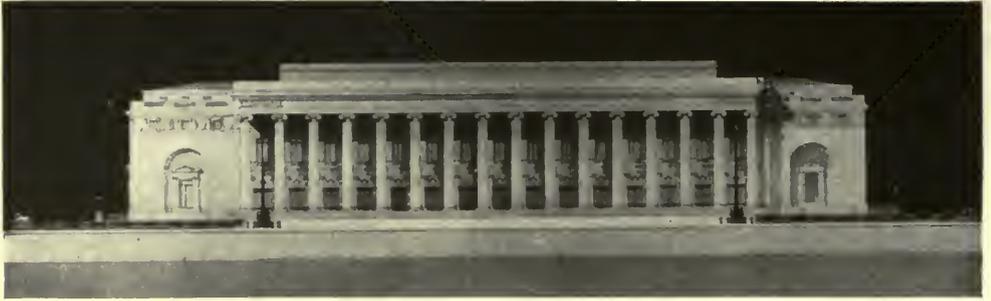
Temple at Washington a joint monument to the men of '17 and '76. The men of 1917 have finished the task begun by the men of 1776, and have paid the debt incurred. The odd coincidence in numbers stands as the symbol of a real bond.

Washington borrowed of France the men and the money that saved the day for the freedom of the colonies. Wilson sent back to France the men and the money that saved the day for the freedom of the nations. We repaid Lafayette with Pershing.

The George Washington Memorial Association, which twenty years ago began raising funds to build an appropriate memorial to the first President, has \$350,000 in cash. Congress has donated an ideal site, the tract of land formerly occupied by the Pennsylvania Station and now covered in part by the temporary buildings of the War Department. It is almost the only desirable site remaining unoccupied in Washington. Several years ago a dozen of the foremost American architects submitted designs in a competition arranged by the memorial association. The Committee of Award selected from these a plan of impressive beauty, the work of Tracy & Swartwout, architects. Our entrance into the war interrupted the execution of the noble memorial.

The design calls for a majestic structure, 300 by 350 feet in length and depth, and of a sufficiently commanding height. The main auditorium will seat not fewer than 7,000 people; and, in addition, there will be many smaller halls and more than 100 reception rooms and offices.

There are to be rooms in the building for the perpetual use of certain patriotic societies, which can secure them by payment of \$25,000. It is understood that the



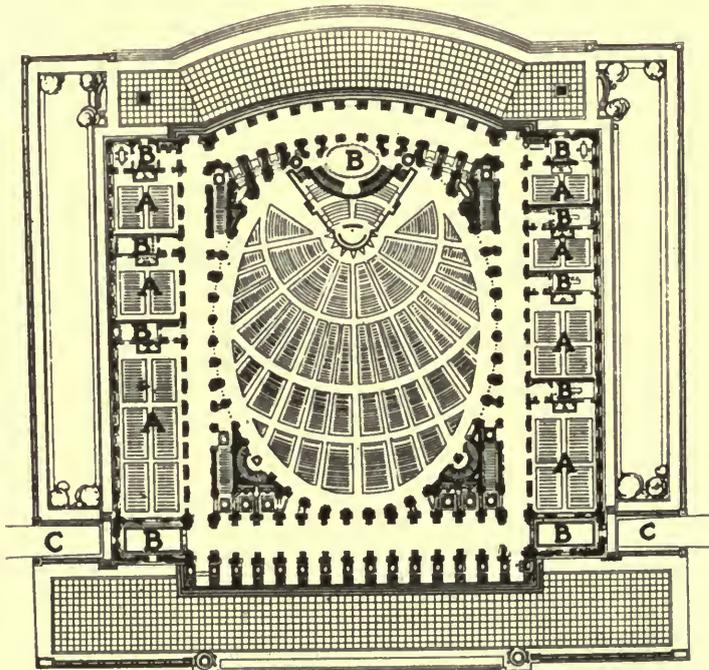
THE PROPOSED GEORGE WASHINGTON BUILDING, WASHINGTON, D. C.  
Tracy & Swartwout, Architects.

Society of Colonial Dames and one or two other associations already have raised the money which will give them a habitation in the city of Washington, with every possible "annexed" facility for the holding of their conventions.

One wing of the building is to be the children's tribute to George Washington. This will be used for everything pertaining to child welfare. Every child who contributes ten cents receives a button carrying the legend: "This pin means a brick in the Memorial Building." The name of each

child and of each donor of any amount will be entered on the records.

The auditorium, the main feature of the building, is to be a memorial to the signers of the Declaration of Independence. Reference has been made to other halls. These will hold from 600 to 2,500 people. In the banquet hall 600 people can be served at one time. Inaugural balls will have a proper setting in this building. The third and fourth floors will contain a museum and library for the care of precious relics, souvenirs and books on the art of war.



FLOOR PLAN, WITH AUDITORIUM SEATING 7,000 IN CENTER.  
(A) Assembly Rooms for Various National Organizations.  
(B) Reception Rooms. (C) Carriage Passage.

The George Washington Memorial Building is intended to meet the Father of his country's wishes that Congress and the people should promote "institutions for the general diffusion of knowledge." It is intended that the structure shall be the meeting place of all national and international conventions and all great public welfare gatherings. Nine-tenths of the conventions held in the city of Washington are in first measure educational in their intentions.

ROBERT H. MOULTON.

**A Block of Tudor Shops in Pasadena, California.**

Three Tudor shops set four feet back from the straight front of the other shops on the street, and having an English garden in the rear, mark a decided advance in business architecture in Pasadena. They

look so much like the romantic little shop homes of old London that people pause to enjoy them, make up excuses to go inside, browse about with interest, and end in making purchases. The beauty and originality of these shops is due to their designer, Edgar Cheesewright, interior decorator and maker of fine furniture, who occupies one of the shops. They are of stucco, putty colored, and roofed with asbestos tile made to represent old English hand-broken slate. The windows are of leaded glass, as is also the upper half of the entrance doors. In the glass of the Cheesewright Studios is set the Cheesewright coat of arms. (For illustrations see pages 168 and 169.)

Wire-cut brick gives color to the base of the building, and square red tile is used for the four feet of pavement needed to set the shops back from the street front and give them perspective. The walls within are of rough plaster, smoky grey in color; and the rooms are informally arranged. Visitors may pass through them to the gardens at the rear and walk in the box-bordered paths, even pick the flowers in the formal beds. Articles shown in such shops seem to possess special distinction.

ELOISE ROORBACH.

**The Servantless House.**

Although the great war has precipitated the question and made imperative the demand for its solution, the ideal of the "servantless house" is something that we Americans have been steadily working toward for more than two

generations. And, while few of us yet suspect it, we had already, when the tragedy of 1914 broke upon us, advanced perhaps more than three-quarters of the way toward the goal. The progress that we have made may be estimated when we compare the average English house of today with the average American. The lamented Walter Weyl, writing in Harper's Magazine, found one of the significant signs of the times in the London of today in the multitudes of inconvenient dwellings "to be let" (and remaining tenantless on every hand) because of the impossibility of getting servants. Contrast such conditions with the dearth of houses of almost every sort that nowadays afflicts every American city!

The average English dwelling of today stands on about the same level as the average New England dwelling of 1820, so far as domestic convenience is concerned. In England it takes, as a rule, at least three servants to do the work of one in an American family. Even before 1850 the up-to-date "new house" in New England, both in town and country, had its hot-air furnace and its hot and cold running water, its bathroom and water-closet. In England only for a decade or so have "modern conveniences" been features of modern-built houses. Here in America, however, modern conveniences have steadily kept well abreast of the march of science and invention.

It is notable, however, that an eminent Englishman, H. G. Wells, who has predicted so many amazing things that have come to pass and who has consistently worked for all advance that makes for true democracy, has depicted, in no little detail, his ideal of the servantless house in his notable book, "Anticipations of the Reaction of Mechanical and Scientific Progress Upon Human Life and Thought," published in 1902.

With the progressive development of a genuine democracy he looks for a wide diffusion of prosperity and a corresponding growth of good taste in domestic environment. Mr. Wells pictures the England of that future as breaking continually into park and garden, and with everywhere a scattering of houses. "These will not as a rule, I should fancy, follow the fashion of the vulgar ready-built villas of the existing suburb, because the freedom people will be able to exercise in the choice of a site will rob the 'building-estate promoter' of his local advantage; in many

cases the houses may very probably be personal homes, built for themselves as much as the Tudor manor-houses were, and even, in some cases, as aesthetically right. Each district, I am inclined to think, will develop its own differences of type and style. . . . smart white gates and palings everywhere, good turf; . . . gardening districts all set with gables and roses, holly hedges and emerald lawns; pleasant homes among heathery moorlands and golf links, and river districts with gayly painted boathouses peeping from among the osiers. Then presently a gathering of houses closer together, and a promenade and a whiff of band and dresses, and then, perhaps, a little island of agriculture, hops, or strawberry gardens, fields of gay-plumed artichokes, white-painted orchard, or brightly neat poultry farm. Through the varied country the new wide roads will run, here cutting through a crest and there running like some colossal aqueduct across a valley, swarming always with a multitudinous traffic of bright, swift (and not necessarily ugly) mechanisms."

This picture is, in fact, to no little extent what Mr. Wells on his American visit, much to his gratification, found already realized in the metropolitan developments of much of the Greater Boston country as witnessed during a notable day's motor-car trip in company with the writer of these words.

Farther on Mr. Wells, picturing the home life and environment of the typical family of the new days, says: "Their *ménage*, which will consist of father, mother and children, will, I think, in all probability, be servantless.

"They will probably not keep a servant for two excellent reasons: because in the first place they will not want one, and in the second they will not get one if they do. A servant is necessary in the small, modern house, partly to supplement the deficiencies of the wife, but mainly to supplement the deficiencies of the house. She comes to cook and perform various skilled duties that the wife lacks either knowledge or training, or both, to perform regularly and expeditiously. Usually, it must be confessed, the servant in the small household fails to perform these skilled duties completely. But the great proportion of the servant's duties consists merely in drudgery that the stupidities of our present-day method of house construction entail, and which the more sanely constructed

house of the future will avoid. Consider, for instance, the wanton disregard of avoidable toil displayed in building houses with a service-basement without lifts! Then most dusting and sweeping would be quite avoidable if houses were wisely done. It is the lack of proper warming appliances which necessitates a vast amount of coal carrying and dirt distribution, and it is this dirt mainly that has to be removed again. The house of the future will probably be warmed in its walls from some power-generating station. . . . The lack of sane methods of ventilation also enhances the general dirtiness and dustiness of the present-day home, and gas-lighting and the use of tarnishable metals, wherever possible, involve further labor. But air will enter the house of the future through proper tubes in the walls, which will warm it and capture its dust, and it will be spun out again by a simple mechanism. And by simple devices such sweeping as still remains necessary can be enormously lightened. The fact that in existing houses the skirting meets the floor at right angles makes sweeping about twice as troublesome as it will be when people have the sense and ability to round off the angle between wall and floor.

"So one great lump of the servant's toil will practically disappear. Two others are already disappearing. . . . Take now the bedroom work. The lack of ingenuity in sanitary fittings at present forbids the obvious convenience of hot and cold water supply to the bedroom, and there is a mighty fetching and carrying of water and slops to be got through daily. All that will cease. Every bedroom will have its own bath-dressing room, which any well-bred person will be intelligent and considerate enough to use and leave without the slightest disarrangement. This, so far as 'upstairs' goes, really leaves only bed-making to be done, and a bed does not take five minutes to make.

"Downstairs a vast amount of needless labor at present arises out of tableware. 'Washing up' consists of a tedious cleansing and wiping of each table-utensil in turn, whereas it should be possible to immerse all tableware in a suitable solvent for a few minutes and then run that off for the articles to dry.

"There remains the cooking. Today cooking, with its incidentals, is a very serious business—the coaling, the ashes the horrible moments of heat, the hot, black things to handle, the silly, vague

recipes, the want of neat apparatus, and the want of intelligence to demand or use neat apparatus. One always imagines a cook working with crimsoned face and bare, blackened arms. But with a neat little range, heated by electricity and provided with thermometers, with absolutely controllable temperatures and proper heat screens, cooking might very easily be made a pleasant amusement for intelligent invalid ladies. Which reminds one, by the bye, as an added detail to our previous sketch of the scenery of the days to come, that there will be no chimneys at all to the house of the future of this type, except the flue for the kitchen smells. This will not only abolish the chimney stack, but make the roof a clean and pleasant addition to the garden space of the home. . . .

"The servants of the past and the only good servants of today are the children of servants or the children of the old labor base of the social pyramid, until recently a necessary and self-respecting element in the State. Machinery has smashed that base and scattered its fragments; the tradition of self-respecting inferiority is being utterly destroyed in the world. . . . Such servants as wealth will retain will be about as really loyal and servile as hotel waiters, and on the same terms. For the middling sort of people in the future maintaining a separate *ménage* there is nothing for it but the practically automatic house or flat, supplemented, of course, perhaps, by the restaurant or the hotel."

The reader will allow that it has been well worth while to quote at length Mr. Wells's remarkable utterance regarding our subject. To no little extent his ideals have been already realized, on this side of the Atlantic. As to the remainder, we can see how rapid in these days is the process of realization—so rapid that practically his entire program, which when written seemed so visionary, appears to be reasonably certain of coming to pass in a comparatively near future—vastly nearer than at first can have seemed possible even to the author himself. Only as to the open fireplace—don't let us sacrifice that, with its cosiness, its poetry!

The servantless house, as it steadily perfects itself under the rapid march of modern improvement, will make work easy by means of its many and excellent automatic devices. An excellent illustration is that of the familiar dining-table device, in these days increasingly popular under the compulsion of the "servant-famine," known as

"Lazy Susan;" a turntable placed in the center of the table and slightly above the level, so that any person may easily turn it and bring to himself any desired dish or article placed upon it. It should be easily possible to multiply the facility with which the service of a meal is advanced through this device by similar step-saving contrivances: for example, in getting the dishes to and fro between the dining-room and the pantry or kitchen, perhaps somewhat after the manner of the cash-railway in a department store—incidentally averting much smashing of china.

Think of the enormous labor that has been saved for housewives by the electrical vacuum cleaner! In this connection may be noted a bit of hitherto unwritten history relating to this invention. It was at least thirty years ago that the writer's friend, Prof. Edward S. Morse, the eminent biologist and director of the Peabody Institute of Salem, told him about an interesting experiment that he and his accomplished secretary, Miss Margaret Brooks, had just been making at his home. They had rigged up a piece of garden hose in connection with some sort of extemporized contrivance for exhausting the air and had drawn up from the floor all the dust and particles of dirt lying about. They had thus demonstrated that rooms might easily and expeditiously be cleaned in that way. Nothing further was done about it; but had Professor Morse carried out the matter he might have anticipated a vacuum cleaner, perhaps greatly to his financial advantage.

The "Lazy Susan" idea on a large scale has been made use of in a recent invention that, in these days of space-saving requirements in the construction of dwellings, may prove eventually of no little practical value when put in practice and demonstrated by experience. In fact, it applies to domestic requirements the same principle that was made use of in the device of a revolving stage, whereby it was made possible to change the scenes in a theatre without any waiting between the acts. The invention was described in the *Scientific American* a few months since, illustrated by photographic cuts from an actual example. In this way, simply by turning a rotary section of flooring a single large room may be made to serve as a whole apartment, convertible in succession into bedroom, living room, dining room and kitchen. The furnishings necessary to these diverse uses is thus brought into

use in a way that makes the room serve the purpose demanded, just as if it were permanently so planned, as one portion of a large apartment. A room fifteen feet square may thus be made to serve, without the least scrimping of space, all the domestic needs of either a single person or of a man and his wife with perhaps a small child. The elements that transform the room for its various uses are given the form of a cabinet mounted on a turntable and arranged something in the fashion of a revolving bookcase. This cabinet has four sections: one of these has a folding bed with a dresser beside it; again there is a complete kitchenette; next there is a bookcase and a writing desk. As the cabinet is revolved the various compartments come into service, so that the same room is available for sleeping, dressing, eating, cooking and living.

To accomplish these ends a large circular opening is cut in the floor near one corner of the room. In this space is mounted a frame with grooved rollers to accommodate the turntable readily revolving on a track that engages the rollers. A partition cuts off the room just in front of the revolving cabinet, and a door in this partition at one side of the cabinet opens into a bathroom. In the morning the bed is folded in the cabinet; a partial turn brings the dresser into service. One's toilette being completed, another turn brings the kitchenette into use with its complete outfit: an electric stove, a sink with ice-box below, and also various drawers for table and kitchen utensils. At one side an ironing-board may promptly be turned into service. Through the center of the cabinet runs a pipe that not only serves as an axis to steady it, but acts as a ventilator for the kitchenette, carrying off smoke and fumes. Running water comes to the sink through a pipe that, by means of a swivel connection, passes down through the center of the turntable. The kitchenette, being placed in the wall of the room, the rest of the space is available for dining and

other meals. A table, ordinarily serving as library table, has a leaf that may be drawn out for dining purposes; in case of guests the entire table may be cleared of books, etc., and brought into use. After breakfast or other meals another turn of the cabinet brings the bookcase and writing-desk into service, thus converting the room into a living room or library. This multiple-unit device for domestic purposes seems to be as applicable to a single-room bungalow plan for suburban or rural requirements as for city apartment house purposes. The great economy in space should amply outweigh the extra expense of the simple mechanism involved.

SYLVESTER BAXTER.

**American  
Architects  
to Exhibit  
at the  
Paris Salon.**

Through the courtesy of Monsieur Maurice Casenave, Director General of French Services in the United States, an invitation has been extended to the American Institute of Architects to make a comprehensive exhibition of American architecture at the Paris Salon, which opens in May, 1921. The drawings will be selected by the Committee on Foreign Building Co-operation of the Institute acting as a jury.

A charge of \$1.50 per square foot on drawings accepted will be made to cover cost of crating, storage, hanging, etc., the French Government paying the expenses of transportation to and from Paris. Insurance on exhibits can be arranged for by the committee from the time of their departure from New York until their return at the rate of \$1.50 per hundred dollars, if desired by exhibitors.

To allow sufficient time for transportation to France, the date for submission of exhibits has been set for February 14. Those desiring to exhibit should apply to Mr. Julian C. Levi, Secretary, 105 West 40th street, New York City, for entry slips which must accompany all drawings.