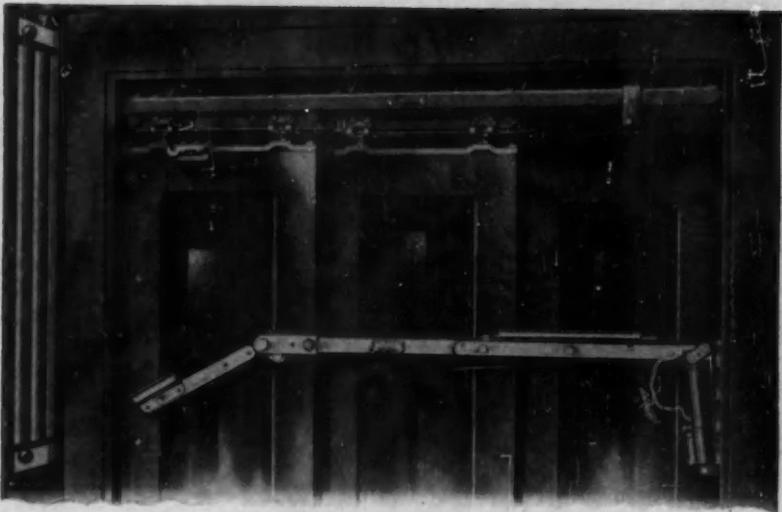


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THE PLACE DU MURIER, WITH THE TOWER OF
THE CHURCH OF ST. ANDRE, AT ANGOULEME

FROM LITHOGRAPH BY J. R. ROWE

The Architectural Forum

The ARCHITECTURAL FORUM

VOLUME XLI

JULY 1924

NUMBER 1

✓ Style and Expression in Landscape Architecture

By CHARLES DOWNING LAY

THE style of a landscape or of a garden is usually subject to two influences. It must, first of all, meet and give perfect expression to all the features of the site—that is of the geologic condition which has been created. It must be quite obviously the right thing for that place. This should be seen in the construction of all its features, in all the planting which has been put in to give an originally pleasing scene the greatest richness of detail. Second, the whole must harmonize in every particular with the tastes, the desires and the mode of life of the owner or of the public which is to use it. The success on these grounds of any work must be judged empirically, not rationalistically, for as our desires and habits change, the type of landscape or of garden which we consider appropriate may change also. The success of a new place or a new arrangement in meeting new conditions cannot be judged in advance by comparison with existing standards. It must be judged by trial after habits and customs have become established.

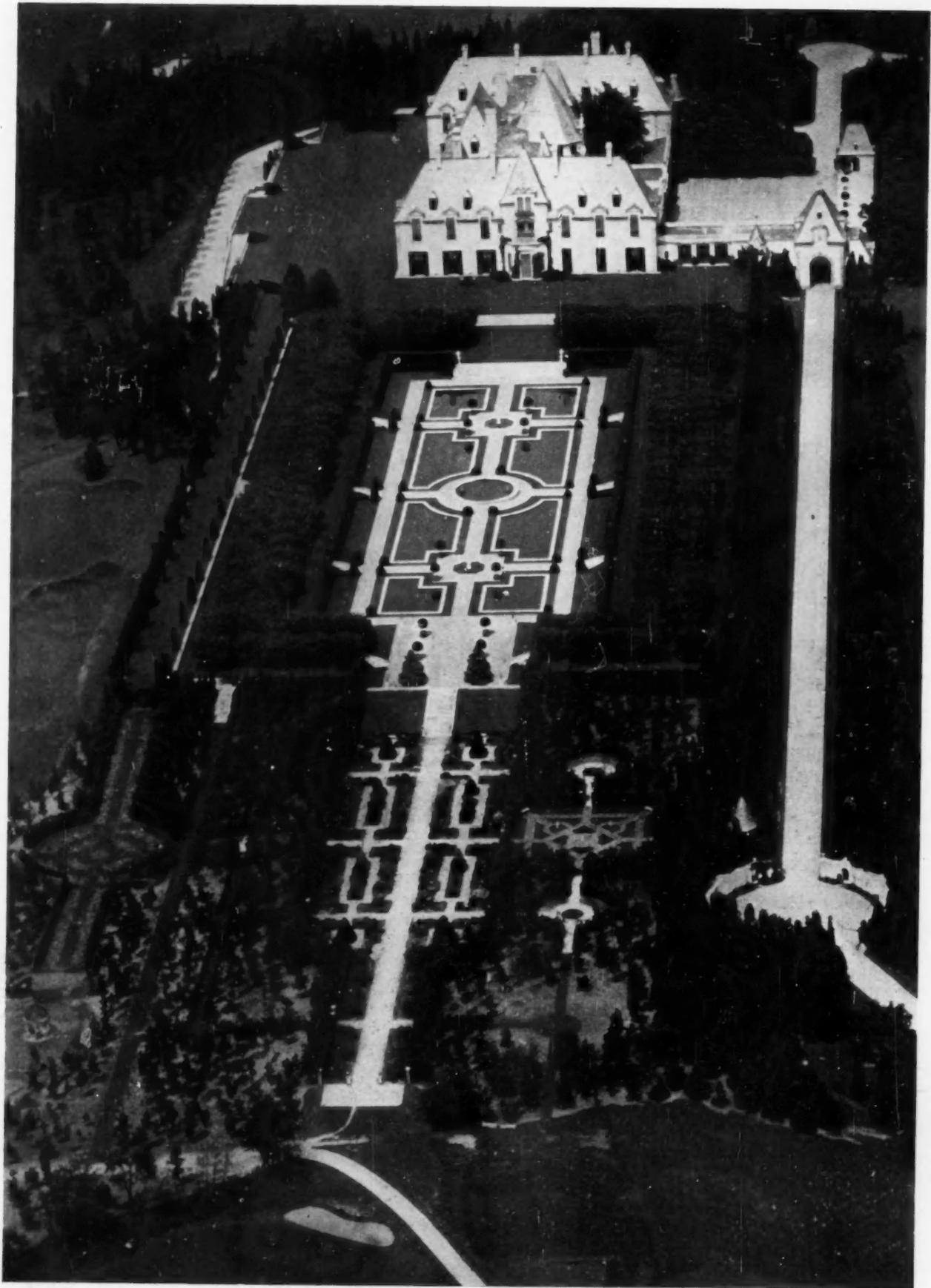
A common instance of this is to be found in certain aspects of the change from horses to motors. At first motors, being only horseless carriages, were put in the stables which were placed with regard to the conditions of a stable. Now we are quite certainly reaching the point of putting the motors close to the house or in an ell of the house, or, as the last step toward convenience, in the basement of the house itself. Driveways in parks and on country estates and forecourts on suburban places have been long in reaching the point of reasonable design for the use of motors, for we have been slow to think in terms of the new vehicle.

The difficulty of securing domestic help and our dissatisfaction with it when secured will have an inevitable influence on the size and character and the design of all our landscapes and gardens. This is not, I think, a condition to be regretted, for the result should be to turn us from the laborious practice of the fussy kinds of horticulture to a deeper thought of the artistic qualities of a garden and toward a kind of garden which depends for its success on permanent features rather than on the fleeting beauty of planting which soon perishes or out-

grows its charm. It will, I think, be an influence for smaller size and higher quality in design and in execution. It is likely also to bring about a sharper line of separation between the well kept and formal parts of the place and the outside wilds, so that the one represents concentrated order and the other rampant nature, or at least nature intended to appear as if free from interference. If in this change we lose the suburban, park-like lawn dotted with specimen trees, the gain will be immense. Within the limits of suitability and use, which I have pointed out, there are limitless opportunities for the perfect expression of the designer's personality or of the owner's tastes. We need not fear that these conditions will seem hard or result in a fixed type. I believe they are, on the contrary, a stimulation to effort on the part of the designer and that they will produce in the public a critical taste which we have never known before.

It is the belief of many that professional help should not be sought by the owner who wishes to improve his place and make it fit more perfectly his own taste. People sometimes talk loosely about "expressing" themselves and fear the touch of other hands on work which they wish to be their own. But they forget that their knowledge of the technique is as insufficient as their strength to permit them to carry out the simplest ideas. If they employ men who are only craftsmen the work will inevitably express them and their possibly mediocre ideas, for the owner usually lacks the power to control or direct the workman. Grading foreman, bricklayer, stone mason, road builder and nurseryman, each will do quite honestly what he considers best, but it is often a best determined by habit and uninfluenced by wide experience with many methods.

The professional designer, with his knowledge of materials and of methods and his freedom from the restraints of local fashion, is much more able to help the owner express his own personality. He is likely enough more conscious of the personality and understands it better than does the owner himself. It is quite possible, and perhaps not undesirable, that two personalities should be expressed in the same work, chiefly, that of the owner in the broad aspects



Aiglon Aerial Photos

ESTATE OF OTTO KAHN, ESQ., COLD SPRING HARBOR, N. Y.
DELANO & ALDRICH, ARCHITECTS

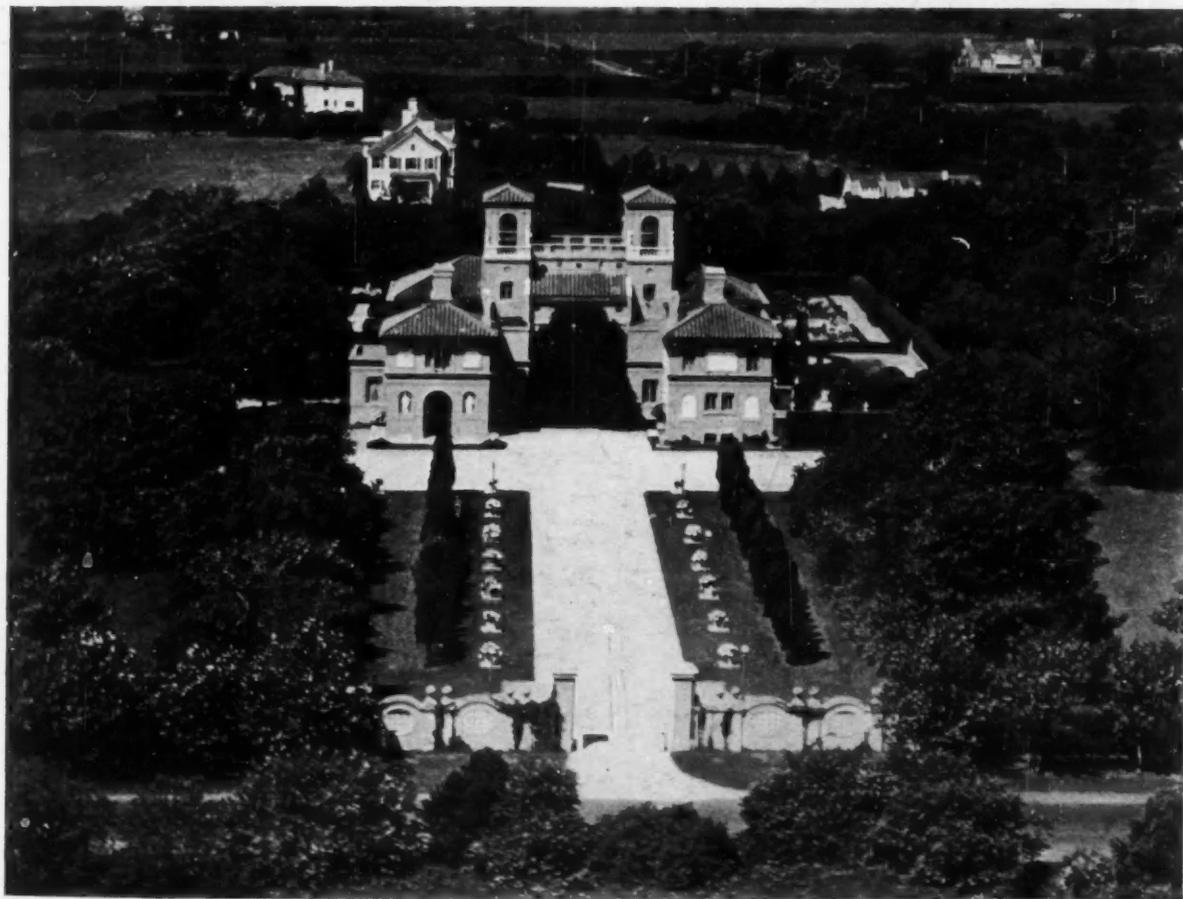
of the work, since it is he who determines what shall be done and on what scale. The inclusion or the omission of this or that feature is determined by the owner, while the designer puts his personality to a certain degree into the details, in the technique of its execution. The designer must be responsible as well for the aesthetic qualities of the work and see that it fulfills the conditions of all works of art in having harmony, rhythm and balance. It cannot be thought a detriment that the designer should show by slight details the authorship of the work. This is shown inevitably in the work of every artist. There are tricks of handling, short cuts to the result, no matter what the medium, and these are recognizable by the knowing on sight. If these marks are slight, they add interest to the work. If, however, they become a fixed habit in design they may be, because of too frequent repetition, tiresome. The more proficient the designer the less likely it is that he will acquire a set habit or a tiresome style.

It is fair to ask what may be expressed in a garden or landscape that is worthy of expression. We can show in the garden that the owner and designer have lively reactions to the outside world; that they are, in other words, quick to see and to enjoy and have a mental and emotional equipment which makes it possible for them to feel deeply. To see another's

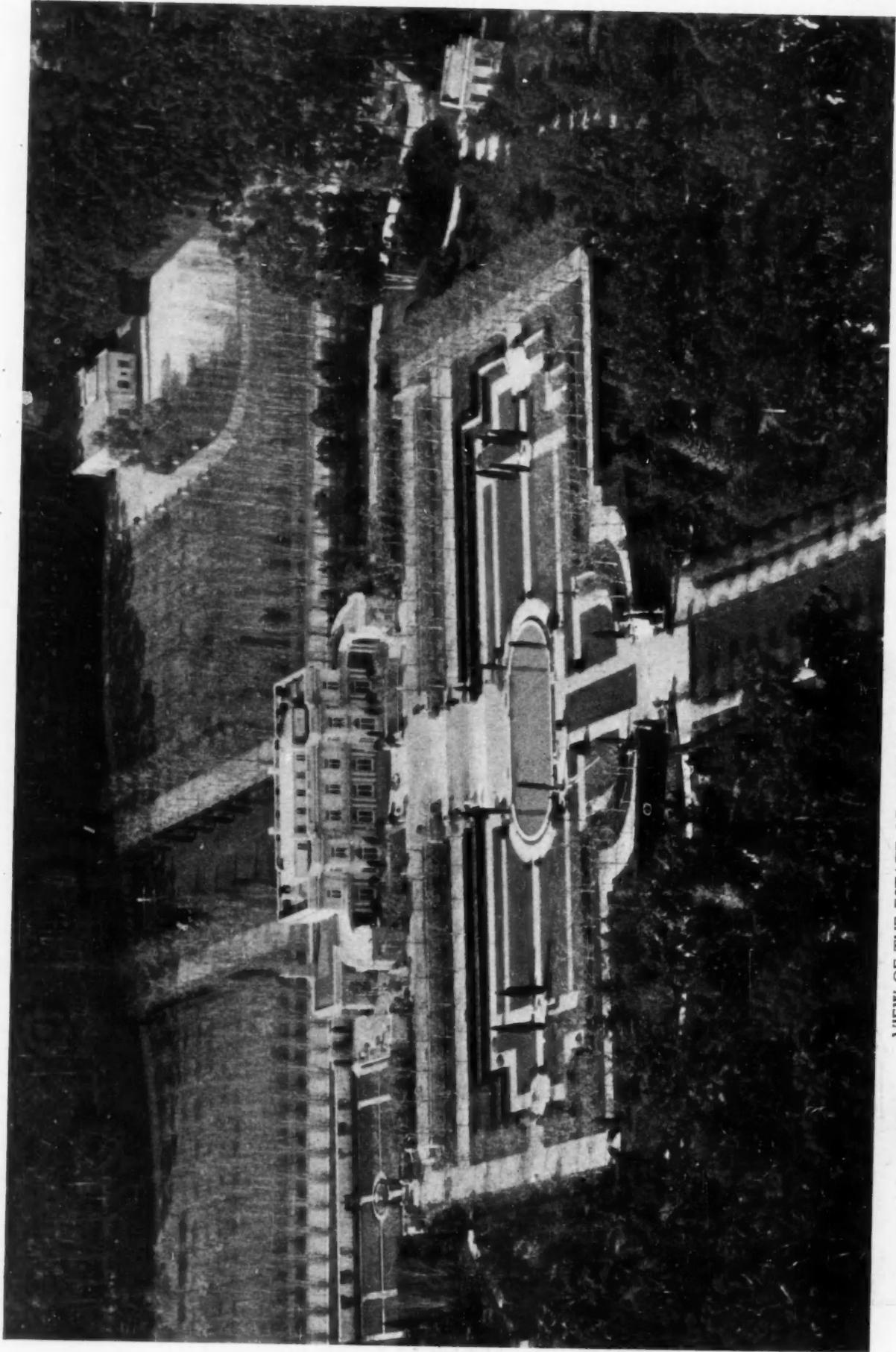
garden may give us a keen perception of the richness or poverty of his personality, of his experiences and associations in life and of his spiritual qualities. It is evident to me that we are becoming more critical of design in gardens and landscapes and judge them more fairly and with more regard for their artistic qualities than ever before. We have passed in our appreciation of this art the stage which we were in 30 years ago in regard to architecture. Any one who could direct carpenters or do a mechanical drawing was considered an architect, and if there were no one of that calling around, one was content to have a builder design a house.

As a means of studying one's own place, a plan drawn to scale on paper is of the greatest assistance, for it brings within the grasp at once all the features of the place and their relations to one another. Studying, first on paper, then on the ground and then on paper again, one is sure to reach an understanding of the problem and a conclusion which is likely to be right, though not the only possible conclusion. For the same reason it is the part of wisdom to make a plan of the whole place before anything is done on it. If one thing be done without consideration of the whole, it is likely not to fit or not to be right when the next thing is done.

The advantages which a scale plan gives in studying the relations of a place or the design of a garden



Estate of Morgan J. O'Brien, Esq., Southampton, N. Y.
Main Entrance and Approach to House

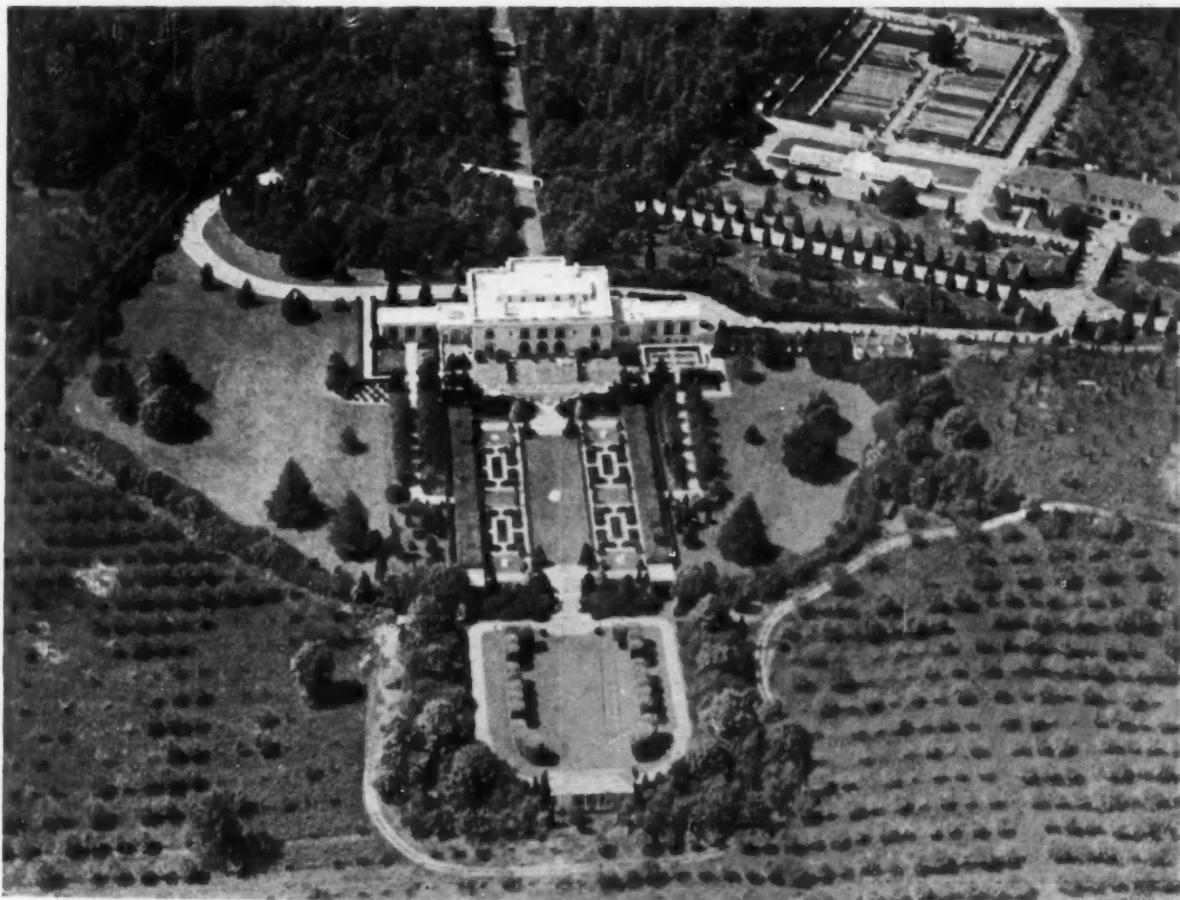


VIEW OF THE ESTATE OF GEORGE NEWHALL, ESQ., BURLINGAME, CALIFORNIA
GARDEN FRONT OF HOUSE, ENDING IN A MALL, OR ALLEE THROUGH WOODLAND

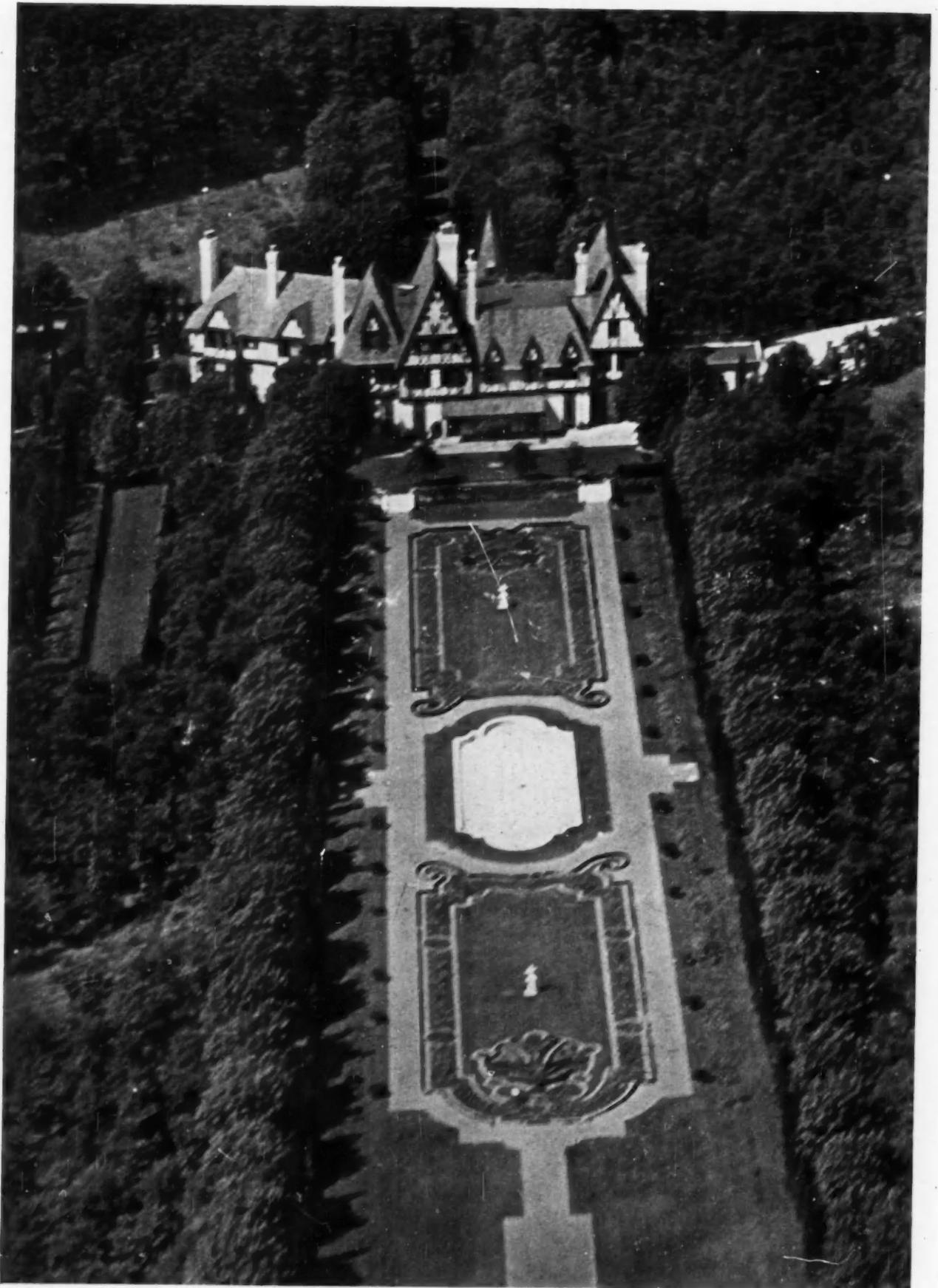
are great, but the difficulties at first are considerable, for a plan of a garden or a landscape represents three dimensions instead of the two dimensions which are sufficient in any plan or elevation of a house. It is puzzling to visualize, as one looks at the plan, the changing levels of reality, so that the beginner finds a complete realization of the whole remodeling of the surface hard to grasp. The contour lines of the plan, which convey the shape of the surface so quickly to the experienced eye, do not, it seems, give the same sure knowledge to the inexperienced. It has been suggested that models, since they represent three dimensions, would make it easy to explain a scheme, but they are expensive to make and they have the fault that they are objects and that one is likely to judge them as such rather than use them as a means for visualizing actuality. A model may be fascinating and wholly satisfactory, yet the place when built may be disappointing. A hill modeled to a correct scale may seem insignificant, yet in reality be unexpectedly large.

There is throughout the country a strong inclination to formalize all works of landscape architecture. For this the architects are in part responsible, but it is also the natural result of increasing culture and desire to live in an environment which is in every detail consistent and in harmony with life. Formalization, too, furthers one's wish to carry the influ-

ence of the spirit beyond the borders of the mind and into reality. As our people become more civilized they take less pleasure in the accidents of wild nature and long for order and a definite plan in all that they do. This was indeed their feeling, competently shown in the architecture of the early republic and in the planning of cities, but it was interfered with by romanticism which led them to worship the picturesque, the accidental and the unexpected in nature. Untouched nature thus came to have a kind of sanctity because man's influence could nowhere be felt,—as used to be said (or rather sung), "where every prospect pleases and only man is vile." A more sensible view prevails today, and one sees in Nature nothing higher than oneself; the wild landscape, having lost its mystical perfection, is interesting only as an environment for man. The next step in common sense thinking which one should soon take is to consider all man's works as much a part of his natural environment as the home of the beaver or the muskrat. This relieves one of the former necessity of looking on the city and the railroad as something artificial and unlovely, interfering with nature and to be excused as a fault which may be outgrown. In our country places the tendency to minimize the importance of natural accidents is clearly manifested. One feels no longer that the shrubbery must be a tangle and the lawn



View of Estate of Mrs. Charles H. Senff, Syosset, N. Y.
Hiss & Wickes, Architects



ESTATE OF MRS. W. K. VANDERBILT, 2ND, JERICO, N. Y.
A STRIP CUT IN DEEP WOODS LAID OUT AS A SIMPLE FORMAL GARDEN

be an unrestricted space dotted with trees, planted, as someone recommended, by throwing a bushel of potatoes one by one in all directions and planting a tree where each is found. One is free now to plant in rows or in pairs, and one delights in a sharp line of demarcation between the formally laid out parts of the place, which repeat or accentuate the scheme of the house, and the more or less wild and unkempt spaces beyond. One gains by this formality in the midst of informality a pleasing contrast, and in the formal or ordered portions of the place one enjoys unthinkingly the design, the most charming evidence of human feeling and hence the highest expression of the common nature from which we spring.

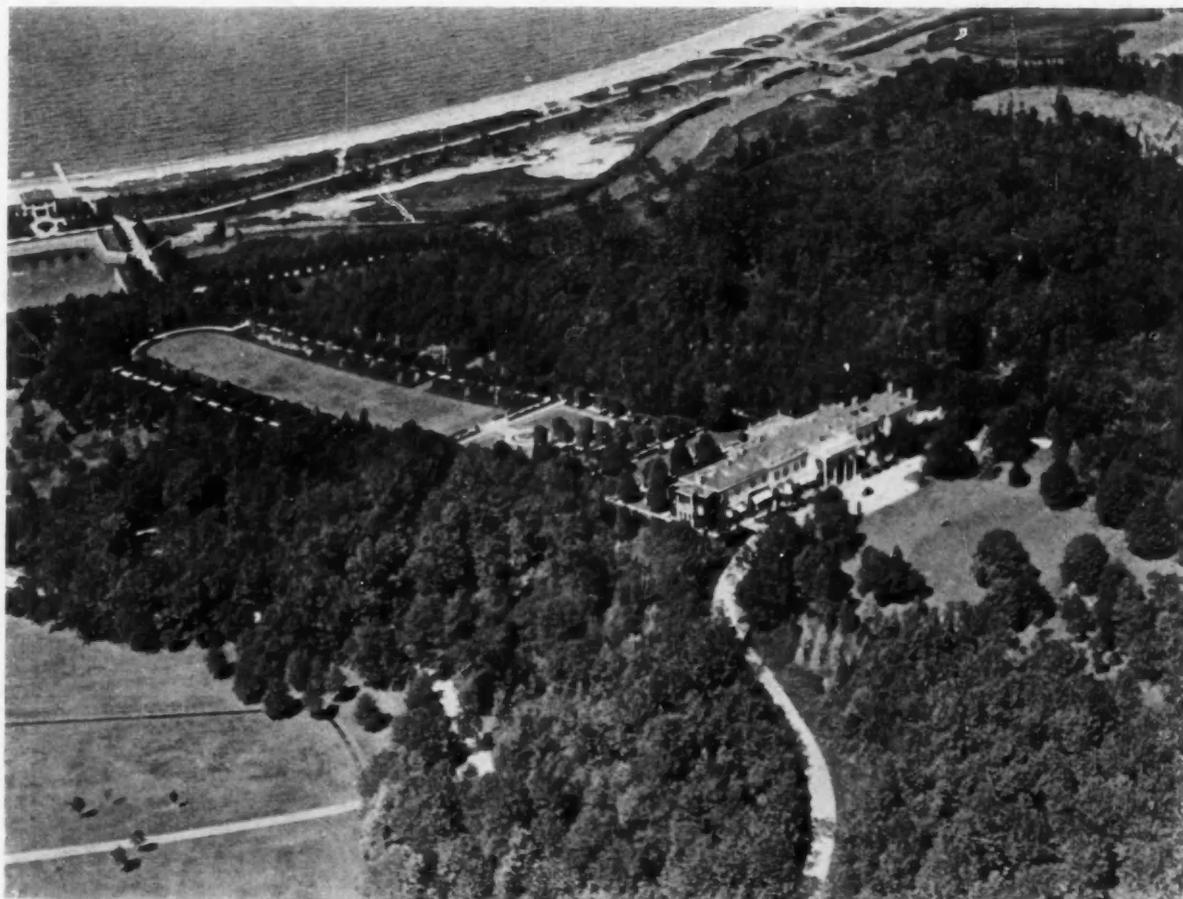
Progress in the direction of a higher organization in the surroundings of our houses has been helped by a deeper understanding of what nature left alone may really be. The lawn, which used to be thought of as a charming natural feature, is seen to be highly artificial and an ostentatious display of wealth. It represents, moreover, only a temporary phase in the operations of agriculture and left alone must soon be ploughed up for some crop or it will become a forest. It would be too cruel to inquire why if a lawn can be mown a tree cannot be clipped without offense to the worshipers of natural beauty!

We can do as we please with the landscape, with the trees, or the grass, so long as we are guided by

a desire to produce a work which is organized and designed to stimulate the beholder to feel an emotion of beauty. Our work often fails in this æsthetic stimulation, for a place which in other days might have seemed satisfactory since it pretended to offer nothing more than convenient access to the house, agreeable views from the windows, and lawns and trees, becomes when formally developed a challenge to criticism, and any feature which is not delightful is, because of its attempt to be so, offensive, and drives us to unreasoning and distracted dislike.

Formal work seems easy to the unthinking, for it must be, if successful, obviously right and at the same time it must be free from eccentricity. It appears then quite simple to do. Yet the great designs are not so many that their value can be lightly regarded. In the hands of the incompetent formal designs result in dullness, in meaningless repetition of inharmonious features, so that the scheme as a whole shows no invention, no activity of mind, no inspiration, and lacks the vitality which at once impresses us in a real design.

There is a type of design common in Europe which we might well try here. It is as if the house were put on the axis of a street or *allee*, with a view of the distance to be sure, but with no concern beyond the straight, unbroken sides. We are thus restricted to one view and the development of the



Estate of William D. Guthrie, Esq., Locust Valley, N. Y.
Showing Series of Formal Gardens and Allée Between House and Ocean

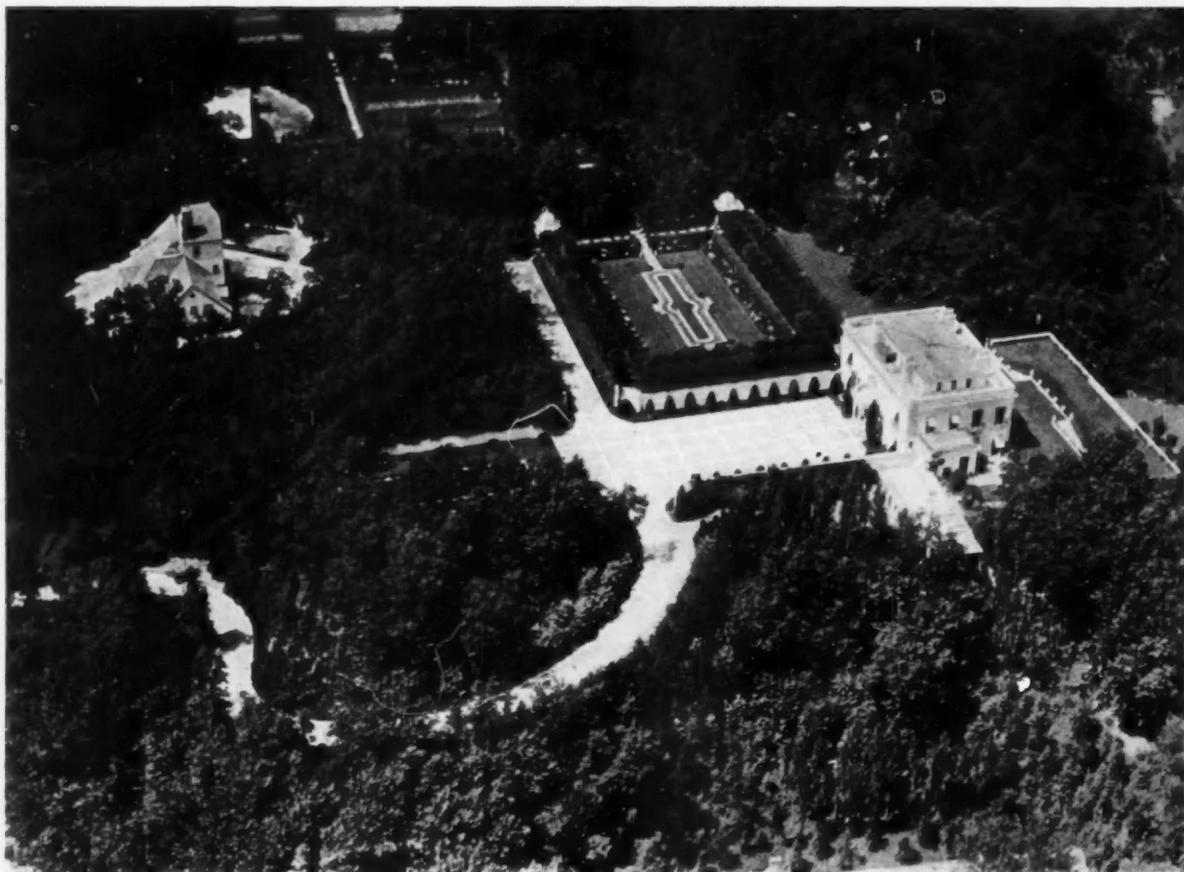
narrow space between the sides of the *allee*. Such a scheme gives plentiful opportunity for brilliant and moving design, can be embellished as one wishes, and avoids some of the pitfalls of our usual attempts to cover the whole landscape with our works and to see it all at once. A strip cut in the deep woods with the house at one end looking down a slope to distant blue beyond simplifies the problem and gives at once unity or harmony which few of our large country places now possess. It is not the highest type of design, but it offers many delights to those untrained in the subtler beauties of occult balance and rhythmic vitality. As a stage for the ordinary activities of social life the restricted plan has many advantages, while for the poet or the artist or the philosopher, the more complicated problems of the freer kind of design are more pleasing.

In the end it makes not so much difference, perhaps, whether we work in a style which is formal, that is symmetrical; or informal, that is occultly balanced; for it is the quality of the design, its vitality which we feel rather than see, that gives us the most lasting pleasure. Freed from its sensuous delights of soft airs bearing fragrant breaths from the flowers and the trees, and without the alluring magic of brilliant color, it is still, because of its arrangement of masses, its composition in space, capable of arousing in us the emotion of beauty the designer felt.

The garden must in short be judged, so far as such judgment is possible, by its effect on our deeper emotion rather than by its sensuous appeal. For, although the influence of the garden or the landscape on our senses is great and entirely proper, it should not be allowed to blind us to its fundamental quality, which is to be found in its design; and it is in this that the designer finds his justification. It is this that makes him worthy of his hire.

EDITOR'S NOTE. The *aéroplane* photographs of several Long Island estates, which accompany this article, illustrate admirably the type of design Mr. Lay particularly recommends in a later paragraph,—a style of architectural landscape common in Europe, in which the house is definitely made a part of the complete plan by placing it on the axis of the garden and *allees* which are laterally enclosed by dense plantings of trees. "A strip cut in deep woods with the house at one end," looking down over a simply planned formal garden, well describes both Mrs. Vanderbilt's charming chateau at Jericho and Mr. Guthrie's extensive estate at Locust Valley. The French chateau of Mr. Kahn at Cold Spring Harbor overlooks a formal terraced garden, with elaborate topiary work, laid out in a balanced design. At Syosset, Mrs. Senff's villa, through its axial relation to the formal terraces, gardens and lawns, becomes an integral part of the whole architectural landscape design. In Judge O'Brien's Italian villa at Southampton the front entrance drive and court, as well as the formal gardens at one side, are indispensable parts of the whole design. The terraced gardens and long *allees* of Mr. Newhall's estate at Burlingame, California, give the needed vistas and formal setting required by the classic character of the architectural style in which the house is designed.

These illustrations were made by the "Aerial Aiglon Photos," New York.



Estate of Bertram G. Work, Esq., Oyster Bay, N. Y.

Delano & Aldrich, Architects

✓ The Fraternity Clubs Building, New York

MURGATROYD & OGDEN, ARCHITECTS

IT is not many years since the first Allerton House was built, establishing what has become one of the unique features of New York life. These great houses for men and for women, which fill an ever-increasing want, are becoming indispensable to the people for whom they are intended, and are solving one of the many sides of the general housing problem of today which is vitally important.

As the city has outgrown its boundaries and its accommodations, and as building costs and living expenses have doubled and trebled, concentration of every sort has followed by force of necessity.

Apartment houses, both reasonable and costly, now rise from nine to 18 stories, where one room and bath or ten rooms and five baths may be obtained to suit the requirements and the resources of the tenant. Coöperative ownership of apartments as well as of office space is fast taking the place of landlord and tenant. The kitchenette apartments, the walk-up rooming houses and the moderate priced small room hotels are rapidly replacing the old fashioned boarding house, which for more than half a century was one of the institutions of the transient life of New York and its people.

The club hotel is not only necessary in large cities, like New York and Chicago, where a very large one is now nearing completion, but also in smaller cities and communities as well. It is designed to accommodate under one roof all the comforts of home, with the conveniences and privileges of a club, containing lounges, writing and reading rooms, dining rooms, billiard and game rooms, gymnasium, squash and hand ball courts. This is particularly true of the Fraternity Clubs Building at Madison Avenue and 38th Street, New York, which contains all of the features mentioned and provides every luxury of a private club. It is the latest example of concentrative and coöperative housing in New York, and goes

one step further in the development of community buildings. Instead of one vast public club, which other Allerton Houses were designed to be, here are 16 Greek letter fraternities and the Cornell Club housed under one roof. With the exception of the Cornell Club, which has its own dining and grill rooms and kitchen, all the fraternities use in common the two large dining rooms on the entrance floor, easily reached from all the upper floors.

Having touched lightly upon the unusual type of community service provided by the Fraternity Clubs Building, some description of the structure itself is in order. In general the plan is shaped like the letter "H," the main stairway, corridors, elevators and service stairs occupying the center of the building. In the sub-basement are located the boiler rooms, coal storage rooms and mechanical equipment. The basement contains the kitchens, store rooms, pantries, service dining room and quarters, together with a public portion, where one finds the oyster bar, the billiard room, the barber shop, the valet's room, and a club valet's room, where a non-resident has all the privileges of a resident. The entrance floor shows the usual arrangement of spacious foyer, which here also serves as a



View Looking South on Madison Avenue of the Fraternity Clubs Building

lounge. The necessity of having public parlors or living rooms is obviated in this special type of building by the fact that each fraternity club has its own club quarters. Two large general dining rooms with service pantry between, office space for the management of the building, mail room, telephone and telegraph room, two small private dining rooms, women's reception room, one long club room, service entrance and elevators, as well as the private entrance and elevator for the Cornell Club, make up the arrangement of the entrance floor. On the first and second floors are located most of the 16 fraternity club rooms. Those on the first floor are larger,



Pavilions and Towers Crown the Building

ing was erected, in the Renaissance style as developed in northern Italy. On the exterior the rusticated walls of the two lower floors are of warm, reddish brownstone, which harmonizes and blends well with the red brick used for the walls above. These walls have been broken up by bringing out piers between the windows of the center bays on each facade, and at all the corners of the various wings. As all the cornice lines and corbeled string courses have been kept very flat and narrow, these projections of the walls or flat piers greatly increase the vertical effect of the several facades. Protruding brick in diaper arrangement emphasizes still more these piers, making a pleasant contrast with the smooth brick of the intervening wall surfaces which hold the window openings. Above the 11th floor the design acquires unusual charm and picturesqueness through the delightful way in which the architects have piled up, in retreating tiers, octagonal corner towers with graceful lanterns, low pavilions, tall arcaded loggias, heavily corbeled open balconies and slender turrets, all roofed with deep-toned red

with high ceilings and spacious arched windows. Thus are provided club rooms of varying sizes to fit the requirements and membership of each fraternity. In addition to club rooms the second floor has a small gymnasium, three squash courts, lockers, lounges and showers. The bedroom floors have been planned with great care to eliminate all waste space and to provide as many rooms of varying sizes as possible, which are rented by members of the various fraternity clubs, or through "guest cards" by their friends.

The 16th floor is given up entirely to an open roof garden, a solarium, and loggias. The enclosed solarium on the south makes a delightful parlor for winter, while the deep open loggia on the north makes a cool and spacious retreat for the hot evenings of summer. Shallow arcades connect the solarium and summer loggia. By the center lobby on this floor these porches and loggias are accessible from the four main elevators of the building.

The design as a whole is consistently and logically worked out to serve the special purpose for which the build-



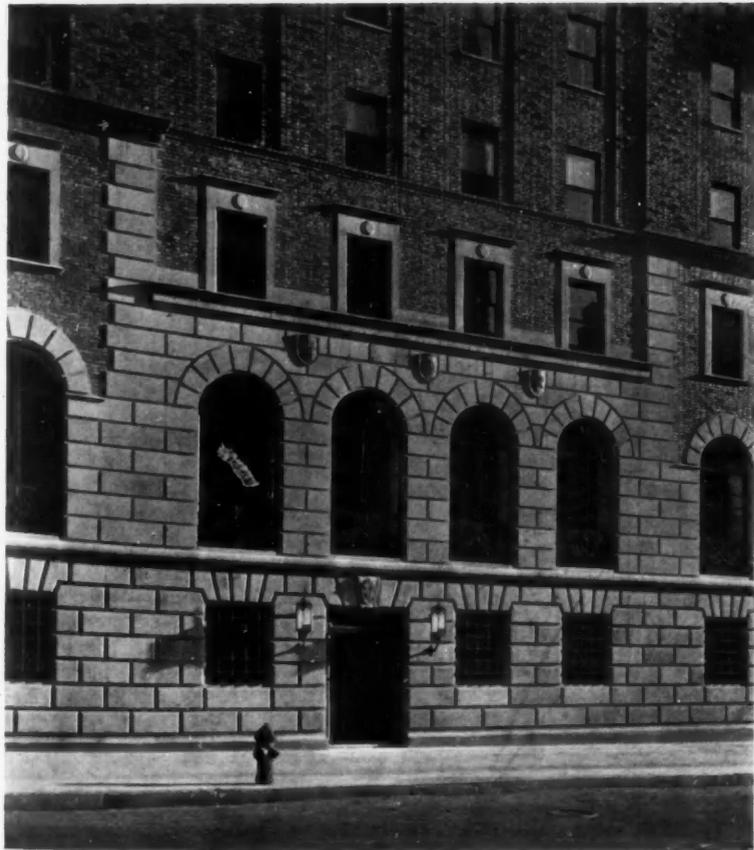
Lower Half of the Madison Avenue Facade

tile, the whole design crowned and dominated by a rectangular penthouse, splendidly proportioned and well disguised by a heavy cornice, tile roof and massive balanced chimnies. No towering, turreted castle of the Arabian Nights, no picturesque hilltop castle of Maxfield Parrish's fertile fancy could be more delightful than this well ordered massing of temples, towers and turrets, which crowns and distinguishes the Fraternity Clubs Building.

Among the many details which give distinction and expression to the architecture of this building is the triple entrance door on 38th Street, with open arcaded loggia above, which shows a quiet dignity and refined restraint, characteristic of early examples of the Florentine style. Wrought iron lanterns and window grilles lend interest to the rusticated facades of the two lower floors. On the sixth floor the center windows of the corner bays have been emphasized by arched openings and carved stone balconies to relieve the monotony of the rising tiers of windows and flat wall surfaces. These balconies, reminiscent of Flor-



Interesting Skyline from Madison Avenue

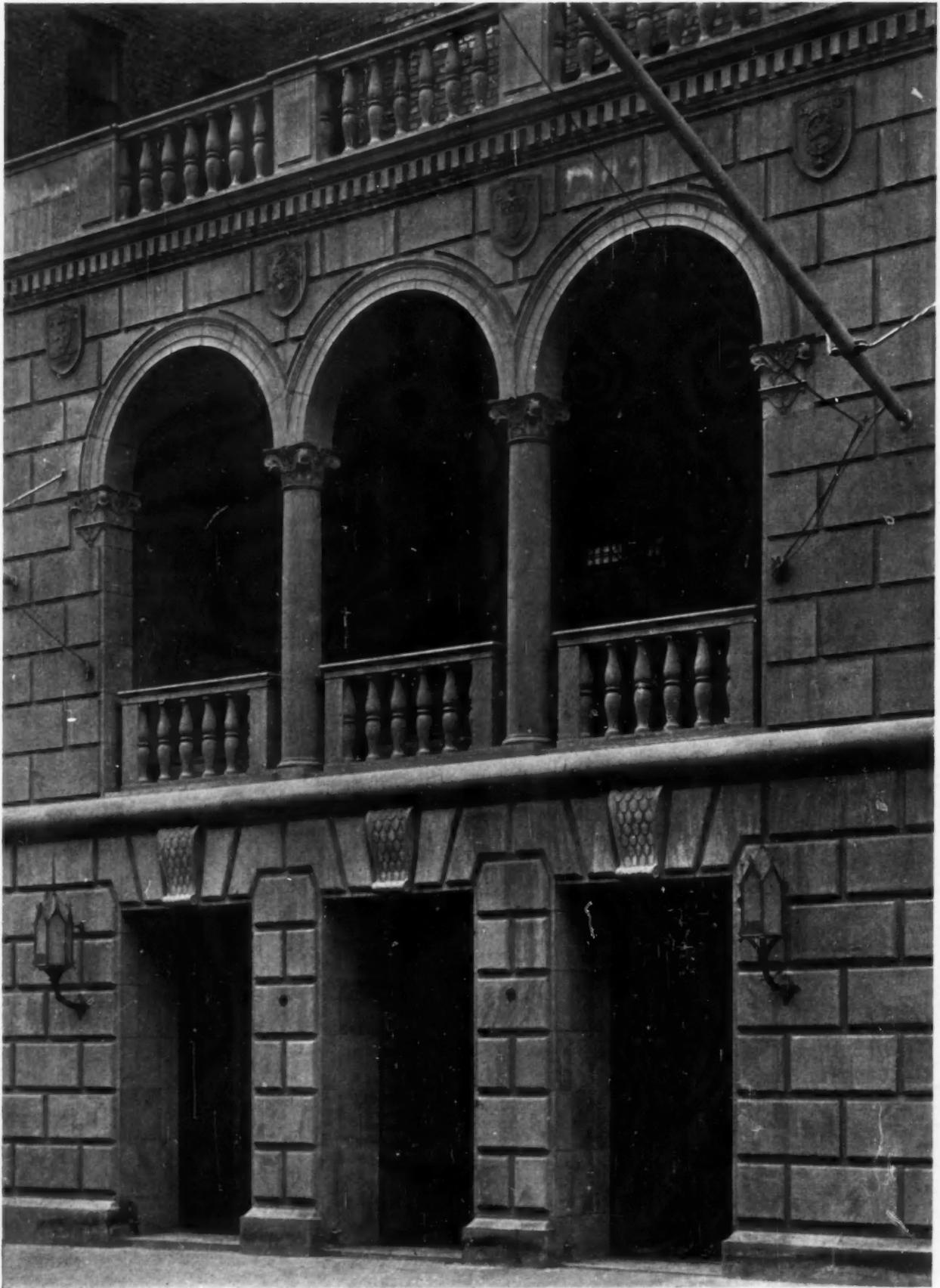


Entrance to Cornell Club on Madison Avenue

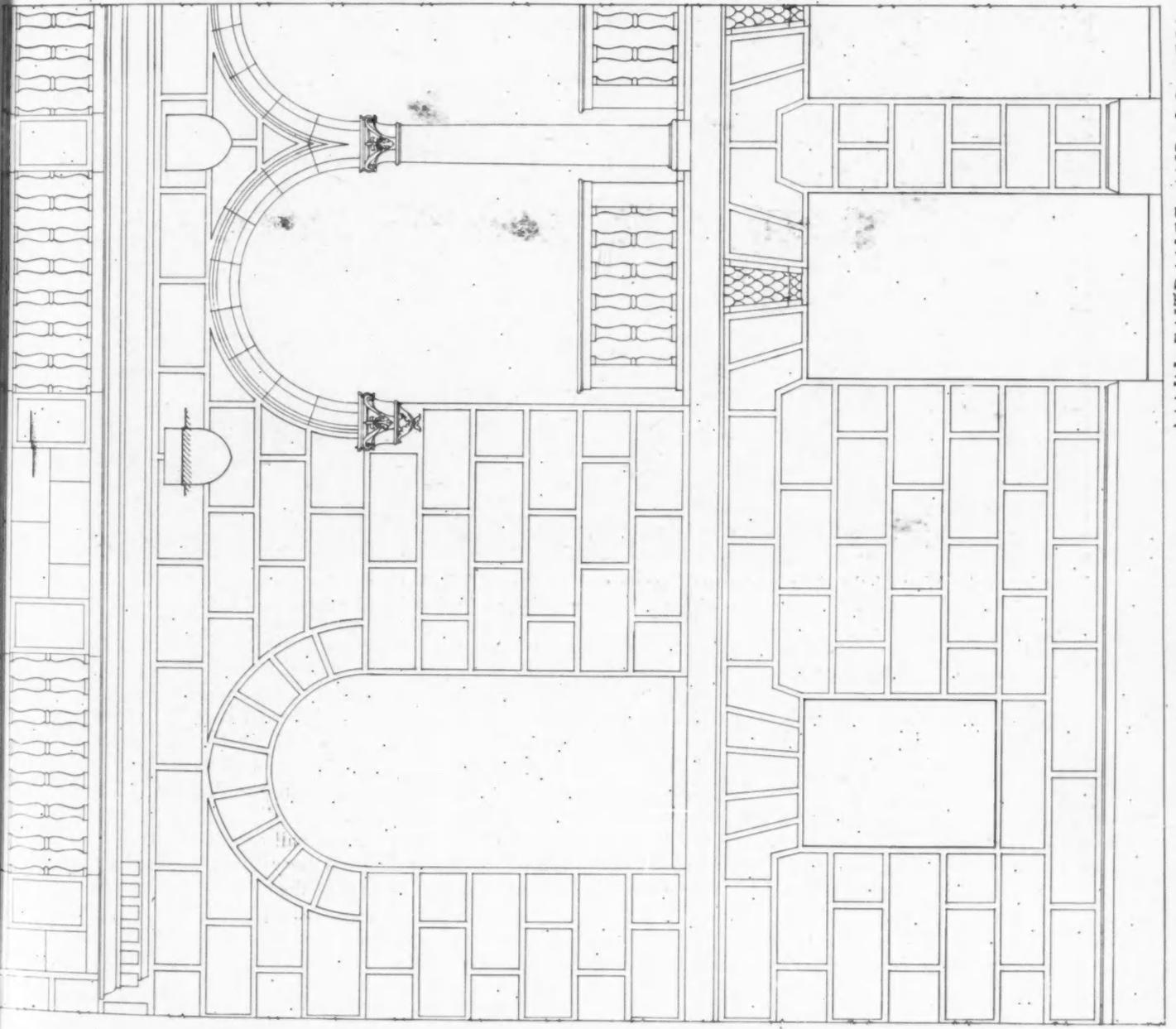
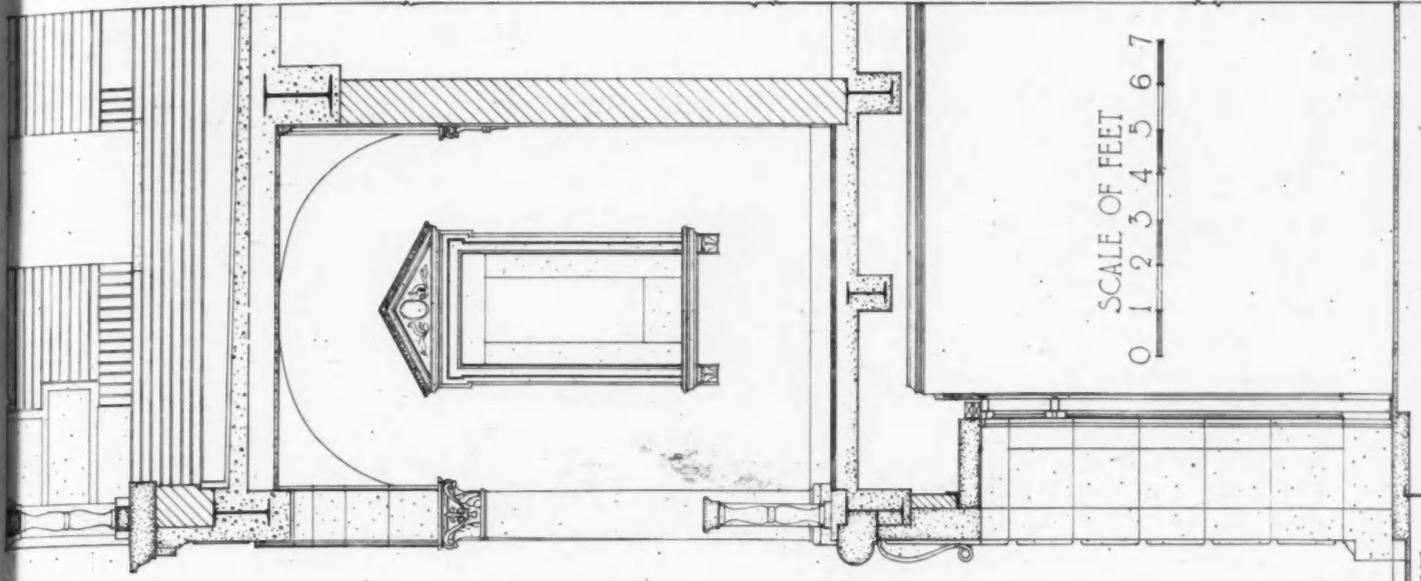
ence, cast pleasant shadows on the red brick walls and give spots of interest on the two principal facades.

Terra cotta has been used in the loggias and arcades which top the center mass of the building, for the caps of the octagonal brick columns, and for the pierced lattice-patterned balustrades between them. In the north or roof garden a marble pebble cement has been effectively used for the floor pavement, while the vaulted ceiling has two-colored marble chips applied to the colored stucco. The arches of these arcades are outlined with raised brick, as are the circular panels occurring at the top of each of the small square corner turrets which terminate the arcades. The penthouse forms a finial to the entire composition, the walls of which show small arched windows, used singly, coupled or tripled on each of the four facades. Delicate colonnettes are used in the double and triple windows, between which a vigorous diaper pattern in raised brick adds textural interest to the walls of this well disguised penthouse.

A harmony of color characterizes the exterior of the Fraternity Clubs



DETAIL OF MAIN ENTRANCE SHOWING ITALIAN LOGGIA ON SECOND FLOOR
THE FRATERNITY CLUBS BUILDING, NEW YORK
MURGATROYD & OGDEN, ARCHITECTS



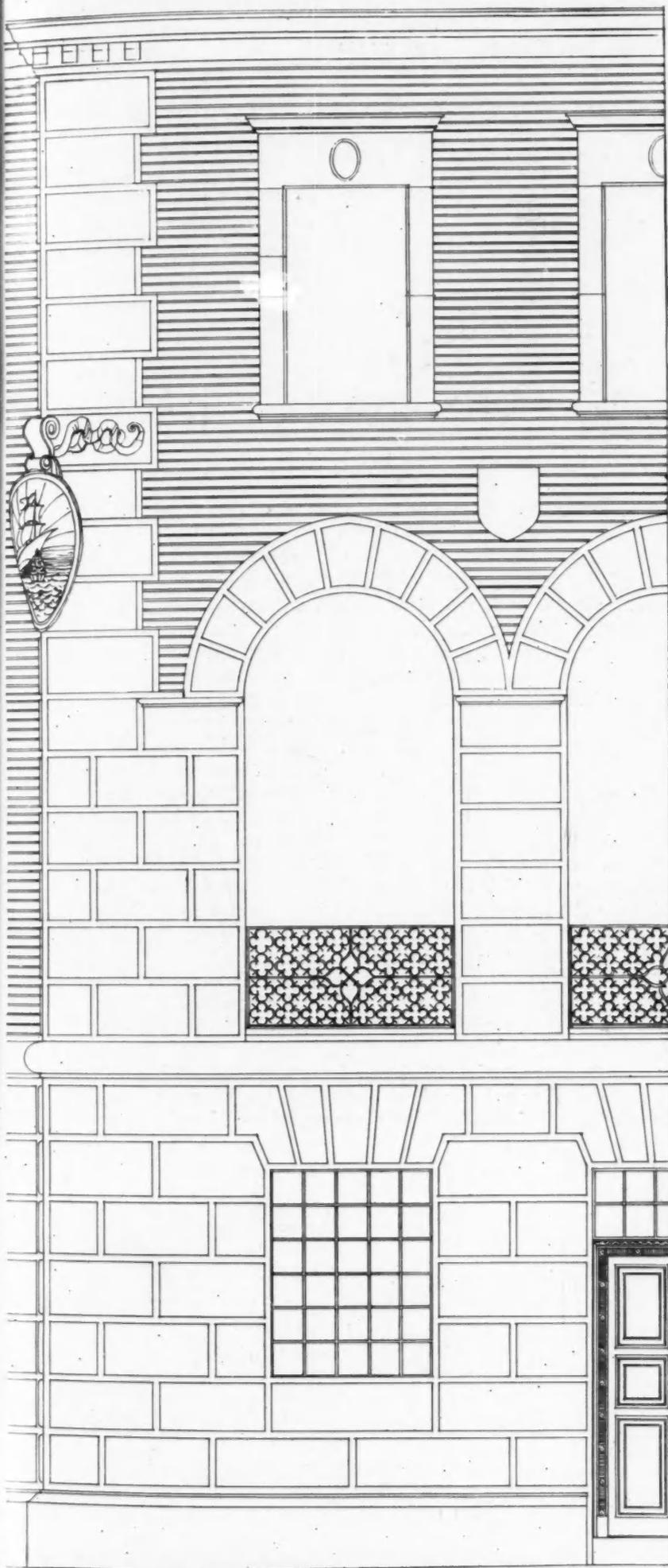
MAIN ENTRANCE AND LOGGIA ON 38ST.



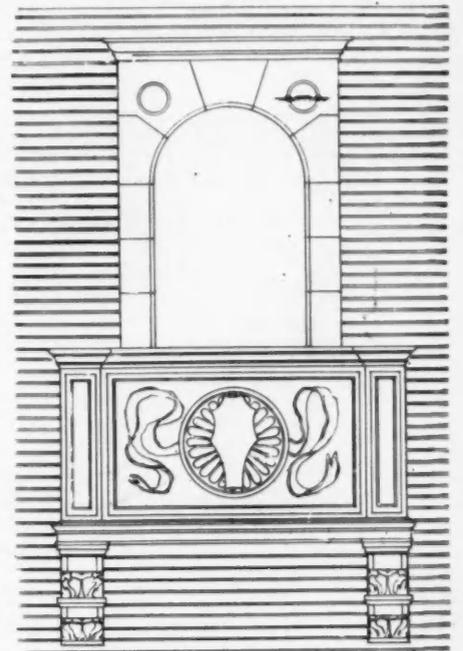
View From the West of the Arcade, Corner Towers and Penthouse Which Crown the Fraternity Clubs Building. Showing Interesting Texture of Wall Surface Produced by Random Projection of Bricks

Building, from the warm reddish brownstone of the lower stories up through the tall walls of brownish red brick with trimmings in red terra cotta, to the red tile roofs of the crowning towers and pavilions. The interior shows a further consistent use of the Florentine Renaissance style, not only in the architectural details, but also in the furnishings and mural decorations. Through a spacious vestibule on 38th Street the vaulted foyer and the stairhall are entered, in which the walls are paneled in travertine with marble pilasters and base, the vaulting decorated with fraternity emblems in low relief and richly colored designs in Pompeian red and blue, the floors paved with red and brown tile and covered

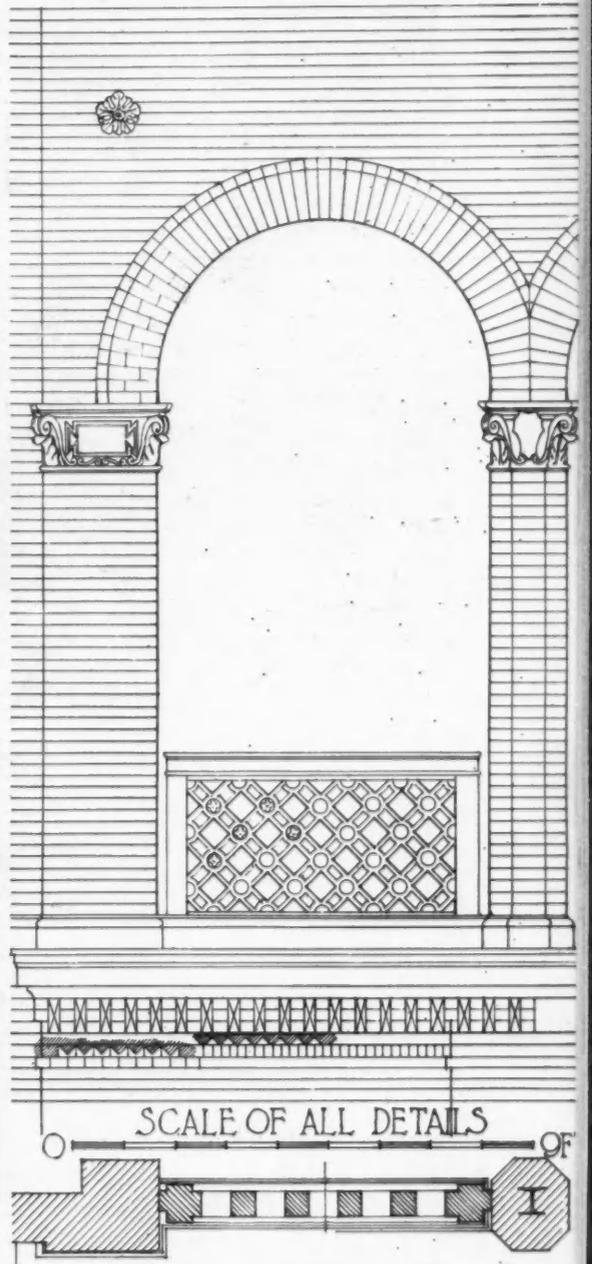
with large rugs in Italian designs and coloring, giving to this entrance lobby and lounge the key to the interior decorative treatment. A straight hall leads from the street door to a formal marble staircase, which has a wrought iron and gilt bronze handrail. At right angles to this entrance hall is the lobby or lounge, with the manager's office at the east end and the entrance to the private dining and reception rooms at the west. In a small arcade at the left of the entrance is a haberdashery shop, balanced by a cigar and candy counter at the right. The reception and private dining rooms are paneled and painted, one in a dull antique green, and the other in old ivory. Doors, trim and furniture are in American



DETAIL FROM MADISON AVENUE FACADE



DET FROM 5TH FLOOR BALCONY



DET. FROM ROOF GARDEN LOGGIA

SCALE OF ALL DETAILS





Arcade Shop in the Entrance Lobby



Low Vaulted Oyster Bar in Basement

walnut of a rich brown tone. Dark tile floor and sub-bases give a rich contrast in these rooms. The larger reception room has wall and overdoor panels decorated with borders and flower garlands in colors, suggestive of French inspiration. The furniture is upholstered in tapestry and velvet in dark tones of blue, brown and green. The large private dining room at the corner has wainscot and woodwork in antique ivory; wall panels are filled with English chintz in blue, ivory and mulberry.

Two large main dining rooms complete the principal rooms on the entrance floor. That on Madison Avenue is particularly rich in effect, as the walls have high paneled wainscoting in dark walnut, against which seats upholstered in black leather have been built. The ceiling is elaborately decorated in color after the Italian manner, the walnut beams showing conventional designs in red, yellow and green on their soffits. Ornamental consoles support the beams, between which pattern in color relieves the panels of the ceiling. The high leaded glass windows are hung with curtains of heavy linen, old English in design, showing blue and brown on a buff ground. Cloisonne terrazzo paneled in three colors is used for the floors. Perhaps the most striking feature of this room is the furniture. The low arm chairs are painted Pompeian red with black leather seats, and the tables are of walnut with black painted tops. The dining room at the southeast corner of the entrance floor is lighter in color treatment. The rough plaster walls, which are painted a deep buff, have a chair-rail decorated with running patterns in orange and black. The ceiling consoles and beams are richly finished in antique gilt, with designs in color on the soffits of the beams, and the plaster panels of the ceiling are painted a rich Italian blue. A massive fireplace with decorated plaster hood is the chief architectural feature of this room. Flower brackets and ventilation grilles finished in antique gilt and color make spots of interesting decoration on the walls. The cloisonne terrazzo used in alternating black and buff squares makes the floor of this room as rich and deep in tone as the ceiling.

The chairs and tables are made of dark brown walnut.

The stairway of the entrance hall leads up to a formal corridor with a lofty, heavily paneled ceiling supported by sturdy fluted columns and pilasters in a well studied adaptation of the Greek style. The walls are painted rich green above a buff wainscot. Greek patterns in color ornament the capitals of the columns, the wainscot rail and ceiling line. Columns, pilasters and ceiling panels are painted light yellow, contrasting pleasantly with the green walls and the deep toned rugs which cover the cloisonne terrazzo floor. Stiff arm chairs in the Italian style and green bronze electric torches further emphasize the Greek treatment of this hall, upon which open eight of the Greek letter fraternity club rooms.

All of these club rooms are furnished and decorated in the Italian style, some more elaborately than others, as on the second floor where the high beamed ceilings are painted to imitate walnut and decorated in color. Warm rich colors of buff, gray and yellow are used for the rough plaster walls in the various club rooms. The low beamed ceilings of the various rooms on the third floor are all painted in light tones to increase the effect of height. Cement of a rich, warm brown, marked off in squares, is used for the floors. The furnishings of all the club rooms show a successful combination of comfortable, modern, upholstered arm chairs and sofas with chairs of English and Italian styles, together with massive walnut tables for lamps and magazines, floor lamps, small chairs and sofa tables and walnut bookcases with shelves and cupboards. Heavy rugs in large Italian patterns, showing blue, red and buff, cover the floors.

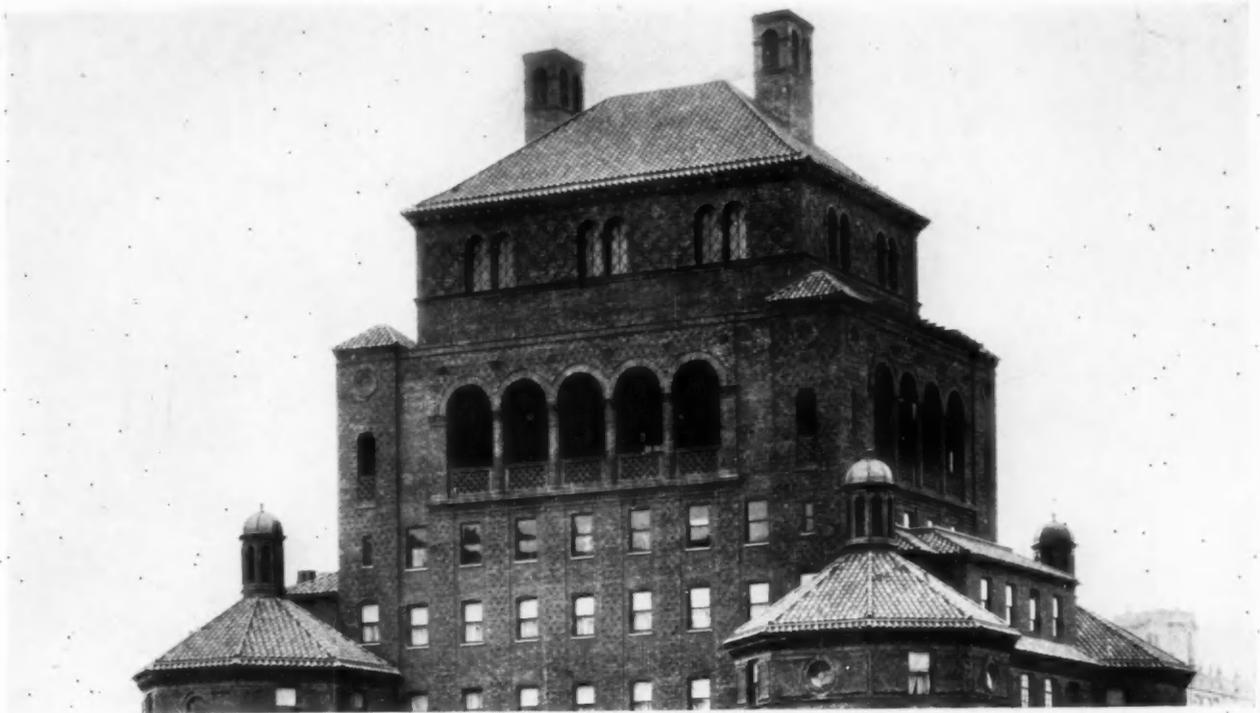
The enclosed loggia on the 16th floor, which is called the solarium, has plaster walls and vaulted ceiling, with the arch openings, windows and cornice line marked by red brick trim. Wicker and bamboo chairs and tables, iron flower stands, floor lamps and wrought iron chandeliers, together with the striped material of the window draperies, give a comfortable and congenial atmosphere to this high sun parlor, serviceable both summer and winter.



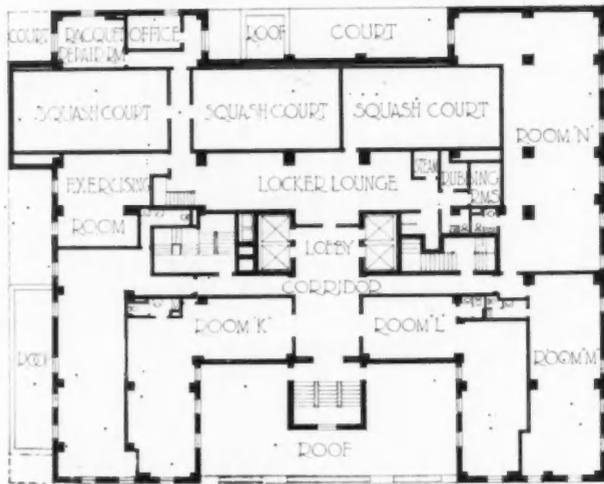
✓ THE FRATERNITY CLUBS BUILDING, NEW YORK
MURGATROYD & OGDEN, ARCHITECTS

Photos. John Wallace Gillies

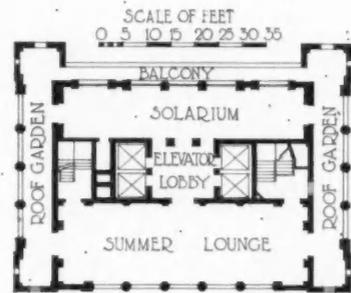
Architectural



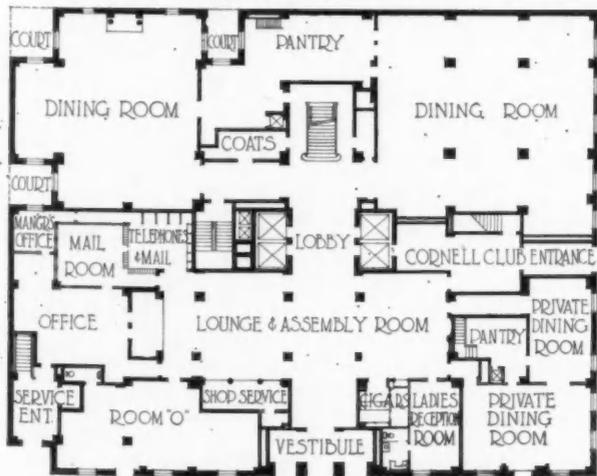
CROWNING CORNER TOWERS AND CENTER PAVILION WITH LOGGIAS



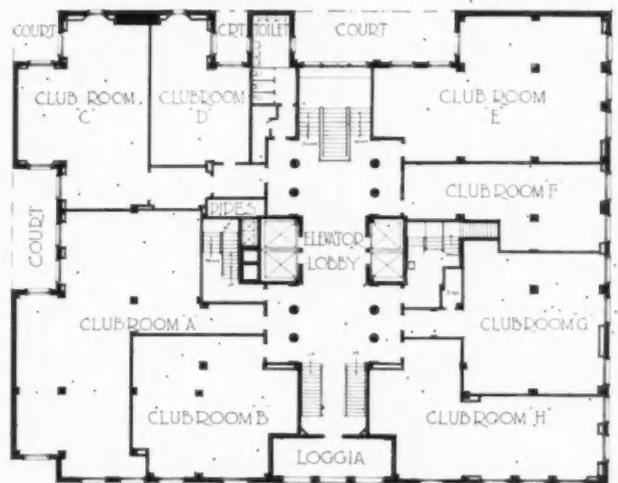
SECOND FLOOR PLAN



SIXTEENTH FLOOR PLAN



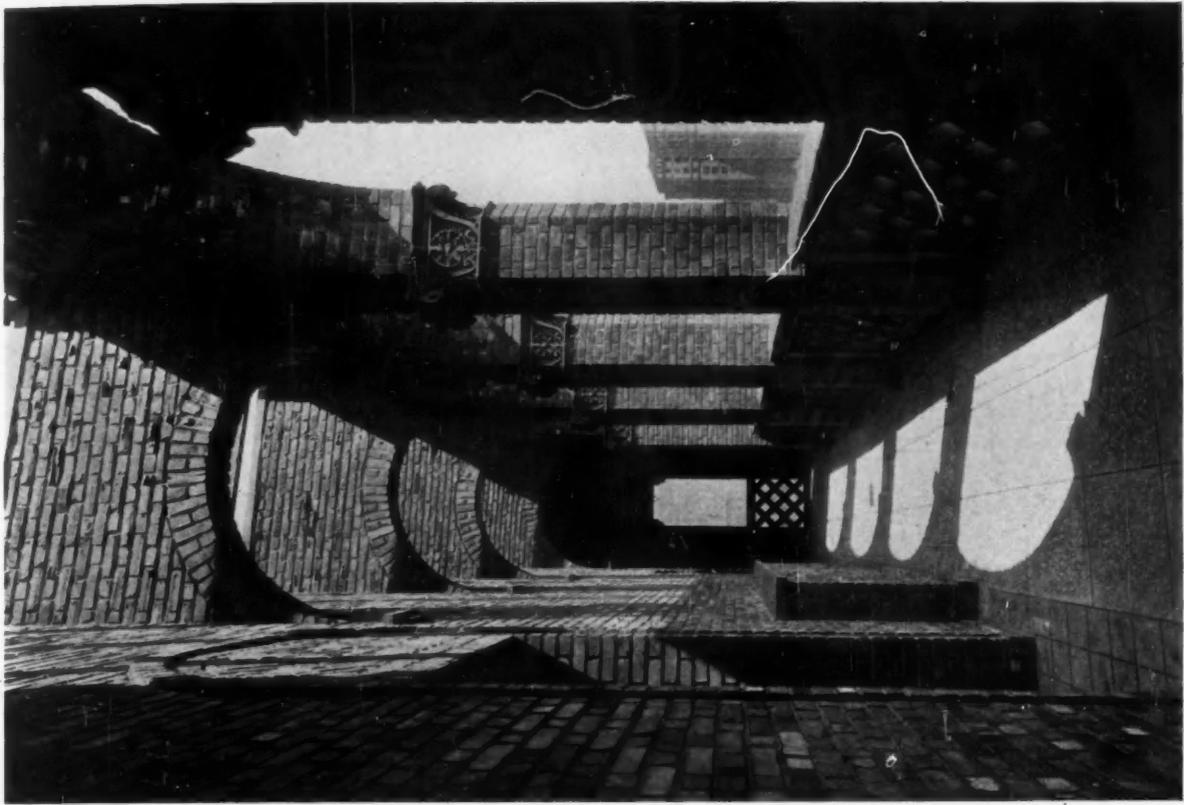
ENTRANCE FLOOR PLAN



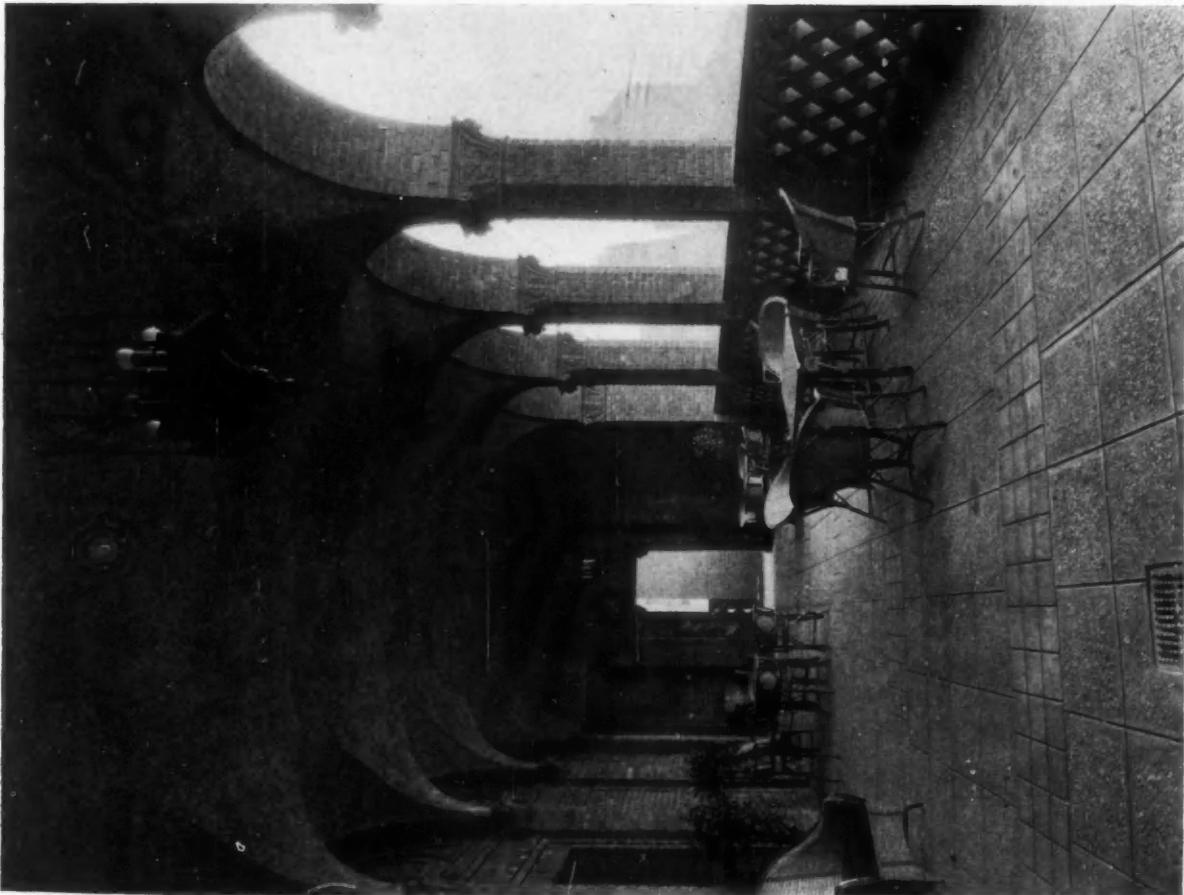
FIRST FLOOR PLAN

THE FRATERNITY CLUBS BUILDING, NEW YORK
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ROOF GARDEN ARCADE



SUMMER LOUNGE

THE FRATERNITY CLUBS BUILDING, NEW YORK
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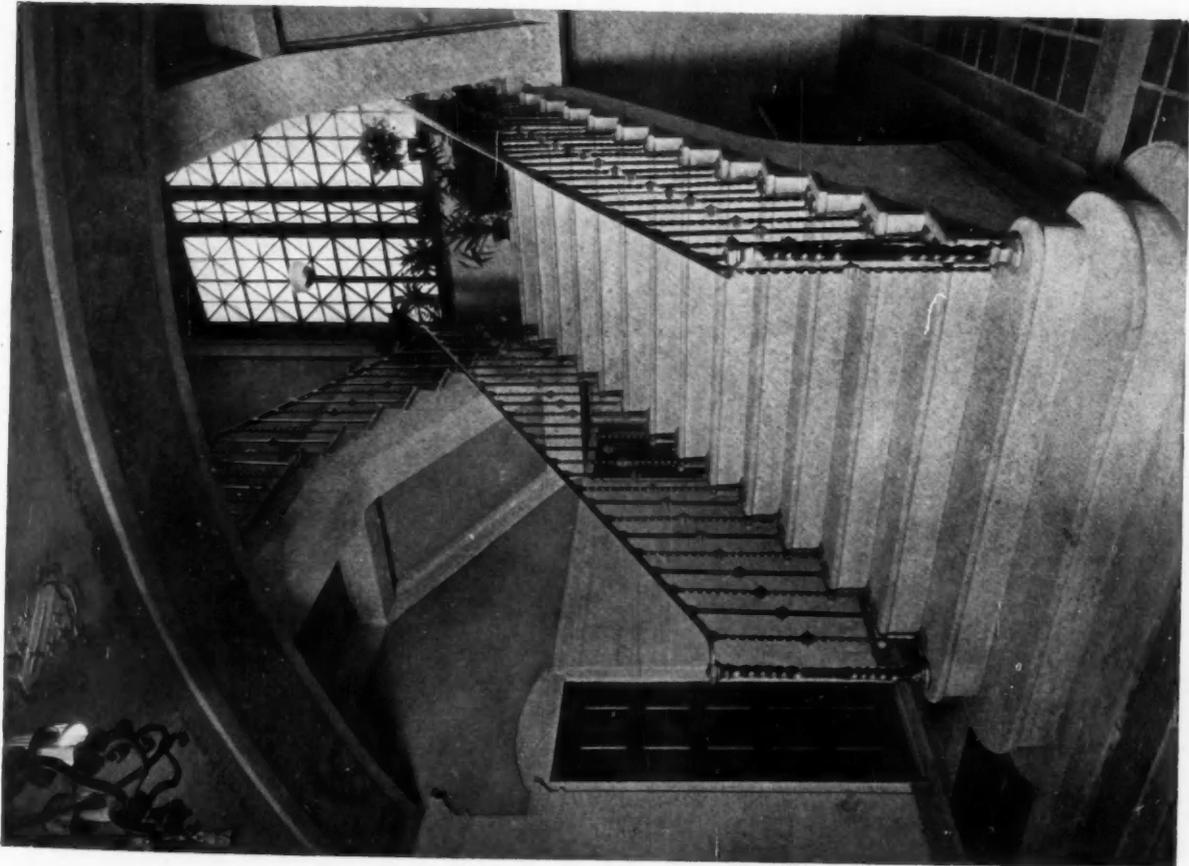
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ENTRANCE LOBBY

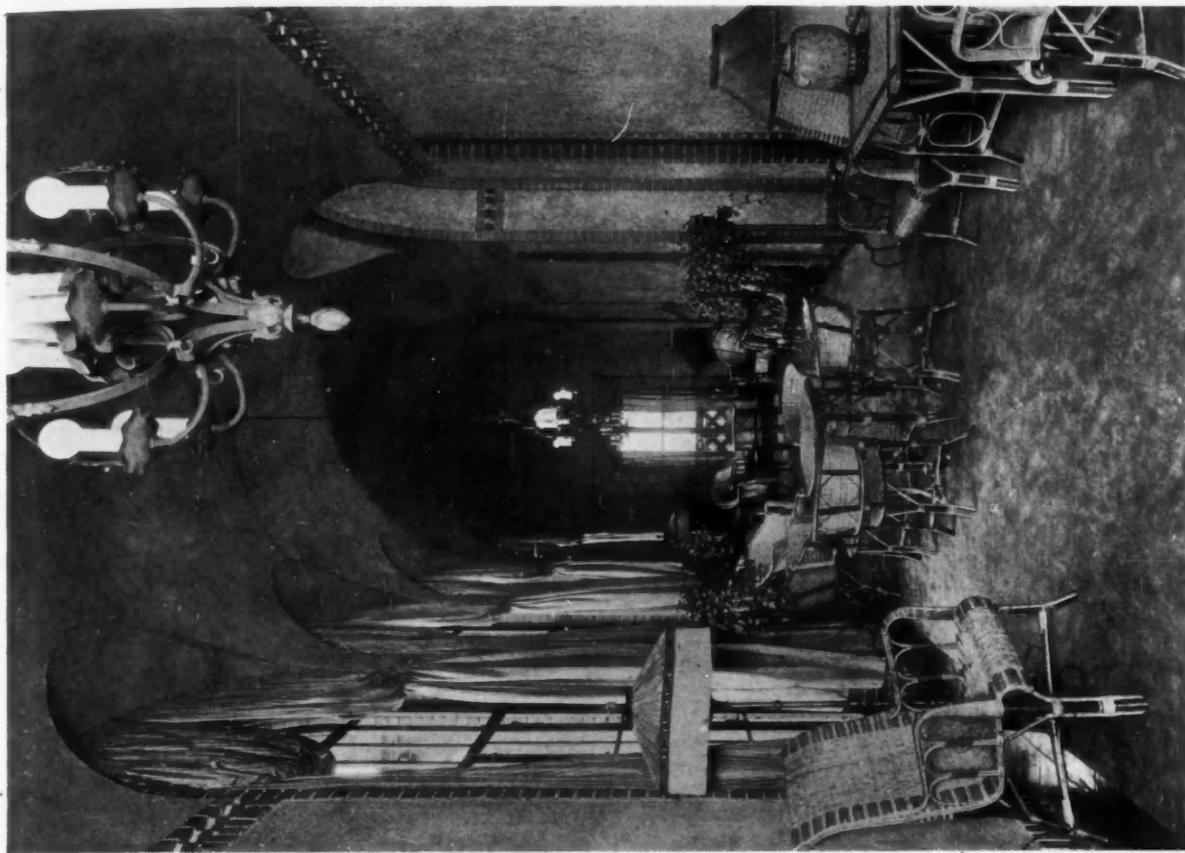
THE FRATERNITY CLUBS BUILDING, NEW YORK
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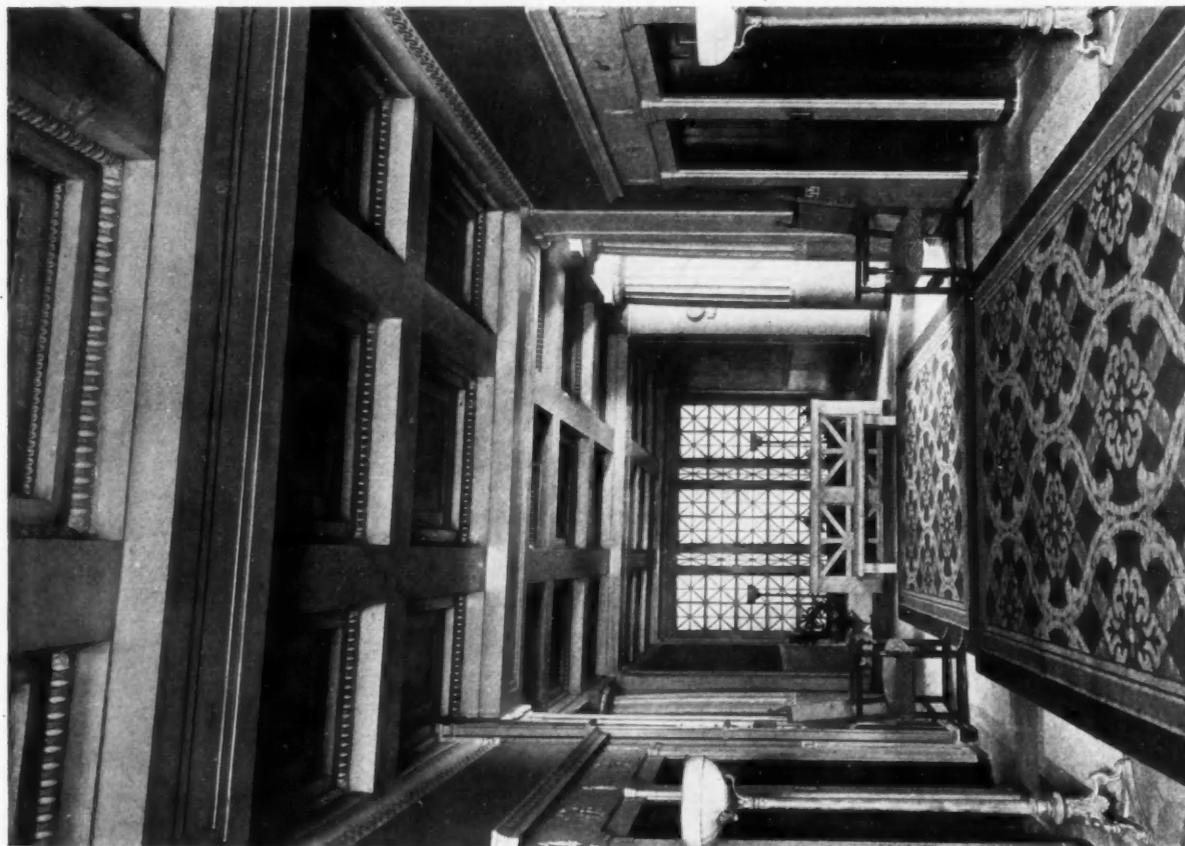
MAIN STAIRCASE

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SOLARIUM



ELEVATOR LOBBY, FIRST FLOOR

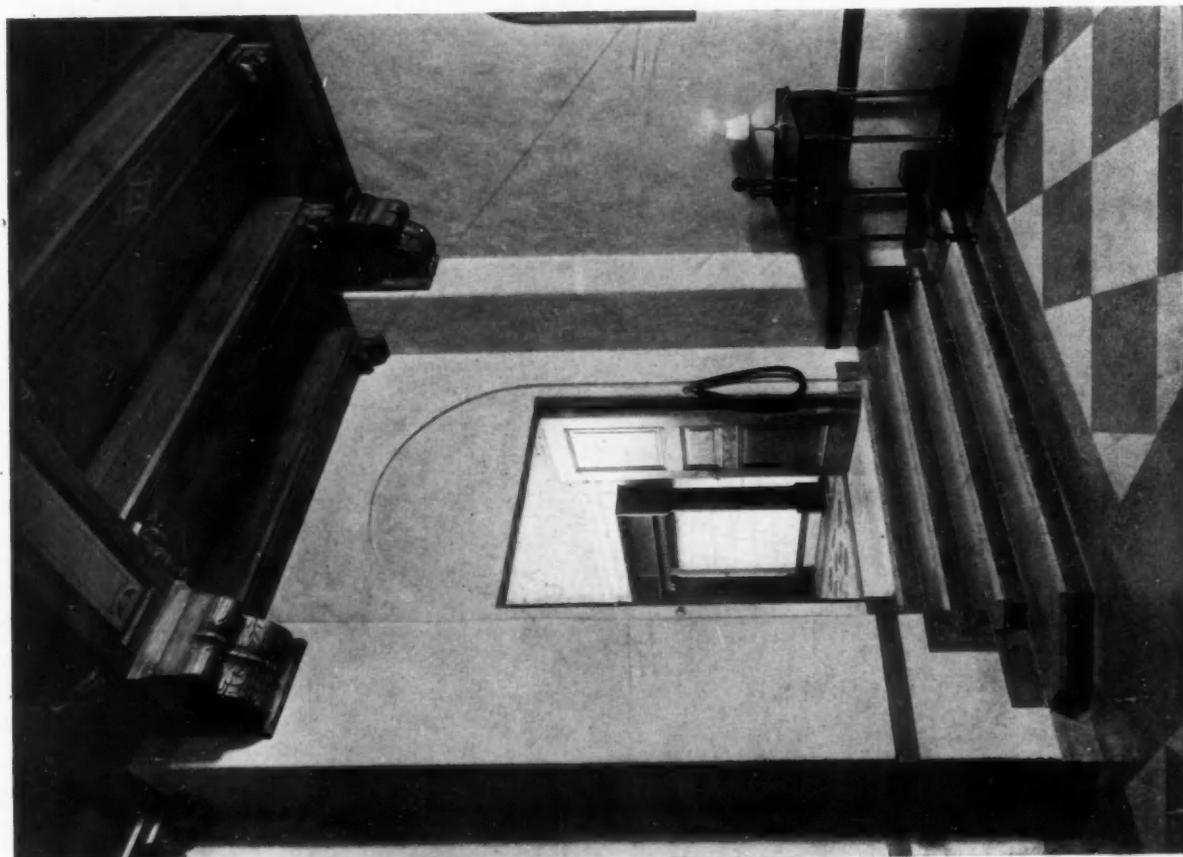
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FIREPLACE IN SOUTHEAST DINING ROOM
THE FRATERNITY CLUBS BUILDING, NEW YORK
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ENTRANCE TO SOUTHEAST DINING ROOM

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ONE OF THE FIRST-FLOOR CLUB ROOMS

THE FRATERNITY CLUBS BUILDING, NEW YORK
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A FRATERNITY CLUB LIVING ROOM

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SOUTHEAST DINING ROOM



SOUTHWEST DINING ROOM

THE FRATERNITY CLUBS BUILDING, NEW YORK
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BUSINESS & FINANCE

C. Stanley Taylor, *Editor*

The Architect and the Law

By LESLIE CHILDS

Change in Personnel of Firm of Architects as Rendering Firm's Contracts Unenforceable

THE question of the legal effect of a change in the personnel of a firm of architects on the firm's contracts is one of considerable importance to architects in general. This point was passed upon in an interesting and instructive manner in the recent Kansas case of *Smith et al., vs. Board of Education of City of Liberty*, 222 Pac. 101, and in view of its facts and holding it becomes a decision well worth a brief review.

In this case, Smith, Beattie & Company, a firm of architects composed of two members, T. C. Smith and R. O. Beattie, entered into a contract with the Board of Education of the City of Liberty whereby they were to prepare plans and superintend the erection of a high school building. The building as contemplated was to cost \$175,000, and by the terms of the contract Smith, Beattie & Company were to receive a sum equal to 4 per cent of the cost of the work for their services.

After entering into this contract some time elapsed before the necessary sale of bonds for the building could be arranged, and in the meantime the firm of Smith, Beattie & Company was dissolved. By this change Beattie retired and Smith succeeded to all the rights and interests of the firm. Following this Smith took in a new partner, Harold T. English, and the firm took the name of Smith & English.

Under these circumstances the Board of Education declined to have any dealings with Smith & English as architects, and employed another firm to serve it. Thereafter Smith & English brought action against the Board of Education on the contract, which raised the question of whether or not Smith & English as successors to Smith, Beattie & Company were entitled to enforce the contracts entered into by the latter. Upon the trial of the cause a judgment was rendered in favor of the Board of Education. From this judgment an appeal was prosecuted to the Supreme Court of Kansas, where in passing upon the question in issue it was, among other things, said: "The propriety of the judgment, of the trial court, depends chiefly on whether the contract was for the personal services of the partners composing the firm of Smith, Beattie & Company. The business of an architect has the dignity of a learned profession. A competent architect is a person of peculiar skill and taste. He

must be a man of culture, of disciplined mind, artistic eye, and trained hand; he must be able to visualize the possibilities of beauty and harmony in proportionate arrangement and understand construction in brick, stone, cement and steel; and he must have the art and deftness to set down his ideas with such precision in specifications and drawings that contractors and workmen can readily follow them with fidelity. * * * All these qualifications of a personal nature are involved in any prudent contract for the service of an architect. And so it seems that when the school board employed Smith and Beattie they contracted for the special knowledge, skill, and taste, the professional pride of achievement, the wisdom of the counsel, and the personal probity of both Smith and Beattie. * * * It must therefore be held that the defendant, the Board of Education, was not liable to plaintiffs, Smith & English, for the amount specified in the contract between Smith, Beattie & Company and the defendant. * * *"

In conclusion; the Supreme Court, after passing upon other matters not material to the subject of this article, concluded by affirming the judgment rendered in the lower court in favor of the Board of Education, holding, as outlined in the opinion, that owing to the personal nature of a contract for an architect's services the succeeding firm of Smith & English was not entitled to enforce the contract entered into by its predecessor, Smith, Beattie & Company, with the Board of Education; in other words, holding the contract to be non-assignable without the consent of the Board of Education.

This Kansas decision is obviously one of force and value on the point decided, and its holding is unquestionably in accord with the weight of authority. For, generally speaking, all contracts of this character, which involves special skill, talent, sagacity or personal confidence, are non-assignable without the consent of the other party thereto.

In the light of the facts and holding of the case reviewed, a change in the personnel of a firm of architects might have a far-reaching effect upon the contracts of such firm. In fact, in the absence of some provision in such contracts making them assignable, a change in the personnel of the firm would, in accordance with the rule of the Kansas court, render them unenforceable at the instance of the succeeding firm of architects. Truly this Kansas decision covers a point of great importance, and its

holding is well worth the having in mind by any firm of architects when a change in its personnel is contemplated.

Architect's Right to Mechanic's Lien Upon Premises for Drawing Plans and Specifications

The right of an architect to a mechanic's lien for services in drawing the plans and specifications of a proposed building has been passed upon in several instances. The majority of the cases dealing with the subject, however, have involved not only the drawing of the plans and specifications but the work of supervision as well, and while the decisions in these latter cases are not entirely in accord, the weight of authority appears to hold that the architect is entitled to a mechanic's lien.

But in cases where the architect has sought a mechanic's lien for services in drawing plans alone, where he exercised no supervision afterwards, or where the building planned was abandoned for some reason, there appears to be a sharp difference of opinion. New York seemingly holds that for drawing plans only, the architect is not entitled to a mechanic's lien. Minnesota has declared, in *Lamoreaux vs. Andersch*, 128 Minn. 261, 150 N. W. 908, L. R. A. 1915D, 204, that the architect may have a mechanic's lien for work in drawing the plans and specifications only, and this regardless of whether the work of construction was ever even commenced.

The Minnesota Supreme Court in reaching this ruling has given the mechanic's lien statute of that state a very liberal construction, and because of this, and the conclusion reached, the case is one of considerable importance to architects in general.

The facts in the case were also quite interesting. Lowell A. Lamoreaux *et al*, were architects. They entered into a contract with Louis and Julius Andersch and Charles Andersch for the making of plans, with details and specifications, for a building to be erected on two lots in Minneapolis owned by the Anderschs. Under the terms of the contract the architects were to superintend the erection of the building. The compensation for all the services contemplated was to be, according to the agreement, 4 per cent of the cost of the building. The architects prepared the plans and specifications, and submitted them for bids to contractors. After the bids were received the architects prepared details, and delivered the bids received along with the plans and specifications to the Anderschs. The latter retained the plans and specifications but took no action upon the bids submitted and thereafter abandoned the project of constructing the building altogether. The only work that was done toward the starting of construction consisted in removing an old barn that was on the proposed site. Thereafter the architects filed a mechanic's lien upon the land upon which the building was to have been erected. The defendants, the Anderschs, contested the right of the architects to file such a lien, contending among other things,

that such a lien could not be filed in the absence of some improvement on the ground for the building.

The trial in the lower court resulted in a judgment in favor of the plaintiffs, the architects. The defendants, the Anderschs, prosecuted an appeal to the supreme court, and in passing upon the record, it was said among other things:

"Architects are entitled to liens for services in preparing plans and superintending construction where there is an actual improvement to which their work contributes. * * * It has been held that an architect's services in preparing plans only are not lienable, but we confess our inability to see why plans and specifications do not as much contribute to the construction of a building as does the supervision by the architect, and well considered cases so hold. * * * We think the plaintiffs, the architects, would have been entitled to a lien if their plans had been used in the construction of a building on the premises. Is this right to a lien lost when the owner, through no fault of the architect, does not use the plans or make the contemplated improvement? Liberal construction of the lien statute is the settled policy in this state, but the right to a lien in any case is still wholly dependent upon the language of the statute. * * * The answer to the question, therefore, depends upon the words of the statute, liberally construed to further the object of its enactment. Gen. Stat. 1913, Section 7020, * * * provides in substance that 'whoever contributes to the improvement of real estate by performing labor, or furnishing skill for the erection of a building thereon, shall have a lien upon such improvement, and upon the land upon which it is situated, for the price or value of such contribution.'"

The court next entered into a critical review of other sections of the Minnesota lien statute, and a discussion of the meaning to be placed on them, as well as upon the part already quoted. Then turning to the case under consideration it continued: "It must be conceded that the lien statute, if construed literally, does not expressly give a lien when no improvement is begun on the ground. Can we, by liberality of construction, nevertheless say that a lien may attach under such circumstances?"

The court then reviewed the Minnesota authorities bearing on the mechanic's lien statute in a thorough manner. Particular stress was laid on the fact that in some of these cases it had been held that a material man was entitled to a mechanic's lien, for material furnished the contractor, even though the material had never been delivered on the premises, this where the material had been delivered to the contractor in good faith, and under the belief that it was to go into the construction of the building. Then addressing itself to the case in hand, and reasoning from previous constructions placed on the lien law in the cases reviewed, the court continued: "We place our decision on the language of the lien statute of this state, as it has been construed in the cases referred to, and hold that there may be a lien

without an actual 'improvement,' and that we can fairly say that plaintiffs, the architects, 'constructively' contributed to an improvement of defendants' land in this case. * * * We, therefore, hold that plaintiffs had a right of lien on the land of defendants. * * *

As said in the beginning, the decisions relative to when an architect is entitled to a mechanic's lien are not in accord. One reason for this conflict no doubt lies in the fact that the decisions have been based on lien statutes of different states, in the wording of which there is a lack of uniformity, and, considering this condition, a lack of harmony in the decisions construing them is not surprising.

The weight of authority holds that the architect is entitled to a lien where there is an improvement made and he both prepares the plans and supervises the construction. But, as has been seen, this Minnesota case goes much farther than this in holding that the architect for preparing the plans may have a lien upon the ground, notwithstanding there was no improvement on the land.

Substantial Performance of Contract as Excuse for Failure to Obtain Certificate of Architect

The question of whether a substantial performance of a building contract will excuse a failure to obtain a certificate from the architect, has been before the courts upon many occasions. The authorities are not entirely in accord on the point, but the great weight of opinion holds that such performance will not, in itself, excuse the non-production of a certificate; and that, to have this effect, it must be reinforced by proof that the certificate was wrongfully withheld.

An interesting case illustrating the application of the general rule was that of *Bush vs. Jones*, 144 Fed. 942, 6 L. R. A. (N. S.) 774. While this case is not the latest on the subject, it is selected because of the facts involved and the lucid language of the court. The facts in the case, insofar as material to this discussion, are thus:

A contract was entered into for the construction of a building. The contract provided, among other things, that the work should be paid for "only upon the certificate of the architect," and it seems that after the contractors claimed the work was completed the architect refused to give the certificate, on the grounds that the work was done in a defective manner. A dispute resulted which culminated in the contractors filing suit for their final payment, amounting as they claimed to \$3,065, and a bill of some \$40 extra. The case was tried before a jury, and considerable evidence relative to the quality of the work was introduced by both sides, the contractors contending that they had substantially performed the contract, and that upon proof of this they were entitled to recover without the production of the architect's certificate. The other side contended that the work was improperly done, and further that the contractors could not recover be-

cause they had failed to obtain the architect's certificate of satisfactory completion of the work.

The trial court left the question of whether or not there had been a substantial performance of the contract to the jury, but reserved the question relative to the importance to be attached to the architect's certificate, thus permitting the jury to return a verdict in favor of the contractors for \$2,500, without the production of a certificate, or in any way considering what would be sufficient to excuse it. From the judgment so rendered the property owners prosecuted an appeal to the Circuit Court of Appeals. The latter court in passing upon the record, and in particular on the action of the trial court in excusing the production of the architect's certificate, as a matter of law, among other things said: "The law upon the subject of architects' certificates is well settled. It is perfectly legitimate to provide in a building or working contract that payment of the several installments of the contract price shall be made only upon certificates or estimates by the architect or engineer in charge as to the extent and value of the work done and materials furnished, and that final payment shall not be demandable without a certificate of completion. These are familiar provisions, universally recognized, and will be enforced. * * * Equally well recognized, however, is it that the production of such a certificate as a condition precedent to a recovery is not necessary where it is capriciously or arbitrarily withheld. But where this is alleged it is incumbent on the contractor, in order to bring himself within the exception, if he does not produce a certificate, to show why he cannot; and until he successfully does so he has not made out a case. * * *

The court next reviewed a great number of authorities in which this rule had been adhered to, and referred to others in which the rule appeared to have been relaxed. Then, addressing itself to the case under consideration, continued:

"The conclusion to which this discussion leads is clear. Completion to the satisfaction and according to the trained professional judgment of the architect, who drew the plans and specifications, and is able to speak from a direct supervision over and inspection of the work as it progresses, and completion according to the opinion of the jury, under the imperfect conditions of a trial and the inability to produce things as they actually are, are two different and distinct propositions; and the owner, who has stipulated for the one, is not to be put off with the other, where everything is honestly and fairly done. Whether this is true, or whether the architect, in withholding his approval acts capriciously or fraudulently, where there is evidence to sustain this charge, has necessarily to be submitted to the jury, and proof of a substantial compliance with the contract entered into this as an essential step. But to hold that, upon such proof, without more, the necessity for the production of a certificate is dispensed with, or is to be regarded as unreasonably

withheld, and that, not as a fact, with others, for the consideration of the jury, but as a matter of law for the court, not only loses sight of the distinction which we have referred to, but makes the provision with regard to the architect's certificate useless and meaningless, for it puts a contract where it appears on a level with one where it does not; the contractor in the former being permitted to recover upon showing that he has substantially complied with it, and in the latter being required to prove no less. The jury in the present instance should, therefore, have been instructed that the production of a certificate was essential to a recovery, and that the want of it could not be dispensed with, unless it was established to their satisfaction that it had been unreasonably withheld. * * *

The court thereupon reversed the judgment rendered in the lower court in favor of the contractors for the error of the trial court in permitting the jury to pass upon the case without consideration of whether or not the certificate of the architect had been rightfully withheld.

As already said, this case is in accord with the great weight of authority on the question, and enunciation is made in an admirable manner of the general rule, this rule, broadly speaking, holding, that in contracts requiring the production of an architect's certificate before payment, the contractor cannot compel payment in the absence of the certificate by merely showing a substantial performance of the contract.

Liability of Architect for Damage Caused by Defects in Plans and Specifications

Generally speaking, an architect is required to exercise reasonable skill, taste, diligence and care in the preparation of plans and specifications, and if he fails to do this either through incompetency, lack of care or negligence, he may render himself liable in damages for any resulting loss. Of course each case of this kind must necessarily be decided in the light of all its facts and circumstances, which precludes the statement of a hard and fast rule that would apply in all situations. However, as an illustration of what may constitute a cause of action against an architect in a case of this kind, Bayshore Development Company vs. Bonfoey *et al.*, a Florida decision reported in 78 So. 889, is well worth a brief review on account of its bearing upon many other similar cases.

In this case the Bayshore Development Company employed the defendants, who were architects, to prepare plans and specifications for the erection of two residence buildings. The contract also provided that the defendants should supervise the construction of the buildings contemplated. Pursuant to this contract the architects took charge and the buildings were completed, but the Bayshore Development Company was dissatisfied with the way the work was done. The company contended that the archi-

itects had not only failed in the matter of proper supervision of the work, but that the plans and specifications had been defectively drawn, which resulted in such grave defects in the buildings as to render them uninhabitable.

A dispute followed which culminated in the action by the Bayshore Development Company against the architects for damages. Upon the trial of the case the court directed a verdict in favor of the architects. From judgment on this, the Bayshore Development Company prosecuted an appeal to the Florida Supreme Court where, in stating the general rule, relative to the duties and responsibilities of an architect, the court quoted from *Coombs vs. Beede*, 89 Me. 187, in part: "The responsibility resting on an architect is essentially the same as that which rests upon the lawyer to his client, or upon the physician to his patient. * * * The undertaking of an architect implies that he possesses skill and ability, including taste sufficient to enable him to perform the required services at least ordinarily and reasonably well, and that he will exercise and apply in the given case his skill and ability, his judgment and taste, reasonably and without neglect. But the undertaking does not imply or warrant a satisfactory result. It will be enough that any failure shall not be by the fault of the architect."

Following the foregoing statement of the general rule, the court directed its attention to the question of whether or not the pleadings and evidence in the instant case justified the submission of the controversy to the jury. In this connection it was, among other things, said: "The first count particularizes wherein the defendants, the architects, failed to use ordinary skill and care in the preparation of the plans and specifications. It is alleged that they were faulty in design, defective, insufficient, and unsuitable for the purposes for which they were intended; that the stucco work was defective and faulty on account of materials called for in its composition and the manner of construction. * * * We have examined the evidence in the case, and find that, although there is no proof as to the defective composition of the 'stucco,' there was evidence sufficient to go to the jury as to whether the method provided by the specifications for applying it to the buildings was such as to show the proper care and skill which should have been exercised by the architect. The evidence upon this subject was conflicting, it is true, but it was in the province of the jury, and not in that of the court, to determine the facts. * * *"

In conclusion the Florida Supreme Court reversed the judgment rendered by the lower court in favor of the architects, holding, as outlined in the opinion, that whether or not the alleged faulty construction was caused by defective plans and specifications was on the evidence and pleadings a jury question, and that the trial court erred in directing a verdict for the architects.

The Federal Building, Honolulu

YORK & SAWYER, ARCHITECTS

AS a result of a competition held in 1909, the designing of the Federal Building at Honolulu, containing the Post Office, Customs and Court Houses, offices of the Internal Revenue Department and quarters of the Weather Bureau and various Government officials, was awarded by the Treasury Department to York & Sawyer.

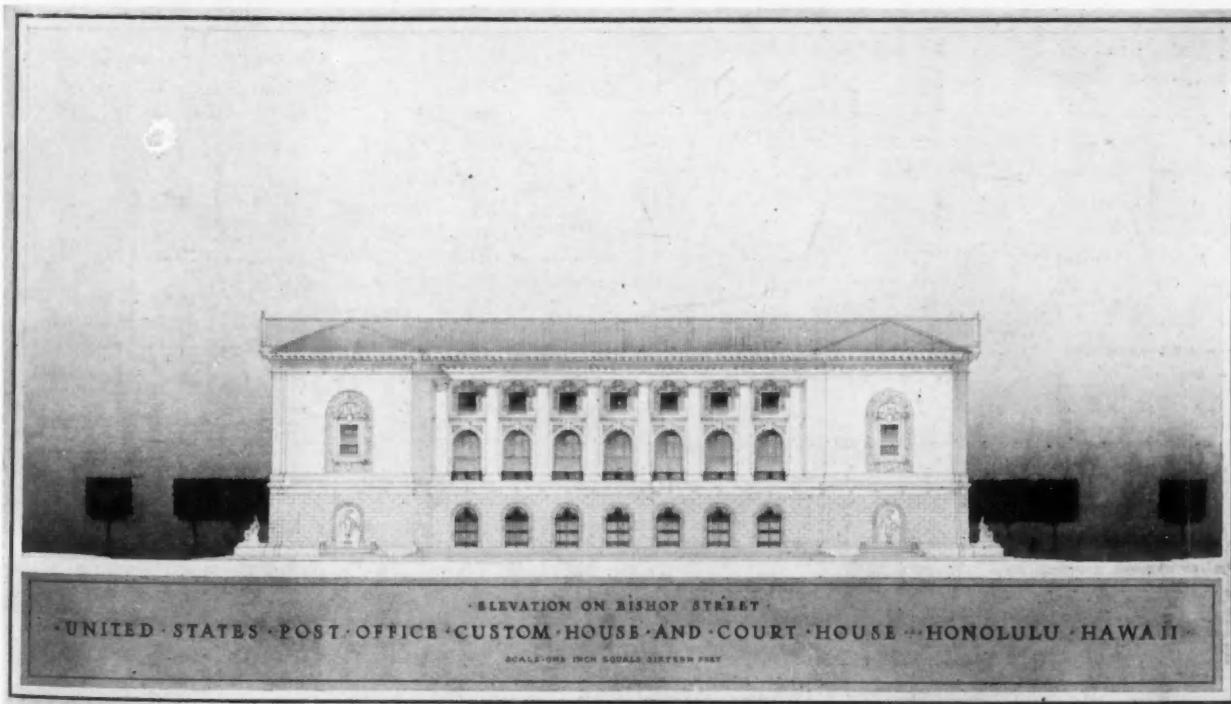
Mr. Ayres of that firm went to Honolulu in 1910, spending a month there to study the problem. He had considerable difficulty in convincing the local authorities and the Chamber of Commerce that it was not the architects' fault that the Treasury Department had used its standard competition program which specified a heating plant, and that it hadn't been done with the idea that anyone in the East really supposed that buildings are heated in the Islands! The original competition drawing shows the facade of the elevation on Bishop Street. A study of the conditions showed, however, that this design, with its enclosed court, was not only inadequate to meet the actual space requirements as they developed but that it would have been ill adapted to the weather conditions in the Islands where it is important that a building be kept thin and open, so that all rooms may have the benefit of the trade winds. Some years later, a new site opposite the Palace was obtained by the Government, and the building was replanned as shown in the illustrations and floor plans included here. The latter show particularly well the form of plan which is best adapted to Hawaiian use.

The court rooms occupy the top floor of the main building between the towers, their long sides exposed to the wind on the court front, and the heads of their arched windows being directly open to the air at the back of the building over the low arcade, which gives access to them. This arcade itself opens out onto the gallery shown in the photograph of the rear elevation, so that the crowd of mixed nationalities, waiting to be called on a case, can loaf outdoors.

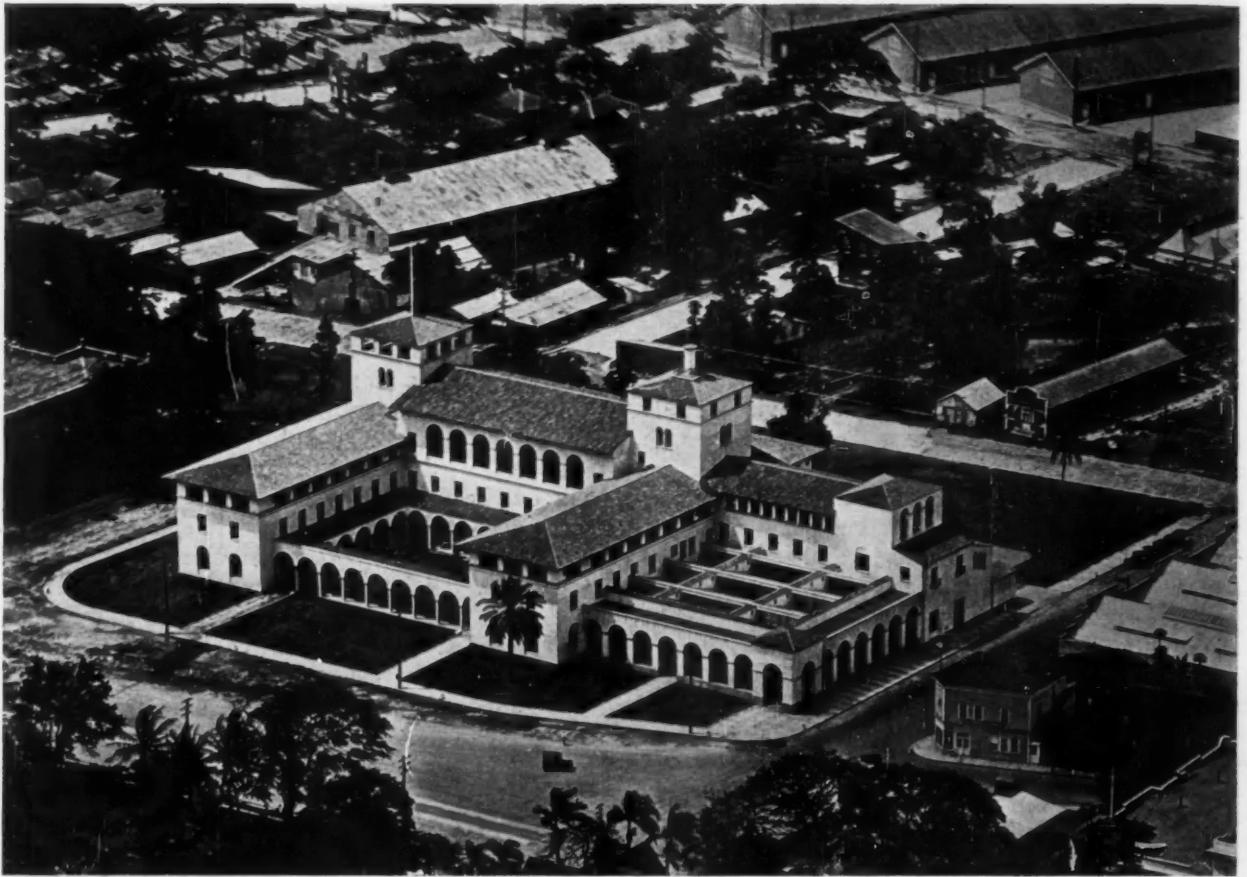
The Post Office is housed in the low quadrangle to the right of the plan, its working space so lighted from overhead as to avoid the direct rays of the almost vertical sun, and its public space being the open arcade on the front and side streets. The Post Office shipping space shows in the rear elevation. The Weather Bureau occupies the tower to the right. Later, Appraisers' Stores will probably be built across the entire rear of the lot.

The building is of steel construction, the walls of terra cotta block covered with white stucco, and the soffit of the heavily projecting cornice and the window frames and seats are decorated in color. The roofs are of irregular Spanish tile.

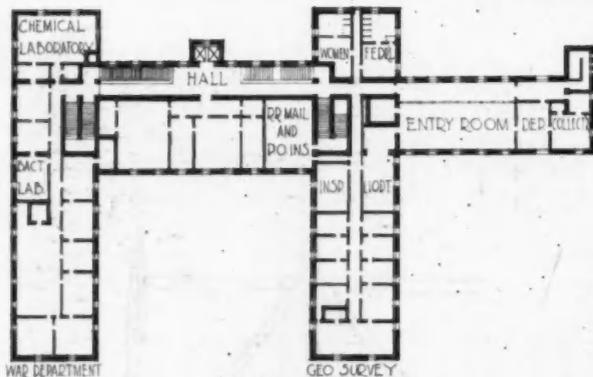
It is to be regretted that the planting, which it so much needs, is still lacking. It is interesting to recall that the other post office which comes to one's mind as making this same provision for the public—a public space in outdoor arcades—is that in Rome, where the court is charmingly planted with semi-tropical trees and shrubbery.



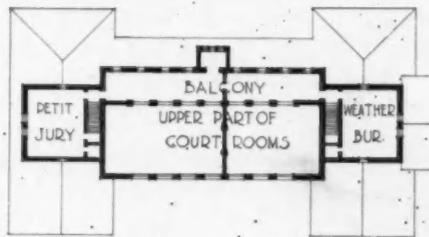
Winning Drawing in Original Federal Building Competition



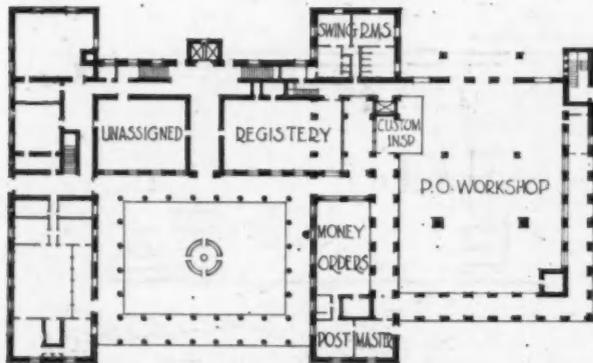
GENERAL VIEW FROM THE AIR



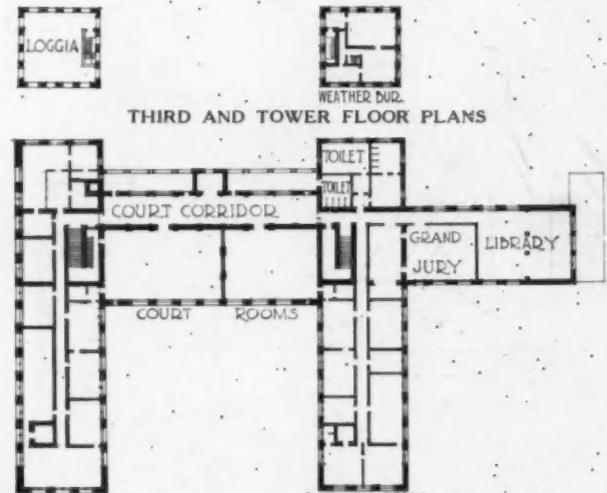
SECOND FLOOR PLAN



THIRD AND TOWER FLOOR PLANS

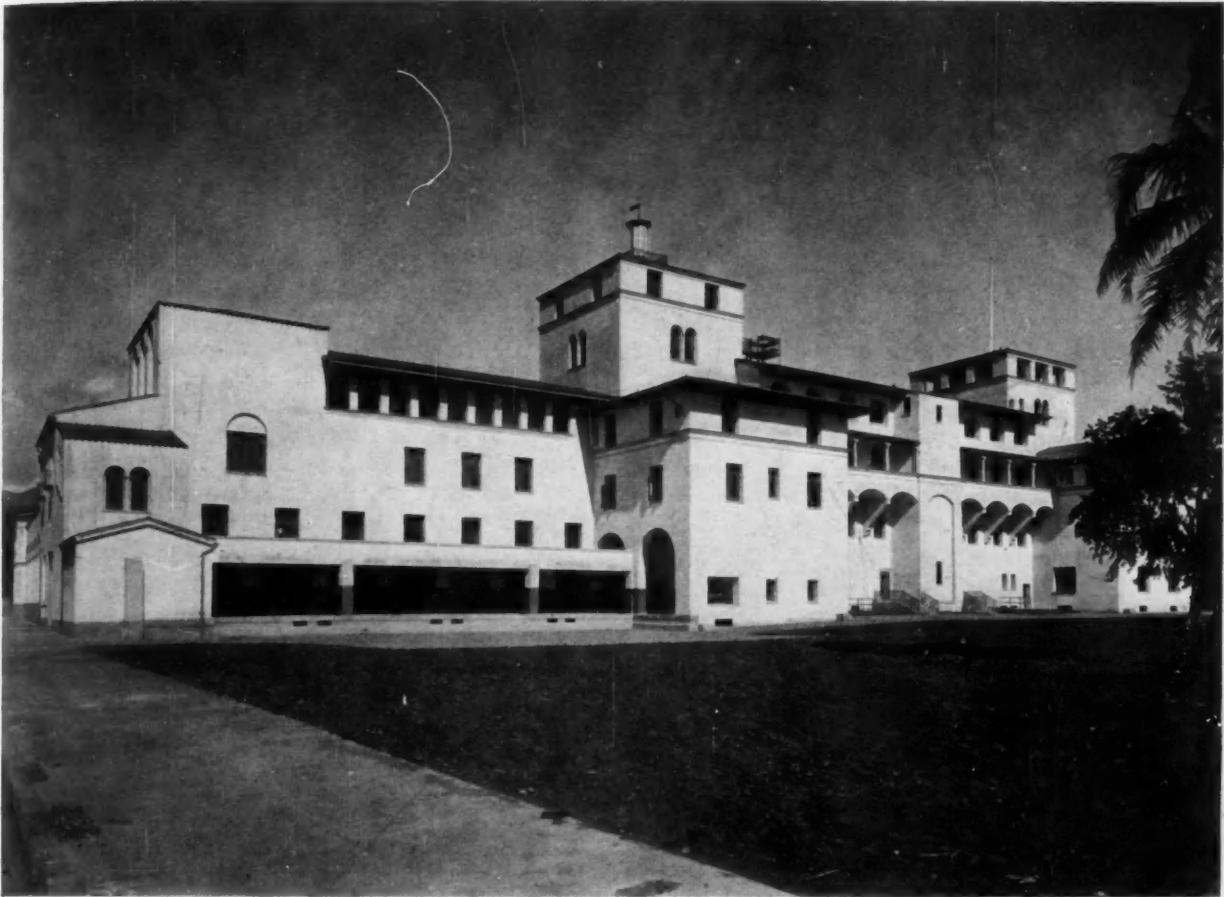


GROUND FLOOR PLAN



FIRST FLOOR PLAN

FEDERAL BUILDING, HONOLULU
YORK & SAWYER, ARCHITECTS



POST OFFICE DEPARTMENT AT LEFT; CUSTOMS AND COURT AT RIGHT

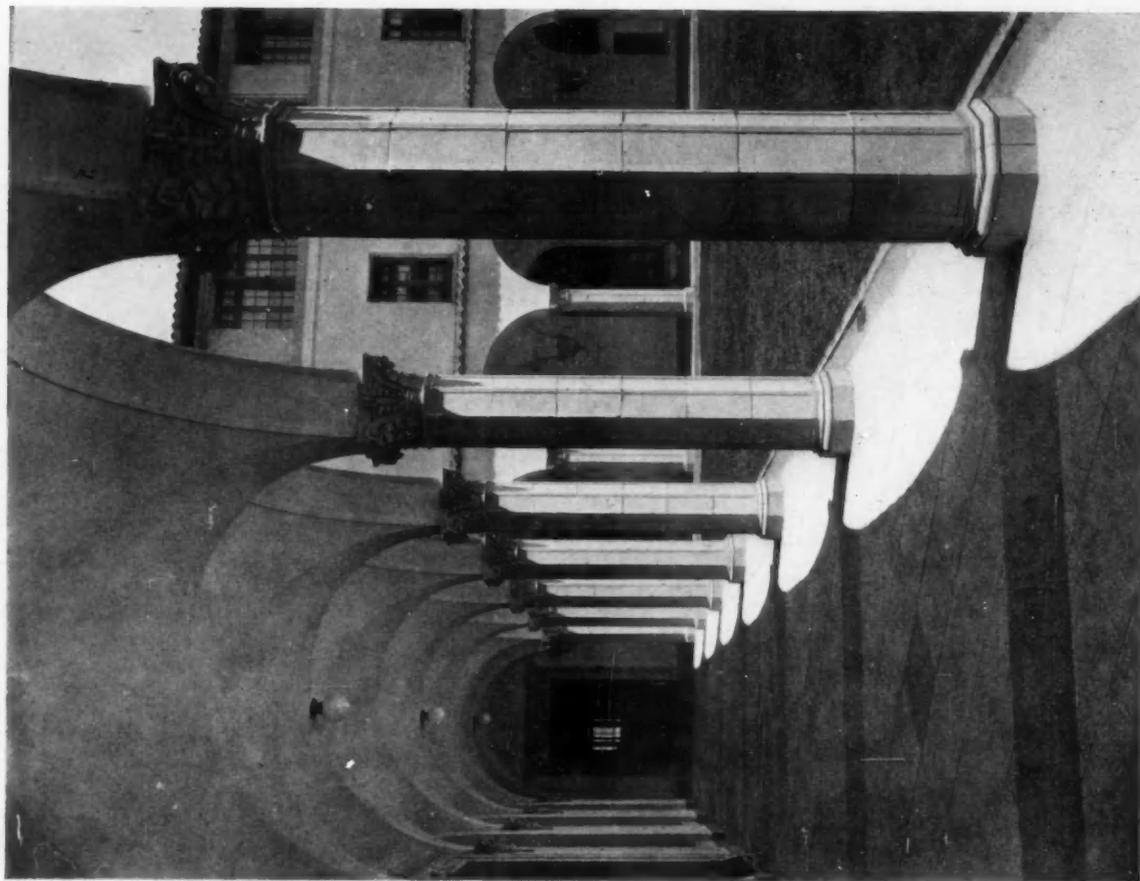


CUPOLA WITH WEATHER BUREAU APPARATUS

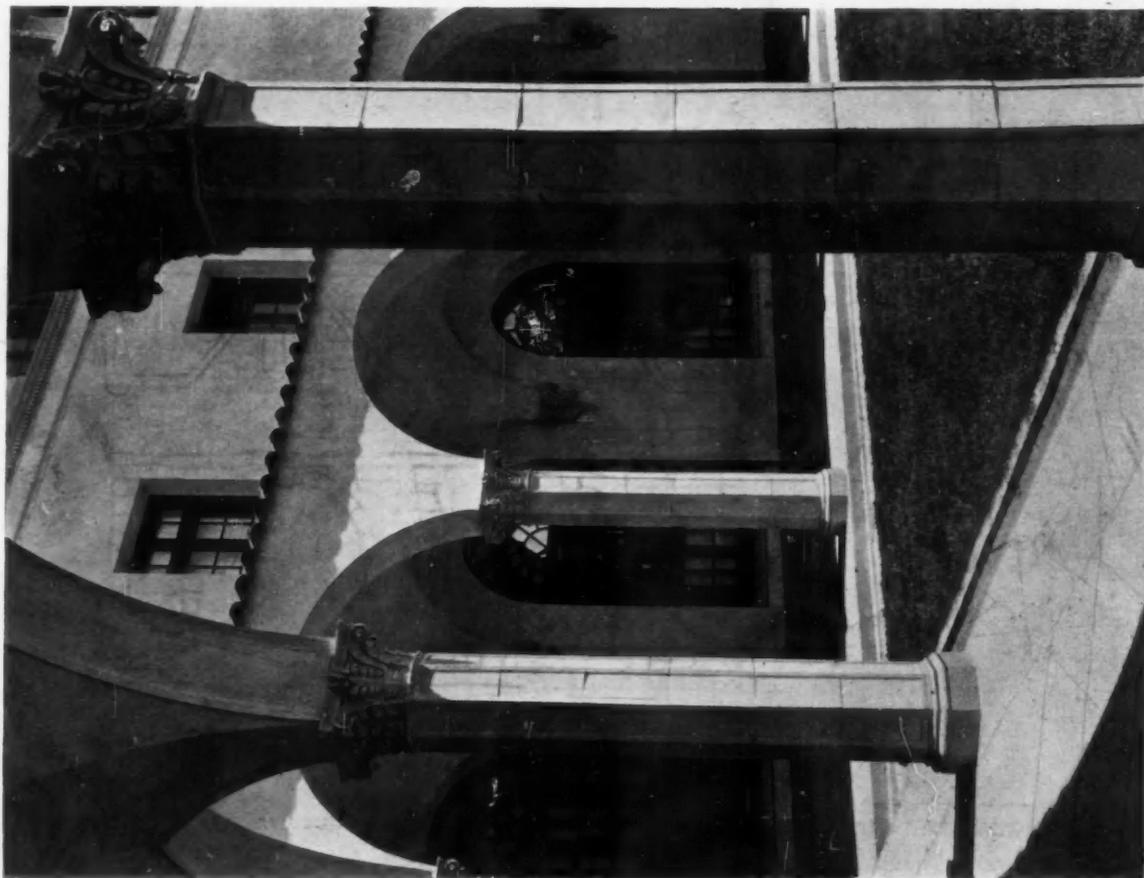


OPEN AIR CORRIDOR OF POST OFFICE

REAR VIEW OF FEDERAL BUILDING, HONOLULU
YORK & SAWYER, ARCHITECTS



LOOKING DOWN COURTYARD ARCADE



A CORNER OF THE COURTYARD

TWO VIEWS OF THE FEDERAL BUILDING, HONOLULU
YORK & SAWYER, ARCHITECTS

✓ The Smaller Civil Architecture of England

THE WOOL MARKET, CHIPPING CAMPDEN, GLOUCESTERSHIRE

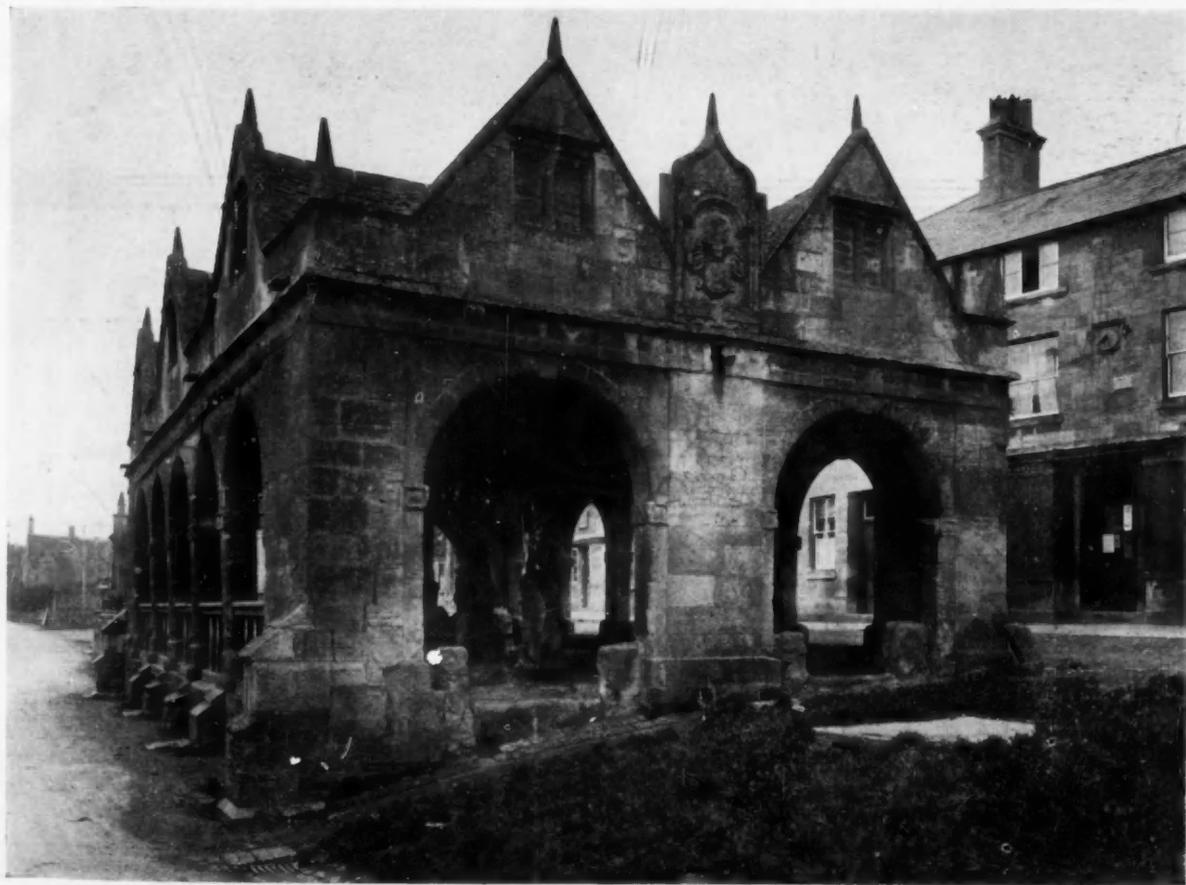
By ROGER WEARNE RAMSDELL and HAROLD DONALDSON EBERLEIN

A TWO-FOLD interest is possessed by the wool market at Chipping Campden, in Gloucestershire. It has a distinct interest, in the first place, as an engaging example of minor civil architecture; in the second, it affords an illuminating instance of a refined and tractable material agreeably employed.

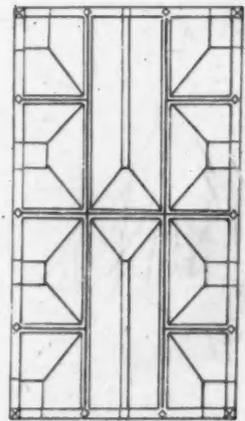
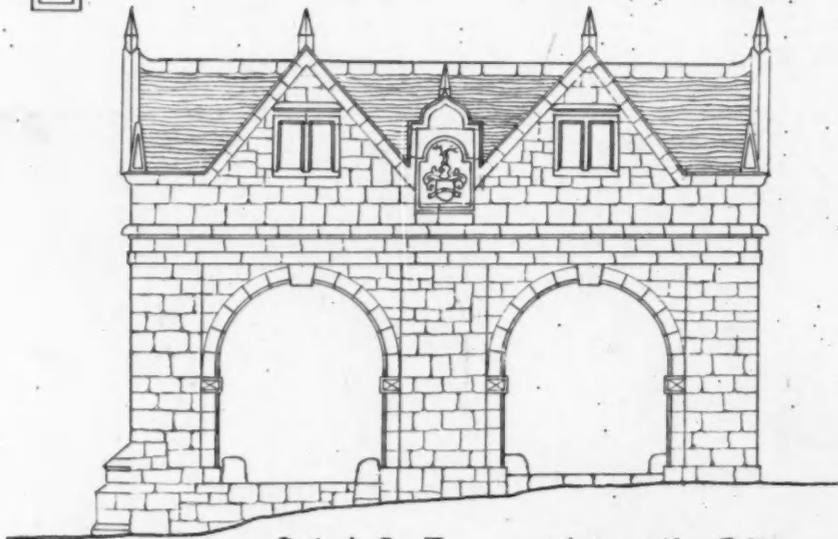
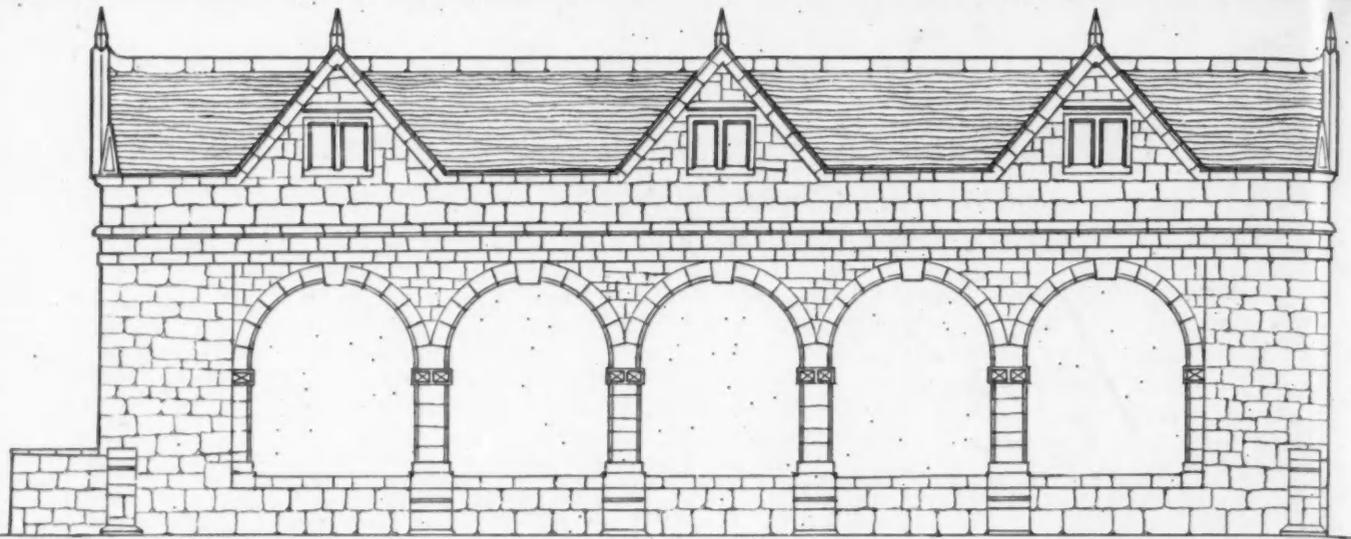
Chipping Campden is a singularly unspoiled town and has been fortunate in preserving its old buildings intact and free from defacement at the hands of the would-be "improver." The harmonious and mellow aspect of the whole village setting helps one to appreciate the feelings of the Cotswold worthy who wrote: "Thank God, there is neither coal nor iron in these hills!" Had there been either of these commodities so indispensable to modern manufacturing industry, we may depend upon it the face of the land would have been completely changed. Instead of drowsing in a quiet backwater and retaining all its pristine architectural charm, the town would have fallen prey, as so many others have already, to the clatter, change and ruin generally attending industrial expansion, and such structures as the wool market would have been swept ruth-

lessly away. As it happened, the source of Cotswold prosperity was wool, and the market at Chipping Campden is a monument to the last days of the town's importance as one of the centers of the wool trade. As a matter of fact, the very name "Chipping" Campden means "Market" Campden, for hither came the local wool magnates to sell first the clip, and, later, the cloth, and hither came also the Flemish and other Continental merchants to buy the staple for export to the foreign markets.

The wool market, erected in 1627, was built and given to the town by a wealthy benefactor, Sir Baptist Hicks, whose arms may still be seen in the shaped panel between the two gables of the east end. It stands on slightly rising ground at one side of the highway where Sheep Street broadens out to a wide open space, so that its effect as a piece of public architecture is enhanced by the unobstructed view to be had from nearly every angle. Though no longer used as a wool market, the building continues to fill a useful function as a place of shelter and display for miscellaneous wares on stated market and fair days, and in this capacity it carries a wealth of suggestion for structures of similar char-



Exterior of Wool Market, Chipping Campden, Gloucestershire



SCALE · 1/8" = 1'-0"

ROOF PLAN

WOOL MARKET
CHIPPING CAMPDEN GLOS.

FULL SIZE PROFILES

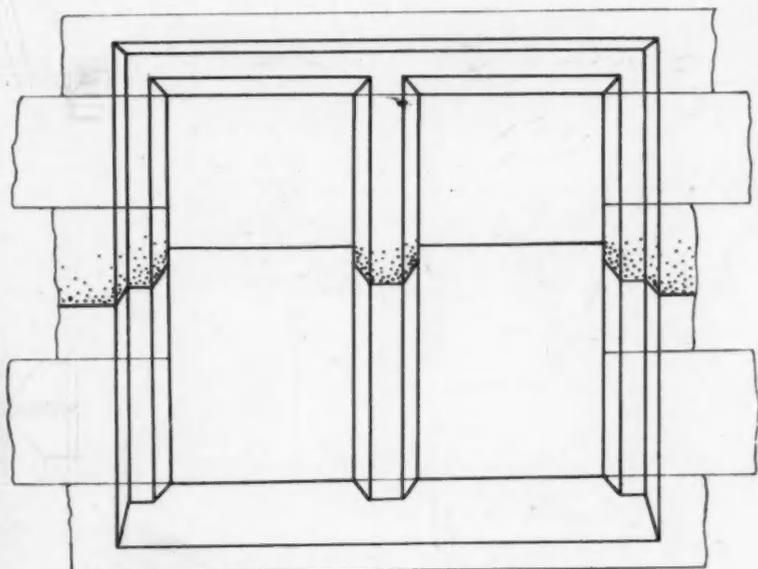
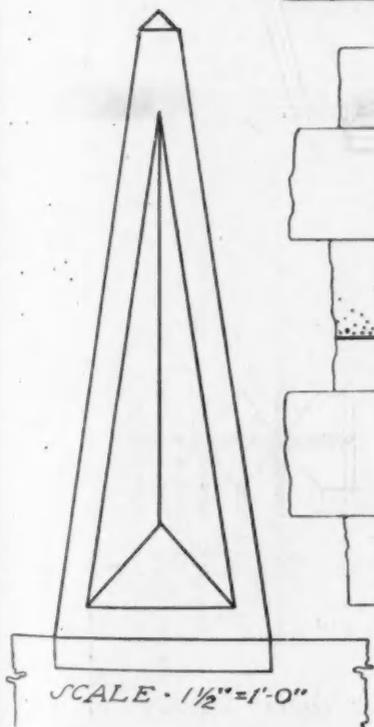
CORNICE

STRING COURSE

PANEL FOR SHIELD

DRIP

BEAD ON ARCH



WOOL MARKET
CHIPPING CAMPDEN GLOS

acter and purpose that might very appropriately be erected today in towns where such buildings could be turned to good account.

The material of which the wool market is built is the local Cotswold limestone, a peculiarly sympathetic and flexible medium, suitable for almost anything the stone mason or master builder may have a mind to do with it. When first quarried, it is soft and of a creamy color. On exposure to the air it hardens and weathers to varied tones of gray, tawny brown and pale buff, with now and then a fleck of soft orange. The different quarries of the Cotswolds yield different qualities of limestone. From some of them the stone comes in large blocks, fit to be dressed for the most exact ashlar or used for carving; from others the output is limited by the natural lines of cleavage to thin layers, and stone of this quality is ordinarily employed for rubble walls. The stone of which most of Chipping Campden is built is of the first mentioned sort.

The customary traditional roofing material of the region is also stone, the same stone of which the walls are constructed. This is true of the wool

market. The manner of preparing the roofing stone is of interest. In the autumn large blocks are quarried and left exposed to the weather. The freshly quarried stone is very porous and absorbs a great quantity of moisture, which penetrates between the strata. The frosts of winter then act as wedges, loosening the strata as the water between them freezes. When spring comes, tapping with a mallet is sufficient to separate the layers which are then easily cut to the proper sizes and shapes for the roofing "slats" or "slates" as they are locally called. These stone slates soon weather to a soft gray and collect lichens of a minute growth, or sometimes moss, so that they present an exceedingly agreeable and mellow appearance.

One of these measured drawings shows the roof plan of the wool market, while one of the halftones shows the method of interior roof construction and timber arrangement. Much of the roof has been repaired from time to time, and some of the internal framing is comparatively new, but the old, traditional methods have always been scrupulously adhered to, so that the original work is seen with virtually no change.



View of Interior of Wool Market, Showing Arrangement of Rafters

Architecture at the British Empire Exhibition

By H. J. BIRNSTINGL, A. R. I. B. A.

PERHAPS the most distinguishing feature of the British Empire Exhibition is its superb and comprehensive layout, and since town planning, which is a yet broader aspect of comprehensive planning, is one of the most important architectural activities of the day, not only in Great Britain but in many parts of the world, the exhibition, through its layout, becomes at once expressive of the Empire's attempt to produce order out of the chaos resulting from a century or more of uncurbed industrialism.

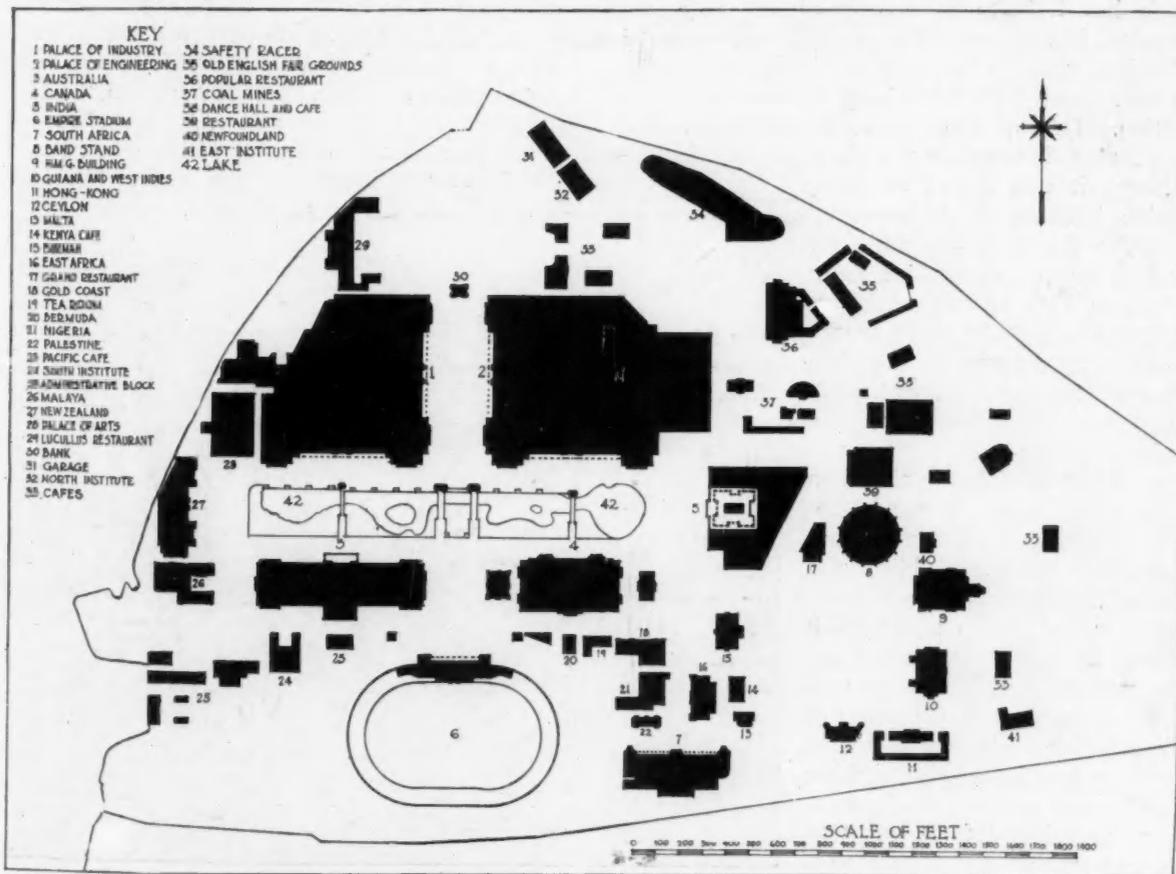
The site of the exhibition, at Wembley, was chosen on account of its accessibility; 126 stations in central London give access in an average of 18 minutes to the grounds, and two acres have been platformed and turned into a vast terminal.

The main entrance to the exhibition is from the north, from whence a main avenue 200 feet wide leads to the magnificent dominating building, the Stadium. The main east and west axis, passing through the lake, is terminated by the India and New Zealand Buildings. A subsidiary axis crosses the railway and leads to the Amusement Park.

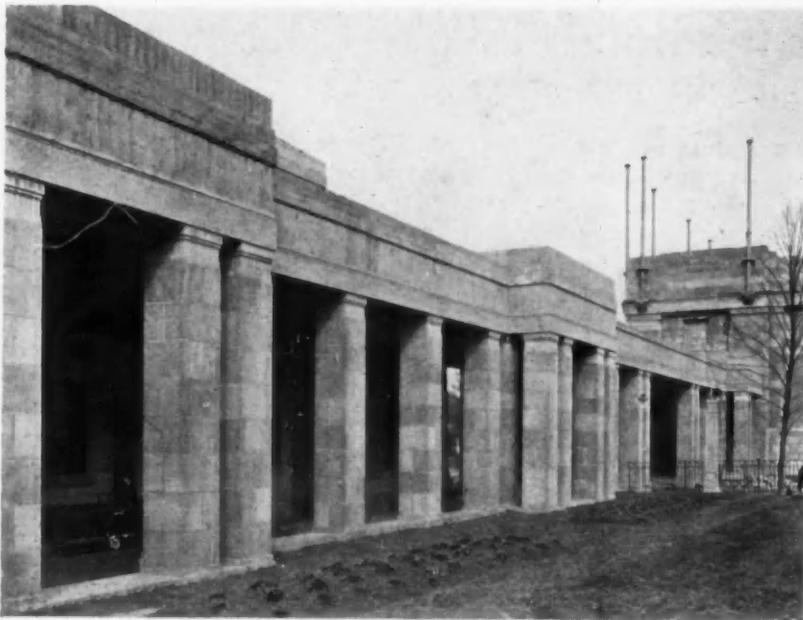
Apart from the Stadium, the two main buildings are those which flank the broad entrance avenue:

the Palace of Engineering and the Palace of Industry. These vast buildings cover a joint area of 25 acres. It is difficult to express the exceeding grandeur of their interiors with their great steel roof trusses evenly spaced and fading into dim perspective. Both these buildings, as also the Stadium, the British Government Pavilion, and the Palace of Art, are constructed of reinforced concrete, and every advantage has been taken by the designers to make the most of the characteristics of this material. As far as possible the surfaces have been left in their natural state.

Much experimental work was carried out in the process of building at Wembley, the object in view being always the creating of a method of building which would obviate the subsequent necessity either of covering or of treating the surface by means of sand-blasting, polishing or the like. It was decided that the correct and honest method was to treat the internal faces of the forms, and various types of fluting and reeding were tried with simple recessed and projecting bands, everything being carefully designed so as not to impede the flow of the concrete mixture, which was put in fairly wet and rammed down into the forms and around the



Plan of Wembley Exhibition, Showing Disposition of Principal Buildings



Cloister, Palace of Engineering

reinforcement with iron rods. Of course the ultimate color of the building depends upon the aggregate. At Wembley pure gravel and sand were used, and a characteristic of the finished product is the variety of hues which the surface takes on according to the atmosphere and weather. The unpleasant and monotonous glare of pure white, which has hitherto been favored for exposition purposes, is thus avoided.

Various other problems arose, in connection with the reinforced concrete, which required immediate solution. One of these was the expansion joint. At regular intervals throughout these immense buildings it was found necessary to provide expansion joints. Sometimes it was found possible to cover these joints with an overlapping projection, but here and there they appear naked to the eye, looking like great cracks on the face of the building. This is a matter which no doubt, with the growth of experience, will produce its own satisfactory solution. Another difficulty that had to be faced arose through the slight differences of texture and color between one day's "lift" and another's. With brick or stonework, or where the concrete surface is to have a subsequent treatment, this problem does not arise. In order to overcome it at Wembley a horizontal rusticated treatment was introduced, and the "lifts" were worked to these as far as was found to be possible.

The artificial lake which runs across the center of the grounds

is crossed by steep-pitched reinforced concrete bridges. From the summit of these bridges, made steep perhaps for this very purpose, a fine view of the whole exhibition is obtained, particularly to the east towards the Indian section with its spacious forecourt, its cupolas and minarets. This building has been designed by White Allens, and in its vast labyrinth of courts the resources of the various states and provinces are indicated, each having its own appropriate section; moreover, the whole structure, with its lakes and fountains and peculiar architecture, based for the most part on sixteenth century Mogul building, affords an interesting contrast between the architecture of the East and West. Here too is a circular Indian theater, where

native performances will take place. Close to the Indian section are situated exhibits of Burmah, East Africa, Nigeria, the Gold Coast, Bermuda, Palestine, each with its appropriate setting. Between these is the bridge over the railway. In designing this bridge the architects have displayed rare psychological insight. A railway running in a cutting seems to afford a natural boundary which, owing to the vastness of the grounds, visitors might all unconsciously hesitate to pass, if it were crossed by an ordinary bridge. For this reason the bridge is flanked by buildings and stalls on either side, simulating, but not imitating, old bridges, such as Old London Bridge, and the *Ponte Vecchio* at Florence. In this way visitors are, as it were, led



Main Front, Palace of Engineering

across the railway without being aware of it. The vista here is closed by the Government Pavilion, and here too the architects have given another display of their insight into human nature. This pavilion is one of the few buildings having two stories, and here again visitors might well hesitate before climbing to the upper floor, the natural instinct being to wander round from building to building on one level. This building, however, is designed with a broad flight of outer steps to the main entrance which is actually on the upper floor; the visitor will then pass down the internal staircase to the ground floor, and so out by a less conspicuous doorway. By such subtle means is he beguiled to the upper story! An interesting feature of this building are the concrete lions which were cast *in situ*, excellent examples of work of the kind.

South of the Government Pavilion lie the West India group, and those of Ceylon and Hong Kong. The Ceylon building has a broad veranda and is flanked by a pair of squat towers. Hong Kong near by, is a veritable Chinese city in miniature, with its banners, inscriptions and shops. Jamaica, Trinidad, Barbados, the Falkland Islands and the Bahamas all have buildings in this quarter. West Africa is a walled city of three acres with pavilions of Nigeria, Gold Coast and Sierra Leone. There is a mud village throbbing with native life. The East African pavilion, around which are gathered the exhibits of Uganda, Zanzibar, Nyassaland, the



One Side of the Palace of Industry

Sudan, and Kenya, is altogether different. The predominant effect is of white walls and green woodwork. The building of the Union of South Africa is perhaps the most successful of all the colonial structures with its long veranda supported on coupled columns, its pantile roof, its simple central and terminal features, the whole being obviously based upon the simple Dutch architecture of the country. The building which appeals most to lay visitors is that of Burmah. There is certainly a rare delicacy and charm in this example of the fastidious and exquisite native temples with their dainty fretted spires at the summits of which the temple bells flutter at every breath of the wind.

In the Palace of Arts is to be found the now famous Queen's Doll House, a gem of architectural miniature work, in the production of which a number of famous architects and artists have collaborated. Every detail is a masterpiece and the best of its kind,—the furniture, the textiles and the books, no less than the mural decoration, the sanitary fittings and the equipment. Here too there is to be seen a delightful nineteenth century period room designed and arranged by Professor A. E. Richardson.

By far the most imposing and interesting building in the whole grounds is the Stadium. Its size alone is prodigious; the over-all length of its major axis is 900 feet, and the maximum over-all width 650 feet. In the center there is a semi-circular headed



General View of the Palace of Engineering

oblong of grass measuring 492 by 260 feet, and around this there is a cinder running track. The accommodation for spectators is large; seated grandstands 24,586; ring 9,799; standing enclosure 33,151, and terraces 57,665; total 125,201. There are three entrances to the arena: the royal entrance, the players' entrance and the athletes' entrance. A special staircase enables athletes to reach the royal box to receive prizes, passing up one side, across the front of the box and down the other side. The royal box is situated on the north side and is reached by the royal entrance. The banqueting hall can be entered through the withdrawing room from the box. There is accommodation, comprising dressing rooms, lockers, shower baths, hand basins and lavatories, for about 1,000 competitors. There are also training quarters and a board room. There is a gymnasium with seating accommodations for 250, with a recreation room sufficient for three billiard tables. The main banqueting hall can seat about 1,000 and in addition there are various permanent and occasional buffets and tea rooms.

All round the building there is an almost uninterrupted series of 31 terraces of concrete steps measuring 2 feet, 2 inches and having rises of 1 foot, 1 inch. They are erected on beams consisting of rolled steel joists. These joists are set at a slope of 2 to 1, their lower ends being attached to a reinforced concrete wall and their upper ends to the main outer wall of the building. In the center portion of the covered areas these steps are furnished with lift-up wooden seats 16 inches wide. In the wing portions of the covered areas the seating accommodation is provided by means of planed wood planks fastened to the concrete treads. The roofs have a steel framework covered with cor-

rugated asbestos sheets. The principals of the roof are supported at one end by the outside wall and at the other by pre-cast octagonal reinforced concrete columns 32 feet high, spaced regularly at 43-foot distances apart. Reports regarding tests say:

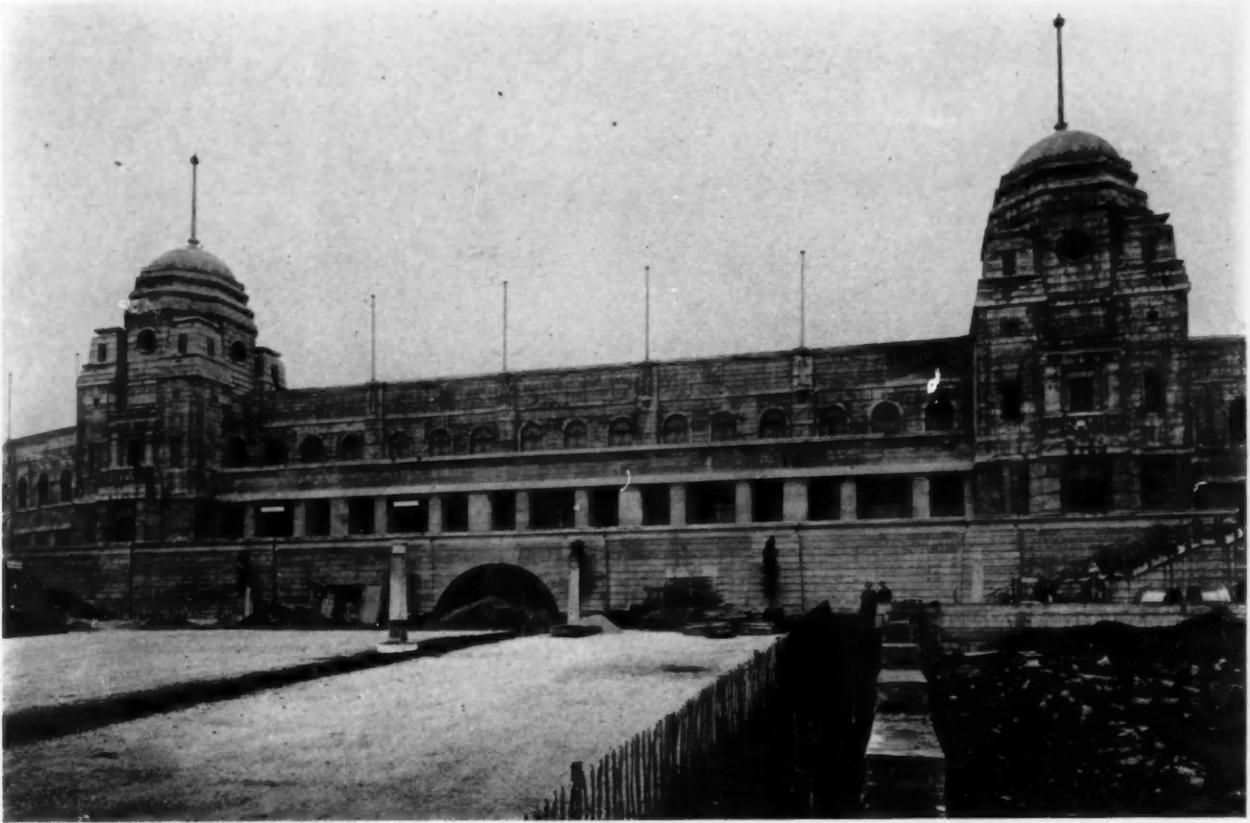
"On an area intended to accommodate 2,000 spectators a load of sand equal to the weight of 4,000 people was applied, and no signs of weakness were observed. Staircases were subjected to a similar intensity of loading with equally satisfactory results. A battalion of 1,200 men marched about the Stadium in close formation. They stood and sat in unison, they marked time in step, and they swayed and surged upon the barriers. No dangerous strains were caused by these operations."

Various well known architects are responsible for the designs of various stalls within the palaces, and of individual buildings belonging to private firms which are exhibiting. Among these must be mentioned the *Times* Building, the work of Phipps & Milne, a beautiful, dignified building placed on the main axis, its low, simple, clearcut form contrasting pleasantly with the massive Stadium.

Considering the architecture generally, there are those who think that it shows insufficient modernist tendency. But England is a country so rich in architectural tradition that it was rightly thought that the exhibition should to some extent typify this aspect, rather than display some passing and ephemeral phase, especially as many of the buildings are to remain as a nucleus of permanent exhibition grounds. Here a remarkable degree of success has been achieved. The buildings are at once new in treatment, for never in this country has such use been made of reinforced concrete, and yet they are redolent of national architectural character.



The British Government Pavilion



APPROACH TO CONCRETE STADIUM



DUTCH COLONIAL INFLUENCE SHOWN IN THE BUILDING FOR SOUTH AFRICA
BRITISH EMPIRE EXHIBITION

Photos. Campbell Gray, Ltd.

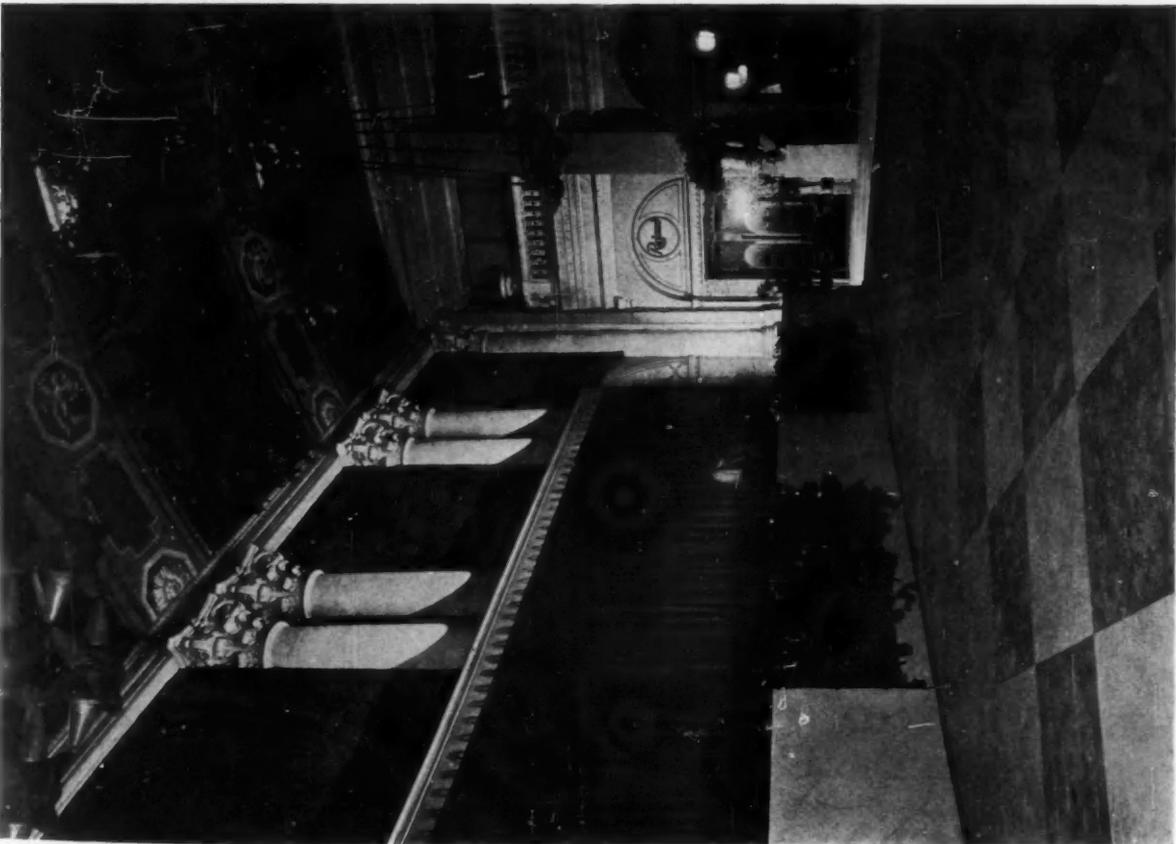
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LA GRANDE SALLE DE LA COUTURE
THE FRENCH EXPOSITION, GRAND CENTRAL PALACE, NEW YORK

HOWARD GREENLEY, ARCHITECT



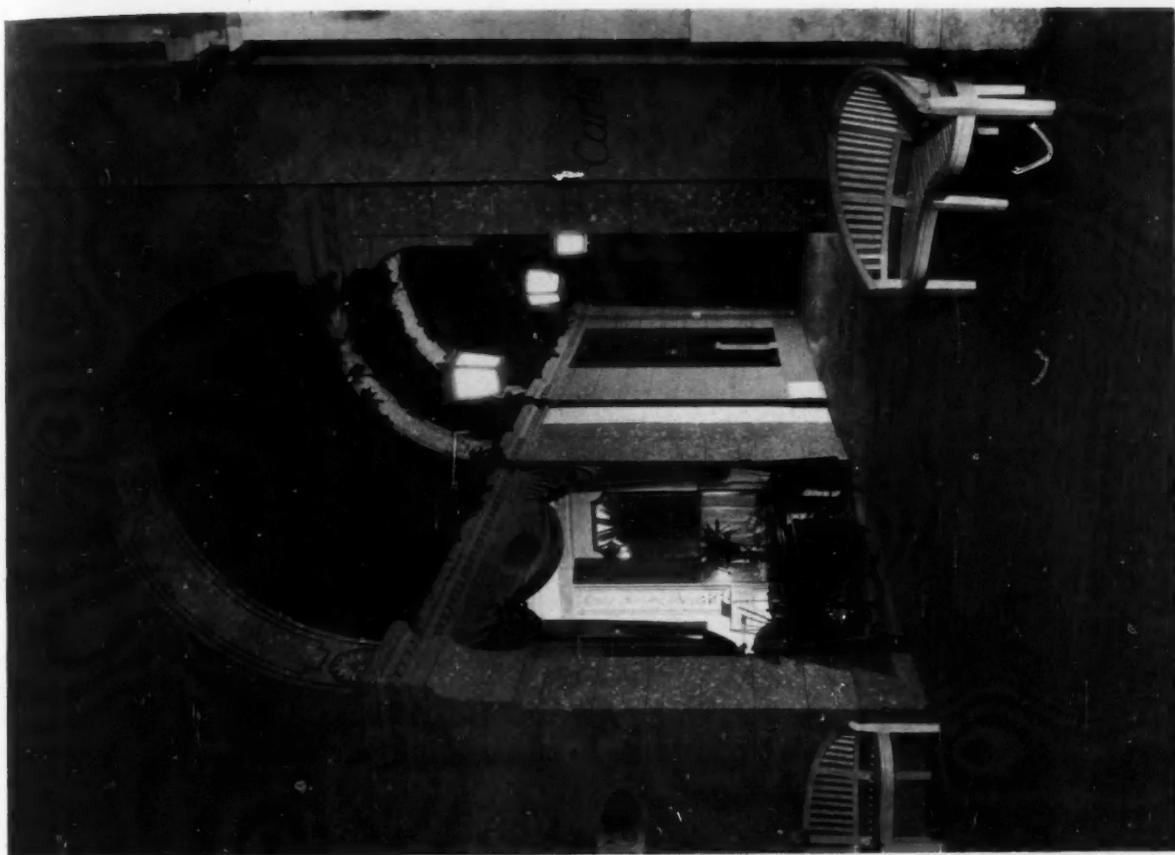
CURTAINED STAGE FOR THE DISPLAY OF COSTUMED MANIKINS

THE FRENCH EXPOSITION, GRAND CENTRAL PALACE, NEW YORK

Photos. John Wallace Gillies

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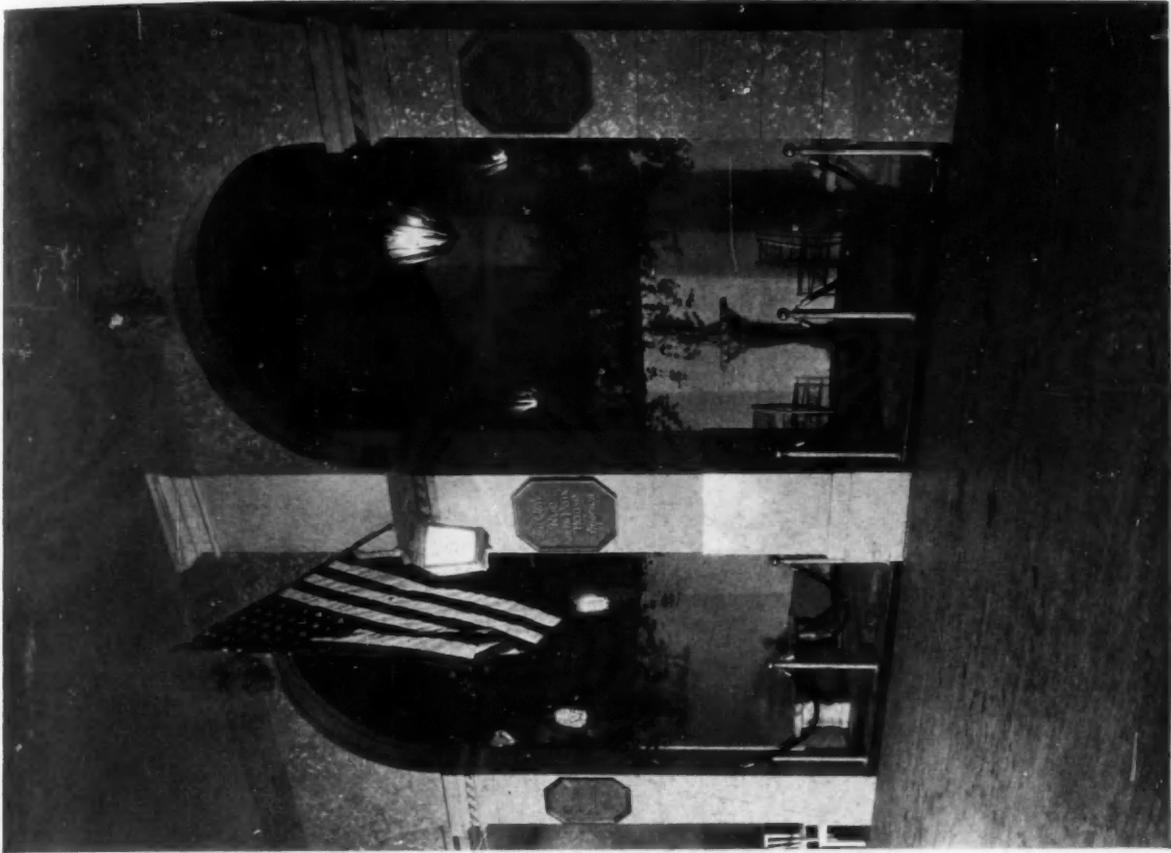
CORRIDOR SHOWING TEMPORARY ARCHITECTURAL TREATMENT
GRAND CENTRAL PALACE, NEW YORK
HOWARD GREENLEY, ARCHITECT



ORNAMENTAL URNS TO EMPHASIZE THE ENTRANCES
THE FRENCH EXPOSITION, GRAND CENTRAL PALACE, NEW YORK
HOWARD GREENLEY, ARCHITECT

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TEMPORARY ARCHES COMBINED WITH PERMANENT PIERS
THE FRENCH EXPOSITION, GRAND CENTRAL PALACE, NEW YORK
HOWARD GREENLEY, ARCHITECT



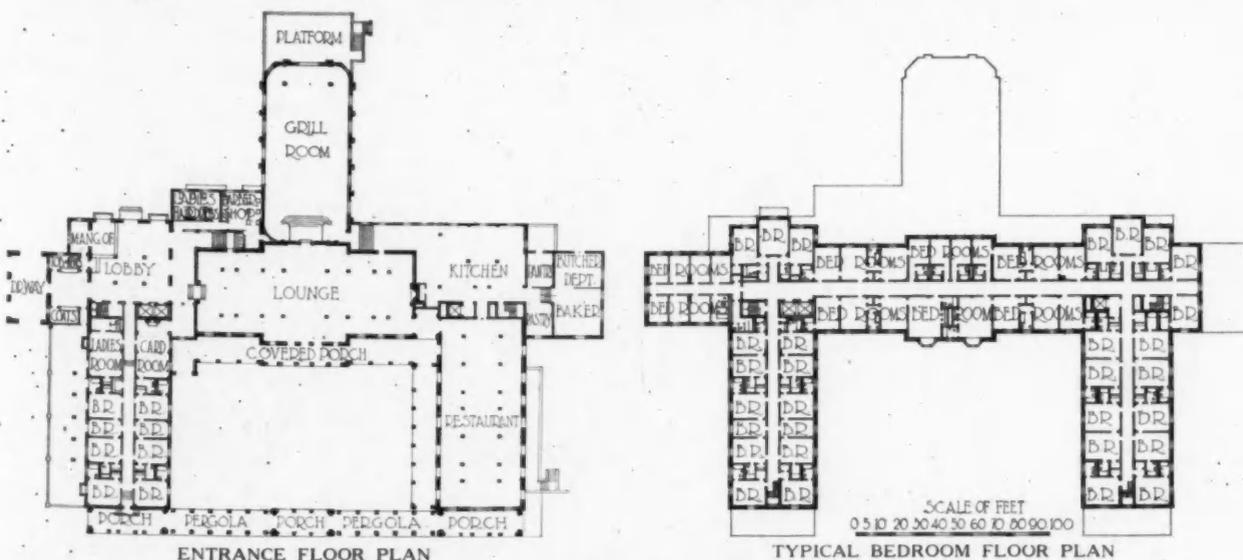
CORRIDOR SHOWING VINE COVERED LATTICE VAULTING
THE FRENCH EXPOSITION, GRAND CENTRAL PALACE, NEW YORK
HOWARD GREENLEY, ARCHITECT

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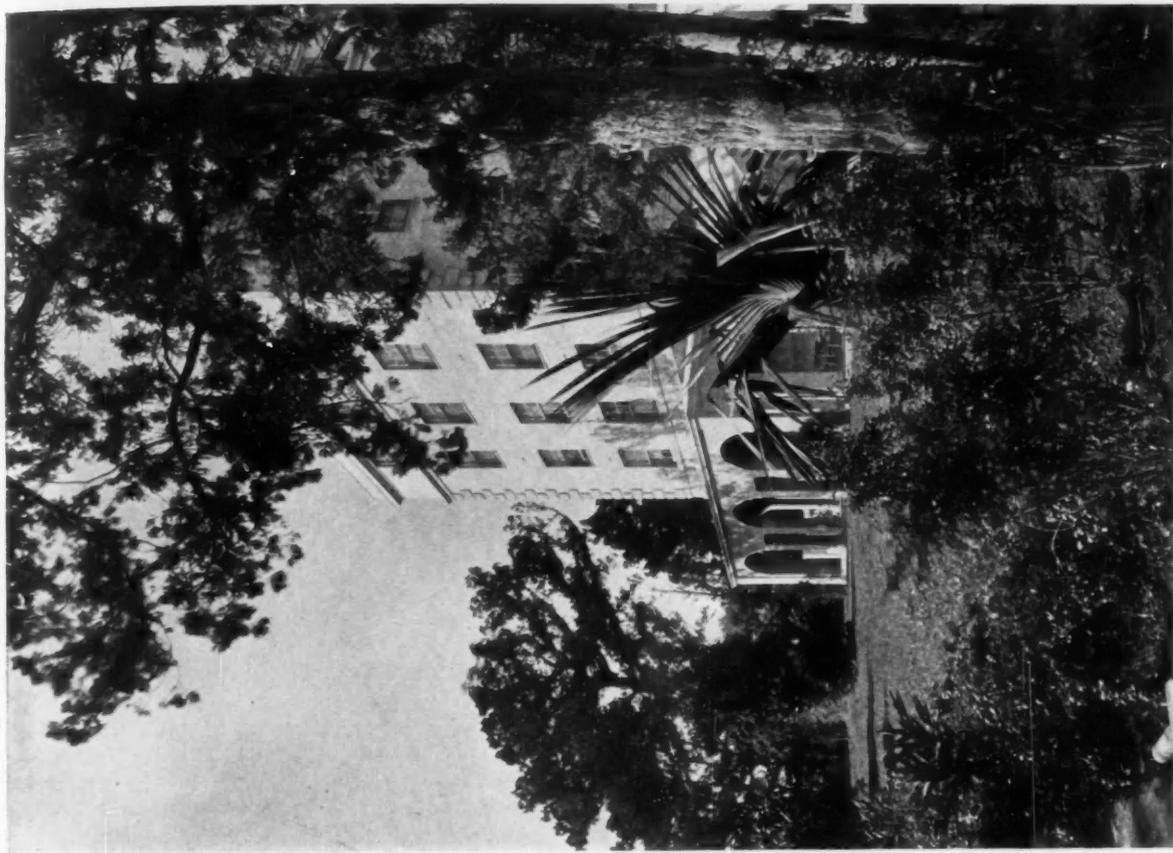
PERGOLAS AND PORCHES ON THE SOUTH TERRACE



HOTEL ROYAL BERMUDIANA, HAMILTON, BERMUDA
WARREN & WETMORE, ARCHITECTS

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"SEMI-TROPICAL PLANTING WAS LEFT UNDISTURBED"

HOTEL ROYAL BERMUDIANA, HAMILTON, BERMUDA

WARREN & WETMORE, ARCHITECTS



"PLAN OF ENTRANCE DRIVE PRESERVED EXISTING TREES"

HOTEL ROYAL BERMUDIANA, HAMILTON, BERMUDA

WARREN & WETMORE, ARCHITECTS

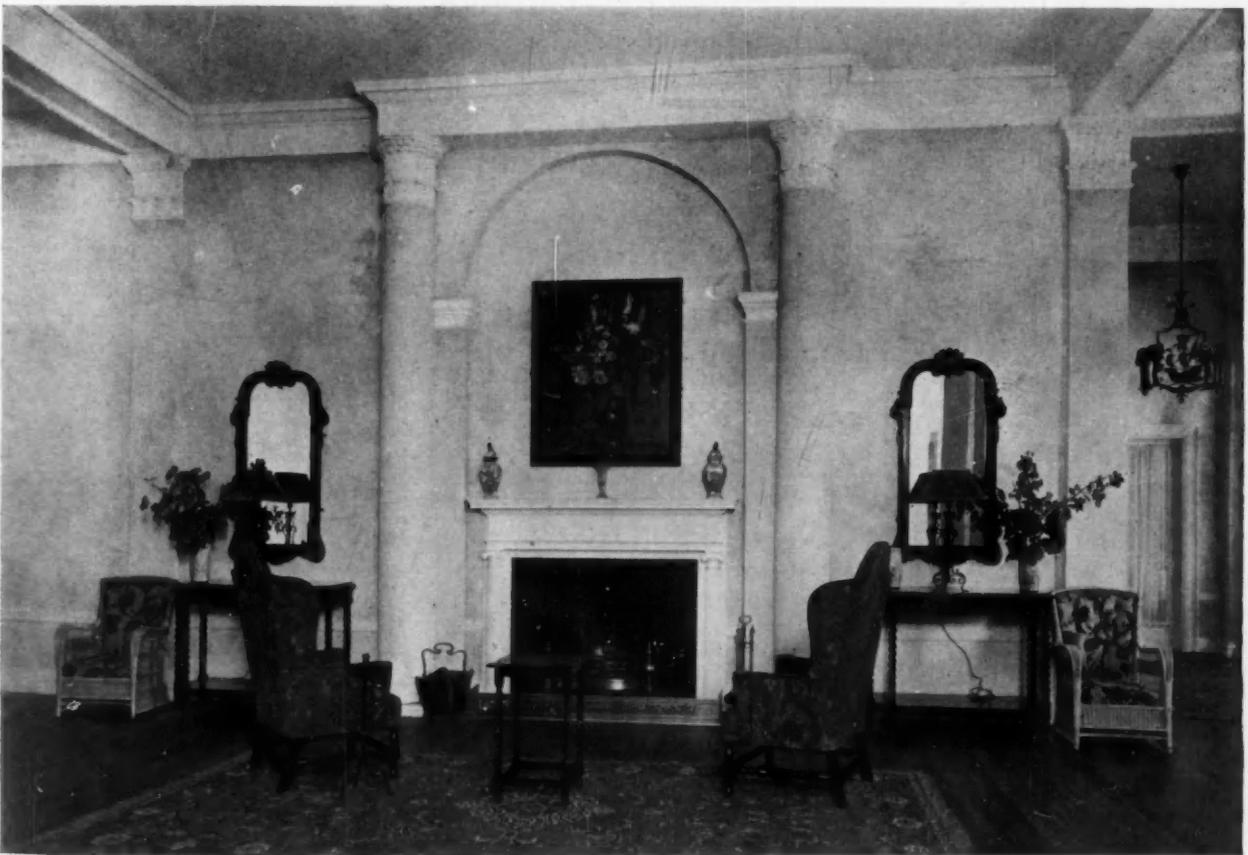
Photos. Dr. Duryea

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ENGLISH BAR IN THE BASEMENT



FIREPLACE GROUP AT END OF LOUNGE
HOTEL ROYAL BERMUDIANA, HAMILTON, BERMUDA
WARREN & WETMORE, ARCHITECTS

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GRILL ROOM



RESTAURANT
HOTEL ROYAL BERMUDIANA, HAMILTON, BERMUDA
WARREN & WETMORE, ARCHITECTS

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ENGINEERING DEPARTMENT

Charles A. Whittemore, *Associate Editor*

Duct Work in Connection with Ventilation

By C. W. KIMBALL

ONE of the problems which an architect or engineer frequently encounters in planning new buildings is how to provide adequate accommodation for the ventilating ducts, and in some buildings it is quite difficult to provide the required space in the right places. However, when we consider that favorable air conditions in a building are a necessity and not a luxury, it seems worth while to give this part of the building careful consideration.

While the duct system should be planned so as to fit into the building detail, it is also true that it should be carefully considered in planning the building and due allowances be made to get the duct work in in such a way that the owners do not have to spend money each year for power to force the air through long, crooked and undersized ducts. Many times by slight adjustments in the building detail the duct system can be simplified, the maintenance cost can be cut, and a more satisfactory system installed. Too many times, however, the instructions are to "work them in somehow," and thus an extra burden in first cost and in operating costs is turned over to the owner because the flues were put in where nothing else could go. The duct systems should be kept as short as possible, have as few turns, elbows, risers and drops as may be, be as nearly airtight as good workmanship can make them, and be constructed either of galvanized iron or of the various building materials as outlined here.

To illustrate the effect the elbows have on the air delivery, tests show that an elbow in a round pipe, with a radius the same as the diameter of the duct, brings a 25 per cent loss in velocity, while an elbow with a radius half the diameter of the duct brings a 70 per cent velocity loss. An elbow with a radius equal to twice the diameter of the duct means only a 15 per cent loss. On square ducts the elbow having a center line radius the same as the width of the duct will bring only 17 per cent velocity loss, while the elbow with a center line radius one and one-half times the width of the duct brings only 8 per cent velocity loss. From this it can be seen that the number and type of turns and elbows have a marked bearing on the loss of velocity and the increase of friction loss, and that these losses really determine the air delivery at the various openings.

Another condition the ventilating engineers frequently encounter, which is the source of a great

deal of expense in the operation of a system as well as loss in efficiency, occurs in the interference between the ducts, the pipes, hangers, beams, etc. which are frequently put in prior to the installation of the duct system. The architect and engineer, in laying out the work originally, can easily arrange to prevent such obstructions. It is obvious that any pipes or other fittings, except registers and normal ventilating openings into the duct system, are a source of leakage which frequently is difficult to prevent and much more difficult to overcome, unless the proper precautions are taken at the start. There is no doubt that architect and engineer frequently assume that the ventilating engineer can get around these difficulties, but if the engineer has to guarantee the efficiency of the working of this system it would be an injustice to ask for a guarantee unless the architect and engineer laying out the building are willing to cooperate in preventing conditions of this kind from arising.

In the usual construction of schools, theaters, churches, etc., the available materials are galvanized iron, brick, tile, gypsum, wire lath, plaster and concrete. Of these galvanized iron is the best, without reference to cost, because it is smooth, comparatively tight, easily adapted to building construction, and is installed quickly. Brick, concrete, tile, gypsum and wire lath and plaster follow about in this order. The brick flues with ruled joints and brushed surfaces come next to the galvanized iron and in many cases are cheaper than the galvanized iron. Tile and gypsum flues if laid up with smooth surfaces and tight joints can be used, but extreme care must be taken to insure tight joints and to see that no heat and vent ducts come next to each other unless there is a double wall between. If the flues are adjacent with only one thickness of wall between, the leakage due to pressure on one side and the suction on the other will bring a loss of air into and out of the rooms due to the fresh air under pressure finding its way into the vent duct which is under suction and thus short circuiting. In no case should tile or gypsum be used unless the smooth type is selected or the flues are carefully trowel plastered and made tight and smooth inside. Experience has shown that with the gypsum flues the mortar is likely to dry and work out of the joints and thus cause excessive leakage, which injures the value of the system.

In selecting the material to be used for ducts, the

construction of the building, its use, locating of flue, adaptability and first cost are the main items considered. In second class buildings galvanized iron flues are used almost exclusively unless the corridors and corridor walls are fireproof, in which case masonry flues are preferable. In first class buildings both sheet iron and masonry flues are used, depending upon the location of flue spaces on the different floors and the general design of the building.

Under present-day conditions sheet iron work for flues is quite expensive, and if by proper planning the main air ducts and the flues can be made of building construction, it has been found to reduce very materially the cost of the heating with little if any appreciable increase in the cost of the building construction. This has been worked out many times and has demonstrated that a little time and thought put into the planning of the building so as to simplify the duct and flue work and allow the use of masonry will result in a substantial saving in the total cost of the building. This list of building costs would seem to bear out this contention:

1. School,	32	cents	per	cu.	ft.	} Masonry flues
2. " "	33	"	"	"	"	
3. " "	38	"	"	"	"	
4. " "	42	"	"	"	"	} Galvanized iron flues
5. " "	46	"	"	"	"	
6. " "	45	"	"	"	"	

For gravity ventilation the ducts and flues should be carefully planned and installed, as the only power available to move the air is the heat from the radiation. The gravity ducts should not be planned or installed in such a way that the heated air must go downward at any point, but everything should be made favorable for the upward flow of the air throughout the entire system. The carrying capacity of flues under gravity conditions depends on the height of the flues from the indirect radiators, or in the case of vents the height from the room to the vent head.

This table affords a guide in proportioning the velocity of the air from the fresh air radiators into the rooms:

Floor registers with indirects just under,	150	ft.	per	min.
Wall " " up to 8 feet.....	230	"	"	"
Registers on second floor.....	300	"	"	"
" " above second floor ceiling.....	350	"	"	"

In the vent flues a maximum velocity of 300 feet per minute from the first floor and of 260 to 275 from the second floor is as great as can be depended on without fans or excessively large accelerating coils. As a word of caution, however, it has been found that the most satisfactory results are obtained in gravity ventilation when the flues are oversized 15 per cent to 25 per cent, as too often during construction there is more or less leakage into and from the flues, and if the flue sizes are kept too close to the theoretical sizes there may be trouble getting the exact volume planned. In planning any duct or flue system for forced or fan ventilation the engineer must assume certain conditions and make due allowance for elbows, bends, obstructions, and in many

cases poor construction. These elements have much more of a bearing on the final result than is sometimes appreciated, for the fan is designed to give a certain pressure and velocity in the ducts at a certain speed. If in installing the duct work the contractor does poor work or the building construction necessitates short-turn elbows and offsets, a well planned system may turn out to be a poor working system. The writer recalls a system planned and installed to deliver 60,000 cubic feet per minute to various rooms. On the first test the system only showed a delivery to the rooms of approximately 28,000 c.f.m. A week's work on the duct system, stopping leaks, straightening ducts, etc., made the system deliver approximately 56,000 c.f.m.

Another point which should be kept in mind is that if some responsibility for air delivery and diffusion is put on the installing contractor it will have a decided tendency toward making him careful to get the ducts tight, the bends and changes of shape correct, and to place all necessary volume dampers so as to be accessible and regulate correctly the flow of air. Without this responsibility carelessness may creep in, as due to competition, the tendency is to put the work in as quickly and cheaply as possible, leaving the trouble of adjusting the distribution and volume to someone else who is bound to be handicapped by the poor construction. This was well illustrated on an installation of rather large size recently, where the galvanized iron foreman had, for the first time, the job of setting dampers and equalizing the flow of air to the rooms. After going through this he remarked that the next job he did he would see that all dampers were easily accessible without having to crawl through ducts, and that he could now see the necessity for careful work in installing the entire duct system.

As to selecting the correct size fan, motor and duct system, there are several different rules and tables that help in this, yet experience is an important factor in obtaining satisfactory results. To get at the amount of resistance the fan has to overcome in performing its work, both on the suction and discharge side, these items are to be considered:

Fresh air inlet to heaters; size, length and construction.

Vents or pipe coil heaters; numbers of banks, spacing and location.

Filter or air washer (if used); type, kind and service required.

Construction of fan room.

Duct system (horizontal); materials, bends, lengths and sizes.

Flues and openings (vertical); materials, lengths and offsets.

Careful attention should be paid to the arrangement of all these parts to see that friction is kept at a reasonable point as to both first costs and operating costs. On the air inlet to fan the area, length, number of grilles, and number of bends determine the friction loss here, and the resistance may vary

greatly, so no hard and fast rule can be presented.

When there is an opening through the wall of the building with just a guard, and the area of the windows is such that not over 800 to 1000 feet velocity develops, very little or no friction loss occurs. The fresh air filter to screen the air may add from .1 inch to .5 inch resistance. The air washers of the standard type will generally add .2 inch to .3 inch resistance, while cheesecloth filters, unless amply proportioned and kept clean, may add .5 inch. The vent heater coils for school and public building work should be proportioned, generally speaking, so that a velocity of 1000 to 1200 feet only is required, and in this way it is possible to keep down friction here to .1 inch approximately. When the question of duct system and flues is considered the size, length and number of offsets, changes in shape and number and character of bends, also the class of work done in the installation, all have a direct bearing on the friction loss.

As a matter of precaution in planning for the final results it should be borne in mind that numerous unexpected contingencies will arise during construction that cannot always be foreseen, and if the duct system is figured too nearly according to theory something will occur during construction that will upset the final result. In factory or industrial work where the ducts are run exposed it is possible to proportion the duct work more nearly exactly, for room is provided for the ducts and very little interference occurs with construction. In schools, hospitals and churches, however, the duct work must be concealed and is generally crowded. With this in mind, and with years of experience as a guide, we find it much better to figure somewhat in excess of the theoretical values so that trouble is avoided when the system is all completed and in use. If the velocity in the main ducts near the fan is kept down to from 1000 to 1200 feet per minute, and gradually reduced to 800 and 600 as the distance increases, and if the velocity in the main branches is kept down to 500 or 600 with the smaller upright ducts down to a velocity of 300 or 400 feet per minute and not over 300 feet per minute velocity through the grilles, the average schoolhouse, theater, hospital and similar duct systems will not develop more than .3 inch to .5 inch resistance or pressure. It is true that most of the manufacturers formulate tables of fan ratings with the speed, horse power, etc., carefully indicated on them. In making preliminary drawings one can frequently take at random from these tables, the size of fan and of motor necessary to deliver the amount of air required. Such conclusions, however, should not be considered as final, accurate and complete, until they have been finally checked over, because there is a great difference between the operation of a fan under a free delivery and a fan under static pressure.

If the fan and ducts are installed with a capacity of from 10 to 20 per cent in excess of the actual and theoretical requirements, the interest of the owner is

safeguarded throughout and the system is more nearly sure to pass the required tests. Also, it is much easier to reduce the air deliveries than it is to increase them once the fans, motors and ducts are installed. With the proper sized motor and duct work, all that is required to reduce the air delivery is a change in pulley sizes, while to increase the delivery to any appreciable extent, if the whole apparatus is held too close to the theoretical requirements, it may mean a new motor or possibly a new and larger fan. There are numerous charts and rules to aid in figuring friction loss in the duct system, yet they are somewhat cumbersome and complicated, and with the varying conditions in modern buildings, the experience of the past work is a help.

As to the testing of the system after installation to determine the air delivery to and from the various rooms, the anemometer is the measuring instrument most frequently used. Unfortunately, the instrument is very delicate and easily put out of adjustment; also, it is susceptible to a great range of error, dependent upon how the instrument is held in the path of the air. The anemometer gives the velocity of the air passing through it, and this velocity multiplied by the area of the grille or opening being tested gives the number of cubic feet of air passing through the grille.

In the past it has been the custom to subtract a certain proportion of the total area of the grille to allow for the metal or plaster members of the grille, but experience and tests show that if the anemometer be held approximately 2 inches away from the grille, there is no need to subtract for the solid members of the grille since the obstruction has its effect on the anemometer and slows up the velocity of the measuring instrument sufficiently to compensate for the obstruction of the grille work. This is still a somewhat disputed point, yet the tests made convince us that this method will give as nearly correct results as the older methods.

Another important point to consider is whether to use one large fan and heater unit or to use two or more smaller units and thus reduce the size and length of the main duct system. Our experience shows that much better results are obtained at no increased cost if the two or more units are used, properly located with reference to the duct system, and the entire work is generally simplified.

The subject of duct work is too extensive to permit of complete analysis in one short article. The static pressure, the calculations for fan sizes, for motor sizes, and the arrangements of deflectors and dampers are all of exceeding great importance. Another article will be devoted to the mathematical phase of the duct system. The need of a discussion such as is here presented is at once apparent to the ventilating expert when he sees the crimes committed in the name of a ventilation system by inexperienced engineers. The value of such a system is more dependent upon the intelligence with which it is designed than upon its cost in dollars and cents.

DECORATION & FURNITURE

Details of the Salons, Chateau de Montfermeil, Paris

TWO SIMPLE INTERIORS IN THE STYLE OF LOUIS XIV

Drawn by C. HAMILTON PRESTON

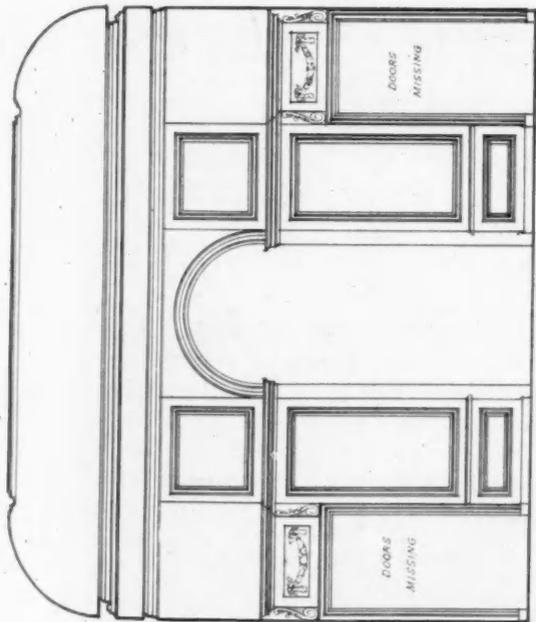
IN one of the remote suburbs of Paris is the lovely old Chateau de Montfermeil, fast going to rack and ruin through long neglect and desolation. Historically, little is known about the building or the owners of this unusual example of French Renaissance architecture. The care devoted to the proportion, scale and balance, exhibited in all the interiors of this house, has produced a charming dignity well worthy of emulation by modern designers.

Of the many splendid interiors, measured drawings of the two salons which are shown herewith give an adequate idea of the delicate refinement of detail found in cornices, wainscot and trim. Unfortunately, line drawings can give no impression of the color used in these rooms. The walls and mouldings of the salon with niches are painted gray, in contrast to which the niches are marbled in yellow, one of them having a deep colored blood-stone fountain; blue-green is used in the panels over the doorways. In the salon where reed mouldings are used to emphasize the wall panels, the walls and trim are painted a grayish green. Black and white marble floors, hexagonal in pattern, give a rich ground for the lighter colors of the walls and ceilings in both salons.

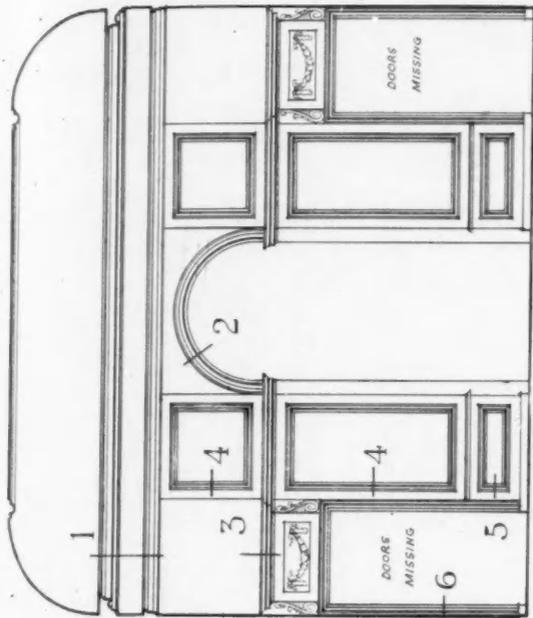
The floor dimensions of each salon are 20 by 26 feet, a pleasing proportion, but in the salon with niches the ceiling rises in a deep cove 4 feet above the cornice to a total height of 22 feet, which is 5 feet higher than the ceiling of the salon with reed mouldings. In the casement windows or doors in opposite walls of the salon with niches, which are 14 feet high, the glass panes extend almost to the floor, where a very low sill with paneled front forms a step, giving the impression that this room might have been used as a connecting hall or anteroom between gardens at the front and back of the chateau. This idea is still further suggested by the marble wall fountain and marble floor. The balanced treatment of all four walls of this room is especially interesting, particularly the treatment of the space between the end doors, where the side walls are broken up by beautifully proportioned arched wall panels very slightly recessed, flanked by three small vertical panels extending to the cornice line. The string course mouldings, from which the arch mouldings spring, are carried across as a cornice or cap for the decorative panels over the door openings.

Due to the large number of doorways and windows in this room the low wainscot panels occur in only eight narrow spaces, probably to increase the effect of height in the walls above. In fact, everything possible has been done to emphasize the height of this salon by the use of tall, vertical windows, wall arches, niches and panels. The four door openings would appear very low, although over 8 feet high, if their apparent height were not increased by the ornamental panels above them, in which appear the only carved details in the room. Another interesting feature is the pediment which occurs above each of the niches, forming a crowning motif to this detail, and preventing the niche panel from appearing too low in comparison with the very tall windows on either side. The contours of the various trim and cornice mouldings in this salon, are exceptionally fine, indicating great care in their design and execution. This regard for the least important detail of the design, as well as the most important matters of scale, proportion and balance, gives to this salon great dignity and refinement.

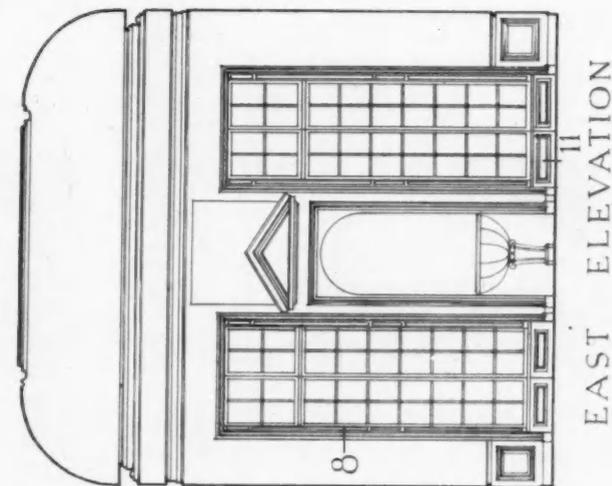
In the salon with reed mouldings still greater simplicity and delicacy of detail are found. The wall panels, which are emphasized by reed mouldings, show a low wainscot cap with panels below. The casement windows in the north wall of the room extend to the floor as doors, in the bottom of which panels equal in height to the wainscot occur. In the east wall the windows extend only to the sills, which are level with the wainscot cap. The divisions of the walls in this salon fail to show the same balanced treatment shown in the walls of the salon with niches, but a similarity in panel widths keeps the scale uniform. The spacing of windows and panels on the east wall shows a difference in width at the corners, which is hardly noticeable on account of the simplicity of the treatment. The south wall, which is a masterpiece of dignified design, has three wide and two narrow panels, in the center panel being a finely proportioned door opening with pediment above. The contour of the mouldings of both pediment and door trim, is a delicate combination of reversed curves, three-quarter rounds, and flat planes. A plain ceiling, without the deep cove occurring in the salon with niches, rests directly upon the well proportioned cornice, successfully tying together the walls of this remarkably beautiful room.



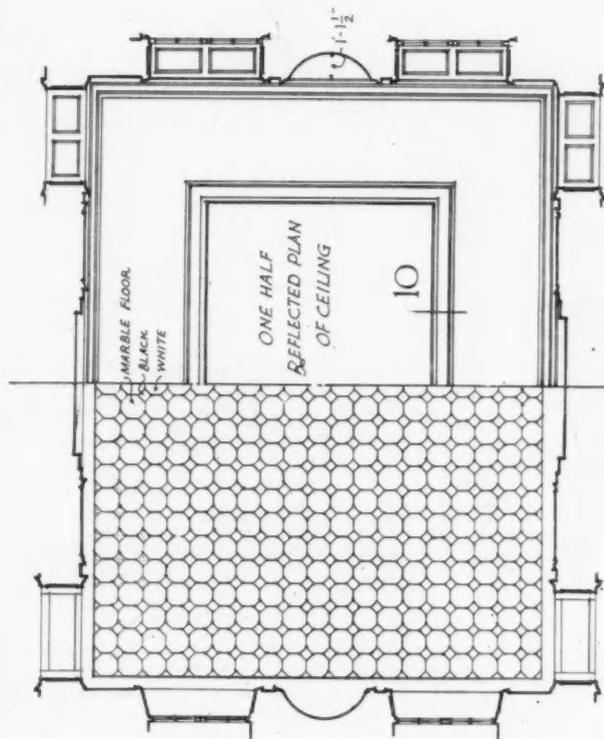
NORTH ELEVATION



SOUTH ELEVATION



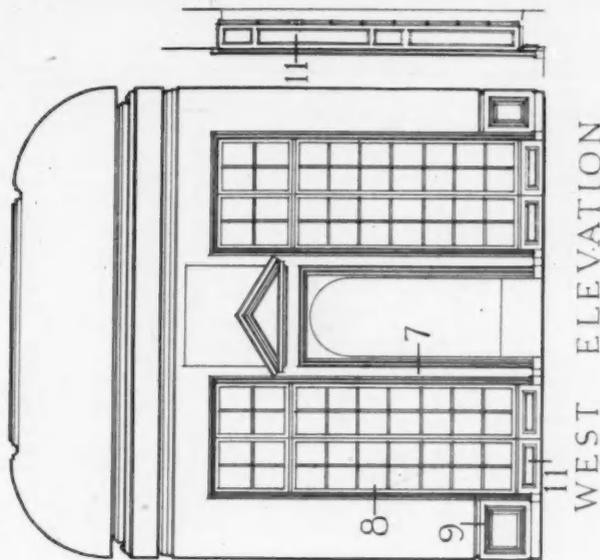
EAST ELEVATION



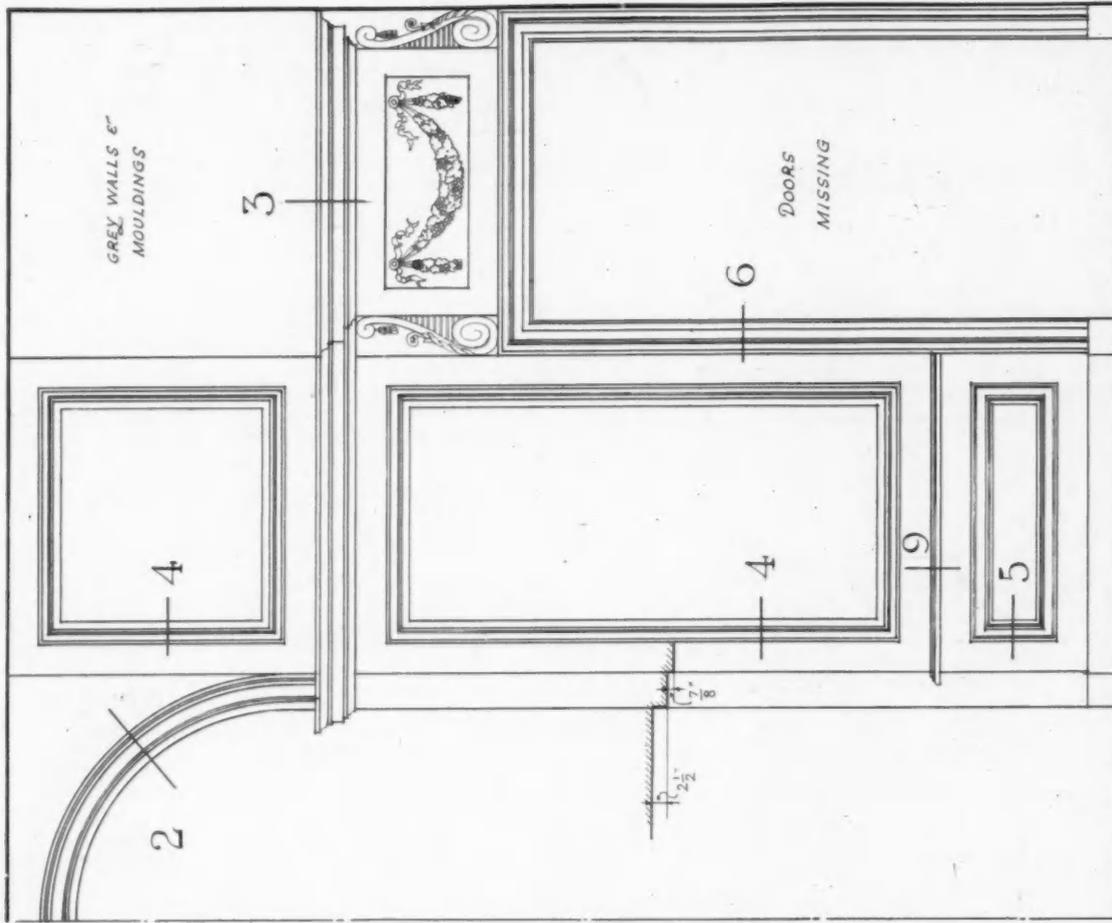
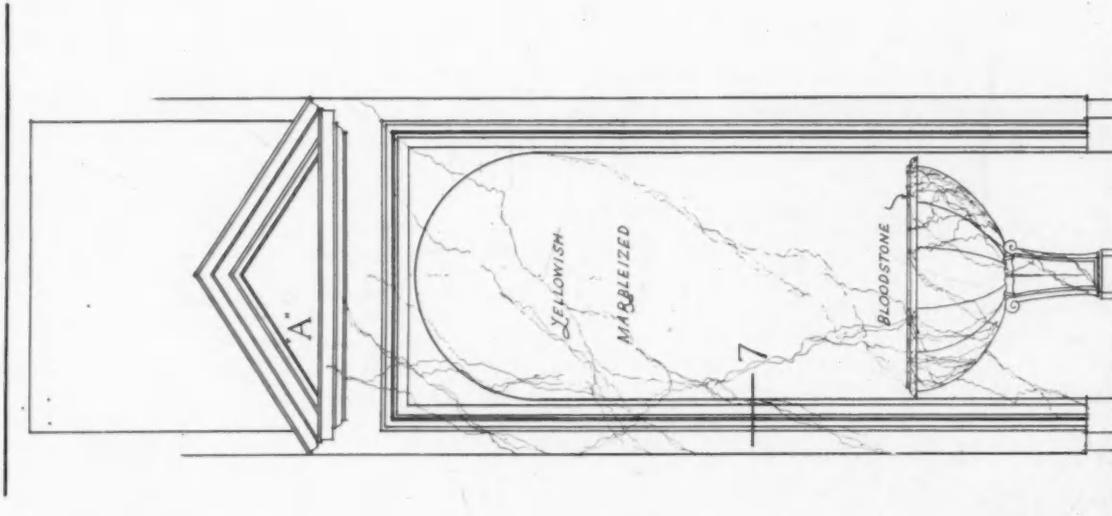
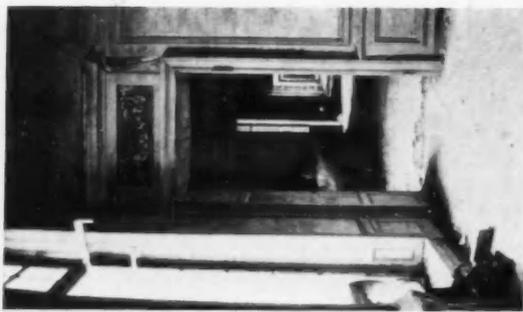
SALON

Scale $\frac{1}{8}$ " = 1 Foot

CHATEAU DE MONTFERMEIL



WEST ELEVATION



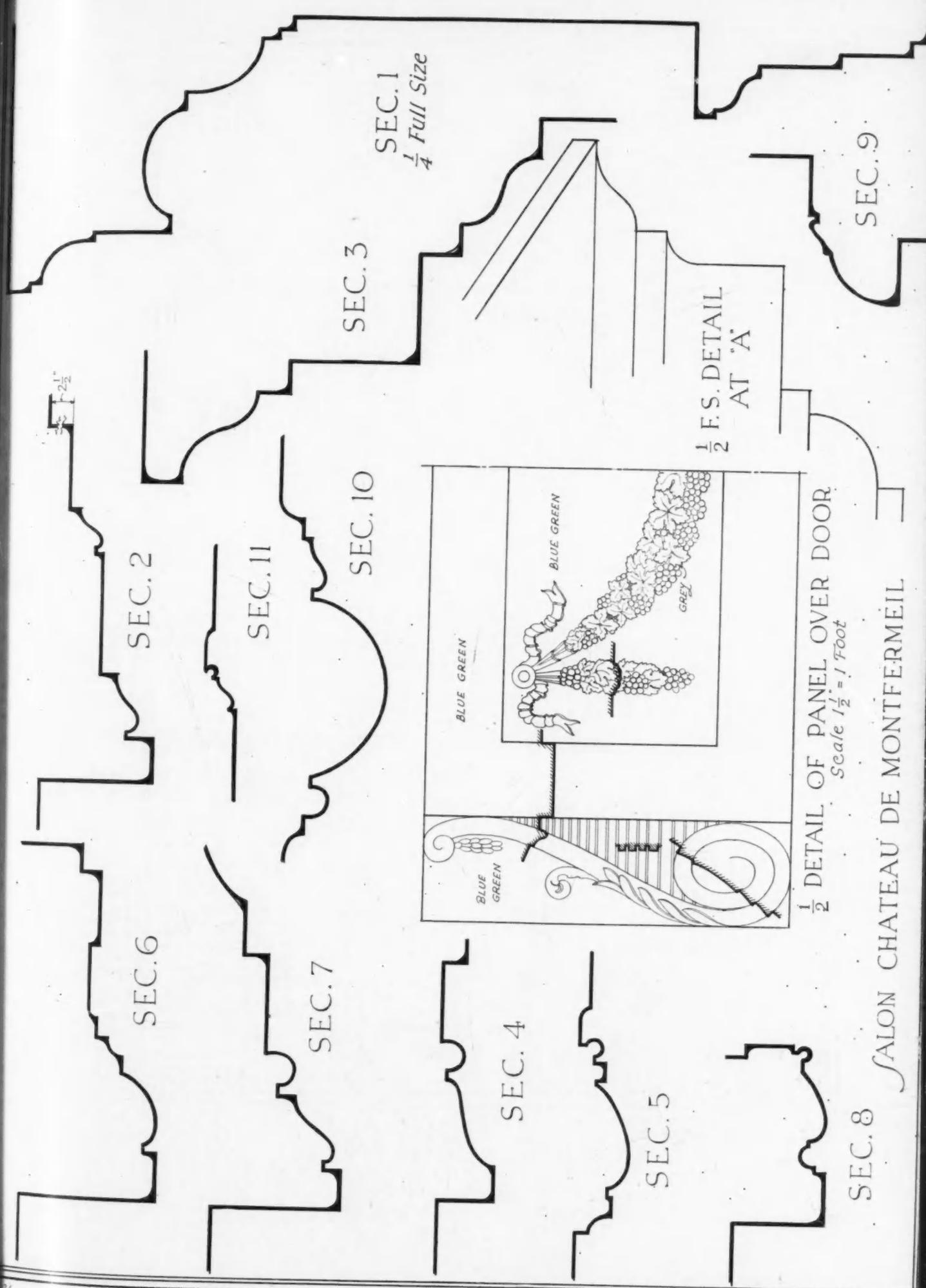
DETAIL OF NICHE

SALON

ONE HALF OF NORTH ELEVATION

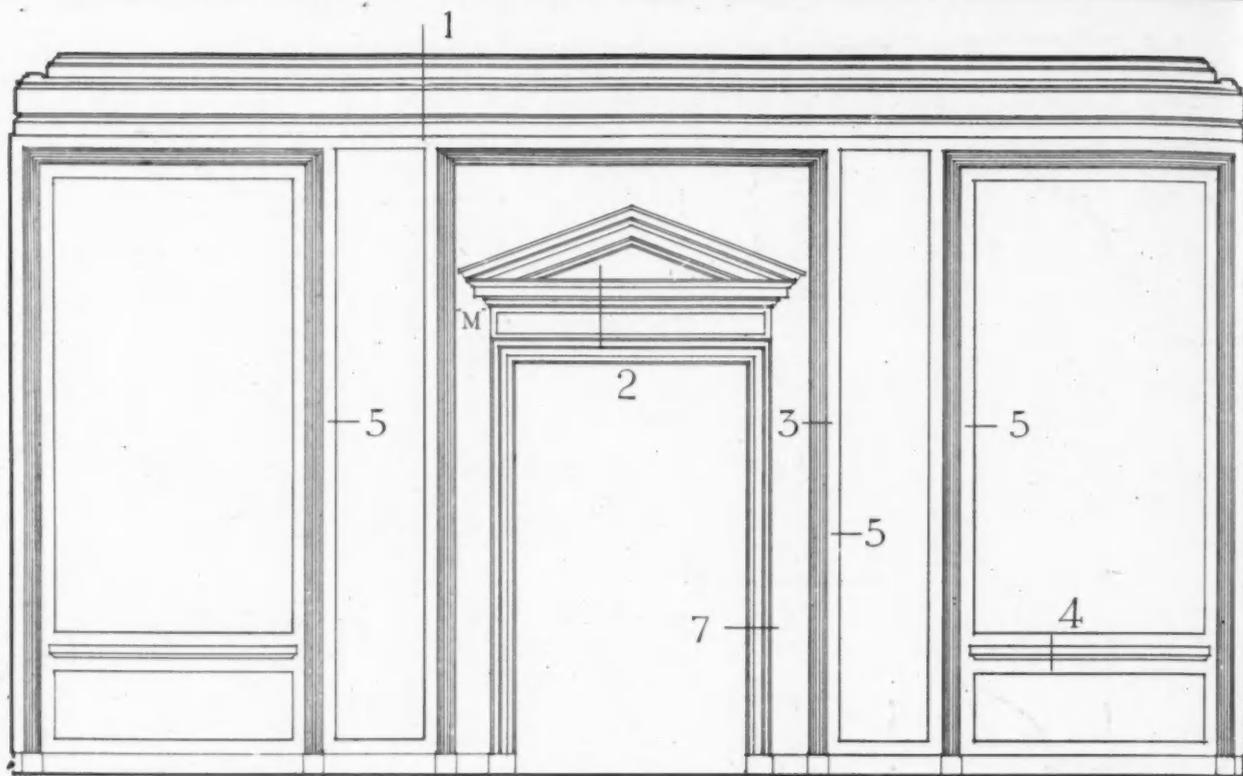
Scale $\frac{3}{8}'' = 1 \text{ Foot}$

CHATEAU DE MONTFERMEIL



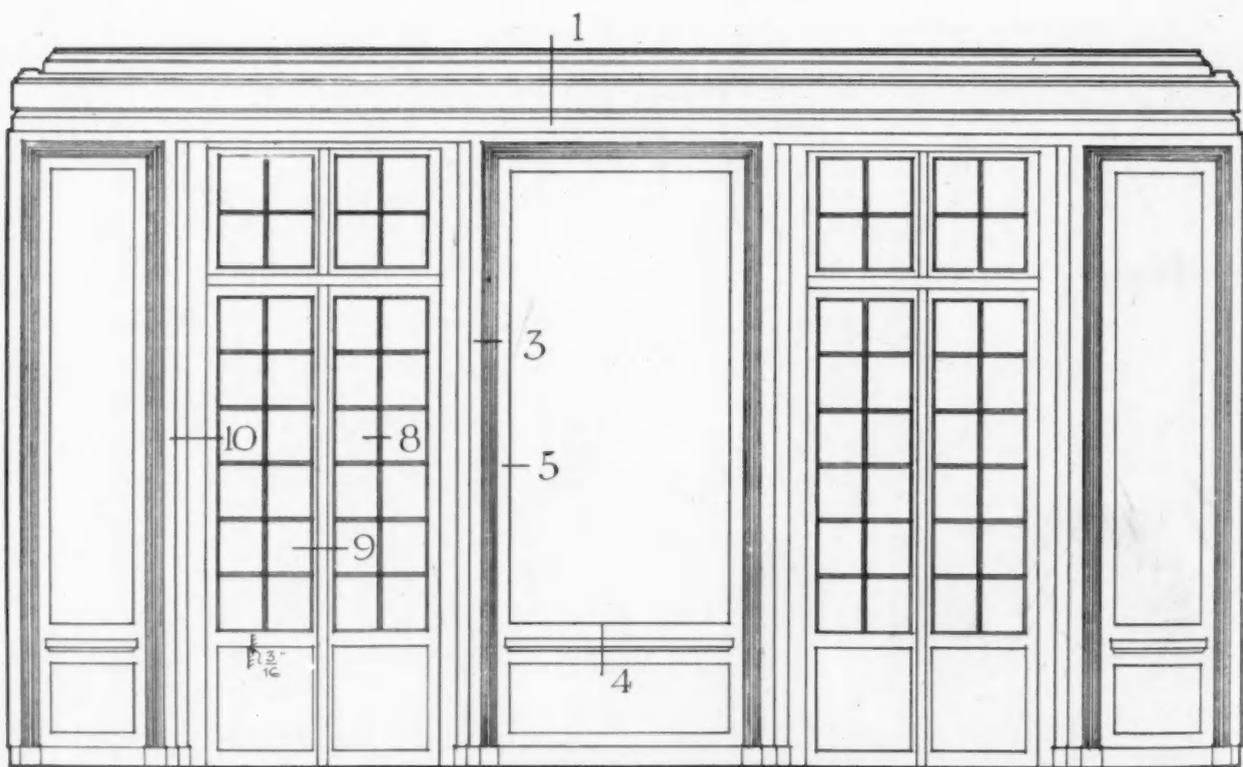
1/2 DETAIL OF PANEL OVER DOOR
Scale 1/2 = 1 Foot

SALON CHATEAU DE MONTFERMEIL



SOUTH ELEVATION

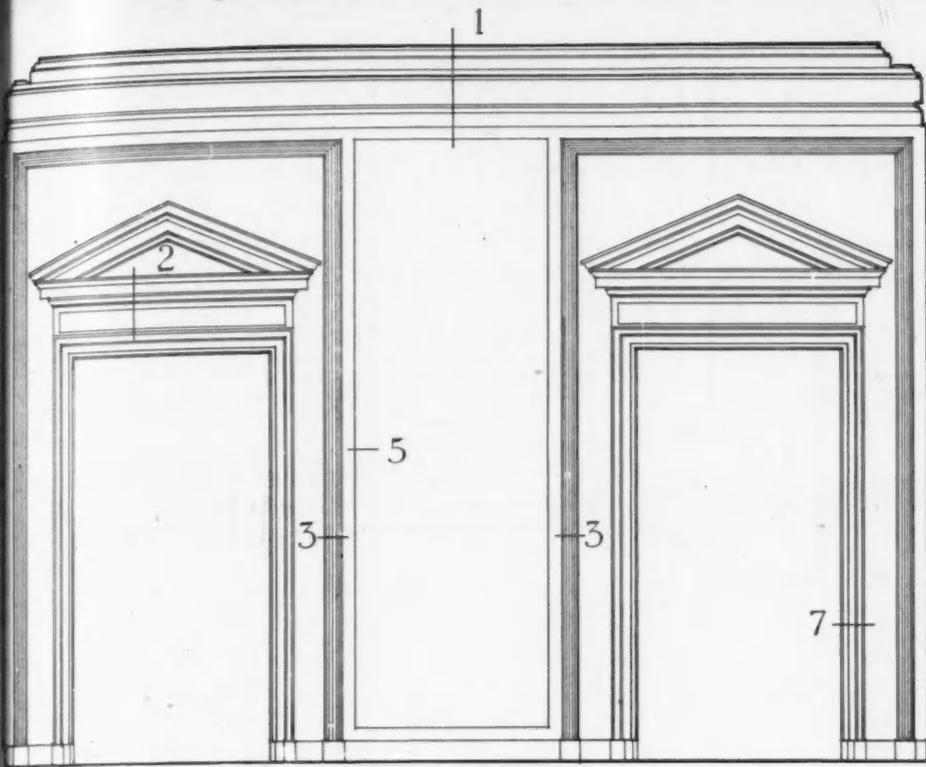
Scale $\frac{1}{4}'' = 1 \text{ Foot}$.



NORTH ELEVATION

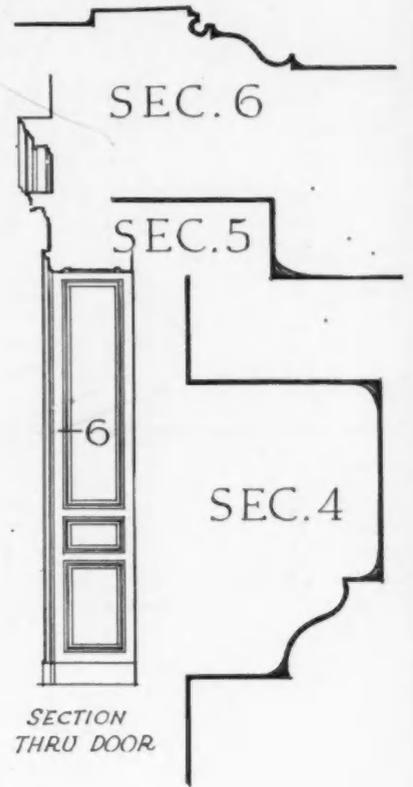
SALON

CHATEAU DE MONTFERMEIL

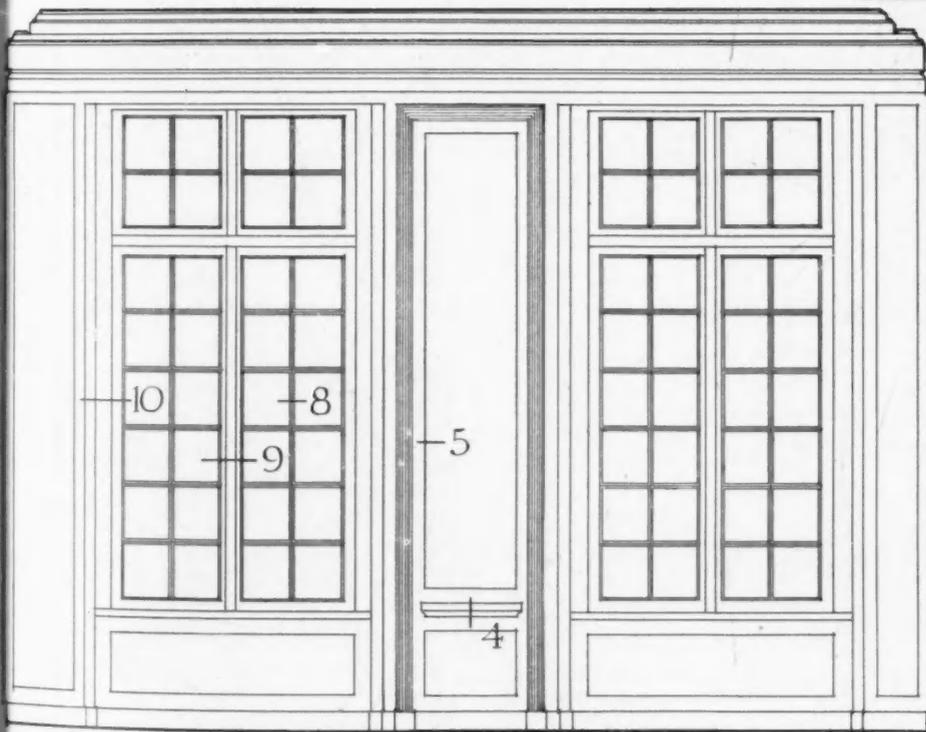


WEST ELEVATION

Scale $\frac{1}{4}'' = 1 \text{ Foot}$



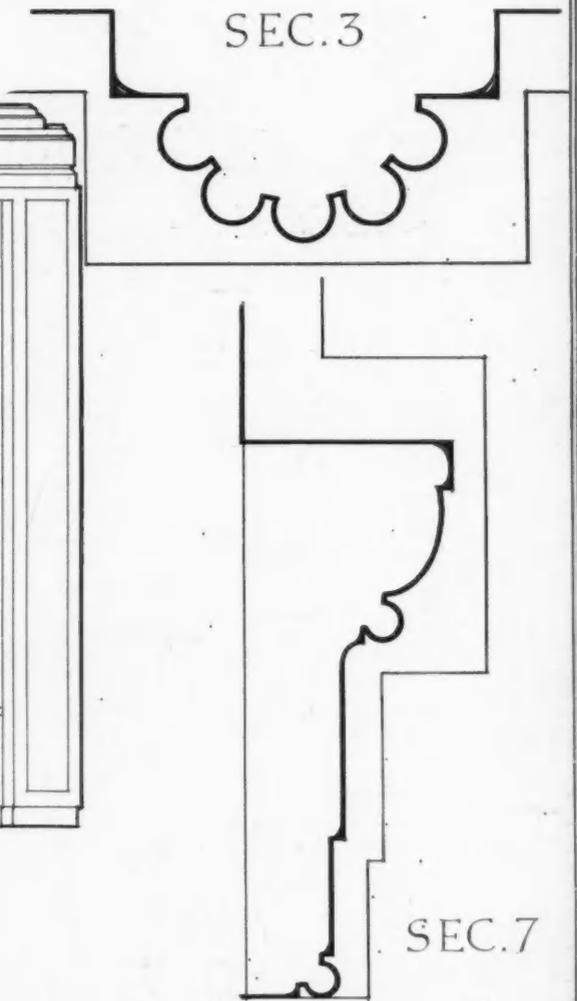
SECTION
THRU DOOR



EAST ELEVATION

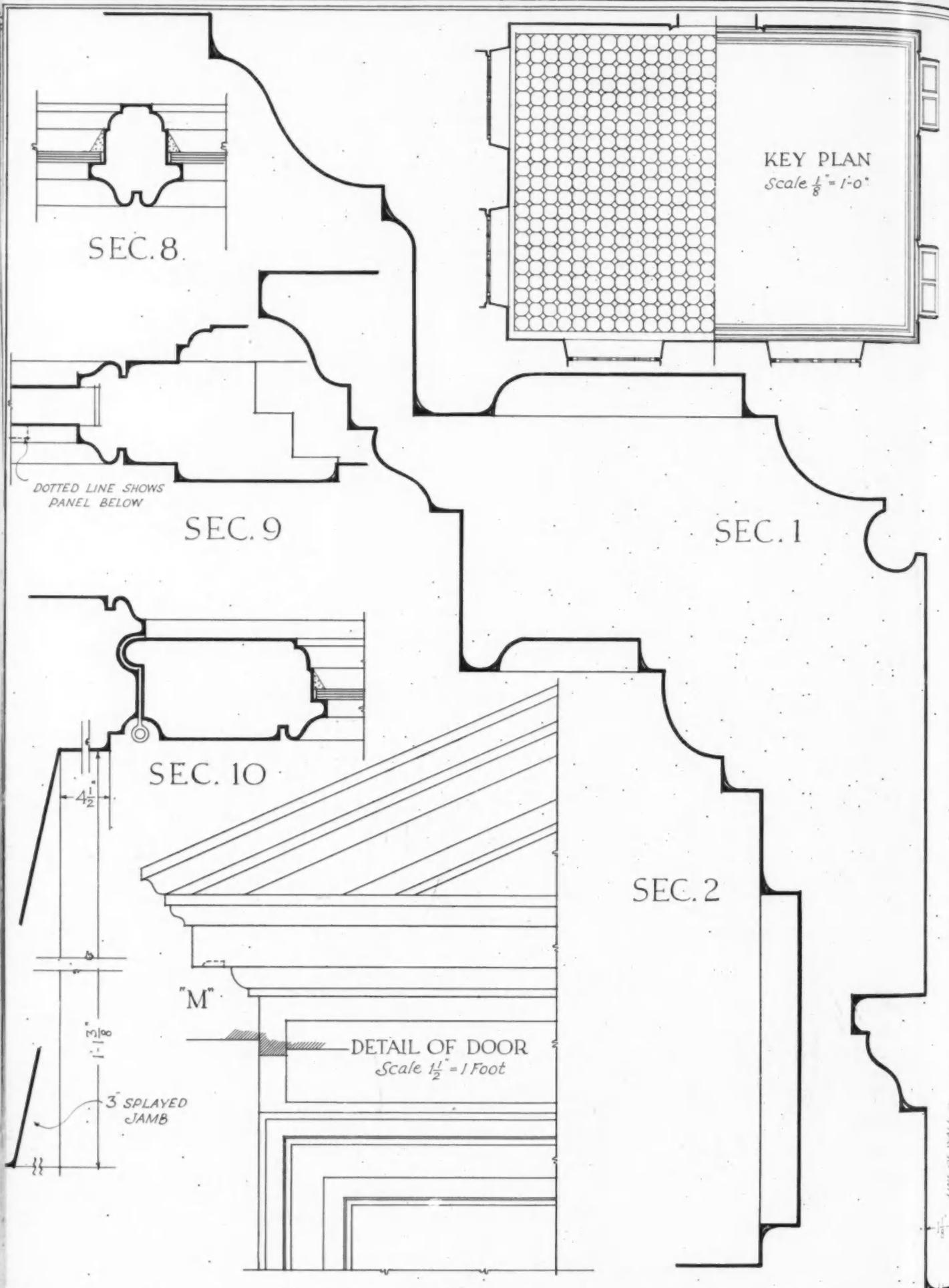
SALON

CHATEAU DE MONTFERMEIL



SEC. 3

SEC. 7



$\frac{1}{2}$ F. S. DETAILS OF SALON
CHATEAU DE MONTFERMEIL

Plate Description

THE FRENCH EXPOSITION, Plates 10-12. At the Grand Central Palace, New York, an exhibition was recently held for the purpose of better acquainting the American people with the art, handicraft and industries of France. Although the beauty and variety of the exhibits displayed in the many *salons intimes* were remarkable, the architectural setting was a still more notable achievement.

Through the fortunate selection of Howard Greenley, Architect, as Art Director, there was designed for this exposition an artistic and architectural setting of unusual charm and consistency. Taking the existing plan of the exhibition floor with its various structural elements, a plan possessing balance and symmetry was developed which provided corridors and courts along which were arranged little rooms or salons, each complete with ceiling and four walls, thus obviating the usual haphazard arrangement of open stalls of varied sizes and schemes of decorations.

As may be seen from the plan shown on this page, the two courts or large halls were logically located where the greatest crowds would be most likely to congregate, one called the *Grande Entree d'Honneur*, at the head of the main entrance stairway, and the other, designated the *Grande Salle de la Couture*, which faced the curtained stage where Parisian manikins displayed the latest models of the famous French dressmakers and designers.

The permanent architectural features such as columns, pilasters and balconies of the exhibition hall were cleverly combined with and concealed by the temporary architecture, to produce an adaptable and uniform design. A perfection of scale was accomplished, as evidenced in the plate illustrations, by constructing low vaulted corridors and open arcades upon which all of the display rooms opened, and an effect of permanency was secured by marbleizing the pilasters and halls and by soffits. Massive architectural vases of great dignity marked the arched openings of several corridors, as shown in Plate 10.

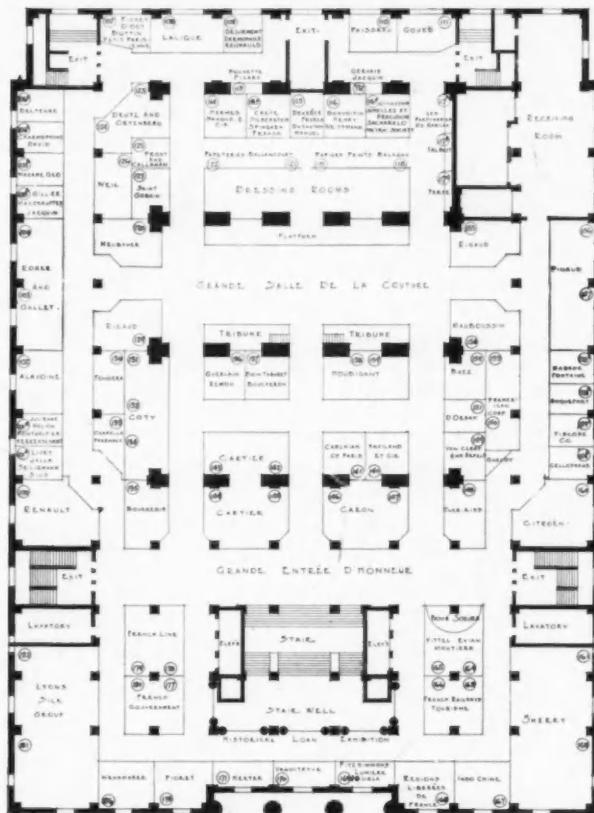
HOTEL ROYAL BERMUDIANA, Plates 13-16. At Hamilton, Bermuda, a hotel has recently been built from the plans of Warren & Wetmore which seems indigenous to the island. This effect has been accomplished by preserving to a large extent the existing trees and shrubs and by designing and constructing the building in a manner characteristic of Bermuda, and suitable to a semi-tropical climate.

Two of the finest estates in Hamilton were purchased for the site, and the old mansions built a century ago demolished to make way for this latest hostelry. The semi-tropical planting of the old estates was so exceptionally fine that it was decided to locate and plan the hotel in such a way as to preserve and take advantage of this wonderful asset. Commanding a fine view of the sea, pergolas and porches, covered with the gorgeous orange and purple bougainvillea, enclose the south court, which was planned to include without disturbing several fine old trees.

The building is planned around three sides of an open court, with the grill room in a projecting wing, which makes it possible for both the restaurant and the grill to be open on three sides, with the arcade upon which the lounge opens continuing a long one side of the restaurant.

These are all large, well proportioned, airy rooms, made cheerful by gaily colored hangings, furniture coverings, rugs, lamps and lighting fixtures which contrast pleasantly with the light gray and white used throughout for the wall colors. In the bar, which is reminiscent of England, a delightful atmosphere has been secured through the combination of old English brick with antique cedar beams in panels for walls and bar front.

Although money was lacking to supply the window shutters and iron balconies planned to enrich the plain white walls of the hotel, the simple dignity of the building with its well spaced and carefully proportioned windows is very pleasing. It connotes perfectly its purpose and place,—a semi-suburban hotel in a semi-tropical climate.



Plan of the French Exposition
Howard Greenley, Architect

EDITORIAL COMMENT

57th CONVENTION, AMERICAN INSTITUTE OF ARCHITECTS

IT seems to be the unanimous opinion of all who attended, that the recent meeting of the Institute in Washington, for which a program of unusual interest and variety had been arranged for three days, was among the most successful ever held.

The program for the first day included not only the President's address and his impressive eulogy in memory of three of the country's foremost architects, Henry Bacon, Bertram Goodhue and Louis Sullivan, the presentation of reports by the various committees and the Board of Directors, containing many suggestions of constructive value, but also an afternoon discussion of "The Public Building Problems of the United States," under the chairmanship of Milton B. Medary, Jr., in which prominent representatives of the Government set forth the financial and construction problems encountered in public building and asked for the support and the active interest of the architects of the country in furthering the program of building construction and supporting the budget system of government financing. A lecture on Rome by Albert Kelsey ended the afternoon session, which was followed in the evening by a report of the Committee on Education, in connection with which papers were read by William Emerson, George C. Nimmons and by Ellis F. Lawrence.

After the nomination of officers on the second day of the convention, which resulted in the very fortunate selection of D. Everett Waid of New York for President of the Institute by unanimous vote, Robert Taylor Jones gave a talk on the invaluable and but little understood or appreciated work done by the Architects' Small House Service Bureau. H. Van Buren Magonigle devoted the afternoon session, of which he was Chairman, to a discussion of perhaps the most vital and fundamental characteristic of American architectural design today, entitled, "What is Precedent Doing to American Architecture?" This discussion included most interesting and illuminating papers by Ralph Adams Cram, William L. Steele, Walter R. B. Willcox and William A. Boring, as well as by the Chairman himself, which stimulated a new appreciation and aroused a latent realization of the unconscious influence precedent has gained in the phraseology of our architectural vocabulary. Each author approached the subject from a different point of view, some defending and some decrying what has come to be the underlying principle of architectural design in this country. It was a timely attempt to open the eyes of our architects to the insidious effect upon original and creative design of a trained and systematic subservience to precedent, which in its most blatant and abortive examples, as Mr.

Magonigle so truly said, becomes gross plagiarism.

Reports of the Committee on Architectural Relations and on Competitions were received and discussed on the evening of the second day, followed on the morning of the last day by the completion of unfinished business and the report of the Committee on Resolutions. After a sociable luncheon at the Washington Hotel, the afternoon meeting of the convention, with which it ended, included the announcement of results of the vote for officers, taken the preceding forenoon, and a reception tendered by the Secretary of Commerce, the Honorable Herbert Hoover and several other prominent Government officials to the members of the Institute at the building of the Bureau of Standards.

In reviewing the results of this latest meeting of the Institute, it is safe to say that no previous assembly of architects has dealt with more important measures, exhaustive reports and scholarly addresses, all of which should have a far reaching influence upon the future development and practice of the profession in this country. The feeling of mutual understanding and good fellowship which seemed to pervade the convention throughout its duration should tend to create better feeling, and to engender mutual respect and reciprocal appreciation among the members of a profession in which the lack of these qualities is too often painfully evident.

It would seem that the splendid spirit, the undoubted success and the invaluable inspiration achieved by this convention of the American Institute of Architects should give an affirmative answer to the question, asked by retiring President Faville at the close of his opening address: "Is the Institute furnishing to the architectural profession as a whole, the highest form of leadership?" Surely no finer leadership in a great profession, combining as it does, artistic genius with business ability, could be desired than the high minded, distinguished leadership which the Institute has again demonstrated that it has the ability to assume. The future holds untold opportunity for the further beneficent influence of such leadership and service, not only upon the profession, but also upon the public, through developing a greater general appreciation and understanding of architecture.

Toward this much desired end the joint exhibition to be held in New York next April by the American Institute of Architects and the Architectural League of New York should greatly contribute. During this exhibition of architecture and the allied arts, which will be nation-wide in its scope, the Institute plans to hold in New York its next annual convention, at which time it is not doubted that it will again and even more forcibly demonstrate its high position as the leading and guiding spirit in American architecture.