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The
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RECORD

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A FRENCH EXPRESSION of MODERN ARCHITECTURE

The Church of Nôtre Dame, at Le Raincy, Seine-et-Oise — A. & G. Perret, Architects

By William D. Foster

Le Raincy is a small commercial town some six miles northeast of Paris, entirely modern and built on land which once formed the grounds of the old château. It is because the town is so modern and without older monuments that we discover that somewhat unusual thing—a new church in a French town; not a small chapel, but a church of considerable size, and in this case one that assumes importance because of its architectural handling.

A writer has said in a recent article in a French magazine: "It is perhaps necessary to go back to the building of the reading room of the Bibliothèque Nationale in order to find in the history of French architecture a fact of an importance comparable to the construction of this church by Auguste and Gustave Perret." It is indeed a departure from tradition. While at first glance it is entirely different from everything we are accustomed to, yet there are elements which seem to connect it quite definitely with the past, for the architects have shown a real respect for precedent. They have not desired to detach themselves from the continuous progression of architectural achievement, but have merely sought to express themselves honestly with the material which they have used, thinking out this expression without binding themselves by the manners used with other materials.

Dedicated in June, 1923, it is another example of the logical and clear intelligence of these architects, whose regard for the expression of construction with-

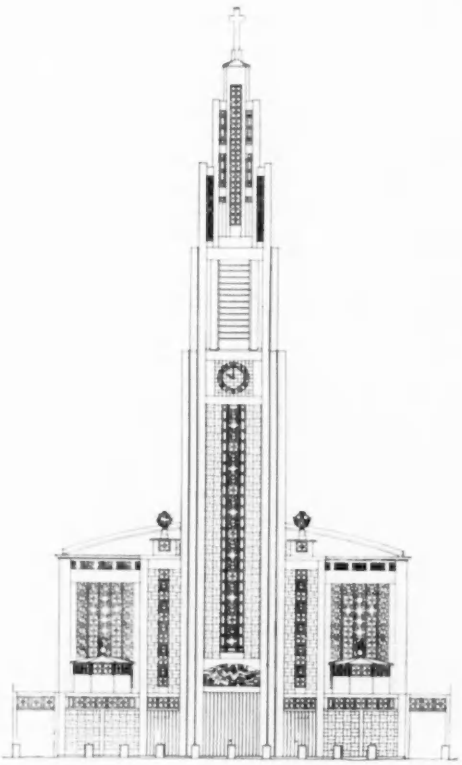
Main Façade

CHURCH OF NOTRE DAME AT LE RAINCY, SEINE-ET-OISE, FRANCE

A. & G. Perret, Architects

out superfluous elements was shown many years ago in their Théâtre des Champs-Elysées.

Here at Le Raincy, just as in the older churches, one material has been used. The structure has been kept evident and independent of the filling-in elements, and the



Main Elevation
CHURCH OF NOTRE DAME AT LE RAINCY

plan is that of the traditional church with the nave and two side-aisles. The entire building is vaulted. There is an immense area of glass, almost a continuation from where the Sainte Chapelle left off. Yet while all these characteristics are essentially the same as we find in the Gothic churches, the result is quite different because the one material used, instead of being stone, is reinforced concrete throughout: concrete without any facing of stone or marble, but left as it was when the forms were removed so that the lines formed where the different boards met are plainly evident, and help to give a texture to the surface.

This material, while a logical modern one, might not have been used in this case where the work is monumental had it not been for two important considerations. In the first place the budget was small. The whole building, including heating, ventilation and decoration only cost 600,000 francs. The other condition was time, and in this the choice of material was justified, for the church was built in a little over a year. Had stone been used the time would have been at least doubled. But once having chosen concrete, the architects proceeded to use it logically.

The system of vaulting is simple both in appearance and construction. The central nave is covered by one continuous barrel vault, while the side-aisles have transversal vaults coming into the main vault at a lower level, so that instead of intersections small tympanums are left over each column, which act to emphasize the points of support. Over this whole system is the roof, which is clear of the inner vaulting and is made up of smaller vault-like ribs running transversally across the building. Truss reactions are formed by the connection at various points of this outer covering with the interior vaults. It is in the roofing that allowance has been made for contraction and expansion due to changes in the weather.

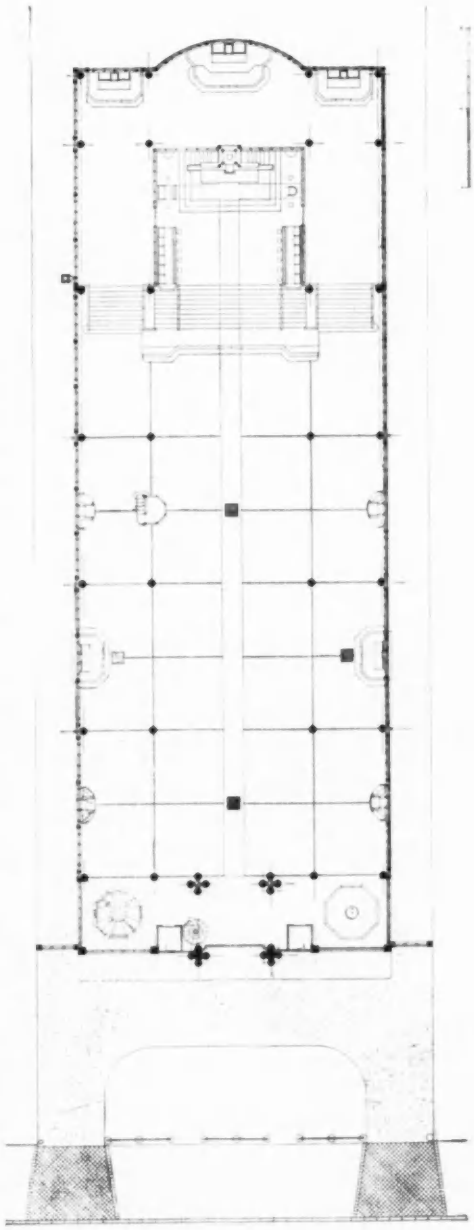
While in the Gothic structures the vaulting demanded great piles of masonry to take the weights, and buttresses to resist the thrusts, in this case the vaults of concrete are so light that slender columns take all the stress and strain. These columns, which are a little less than 17 inches in diameter at the base and taper slightly towards the top, are about 35 feet high. Their lightness has been even further accentuated by the channelling of their surfaces; they are without caps or bases, for neither seem to be necessary from a constructional point of view.

This whole system of vaults and columns is a unit in itself, a reinforced concrete framework quite independent of the walls; in fact, there is an actual air

space between the outer columns and the walls.

The walls with their immense areas of glass are the most interesting part of the church, for they accomplish what had been the object of centuries of church building, the opening up of the walls for more glass area and less stone surface, an effort which is most nearly satisfied in the Sainte Chapelle. In fact, Le Raincy has been called the Sainte Chapelle of reinforced concrete, because of this characteristic. The windows, or rather the walls, as there are no enclosures to mark window openings, are constructed entirely of concrete blocks cast in five different patterns, the cross, the square, the circle, the triangle, and the oblong. These with coves around their edges, have been laid up like bricks. With these five units arranged in different groupings, the architects have been able to obtain a variety of pattern and a rhythm of spotting which is most effective, yet at a minimum of expense, as the effect depends on a few simple elements cast in as large quantity as desired. These same units have been used throughout wherever decoration or openings were needed; not only do they form the walls, but they are used for the altar railing, for the communion table, for the *ciborium* and for the openings in the vaults. Incidentally, these perforations in the vaults—which at the same time are quite decorative—were really formed for the practical purpose of absorbing sounds which might otherwise reverberate too much where all the surfaces are of concrete. They are backed up with heavy stuffs.

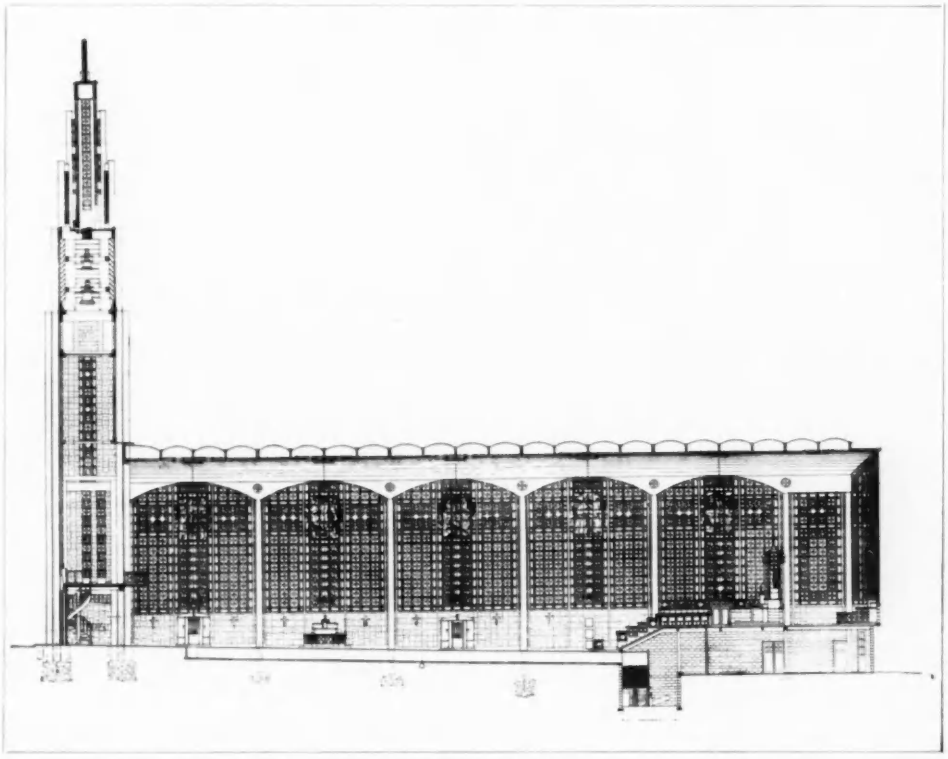
Naturally when there is so much glass surface the handling of the glass itself becomes of prime importance, and it has been done with the greatest care and subtlety, with the result that the light which floods the church at all times is astonishingly effective. In fact, it is so essentially a part of the whole effect that it is impossible to judge the atmosphere created when one can merely see black and white reproductions. The colors of the glass nearest the entrance are of a general yellow tone, and as the windows approach the altar the colors become deeper, going through the oranges, the reds and violets and ending in blue for the space around the apse. This blue,



Principal Floor Plan
CHURCH OF NOTRE DAME AT LE RAINCY
A. & G. Perret, Architects

with accents of red and violet interspersed, has the depth of a clear night sky. This, with the large pattern of a cross showing directly behind the altar, forms a solemn background for this most sacred part of a church.

The windows along the sides, in their turn, have the individual units so arranged that a cross appears in the pattern of each one, while at the center of the cross is a decorative panel of glass, the panels representing not only biblical scenes but also scenes inspired by the Great War. The church is really dedicated to Nôtre Dame de la Marne, and is commemorative of the victory of the Ourcq which was fought near Le Raincy and was one of the earliest phases of the battle of the Marne. The panels are by the well-known painter, Maurice Denis, and while they are now only paintings on glass, "maquettes" which it is estimated will last for twenty years without material deterioration, they will be replaced from time to time as money becomes available by the real stained glass of the same designs.

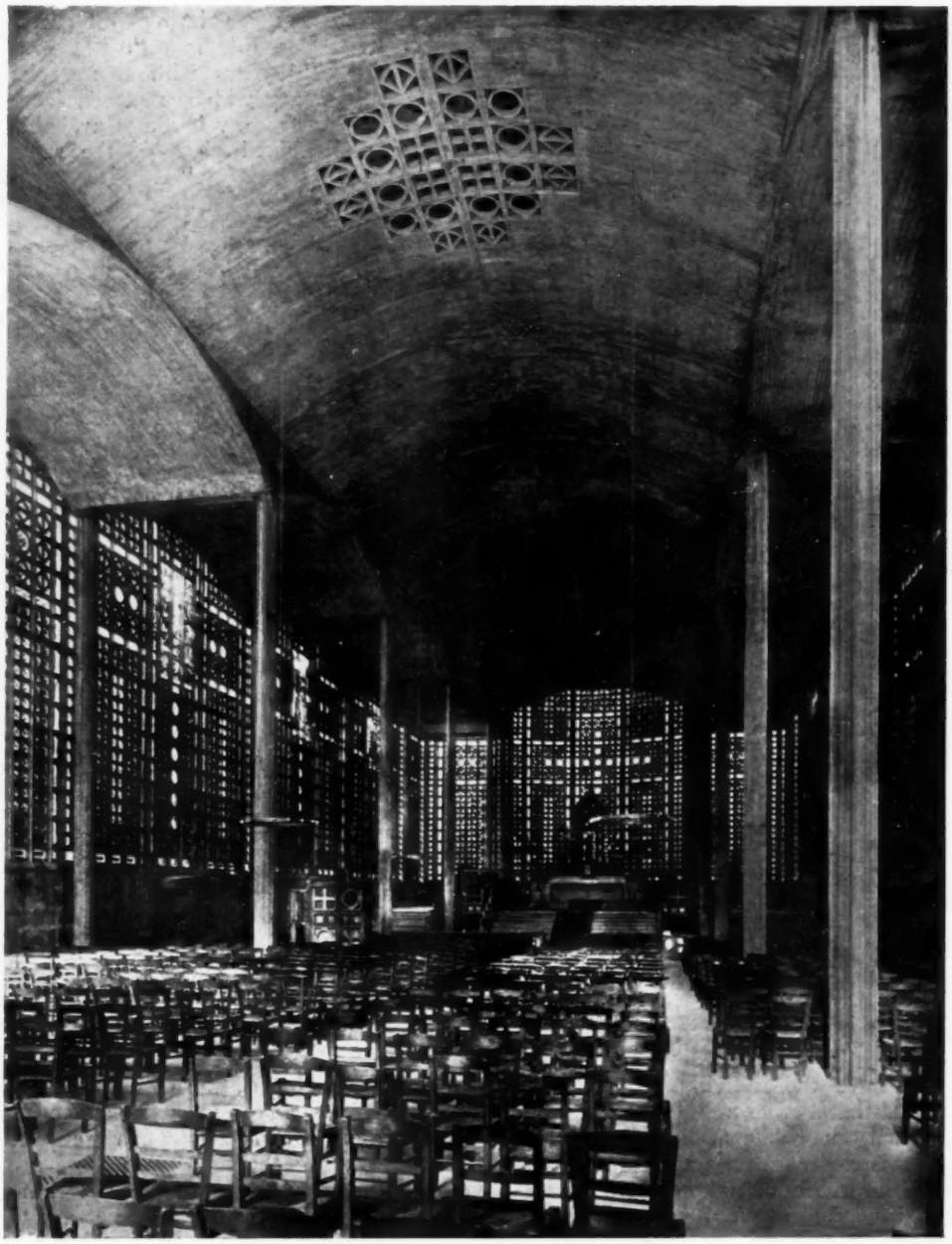


Longitudinal Section

CHURCH OF NOTRE DAME AT LE RAINCY, SEINE-ET-OISE, FRANCE

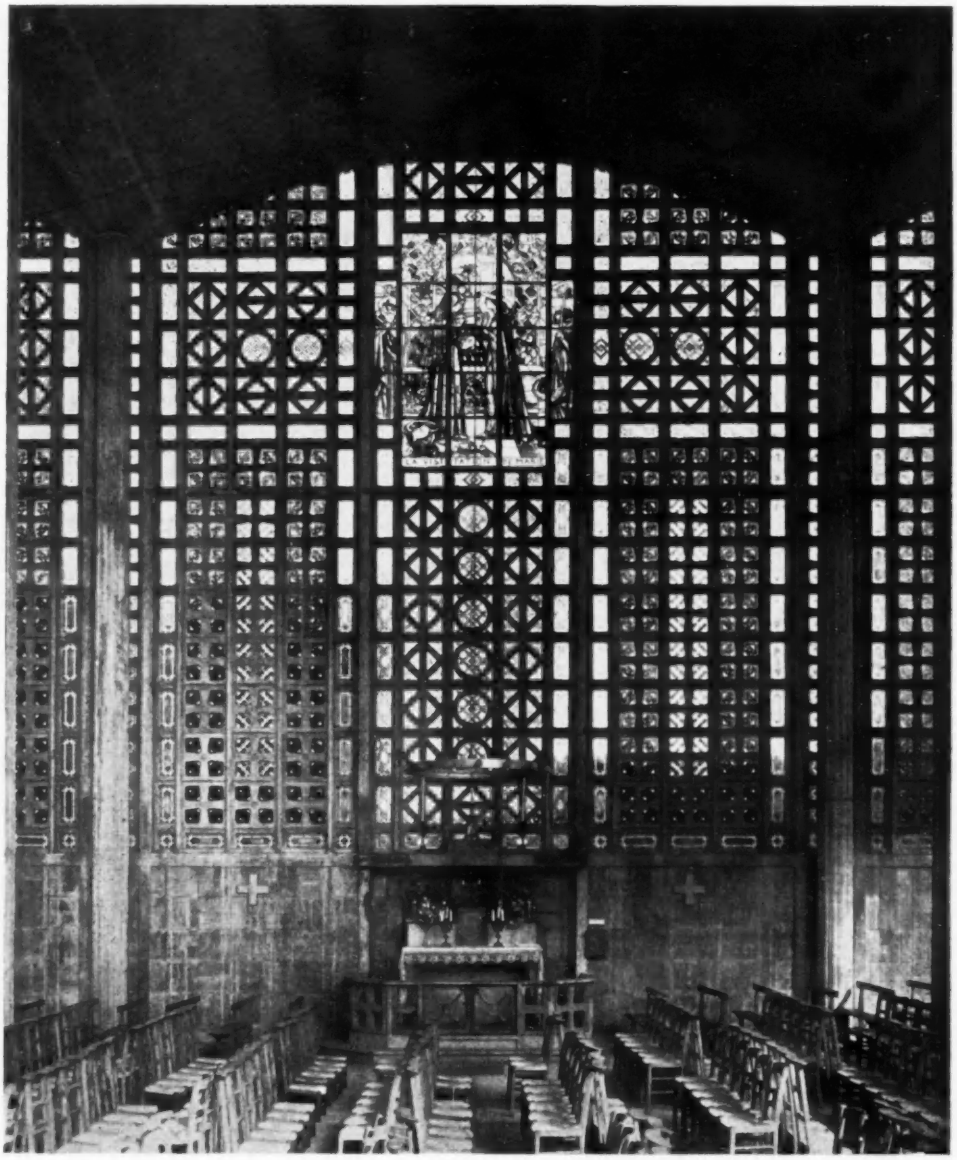
A. & G. Perret, Architects

While the plan of the church follows the traditional arrangement in a general way, there are variations which are quite interesting. In the first place there are no transepts, probably because, lacking both time and money, it was necessary to do everything possible to simplify the scheme. Another departure is in the arrangement of the floor and the altars. This is the result of the fact that the ground, having once been the site of a quarry, was sloping, and to have leveled it off would have entailed the expenditure



Looking towards Apse
CHURCH OF NOTRE DAME AT LE RAINCY, SEINE-ET-OISE, FRANCE
A. & G. Perret, Architects

Looking towards Tower
CHURCH OF NOTRE DAME AT LE RAINCY, SEINE-ET-OISE, FRANCE
A. & G. Perret, Architects



Detail of a Side Bay
CHURCH OF NOTRE DAME AT LE RAINCY, SEINE-ET-OISE, FRANCE
A. & G. Perret, Architects

of too much money. Fortunately the high point was at the street, and accordingly the architects turned the situation in their favor by sloping the floor of the auditorium and, in addition, by raising the whole altar space or apse floor some ten steps above the floor of the nave. The space under the apse then became available for the work rooms, the sacristies, the offices and the catechism or Sunday School room. These rooms are reached by two stairways leading down from each side of the main altar, an arrangement which makes the management of the services very convenient. These rooms may also be entered from outside by passing down the alleyways on each side of the church.

By such changes from the usual church forms, a practical auditorium has been created, for with the slender columns and the height given to the platform of the apse by its elevation and also by the slope of the floor, not only is the high altar raised to an imposing and religious position, but it becomes possible for each person in any part of the church to see the service without difficulty and to follow the ritual. This seems quite in keeping with the religion of today, when everyone can read and therefore is able to follow the service and become more a part of it than in the days when illiteracy was the rule. In the same way the illumination of all parts is more essential today than when a certain dimness and mystery moved the parishioners to worship. It is all a recognition of the progression from the purely emotional to the more intellectual attitude toward this as toward other subjects.

While there are the customary secondary altars on each side of the high altar, there are only two chapels, which are really not chapels in the true sense of the word; they are to the right and left as one enters, one being for the baptismal font and the other being a memorial to the "Morts de la Guerre" They are simple octagonal spaces without decoration other than architectural forms. The octagonal cupolas as well as the chapels themselves on the exterior become essential parts of the composition.

An independent structure, the tower, 140 feet in height, is quite free from the rest of the church. In appearance it is like nothing that has ever been done before, and yet it has much the feeling of the Gothic towers and achieves a real majesty that is quite effective as the successive stories recede toward the cross which tops it all. The corners of the tower are interesting in that they are formed by groups of piers, the number of piers diminishing as the tower rises so that there is the logical change from a heavy base to a lighter top. Each pier is of the same size, so that the scale has been more nicely preserved than if the lower ones had been replaced by a single pier of equal structural value.

On each side of the bell tower is a minor tower, not as a support but as a necessity on the interior to provide space for a gallery and organ loft and on the exterior as a part of the composition in tying the tower in with the church.

The entrance doors themselves have been kept extremely simple, and while they may look a little severe in the photographs they have been kept that way in order to form the greatest contrast for the sculpture which is to be placed in the tympanum over the central doorway. This decoration has already been designed and is also to be in cast concrete with very bold lines and sharp relief. The subject is "Christ being lifted from the cross," and is the work of Emile-Antoine Bourdelle.

Whatever may be one's attitude to the design as a whole, it must be admitted that this church is a real point of departure and marks an important step in modern architecture. The application of the crudest modern building materials to the needs of a building which is not only monumental but should also be majestic has been accomplished, and while some tastes might wish to soften some of the rigor of the effect, the fact that the architects by conscientious and honest thought have produced something logical has greater value in architectural history and progression than any building following the usual formula and treated with delicate ornament could possibly have.

LOW RENTAL HOUSING
SUBURBAN TYPE

By

Frank Chouteau Brown

Part I

WE HAVE now given some consideration to the problem of providing housing on a basis making a low rate of rental possible, under the crowded conditions obtaining in our larger centers of population. We have discovered certain economic factors that seem to be working more and more certainly to raise the cost of such housing year after year. We have also found that we are ourselves responsible for imposing certain arbitrary restrictions that also go toward increasing this cost, especially the numerous "Housing" or "Tenement House" laws, and the restriction of immigration. The latter will probably never be changed to such an extent as to alleviate either labor or living costs. The former we may possibly expect to see somewhat modified, once public opinion has been reached, to a more intelligent and helpful basis, helpful both in lessening costs of construction for low rental structures, and also in assisting to secure more sanitary and healthful conditions surrounding our low paid labor housing, instead of acting—as it does at present—as an actual embargo or preventive of better living conditions or the securing of new and more modern types of workingmen's houses.

One factor in alleviating conditions and securing more available housing accommodations, that was already in actual process of natural operation in our larger cities, had been found in the evolutionary progression of numbers of families from the more crowded portions to the suburbs, —moving from older sections to newer built-up portions through the desire for larger quarters, or for residence in a better or more suburban locality.

The practical result of this gradual migration has been to make available for lower grades of occupancy the dwelling accommodations that have thus been abandoned by the class that formerly inhabited them. This process is in constant operation; is a natural one; and, so far as it goes, should prove of certain benefit to the situation.

The difficulty is that, while natural—requiring no artificial stimulus or legislative action for its progress—it is nevertheless too slow in movement to meet the constantly increasing demand for more low-cost dwellings,—which increases much faster than this or any other natural process can produce any available supply. Also, as we found to be the case last month, these abandoned habitations are not left in a form best adapted to meet the differing needs and requirements of the new class of occupants; and so, in the present process of readjustment, hampered as it is by both "Building" and "Housing" laws as they now exist on our statute books, the very inheritance of this class of housing merely continues to increase the conditions of crowding in sleeping accommodations, while helping to provide more sanitation and better conditions for cleanliness.

Therefore we are forced to look about, in the endeavor to discern in what other directions we can expect to find assistance in still further ameliorating the situation. And again we do not find the outlook any too encouraging. There does exist, how-

ever, another line of progress, along which we can already discern that a certain movement has occurred. And it is possible, with a little intelligent appreciation of its potential further benefits, that we may be able to make an increased and more intelligent use of this movement, and the opportunity that it presents may be still further developed and widened.

Labor divides into a great number of classes. Some trade divisions must, from their very types of labor, remain indissolubly contained within the larger community aggregation, because of the fact that the very need of their form of labor has its origin within this large community. In theory, it is perfectly possible to find housing accommodation for this class of labor in the more suburban limits of the large city,—but as a matter of actual practice it remains a fact that this type of labor does not easily gravitate to these more remote sections, but of natural preference stays in or near the congested heart of the metropolis, from which crowded sections it has in the past been found either difficult or impossible to remove them. Even the Italians, whose women folk make a daily habit of pilgrimage from the city dwelling sections where they reside to the outskirts where they may cultivate plots of ground available for the type of intensive market gardening in which this race seems so naturally skilled and successful, by preference continue to live in these same over-crowded sections. They work in the country but insist on returning to the crowded city centers for the night. Many attempts have been made to allure these very families to reside in houses more conveniently arranged and with cheaper rents in the suburbs, and except in a few isolated instances, without success. And when success has been had, the ultimate outcome has been merely to start another slum nucleus, and the ample rooms or houses are soon as crowded as the most congested section of the larger city from which their inhabitants had come. Only thus do they seem content.

There are other labor trades that are required in the country as well as in the city,—and this includes all the building trades—so that a certain proportion may at least be distributed with equal convenience to its members between city, suburb and country, according to the demand that may exist. Heretofore it has been a fact, however, that the greater need —and therefore the greater pay—seems to cause the larger number to remain by preference in the cities,—even when they have often to journey well afield for a considerable part of their employment. And yet a change is beginning to operate within this particular group of building trades—which, of course, by the way, no longer falls within the class of "low-paid" labor at all. The "laborer" or "helper" class has already practically disappeared. It is almost entirely a "skilled group" now. Machines, such as "pumps" and "steam-shovels" and "concrete-mixers" are rapidly taking the place that was formerly supplied by "unskilled labor."

This change is motivated exactly as in the wealthier classes, and as a considerable portion of the working class in America is content to have as its principal ambition the close imitation of the wealthier classes, it would seem that we have every reason to anticipate that it will probably continue to operate in exactly the same manner,—and the instrument that we can confidently expect to help out in this situation is the automobile —in this particular case, perhaps the "flivver"—aided and abetted by the "radio" and the telephone.

Other means of communication and transportation having never been successful in persuading the workingman as a class that the suburb was as convenient and accessible for living as the crowded city; it remains for the ease and comparative luxury that follows the possession of an automobile to convince him of this fact, —just as it has a little earlier convinced the wealthier classes of the desirability of living for the major part of the year in the country and coming to the city only for a part of the winter months. And so the mason, the carpenter or the plumber have found that the possession of an automobile for use during the week as a business accessory and during the Saturday and Sunday holidays as a means of

Fig. 20—Panoramic View—Left Half
APARTMENTS FOR SHIPBUILDING HOUSING CORPORATION, NEWPORT NEWS, VA
Francis Y. Joannes, Architect

pleasurable relaxation, is better and more easily managed if he removes to a suburb, where a garage can be built on a corner of his lot, and then transports himself wherever his work may call,—and the extra radius of activity provided by the automobile is an added argument urging him to the change. So in this group of skilled labor, at least, we are already experiencing a movement that is bound to extend more and more and to make its influence felt during each coming year. Here lies the largest untapped field for the exploitation of the Ford salesman, as well as the salesman for the huge "used car" product,—which is now so much a problem that it is damming up the progress and development of the entire automotive industry.

Finally, there remains another class of labor that is dependant on neither city nor country, but can find its output of value only in certain factories or mills, and so will go wherever the demand for its labor exists.

Here we can find at our hand a natural law, in the operation of which man can himself exert an unobtrusive and intelligent direction. And its practical working has already been well proved by successful experiment in other and equally crowded sections of the old world. To name but one of the many well known examples. Port Sunlight, a few miles inland from the port of Liverpool, was first started as a new and arbitrarily selected location for the factories of "Sunlight Soap." Labor difficulties, "turnover," etc., had become a marked factor in the administration of the factories in the old locations, where they were placed among other factories, in crowded city sections where labor was to be found in huge supply. Therefore, when the time came to enlarge the buildings, it was found land values were too high to make it advisable to try and continue in these urban locations, and so a removal of the entire plant was planned to a conveniently located point near transportation, shipping and freight facilities. Not only were factories built, but also housing

Fig. 20—Panoramic View—Right Half
APARTMENTS FOR SHIPBUILDING HOUSING CORPORATION, NEWPORT NEWS, VA.
Francis Y. Joannes, Architect

accommodations of a type that the owners believed would help make their employees contented and happy, and therefore remain more continually in their employment.

In order to broaden the foundation and make it still more permanent, other factories were encouraged to locate on sites that had been set aside for that type of development in the new suburban town plan, thus providing employment for other members in the families of those employed in the original works, and at the same time occasion was made to relieve the householders of all feeling of being at the mercy of their employers for the occupancy of their homes. It is at this point that most American ventures along similar lines—such as Pullman, Ill., —have failed; so the scheme of organization of these successful foreign ventures is worth the brief retelling. Shorn of all its foreign and strange phraseology, the scheme comes down simply to this.

The employing companies bought and owned the land occupied by the entire township. It turned this ownership over to a corporation, managed by trustees, in which the actual individuals owning the property did not too obviously appear. After having set certain portions of the site aside for store locations, schools and church sites, parks and play grounds, community buildings, etc., the remainder was developed by still other associations, in which the occupants of the houses to be built were required to buy a small interest, so that they might feel themselves the actual owners and directors of the enterprise, as well as those who would control and direct it after the houses were built and occupied by them. The houses were built by other organizations and either leased for a term of years or sold on leasehold (a form of property conveyance very common in England, consisting of selling ownership for a definite number of years, ninety-nine to several hundred). The purchase price was always divided into a series of weekly or monthly payments, so worked out as to cover cost of land and buildings, insurance for buyer

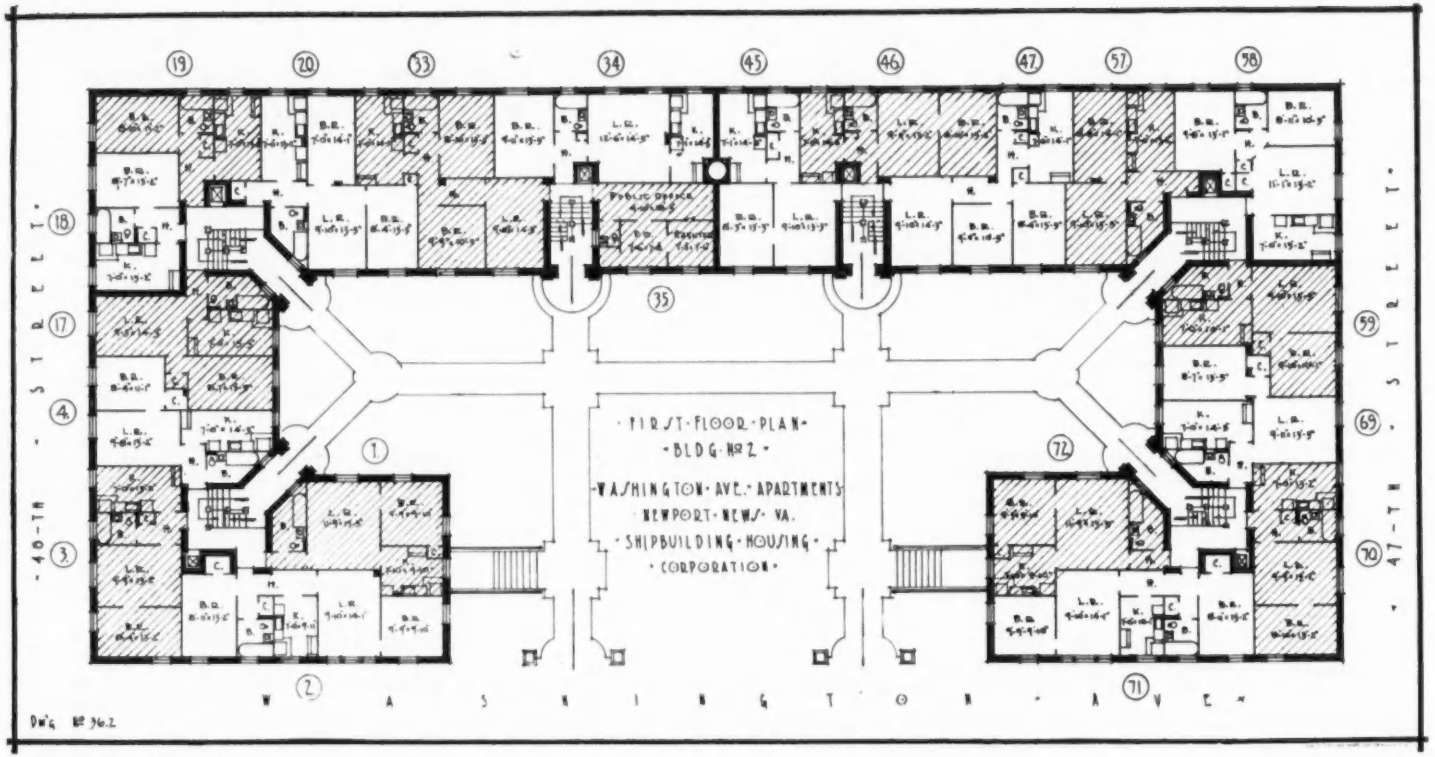


FIG. 21—APARTMENTS FOR SHIPBUILDING HOUSING CORPORATION, NEWPORT NEWS, VA.

Francis Y. Joannes, Architect

(in case of death, protecting his family in the ownership of the home) membership in community building, library and community interests, generally covering taxes and usual charges, so that any employee could directly feel all the benefits of actual independence and ownership in the control of what thus became his own property.

All over the Continent the success of this type of venture has been so notable that it has formed the basis upon which all the forms of community, city or national housing development that have latterly been attempted, have been undertaken. So far, however, this form of housing development has been neither common nor successful in this country. Where attempted, it has not been upon the necessarily broad basis that has alone made for its success and permanence abroad. A few individual factories or businesses have intentionally removed to suburban localities. A few more have built houses for their help. (This was often done in the case of some of the earlier textile mills in New England.) But they retained ownership in these homes direct, and in case of a desire to change to another employment or go on strike, it was common to immediately evict the occupants, so that the families occupying these company houses could never feel any independence or proprietorship in them.

They were, besides, generally lacking in all interest of appeal, being bare, baldly practical, and seldom having any planting or playground conveniences to add to the pleasure of their occupants. No Continental experiments along this line have ignored attraction as an element in the success of their venture. The houses are planned and built to avoid monotony; planting is done, gardening encouraged by prizes, cinema halls erected and run, along with schools and playgrounds, and always a suburban attractiveness is ensured by not allowing over ten houses to be built to the acre of land area.

One reason for the failure of this type of civic improvement to appeal to the American business man resides in the fact that it provides him no opportunities for quick appreciation of the money invested, nor any hint of the gambling appeal that he is accustomed to find in his other forms of so-called "investment." It belongs to the "safe and sane," and "slow and sure" class, in which he will probably be frank to confess his lack of interest. On a strictly business basis none of these English companies has shown a return of over two to two and a half per cent. to the original or holding company. (Often the building or development organizations—in which the same men are generally interested,—concerned with the building and rental of the houses, are based on a four to six per cent. net return.) Over a period of years, however, the appreciation of the property over and above its original cost in large tracts, plus the cost of its opening, laying out and development, manages to make up a good profit—in addition to which the manufacturers concerned figure they make an enormous saving in labor turnover alone,—quite aside from the savings made in the cost of the land and buildings necessary for their own factories, the latter increased by the fact that they can build over larger areas of cheap land, so making lower buildings, cheaper to build and easier to operate, with more light and air to benefit their operations and their employees.

In the case of those few American ventures where individual factories have restricted the whole undertaking to their own concern and its employees, they have had to carry the housing part of the operation at an enormous loss on their books, or write it off year after year; and with the outlet of the area so restricted in its interests they can not expect land values to appreciate so as ever to recoup this loss,—as in the case of the larger aggregation of interests involved in the English venture, on the basis that has just previously been described.

To mention the experience of a single manufacturing plant in Massachusetts, for instance, one of the first to undertake to make this move to a small town, and provide homes for its employees. Started over a dozen years ago, with houses of a distinctly better average of architectural design than was then common, the stand-

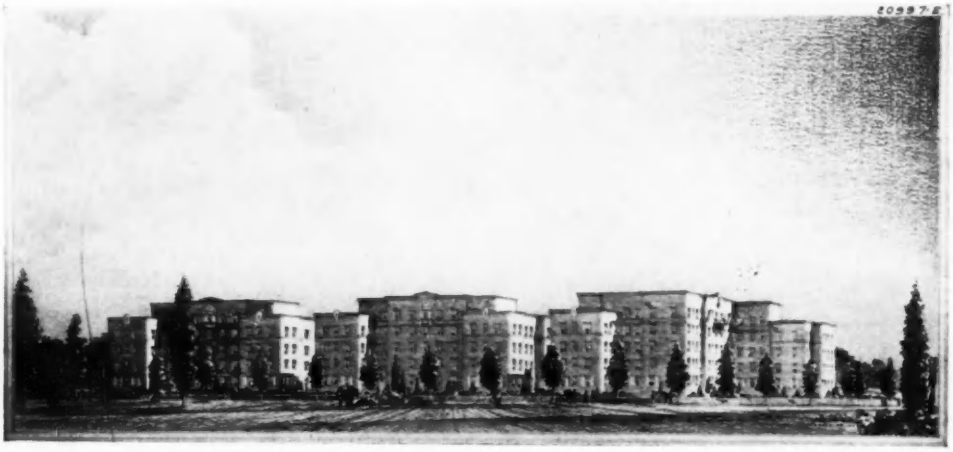


Fig. 22—Elevation

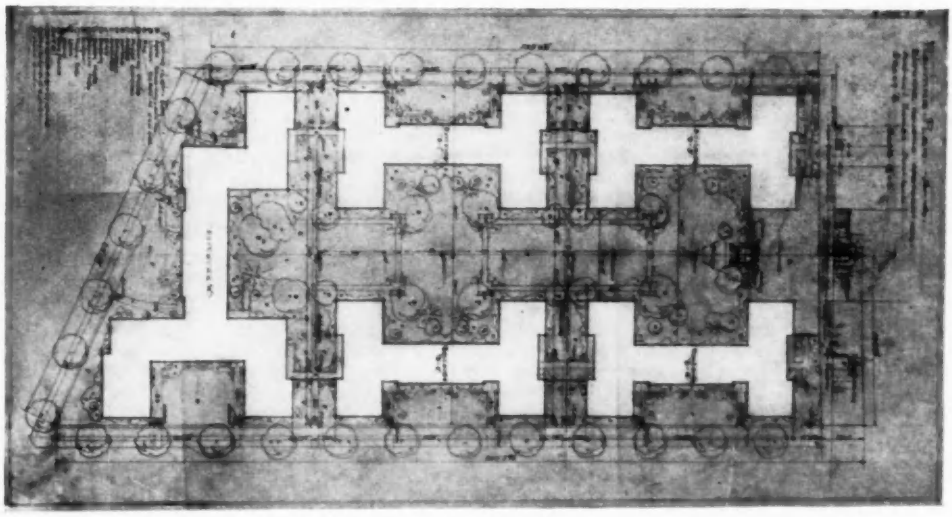


Fig. 23—Plot Plan

APARTMENTS FOR THE BAYONNE HOUSING CORPORATION, BAYONNE, N. J.
Andrew J. Thomas, Architect

ards of rental prices then established have had to be maintained at substantially the same rates down to the present day. Even at the original rentals they did not pay any real investment return on the cost of the housing,—and as new houses have been required they have been built from time to time, at constantly rising cost prices, ever since. The most recent examples, while of the same plan arrangements and sizes as those first built, now require several times as much money to pay for their construction,—while as the rental of the new house is for the same class of occupancy, only a very little more can be charged than in the case of those originally built, so that the corporation can only continue to house its labor adequately on the basis of accommodation originally established, at a heavier and heavier cost from year to year.

Most of our own attempts in this direc-

tion have been with the small or semi-detached house; just as, abroad, most of the housing of this type has been in the grouping of single house units into rows of greater or less length. Nevertheless, some few Continental housing developments have been laid out into apartment buildings of a class comparable with those that have been more usual in this country, and this is particularly true of many of the more recent developments, especially those undertaken by the various municipalities in Belgium, Holland and England, in which we will later find many of our most suggestive and adaptable ideas.

In North America we have some examples of more or less interest, and one or two projected plans that have not yet materialized in execution. Among these are the two projects illustrated this month.

When, during the war, our Government undertook to go into the housing business, it was so necessary to obtain immediate results that it was found impossible to consider the matter of cost in any way, nor was it always possible to lay out the project with sufficient care to produce the eventual results that we would now most desire. Always, expediency and the need for haste were placed before everything else,—and while we must recognize that many mistakes were committed under these necessitous urges, these various housing enterprises have, nevertheless provided us with one or two examples of plan experiments of which we are so sadly in need in this entire field of low cost and rental housing.

Fig. 24—Typical Floor Plan
APARTMENTS FOR THE BAYONNE HOUSING CORPORATION, BAYONNE, N. J.
Andrew J. Thomas, Architect

We find that little experiment was made in the matter of better tenement housing. In most of the war-housing developments the emphasis was put on the individual house, semi-detached, or in rows. Occasionally, and most incidentally, we may find a tenement or two, merely because they did not know what else to do with the upper part of a building given over to store purposes,—but there are to be found one or two marked exceptions to this general rule. And one of these is in Newport News, where one of the most important shipping industries was located —though even here the lower paid labor came generally from the colored slums—

but it was necessary to find accommodations for the less well paid whites, as well as for the more skilled workmen, and so we find a certain value in the several large four-story buildings in which were grouped a large number of living apartments, the plan of one of which is shown as Fig. 21 and a panoramic view in Fig. 20.

Here we have a plan of the "open court" type (partly closed) including twenty-one apartments upon the floor. Of these twenty-one, four are grouped around three of the corner stairways, three around another, and three are reached from each of the inner staircases; while two are of two rooms, thirteen of three rooms and six of four rooms. All six staircases are inclosed within fire walls and the building is divided by fire walls into four separate sections.

Four buildings were built in Newport News on this plan, each on lots of 100 by 200 feet area, and it will be noticed that the "Open Stair" idea was incorporated into these plans, in order to obtain the fullest possible benefits of cross draft, which it would otherwise have been impossible to secure for the smaller apartments in the corners, and the apartment confined to one side of the building on each of the center stairways. But little use is made of the stair wall for lighting and ventilation of rooms or toilet compartments.

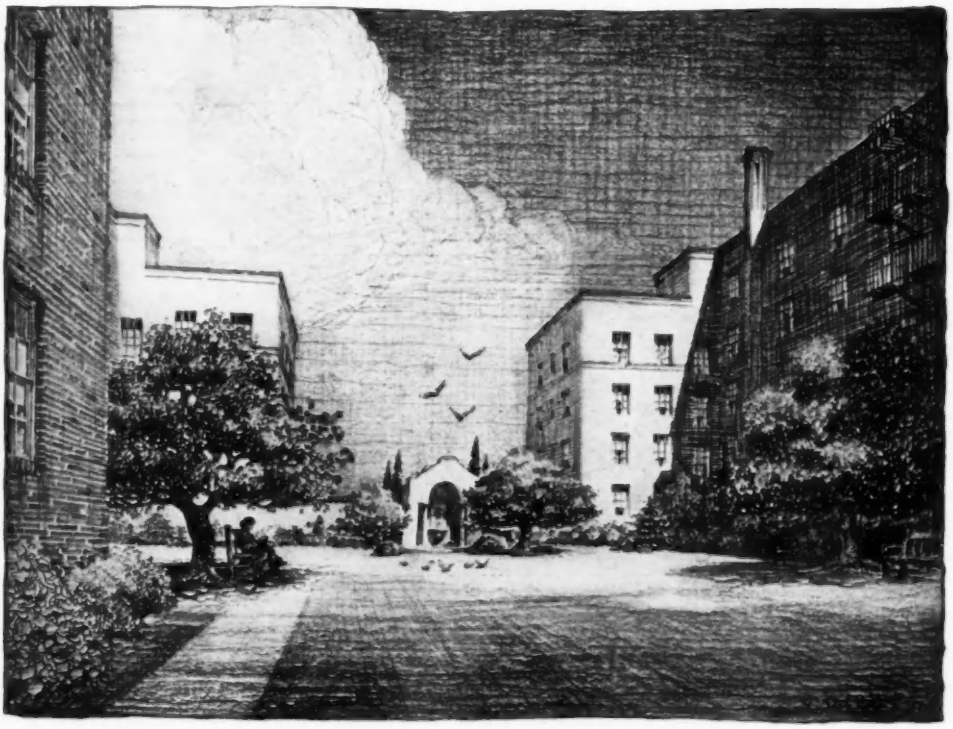


Fig. 25—View in Courtyard
APARTMENTS FOR THE BAYONNE HOUSING CORPORATION, BAYONNE, N. J.
Andrew J. Thomas, Architect

The courtyard is about thirty feet wide by one hundred and twenty feet long; the building about eighty-eight feet deep over all, and it covers almost exactly half the area of the land on which the building is placed, with a total capacity of eight-four apartments in the whole struc-

ture,—or sixty-seven rooms to the floor (excluding bathrooms) and two hundred and sixty-eight to the four floors. It should also be noted that all the kitchens are intentionally too small to be used for eating or living purposes.

Another example that has been selected for illustration this month is of the group of housing units that is now being undertaken at Bayonne, N. J., (Figs. 22 to 26 incl.) This particularly illustrates several of the points that we have been making in this series of articles. It shows that industrial interests in this country *are* becoming concerned in the problem of properly housing their employees,—and, at last, in something approximating the right manner. For this work is to be undertaken by "The Bayonne Housing Corporation," an apparently disinterested organization,—although no attempt is made to conceal the fact that, along with a number of individuals in the community who have bought stock in the corporation, such local business concerns as the Standard Oil Co., Tide Water Oil, Vacuum Oil, Babcock and Wilcox Co., Pacific Borax Co., International Nickel and the American Radiator Co., have all an important connection with the enterprise. The very fact that there are so many concerns interested, however, is at once the protection of the tenant from undue pressure such as he might fear from the direct ownership of any one employing concern.

Before undertaking this development, however, it was necessary to obtain certain amendments in the tenement house acts of New Jersey covering provisions that had hitherto existed to penalize low cost construction, and thus make low rentals of new property impossible. The law has been amended this spring so as to better protect tenants of this type of dwelling construction from fire risk, to require wider courts and hence lighter rooms, while at the same time requiring fireproof stairways, and removing unnecessary restrictions on construction that were at once adding cost and preventing exactly such developments as this from getting under way. This change was enacted in March. Now this project, as here illustrated, will provide a local illustration that should show the way for other ventures of similar type.

Until these buildings have been completed, it will not be possible to speak authoritatively as to the exact rentals that will be placed upon the apartments. It is expected, however, that they will be built at a price that will make their rental possible on a basis at least as low as the Metropolitan Life buildings in New York, and even, it is hoped, a little lower.

Advantage has been taken of the lower land value to base the whole enterprise on a more open and unrestricted plan. Here only one-third of the land area (35.5% to be exact) is to be covered by the buildings, leaving nearly two-thirds for lawns, gardens and playgrounds. The entire site covers about three quarters of a city block, with five apartment buildings containing 150 five and six room apartments, each with bathroom, living and dining rooms. The plot plan, Fig. 23, shows a large interior court 340 feet long by 52 feet wide, from which open the courtyards between the wings of the buildings, which are 66 feet wide and increase the width of the main court to 105 feet at these points. There are also 24 feet between the buildings, in each case.

The appearance of the building group has been much enhanced by the architect seizing the opportunity presented by their suburban location both to arrange the entire grouping into a single composition, and also to vary the skyline by carrying the central portions of the units to a height of five stories, leaving the wings of four stories high,—as well as by the *chiaroscuro* obtained by advancing the wings of the elongated "H" shaped units nineteen feet beyond the main face of the structure, the resulting forecourt also providing opportunity for an enhancing planting and landscaping setting for the group of buildings, Fig. 22.

Reference to the detailed plan, Fig. 24, shows that each floor contains four apartments of six rooms and two of five, grouped around two staircases. The four larger apartments all have three exposures, the two smaller ones two, with direct cross draft,—while the unusual openness

of the unbuilt area ensures exceptional sunlight, air and outlook at all times. One end of the large courtyard is to be equipped with a playground for children, with comfort station, to keep the tenants' youngsters from the dangers of the streets and public playgrounds.

The whole presents a significant attempt along lines that are hopeful of result. Despite the fact that the size of the apartments indicates that they will have to be filled by a fairly well paid class of skilled laboringmen's families, every wish should be expressed for the successful outcome of the experiment, in order that it may prove the possibilities of the direction towards which it points, and inspire others to undertake similar ventures upon a slightly less pretentious basis, so that the conditions surrounding a still lower-paid class of laboring men will also be improved.

Children's Playground

FIG. 26—APARTMENTS FOR THE BAYONNE HOUSING CORPORATION, BAYONNE, N. J.
Andrew J. Thomas, Architect

RUSKIN AS CRITIC OF ARCHITECTURE

By Charles H. Moore

THE VOGUE OF RUSKIN, as a critic of art speaking with authority, which was well nigh universal in England during the second half of last century, no longer prevails. His books are now little read, and his judgments of art are generally discredited. But while there is much to justify the popular reaction, it should be realized that it ignores much that is of great importance in his work as a whole. As an impassioned student of nature, and expounder of the art of landscape painting, he was—whatever his limitations—a writer of extraordinary powers; but as a critic of architecture, his writings show him not to have been well equipped. His architectural apprehensions were not grounded on a proper sense of structure, and he had no practical acquaintance with the art of building. It is, however, only fair to say that the same is the case with most other modern writers on architecture. Moreover, when he wrote his principal works, he was immature. He was but thirty years of age when *The Seven Lamps* was published, and *The Stones of Venice* followed almost immediately. In these books he undertook, with youthful self-confidence, to lay down what he considered the laws of design and construction in the art. Of Gothic architecture, which he sought to expound, he had no exact knowledge. Respecting its character he did not get beyond the vague notions that prevailed in his day, and still widely prevail. The monuments of mediaeval pointed building in Europe had not then been examined, and their widely different principles of design and construction discriminated. He made, as we shall presently see, the distinguishing characteristics of Gothic to consist virtually in ornamental features—even structural members being regarded by him as of primarily ornamental significance.

He says, indeed, a good deal about structure, but his remarks on this head are confined to isolated parts—as the combination of the arch and the gable, the pointed arch and the clustered shaft, and so forth. He does not grasp the fact that the composition and shaping of these parts is, in true Gothic building, determined by the exigencies of the total structural system. In discussing these things he makes emphatic affirmations that involve important errors—as where (*Stones of Venice*, Vol. 2, p. 194)* he defines a roof as "the covering of a space, *narrow or wide*," and says:

"It does not in the least signify, with respect to the real nature of the covering, whether the space protected be two feet wide or ten; though in one case we call the protection an arch, in the other a vault or roof . . . The real question is the nature of the curve, not the extent of the space over which it is carried, and this is more the case with respect to Gothic than any other architecture; for in the greater number of instances, the form of the roof is entirely dependent on the ribs; the domical shells being constructed in all kinds of inclinations, quite indeterminable by the eye, and all that is definite in their character being fixed by the curves of the ribs." This is a vague and incorrect description of a Gothic vault, but it will be seen that it quite negatives his affirmation that it does

*The references in this article are to pages in the edition of *Everyman's Library*, London: Dent & Sons, Ltd.

not signify whether the space covered be narrow or wide; for clearly a vault such as he speaks of could not be built over his space two feet wide. Again, in saying that in the greater number of instances the form of the vault is dependent on the ribs, he betrays want of clear understanding, for not only in some instances, but in *all* instances, the form of the Gothic vault is dependent on the ribs—since the rib system is a skeleton to which the shells of the vault have to be shaped. Nor is it the curves of the ribs only that determine the vault form, but their adjustments equally, for in true Gothic vaulting over naves—such as Ruskin here speaks of—some of the ribs spring, of structural necessity, from a higher level than others, with consequent further warping of the vault surfaces, as they fit themselves to the ribs.

In discussing the relation of the arch to the gable in Gothic architecture, he is led into error by confounding the merely ornamental association of these features —where the composition is in one plane, as in windows or traceries—with the structural relation of the arch of a vault to the timber roof over it. In the one case, the crown of the arch may reach as far up into the gable as it will go, there being no structural condition to limit the height, but in the other case, the arch cannot rise into the gable at all, because the tie-beam of the timber roof must pass over it. Making no distinction between the two, Ruskin affirms (p. 194) that "the real character of the building, in all good Gothic, depends upon the single lines of the gable over the pointed arch," and gives a diagram (Fig. IX) in which he makes the crown of a vault reach high up into the gable.

On this matter it is important to observe that the merely ornamental combination of the arch and the gable, superficially applied, as we find it in the late additions to the west front of Rouen Cathedral, for instance—from which Ruskin draws an illustration—does not occur at all in the pure Gothic, i. e., the style of the Ile-de-France in the twelfth century and the early part of the thirteenth. It is not found in Senlis or Paris, or even in Amiens or Reims, save as a late interpolation. It first appears, I believe, about the middle of the thirteenth century—as in the triforium of the Choir of Amiens—and marks the beginning of Gothic decadence, when the ornamental idea takes precedence of that of structure, and becomes independent of it—leading to all manner of irrational design.

Not perceiving that the total structural system governs the character of everything in true Gothic building, Ruskin strives to define the nature of Gothic by bringing together and describing the several elements which in combination he fancies determine it. These elements are mainly ornamental, and thus he looks in ornamental details for the formative principles of a great art. He lays more stress on the cuspings of arches and the piercing of tympanums, than on vaulting and vault supports. Not grasping the *raison d'être* of every part of a Gothic structure, in which one thing implies another throughout the entire fabric, he denies that vaulting is essential to Gothic, and discusses isolated features in great detail, with no recognition of the fact that in true Gothic composition every member is a dependent part of an organic whole, shaped, proportioned, and adjusted for its particular function.

Ignoring these things, he declares the elements which make up the Gothic style to be six in number, namely, 1, Savageness; 2, Changefulness; 3, Naturalism; 4, Grotesqueness; 5, Rigidity; 6, Redundance. These elements are, he affirms, named in the order of their importance; thus he makes savageness to be the chief element of the greatest art of the Middle Ages. This can in nowise be justified. There is no savageness in Gothic architecture. To maintain that there is, is to confound the primitive art of the uncultured Northmen, with the perfected art of the same people after fusion with the southern races. The discerning eye will find hardly less of classic than of Gothic quality in the perfected Gothic art. Ruskin, virtually unacquainted with the pure style, and impressed by the rude energy of the Lombard sculpture, which he confuses with the Gothic, speaks of

the "rough strength and hurried stroke" with which the workman "smites an uncouth animation out of the rocks which he has torn from among the moss of the Moorland," and contrasts the mediaeval freedom with the slavery which he thinks was the lot of the ornamental carver of classic antiquity—drawing a distinction between Greek and Gothic carving that has no foundation in fact. He tells us (*Stones of Venice*, Vol. 2, p. 145) that Greek ornament is "servile," that it is purely mechanical, and says (p. 170): "The facts of lower nature were disregarded by the Greeks, and their inferior ornament became, therefore, dead and valueless." But not only do the horses and bullocks of the Parthenon frieze show unsurpassed expression of equine and bovine life and movement, but the coins of the British Museum, among many other things, exhibit a wide range of representations of lower animals, including crustacia, of marvelous truth and beauty. While as for leafage, nothing finer, in point of vital truth to nature, than the capitals of Epidaurus, have ever been produced.

In the light of these things, it is clear that Ruskin had no correct knowledge of Greek ornament. Photographs were unknown when he wrote, and the original works of the British Museum and other collections, were neglected by students of art. He presumably got his ideas from the mechanical illustrations of books, in which both ancient and mediaeval art have been grossly misrepresented hitherto. It is strange that he should base emphatic statements on such second-hand information, and say that Greek ornament is "composed of mere geometric forms . . . and perfectly symmetrical foliage, which could be executed with absolute precision by line and rule." The fact is, as the monuments show, that Greek ornament suffers not at all, in respect to vital truth to nature, when compared with Gothic ornament. Even in mere geometric forms, examination will demonstrate that the Greek workman wrought with a free hand, and a keen sense of the asymmetries that prevail in all living things. Of this, the collections of the British Museum afford abundant illustration, not only in the objects to which I have already alluded, but also in the ornamental figures on vases—not one of which will show any exact symmetry or geometric precision.

We may pass over his remarks under the head of Naturalism, because they are covered by what has been said just above.

As for the Grotesque, it is enough to say here that in the pure Gothic style it is introduced sparingly, as in the western portals of Senlis and Paris, and is always restrained in character. Profusion of grotesque imagery, more particularly that which is extravagant and vulgar, is found only in the decadent style.

With regard to his fifth element, Rigidity, Ruskin remarks that the word does not accurately express what he means, but that he cannot find a better. "The feelings or habits of the workman which give rise to this character in the work are," he says, "more complicated and various than those indicated by any sculptured expression hitherto named." It will be noticed that he speaks first of *sculptured* expression—ornamental things coming first in his thought. Yet he shows some recognition of the nature of Gothic construction where (p. 186) he remarks on the difference between it and Egyptian and Greek building. "Egyptian and Greek buildings stand," he says, "for the most part, by their own weight and mass, one stone passively incumbent on another; but in Gothic vaults and traceries there is a stiffness analogous to that of the bones of a limb, or the fibres of a tree; an elastic tension and communication of force from part to part, and also a studied expression of this throughout every visible line of the building." But while this shows some perception of the kind of difference that distinguishes Gothic construction from Egyptian and Greek, it is vague in idea and inaccurate in statement. For the fact is that the more ancient buildings stand, not only for the most part, but altogether, by their own weight and mass; and the stiffness of a Gothic building, resides not in its traceries, but in its supporting members

—which owe their stability to a balance of active forces, in contrast to the inert massiveness of ancient building. Moreover, there is no tension in Gothic construction. Stability is everywhere maintained by compression of the mutually opposing parts. In the trussing of the timber roof, there is tension, of course, but the timber roof is no integral part of the building, it is only a covering for protection. And there is no *studious* expression of rigidity, but a natural expression—which takes care of itself when the conditions of stability are properly met.

In discussing his sixth and last element, Redundance, he remarks (p. 189) that "there is, indeed, much Gothic, and that of the best period, in which this element is hardly traceable, still in the most characteristic buildings, a certain portion of their effect depends upon accumulation of ornament; and many of those which have most influence on the minds of men, have attained it by means of this attribute alone." This is a mistake. The fact is that only spurious Gothic art exhibits this redundance. But unhappily spurious Gothic has hitherto had most influence on the minds of men, few of whom have given the subject of Gothic architecture serious attention, and taken the trouble to learn its true character at first hand. Ruskin was disqualified as a critic of Gothic, mainly because he ignored, as I have said, the structural basis of the art. And this has been the case hitherto with nearly all writers on the subject—Continental as well as English. A notable exception is, however, that of the French master, Viollet-le-Duc—who was the first to realize the significance of structure as the formative principle of every style. He has expounded the principles of Gothic construction with fulness and clearness. He has, however, had few followers. Viollet-le-Duc did not, indeed, perceive the full consequences, as to proper discriminations and classifications of the manifold varieties of the pointed architectures of Europe which he so thoroughly investigated, and so admirably described. While perceiving and illustrating the distinctive nature of the French art of the twelfth century, he does not emphasize its unique character, or claim that it is the only true Gothic style. Late in life, Ruskin saw something of the significance of the French master's work, and once said to the writer of this, that "Viollet-le-Duc has shown the skeleton of a Gothic building to be as wonderful as that of an animal." Had he seen this earlier, his writings on Gothic architecture might have had a different character.

But if Ruskin's limitations as a critic of architecture render his writings on this subject nugatory, the same cannot be said of his work in his own proper field, namely, that of landscape nature. A few words on this work may be useful here. In the field of nature and landscape painting no informed person can question that his powers were of rare quality, and his attainments of wide scope. To the study of nature he was impelled by every impulse of his being, and for the task of criticism he strove, through many strenuous years, to equip himself thoroughly. A passion for the beauty of natural things was more than usually marked in his earliest childhood, and he showed also an early propensity for literary composition, in both prose and verse, with a strong didactic bent. These natural inclinations were encouraged by his parents, and his path was thus made smooth from the beginning. He quickly saw in nature a manifestation of life, and from his first efforts to delineate the wonders of plant growth in the garden at Herne Hill, to the last studies of his old age in the garden at Brantwood,* an expression of the vital spirit of nature is the dominant quality of his work. As he grew older, the best instruction to be had was provided. This was naturally on the lines of the Early English Water-color School, then in its prime, and among the works of this school, he soon perceived the superior quality of those of Turner—which it became the leading object of his life to study and expound. Foreign travel began early, and thereafter, to near the

*Herne Hill, Surrey, was his home in childhood and youth, and Brantwood, Coniston, Lancashire, that of his old age.

close of his life, he spent a large part of his time on the Continent, following the itineraries of Turner and gaining knowledge of Continental art—more particularly the great schools of Italian painting and the monuments of mediaeval architecture.

His method of study was largely through drawing. The lead-pencil and the water-color brush, he had always at hand. His mature drawing is that of a master, but he practiced it for the ends of study and pictorial record, not as an end in itself. He never made pictures as such, and the vast majority of his drawings are little more than notes of form, composition, and color; but in all of them he was careful to establish proportions, and to note rhythms and other relations of things from greatest to least. However hasty, his work is never careless or wanting in definite meaning up to the limits of the terms employed.* In point of expressive delineation, his drawings are unequalled by those of any other master save Turner.

I believe Ruskin did not set out to be a critic, but was drawn into criticism by what he felt to be injustice to Turner on the part of incompetent writers. This injustice awakened in him a compelling impulse to write. In the preface to the second edition of *Modern Painters,* he remarks: "No man, says Southey, was ever yet convinced of any momentous truth without feeling in himself the power, as well as the desire, of communicating it. In asserting and demonstrating the supremacy of this great master I shall be able to illustrate many principles of landscape painting which are of general application, and have hitherto been unacknowledged." With this conviction he set himself in earliest manhood to the task of expounding what he believed to be the true principles of landscape art, and published the first volume of *Modern Painters* when he was but twenty-four years of age.

The best part of this book is, I think, that in which he treats of the beauty of nature. The chapters on the open sky, the conformations of earth and mountain forms, and of vegetation, are without parallel. His knowledge of these things was scientific, but science with him was in the service of natural vision. He never forgot that the artist is concerned only with impressions on the eye. Of internal anatomy, save as it is externally apparent, the artist, he held, requires no knowledge. He shows that the art of Turner demonstrates this in the field of landscape subject, and that all great art which deals with the human form—from the Theseus of the Parthenon to Gainsborough's Blue Boy—confirms it.

Representative art, in whatever form, was to Ruskin, a manifestation of human enjoyment of the beauty of the natural world, or, in his own words, "an expression of man's delight in God's work." Great art, he affirmed, is ever true to nature; but the manner in which this truth is expressed is determined by the artist's personal temperament, and by the natural conventions pertaining to the materials in which he works. It is always truthful, he maintains, up to the limits of these conventions, and of the workman's capacity, when it is wrought without sophistication.

But conditions in England in the early nineteenth century were, he felt, largely unfavorable to natural feeling and artistic sincerity. The ideas of connoisseurs and the teaching of the Academy, were fashioned on artificial standards, that were thought to have been authoritatively established by the so-called Old Masters, i. e., the later figure painters of the Continent and such landscapists as Claude and Poussin. On these spurious standards, and not on spontaneous feeling and impassioned observation of nature, the aspirants for so-called high art, strove to form their style. Ruskin easily demonstrated that these old masters had falsified nature in almost every particular, and his exposition of their inveracities effected a far-reaching change in the character of English landscape painting. Since *Modern Painters* appeared, the artificial conventions of seventeenth century old masters have ceased to influence English art.

*The writer enjoyed his friendship for many years, and was often allowed to look on as he worked.

In affirming truthful interpretation of nature to be a fundamental principle of pictorial design, Ruskin was on solid ground, but in other respects his teaching is often questionable, and sometimes clearly fallacious. For example, his definition of great art, as that which "conveys to the mind of the spectator the greatest number of the greatest ideas," and his lengthy discussions of what he considers the nature of the "ideas conveyable by art," contain much that cannot be justified—his ban on the word aesthetic in particular. As to this, he tells us (Vol. I), that "two fatal and wide-spread errors respecting the faculties of mind concerned in them have prevailed." The first of these he calls the theoretic faculty, and says, "the error respecting it is that of calling it aesthetic," and he rejects the term on the ground that it "properly signifies mere sensual perception of the outward qualities" of things, and "wholly" denies that impressions of beauty are in any way sensual. They are, he declares, "neither sensual nor intellectual, but moral." But it cannot be denied that impressions of outward beauty come through the senses. They derive their quality, however, as I think will be agreed, from that of the recipient. In themselves, impressions of sense are neither moral nor immoral. If a man be in a state of moral rectitude, his sensual impressions will be of corresponding character. But if the sensual principle be degraded, these impressions will naturally be of an opposite quality. In either case they are aesthetic.

Ruskin's best powers are shown, I think, in his own artistic achievement in both literary and graphic expression. As a draughtsman, whether of architectural subjects or of natural subjects, he has had few equals among the greatest masters of delineation. It may be added that he was not only a great observer and recorder of the beauty of nature and art, but also a poet of exalted feeling and extraordinary powers.

The LIBRARY OF THE ARCHITECT

By
A Lawrence Kocher

IF, TO A DEGREE, it is true that a man is known by the books he reads, with a similar limitation the architect may be judged by his reading and by the plates that he follows in his office practice. Books have brought the resources of all ages to the architect—the knowledge of all styles and an acquaintance with all modes of construction. Ours is a retrospective age that is linked to the past and which can and does produce, or reproduce the Greek, the Byzantine, the Gothic or any other style of monument with equal facility.

Whatever architecture may or may not be, it has always concerned itself with man. For this reason a selected list of books should not be purely architectural, nor should it in any sense be of the variety that we refer to as "a five foot shelf." There are books of the greatest importance that touch upon the human side of life—which serve as "sidelights" and which may be said to give a background. Such, for instance, are the masterpieces of literature and history; and even more closely allied to the profession are the books with the atmosphere of the craftsman and the builder, the enduring and vigorous Autobiography of Benvenuto Cellini and the more recent Mont Saint Michel and Chartres by Henry Adams. These works contribute to what has been termed "a creditable kind of ignorance" so far as architecture is concerned, but they go farther in that they cultivate the spirit, rather than add to our knowledge or skill.

The attempt to secure an approved and boiled down list of books dealing with architecture has been previously made.* In 1908, Mr. Edward R. Smith, Reference Librarian of the Avery Architectural Library at Columbia University, prepared an authoritative compilation of standard architectural books which was intended for offices and public libraries. The list includes 54 titles of elementary and fundamental works on architecture that architects, "the younger men especially, who contemplate the starting of a library, would find helpful." To the enumeration of each work he added a brief comment upon the character and usefulness of the contents. These books, he said, "would give the greatest charm and value to an architectural library."

In 1917 a questionnaire was circulated in the principal offices of architects in New York City as an attempt to determine the ten books most valuable to draftsmen and students. The results were interesting and surprising because of the wide variety of opinions that were expressed. The final list contained several hundred titles. There were, however, the outstanding duplications which indicated a certain unanimity and this "popularity group" constituted a favored selection.

The objection may be raised that any selection from one man would of necessity be personal and biased by inclination and special interests and therefore of little use to another individual. It is just this bias or dependence that adds interest to the personal choice. Where is there an architect who will not scan with genu-

NOTE: This is the first of a series of articles in which are voiced the opinions of architects upon the subject of books and reading for the draftsman and architect.

*Best twenty books for Architect's Library: American Architect and Building News. 1887 v. 21, p. 81.
"An Architect's Library" The Architect (England). 1893 v. 50, p. 233-236, 243-245.
The Brickbuilder, A List of Standard Architectural Books for offices and Public Libraries, by Edward R. Smith v. 17, July, August, September, pp. 149, 150, 167, 168, 215, 216.

ine curiosity, the list of such a stylist as Mr. Charles A. Platt or of Mr. Bertram G. Goodhue or of Mr. Charles Z. Klauder? It is to our advantage, in a sense, that some architects have ignored the request to give titles of "background literature." The choice has generally been made from the working library of the office and not so frequently from the more intimate and readable volumes of the architect's home.

In almost any other profession it would be futile for the mature man of achievement to offer advice regarding reading to another generation. With architecture, however, with its "conscious retrospective motive," the bibliography of office literature has changed but little and Letarouilly, Pugin and Viollet-le-Duc are presumably as indispensable to the young architect of to-day as to the practitioner of the late nineties.

Mr. Louis Sullivan.

Mr. Louis Sullivan makes a plea that the architect be emancipated from just such office literature and urges that the library be broadened and arranged with a freer atmosphere to take architecture out of its present isolation. He commends the thoughtful reading of the chapters of Nôtre Dame by Victor Hugo and the books of Lisle March Phillipps; but cautions against the intense prejudice of this latter author. "John Dewey's Reconstruction in Philosophy," he says, "is sound to the core, but presupposes a general knowledge of the history of philosophy. The same comment holds true of many invaluable works of many kinds."

Mr. Cass Gilbert

Mr. Cass Gilbert offers a programme of reading that has breadth as well as depth and to it he would add a continued practice in observation and drawing. "I would say to the student that he read history—the history of France, England, Italy and Greece. Read such books as "The Golden Days of the Renaissance," by Lanciani. "The Life of Savonarola" —"Church Building in the Middle Ages," by Charles Elliot Norton. Read Greek literature such as Herodotus, and Xenophon's "Anabasis" and "Pausanias" to get some idea of Greek character. Read "The Life of Michelangelo" and the lives of other Italian artists, and familiarize yourself with their works from pictures and photographs. Read the autobiography of Benvenuto Cellini. These will give the student some idea of the Italian character and the circumstances which environed the Italian artists.

"The Mont Saint Michel and Chartres," by Henry Adams, is admirable but almost too strongly imbued with a religious or sectarian point of view to be wholly good from the architectural standpoint. Read Motley's "Rise of the Dutch Republic" to get an idea of the character of the citizens of Northern Europe in the sixteenth century. Reading of this class, with constant reference to illustrations, photograps and pictures will be most beneficial to an architectural student.

"Make drawings all the time. Sketch everything in sight. Sketch from pictures, from published designs, from buildings and monuments. No matter how badly you draw, continue to draw. Study and sketch the patterns of fabrics, wall paper, tapestries, and note the practical application of more or less geometrical forms to artistic ornament.

"Sketch mouldings and shapes of things by handling them as well as by looking at them, so that by feeling the contour of the moulding with the fingers you can determine the shape as well as by looking at it. Sketch and draw everything, even down to candlesticks and old silver. Keep the pencil active and the mind will keep pace with it.

"It's great fun. No pleasure equals study when joyfully pursued. Get all the fun you can out of it—and *work!* Go less often to the 'movies' and more often to libraries and between times get all the healthful exercise you can, for the programme I have suggested to the student will certainly need it; but do not waste any time sitting around, playing house games like cards, or loafing in idleness under the impression that you are 'resting.'

"One more thing of practical character is this: That when an architectural

subject is discussed or mentioned (take for instance the Piazza del Popolo in Rome), the student should follow it up, go to the library, make note of the plan, identify the buildings and monuments that surround it and fix them in his mind by a few sketches, however hasty. How many have looked at photographs of the Spanish Steps in Rome and would be utterly unable to even suggest the plan upon which they are laid out. Study means not only a casual look at an object but the reception of an impression which can be retained and utilized.

MR. R. CLIPSTON STURGIS.

"An architect, more than almost any other professional man," says Mr. R. Clipston Sturgis, "ought, in my judgment, to be a wide reader, on the Arts, Music, Painting and Sculpture, on Philosophy and Psychology. The architect needs a mind which thinks clearly. Each man must judge for himself, because, I believe, it is useless for any one to waste time on reading a book which does not interest him. If Vasari's "Lives" does not interest, perhaps Browning's picture of Fra Lippo Lippi and of Andrea del Sarto would, and he had better learn of these painters from Browning.

"The numberless good books of photographs and measured drawings such as Gotch, Belcher and Macartney, Ysendyck, are useful for reference, but much more useful if one has seen at least some of the buildings shown.

"The young architect's best training should be in accurate observation and memory. This can be cultivated best by drawing all the time, on the spot and from memory; and trying always to select things that are worth remembering."

MR. ALEXANDER B. TROWBRIDGE.

Mr. Alexander B. Trowbridge approaches the subject of reading from a different angle purposely omitting the mention of books that touch upon style, composition and planning in order to emphasize what he considers to be of equal importance; namely, books treating of the business side of architecture and books that deal with architectural sculpture and mural painting. "It may be," says Mr. Trowbridge, "that not enough stress will be laid upon the amount of information an architect should have in connection with other branches of the fine arts. For this reason, I am disposed to recommend books on sculpture and on painting, with special reference to architectural sculpture and to mural painting. It would seem to me that the young architect should be not only advised to read on these subjects, but if he has any talent or any inclination to draw or paint, he should be most decidedly encouraged to exercise his talent. If, through such experience, he learns a good deal about the technique of painting, it makes him sympathetic about the difficulties of the mural painter and it also enables him to coöperate successfully with the mural painter, since he will very likely have a voice in the choice of a painter for a piece of work, and he will choose one whose style of work is best adapted to the problem in question.

"I do not believe that the book has yet been written touching upon architectural sculpture in exactly the way in which it is needed. Such a work would require a tremendous amount of investigation and study, but it would be very well worth while. There are several good books written by Englishmen and some in this country that would be worth the reading for the general purpose of broadening the horizon of a student.

"I have also a feeling that other architects may not lay enough stress upon the business side of architecture. One of the great weaknesses in our profession is the attitude that many young architects take with regard to the necessity for business methods and business systems. It takes a man quite a while to learn what the word "overhead" means, and he is very apt to figure his costs on the basis of drafting and materials, and to forget at first about rent, stenography, telephone, and so forth. He is also very likely to cover a long period before he learns the necessity of keeping careful records of conferences with clients, for the sake of evading misunderstandings and unjust blame. There are a great many such points which should be accentuated in

advising young architects and students.

"In both of these fields referred to, I am not specifically mentioning titles of books. I have, for instance, not had the opportunity of late to investigate the market for books on mural painting and sculpture and business methods in architects' offices. I know that excellent articles have appeared in our technical magazines and it may be that the information desired may, for the present, have to be obtained from that source.

"Another weakness among architects is the lack of training in ordinary expression in English, either written or spoken. It would seem as if Henry Adams' book on Mont Saint Michel and Chartres would give the literary touch needed by the student, while at the same time he would be getting a good deal of architectural interest in his reading. I do not remember the autobiography of Benvenuto Cellini accurately, but I remember it was full of blood and thunder episodes, including murders and plots, and was built upon a pretty low order of public morals. It is, however, undoubtedly a remarkable book. I am told that a recent volume by the younger Hamlin is very good reading. I think it is called "The Enjoyment of Architecture."* I haven't read it yet myself, but I am looking forward to that pleasure."

MR. H. VAN BUREN MAGONIGLE.

Mr. H. Van Buren Magonigle believes most emphatically in books that give a background. "I would have a young architect read books that more than 'touch' upon the human side of architecture—for if architecture is not human it is nothing, has neither roots nor blood. The 'Little Novels of Italy,' by Maurice Hewlett, give more of the atmosphere of Italy than a thousand dry-as-dust treatises. The first thing that happens to a boy as a rule is to have Fergusson thrust upon him and he gets an immediate indigestion and a distaste for architectural reading that lasts him a long time. Of course such books as "Mont Saint Michel and Chartres" or Cellini's Autobiography are not enough to round out a man. The advice I give to my own men may be summed up by a quotation from a little pamphlet known here as the "Office Bible":

" 'Architecture touches life at all points and unless an architect knows life—the life of the past as well as of his own time, his work will be lifeless, dry and juiceless. He must therefore be an omnivorous reader of great literature, fiction, essays, history and biography. . . . He should hear good music and go to the play. He should see and study good pictures and sculpture. . . .' "

MR. J. W. CROSS.

Mr. J. W. Cross prefers to consider reading as a subject that should be considered on the basis of a general education in the best literature, whether strictly pertaining to the arts or not. "Outside of the standard books in all architects' libraries, such as Letarouilly, César Daly and such, the field is so vast that it would be rash to make any kind of selection. There is a tendency in these days to specialize and theorize too much—a schol based on the 'slide rule' principle for obtaining short cuts to art by some form of mathematics. As an antidote to this tendency I might mention a book entitled 'Art and Common Sense, by Royal Cortissoz—one critic who is always worth reading. I should hardly care to be any more specific than this."

MR. CLAUDE BRAGDON.

Mr. Claude Bragdon tells of the books that have meant most to him. "Of course," he says, "we cannot afford to leave out old Vitruvius who, though something of a bore at times, contains much excellent matter of which we stand in need.

"At a formative period of my life I got a great deal out of Volume One of Viollet-le-Duc's 'Discourses on Architecture.' The books of L. March Phillipps should be read by every architectural student. He should read Vasari's "Life of Brunneleschi' and ponder it deeply. It is a perfect epitome of the trials and difficulties of every architect who forsakes the beaten path. Among contemporary

*Hamlin, Talbot F. The Enjoyment of Architecture. N. Y. Duffield & Co., 1916.

writers I should say that with a poised and critical mind one might derive much from Cram's 'Substance of Gothic,' always remembering that Cram, like Ruskin, is an eloquent special pleader and suits his mind to the case for the defense.

"I value Irving Pond's 'The Meaning of Architecture' very highly. It contains a great idea presented with a halting art. Hambidge's 'Dynamic Symmetry' should be understood for it supersedes all other systems of proportions, being the most fundamental. I must add 'The Beautiful Necessity' even though I wrote it myself."

MR. CHARLES Z. KLAUDER.

Mr. Charles Z. Klauder of the firm of Day & Klauder, emphatically endorses the books that touch upon the "human side" of architecture—such books as:

Henry Adams—Mont Saint Michel and Chartres.
Autobiography of Benvenuto Cellini.
J. Addington Symonds' The Italian Renaissance.
Quatremère de Quincy—Raffael and Michelangelo.
Romain Rolland—Michelangelo.
Vasari—Lives of the Painters.
Hewlett—Earthworks out of Tuscany.
Hare—Walks in Rome.

While somewhat more technical are the following:

Saind and Arnold—Stained Glass.
James Fergusson—History of Architecture.
Smith & Clater—(Two small volumes) History of Architecture.
W. J. Anderson—Classic Architecture and Italian Renaissance.
Gromort—Italian Renaissance Architecture.

"In answer to an inquiry we received several years ago, we prepared a list of the books we valued the highest on Gothic architecture. It is as follows:

A. Pugin	*EXAMPLES OF GOTHIC ARCHITECTURE. Selected from various Ancient Edifices in England. 2nd Edition, 3 vols. Bohn, London, 1838. The second vol. (1839) by A. Pugin and A. W. Pugin. The third vol. (1840) by A. W. Pugin and T. L. Walker.
A. Pugin	*SPECIMENS OF GOTHIC ARCHITECTURE. Selected from various Ancient Edifices in England. 2 vols. Nattali & Bond, London, Circa 1821.
A. Pugin and H. Le Keux	*SPECIMENS OF THE ARCHITECTURE OF NORMANDY. FROM THE XI TO THE XVI CENTURIES. 1 vol. Blackie, London, 1874.
R. Willis	ON THE CONSTRUCTION OF THE VAULTS OF THE MIDDLE AGES. 1 small vol. Reprinted from the "Transactions of the Royal Institute of British Architects." Vol. 1, Part 2. 1842—London. Royal Institute of British Architects, 9 Conduit Street, London, 1910.
	ARCHITECTURAL ASSOCIATION SKETCH BOOK.
Edmund Sharpe	ARCHITECTURAL PARALLELS OR THE PROGRESS OF ECCLESIASTICAL ARCHITECTURE IN ENGLAND THROUGH THE 12TH AND 13TH CENTURIES. 2 vols. Folio. J. Van Voorst. London, 1848.
Garner and Stratton	THE DOMESTIC ARCHITECTURE OF ENGLAND DURING THE TUDOR PERIOD. 2 vols. Folio. Batsford, London, 1911.
Viollet-le-Duc	DICTIONNAIRE RAISONNÉ DE L'ARCHITECTURE FRANCAISE DU XI AU XVI SIECLE. 10 vols. Morel, Paris, 1873.
Epiphanius Wilson	THE CATHEDRALS OF FRANCE. 1 vol. The Churchman Co., New York, 1900.
F. A. Paley	A MANUAL OF GOTHIC MOULDINGS. 1 small vol. London.
Francis Bond	GOTHIC ARCHITECTURE IN ENGLAND. 1 vol. Batsford, London, 1906.

J. Alfred Gotch	ARCHITECTURE OF THE RENAISSANCE IN ENGLAND. 2 vols. Folio. Batsford, London, 1894.
Howard and Crossley	ENGLISH CHURCH WOODWORK, 1250 TO 1550. 1 vol. Batsford, London, 1917.
Bowman and Crowther	THE CHURCHES OF THE MIDDLE AGES. 2 vols. George Bell, London, N. D.
John Britton	THE ARCHITECTURAL ANTIQUITIES OF GREAT BRITAIN. 5 vols. M. A. Nattali, London, 1835.
John Britton	CATHEDRAL ANTIQUITIES. 5 vols. M. A. Nattali, London, 1836.
Francis Bond	AN INTRODUCTION TO ENGLISH CHURCH ARCHITECTURE FROM THE 11TH TO THE 17TH CENTURIES. 2 vols. Oxford University Press, 1913.
R. and J. A. Braddon	PARISH CHURCHES. 2 vols. W. Kent & Co., London, 1858.
.....Brandon	AN ANALYSIS OF GOTHIC ARCHITECTURE. 2 vols. P. Richardson, London, 1847.
.....Brandon	ON ROOFS.
James K. Colling	DETAILS OF GOTHIC ARCHITECTURE. 2 vols. Batsford, London, N. D.
W. Eden Nesfield	SPECIMENS OF MEDIAEVAL ARCHITECTURE SELECTED FROM EXAMPLES OF THE 12TH AND 13TH CENTURIES IN FRANCE AND ITALY. Day & Son, London, 1862.
John P Neale	HISTORY AND ANTIQUITIES OF WESTMINSTER ABBEY AND THE HENRY THE SEVENTH CHAPEL. 1 vol. Willis & Sotheran, London, 1856.
F. T. Dollman and J. R. Jobbins	AN ANALYSIS OF ANCIENT DOMESTIC ARCHITECTURE, EXHIBITING THE BEST EXISTING EXAMPLES IN GREAT BRITAIN. 2 vols. Atchley & Co., London, Circi, 1861.
J. H. Parker	GLOSSARY OF GOTHIC ARCHITECTURE. London.
....	THE ARCHITECTURAL REVIEW. London.
....	COLLECTION OF PHOTOGRAPHS AS EXTENSIVE AS POSSIBLE.
R. Norman Shaw	ARCHITECTURAL SKETCHES FROM THE CONTINENT. 1 vol. Day & Son, London, 1858.

To cover the ground fully the following upon Classic and Renaissance architecture should undoubtedly be added:

*D'Espouy	MONUMENTS ANTIQUES.
*D'Espouy	FRAGMENTS D'ARCHITECTURE ANTIQUE.
*Letarouilly	EDIFICES DE ROME MODERNE.
Garner and Stratton	DOMESTIC ARCHITECTURE OF ENGLAND DURING THE TUDOR PERIOD.
Belcher and Macartney	LATER RENAISSANCE ARCHITECTURE IN ENGLAND.
Whittlesey	SPANISH ARCHITECTURE.
Lambert	VERSAILLES ET LES DEUX TRIANONS.
Swarbrick	ROBERT ADAM AND BROTHERS.

*Architectural Association Sketch Book, London.

"I value the highest," says Mr. Klauder, "the four works which are marked by an asterisk, Pugin's and D'Espouy's works each being considered as one."

PORTFOLIO

CVRRENT · ARCHITECTVRE

Photographer, Sigurd Fischer — *The Architectural Record*

"YE PEG WOFFINGTON COFFEE HOUSE," NEW YORK
Richard Haviland Smythe, Architect

Architectural

Photographer, Sigurd Fischer

"YE PEG WOFFINGTON COFFEE HOUSE," NEW YORK
Richard Haviland Smythe, Architect

George Warhurst, Architect

TWO HOUSES AT PHILIPSE MANOR, NEW YORK

HOUSE AT HARTSDALE, NEW YORK

Andrew J. Thomas, Architect

Raymond T. Shaw, Architect

SAN JOAQUIN LIGHT AND POWER CORPORATION BUILDING
FRESNO, CALIFORNIA

4. SUB-STATION OF THE SAN DIEGO CONSOLIDATED GAS AND ELECTRIC COMPANY, SAN DIEGO, CALIFORNIA
Requa and Jackson, Architects

SUB-STATION OF THE SAN DIEGO CONSOLIDATED GAS AND ELECTRIC COMPANY,
SAN DIEGO, CALIFORNIA
Requa and Jackson, Architects

SHOW ROOM AND GARAGE, DETROIT, MICHIGAN

Smith, Hinchman & Grylls, Architects

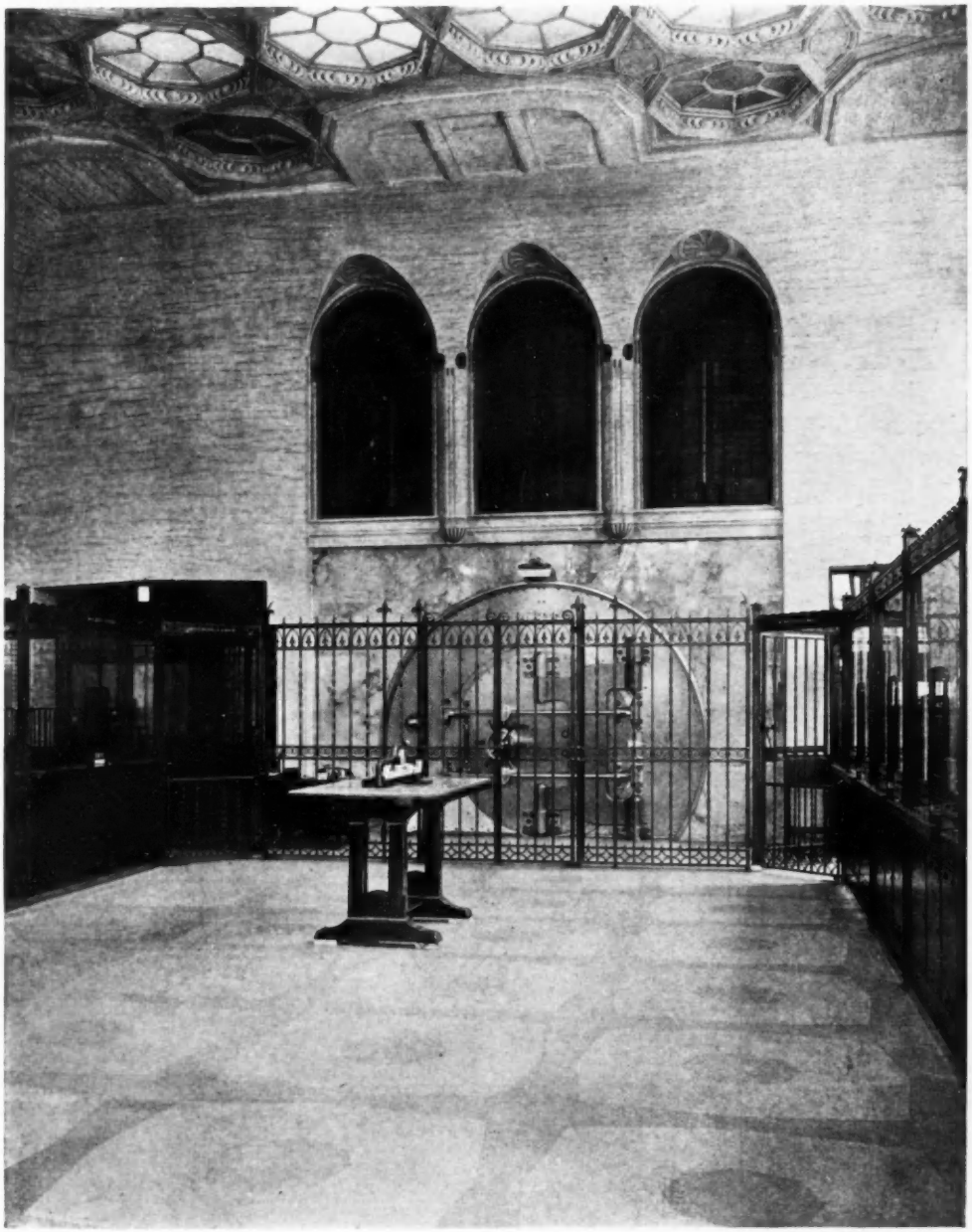
EQUITABLE TRUST COMPANY, ATLANTIC CITY, NEW JERSEY

McLanahan and Bencker, Architects

Entrance Detail

EQUITABLE TRUST COMPANY, ATLANTIC CITY, NEW JERSEY

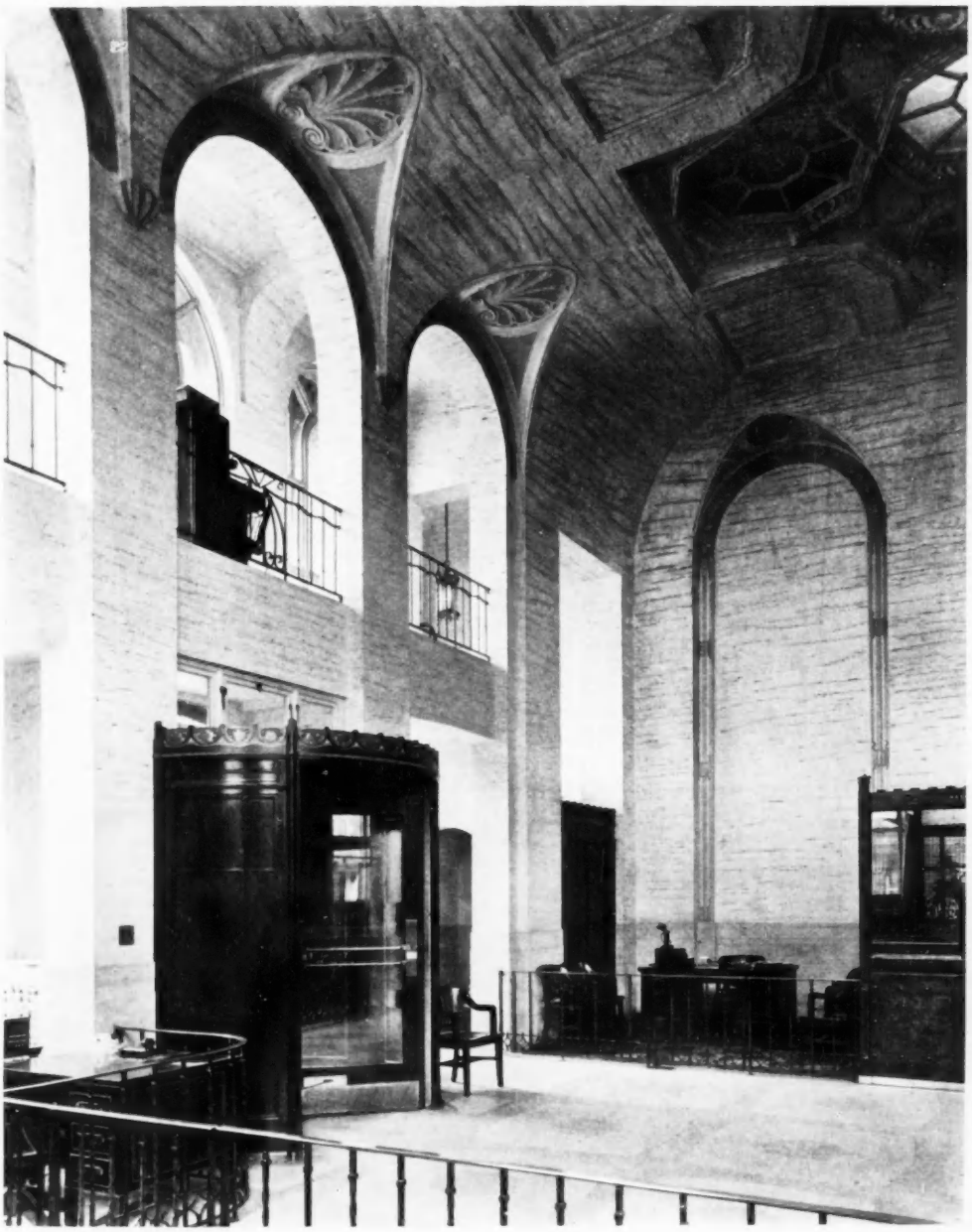
McLanahan and Bencker, Architects



Vault-Grille and Office Screen

EQUITABLE TRUST COMPANY, ATLANTIC CITY, NEW JERSEY

McLanahan and Bencker, Architects



Entrance

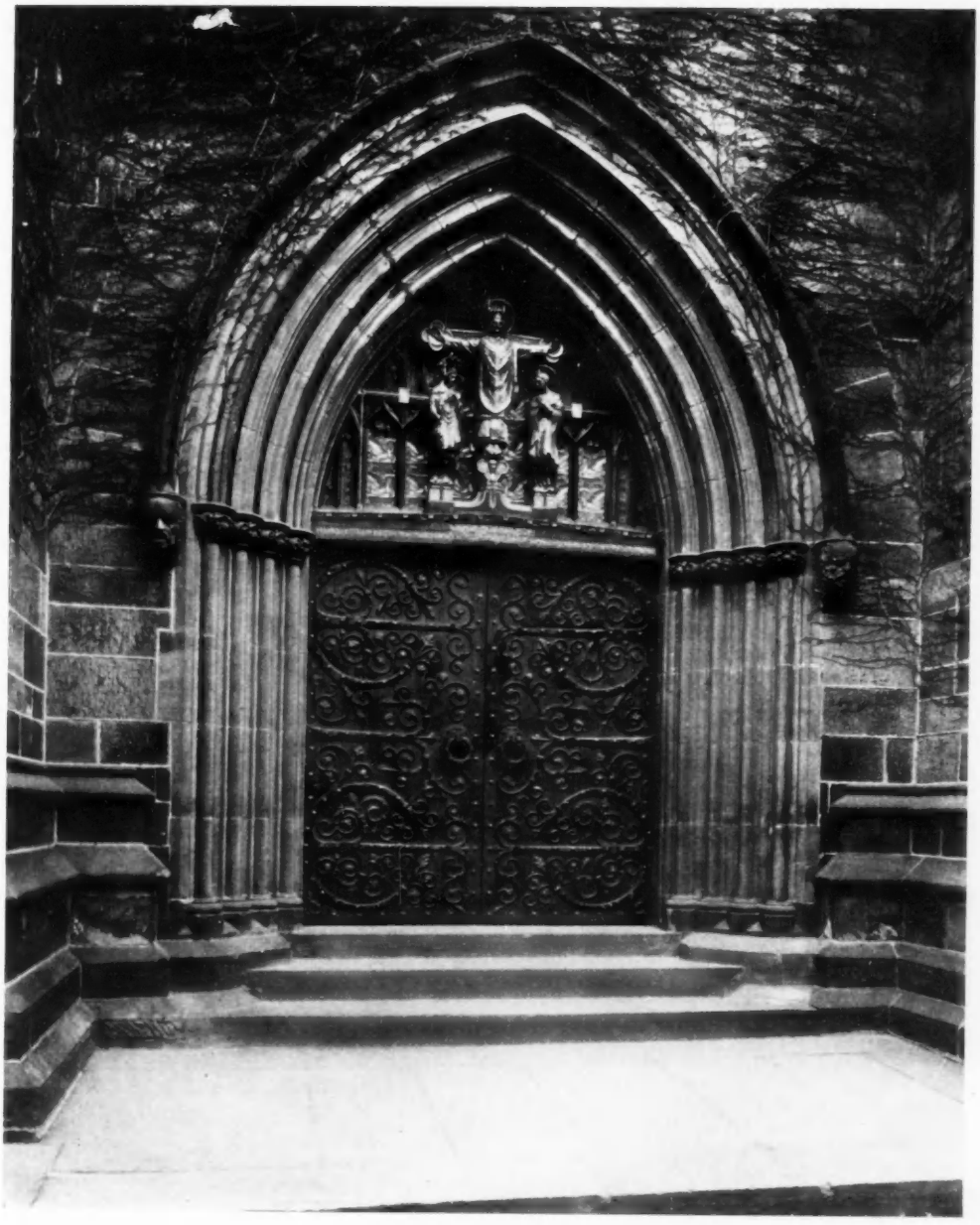
EQUITABLE TRUST COMPANY, ATLANTIC CITY, NEW JERSEY

McLanahan and Benecker, Architects

BOSTON & MAINE RAILROAD STATION, LEXINGTON, MASSACHUSETTS

Kilham, Hopkins & Greeley, Architects

Architecture



Memorial Door in Tower

ST. MARKS CHURCH, PHILADELPHIA, PENNSYLVANIA

Zantzinger, Borie & Medary, Architects

CHURCH OF THE MEDIATOR, NEW YORK
The late Henry Vaughan, Architect

CHURCH OF THE MEDIATOR, NEW YORK

The late Henry Vaughan, Architect

ANDALUSIAN GARDENS AND PATIOS

By

Mildred Stapley and Arthur Byne

Photographs and Drawings made expressly by the Authors

Part IX.

The Garden of the Duke of Medinaceli, Seville

THE two most important old Sevillian palaces with gardens are known popularly as the *Casa de Pilatos* and the *Casa de las Dueñas*. The first belongs to the Duke of Medinaceli, the second to the Duke of Alva; two ancient titles by the way, which head the list of Spanish nobility.

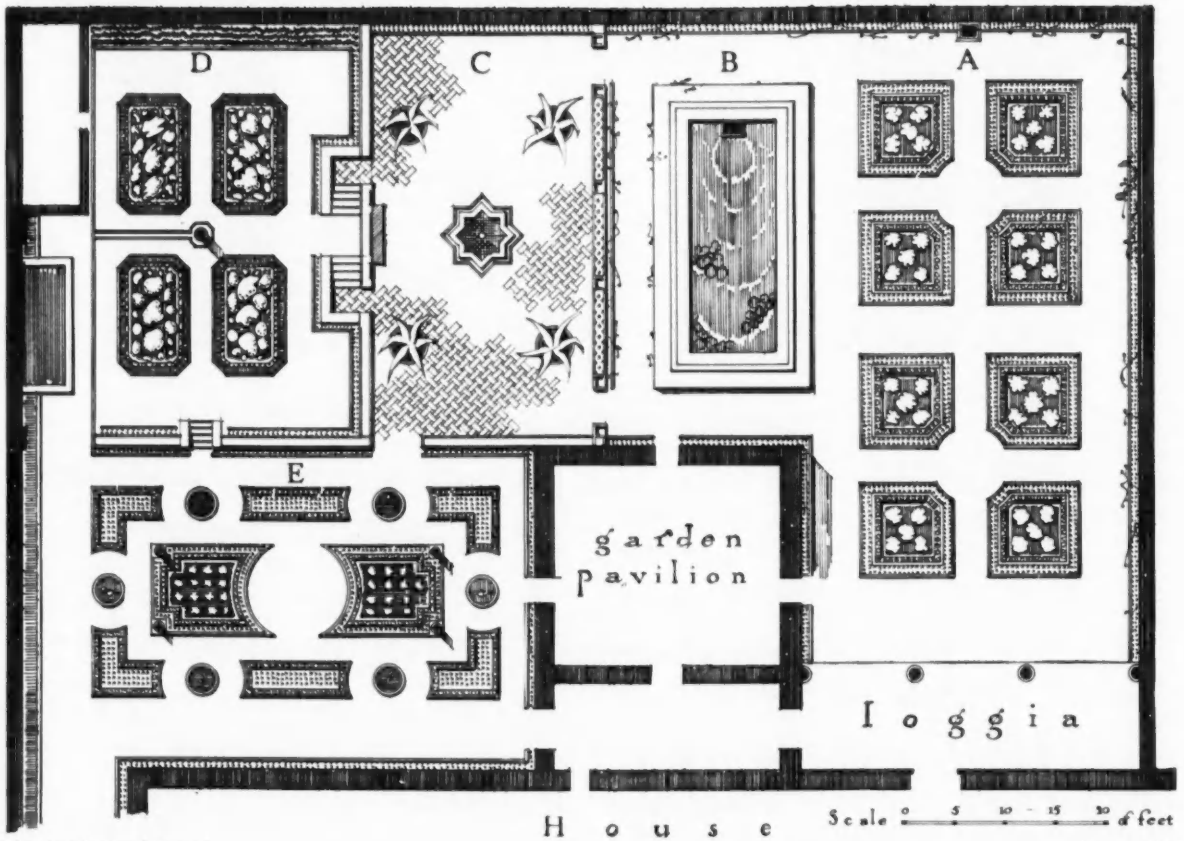
Intermarriage of these two ducal houses with the powerful Ribera family of Seville explains the present ownership. In the late fourteenth century the Riberas, who lived in princely style, bought the Dueñas mansion, its owner having to sell it in order to ransom his son from the Moors of Granada. The new owners continued the building on a magnificent scale and at the same time built the Pilatos Palace, which was supposed by Sevillians of the period to be a copy of that once occupied by the Roman governor of Judea. It is the garden of this latter that first claims attention.

If built in any other country in the sixteenth century both houses would have been in the Renaissance style and accompanied by Italian gardens. In Seville, where architects and gardeners were Moors, all is a mingling of Moorish and Christian elements. The main patio of the Pilatos house has no planting, for which reason it is less attractive than that of the Dueñas; on the other hand, the gardens surrounding the house are finer.

These, representing but a fraction of the original grounds (which suffered bombardment in the uprising of 1840), consist of two distinct parts: the tiled to the southeast and the green to the northwest. The former is distinctly Andalusian, the latter European in a nondescript but very agreeable way. The Andalusian might be described as a Spanish triumph in backyard treatment, for the space devoted to it abuts on the rear of a street of humble dwellings. It is surrounded by an exclusion wall, all white like the house; this averages twenty feet in height, leaving little more than the picturesque rooftops of the neighborhood visible. (Madrid might learn a useful lesson here; hardly a palace in the capital but has a sixty foot "spite wall" on one side at least of its grounds, which, even could it be made a thing of beauty *per se*, would rob any garden of scale.) The Sevillian wall in question is surmounted by a cresting and is screened by bougainvillea and black-stemmed bamboo, always particularly decorative against white. The tiled garden at its base is divided into five panels, three of planting, one wholly of tiles, and one given over to the pool (*estanque*). Little attempt was made by the designer to compose them either in relation to each other or to the house. Rather they appear to have been laid out much as one would spread fine old rugs on a floor of irregular perimeter, without the least concern over the resulting discrepancies.

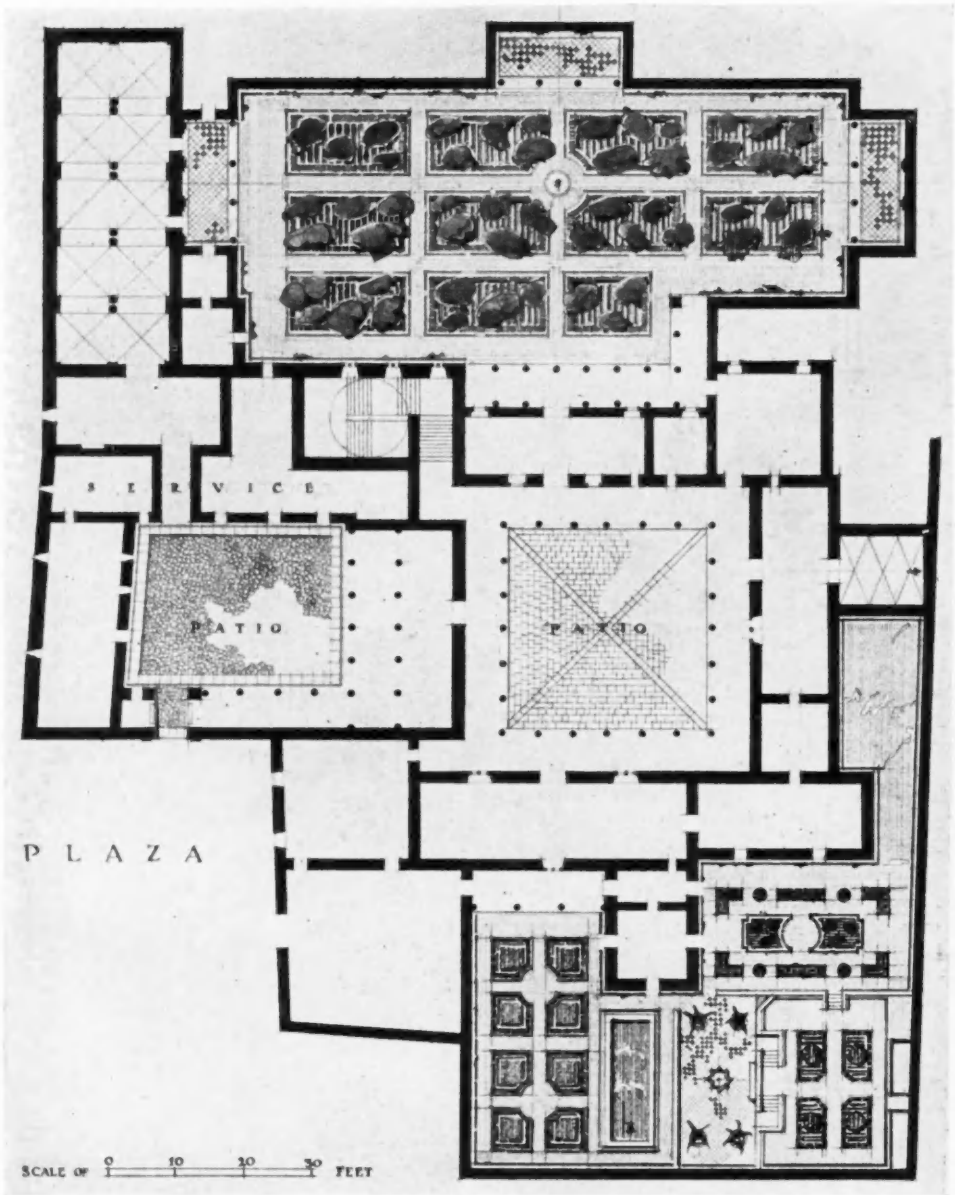
To simplify description these panels have been lettered on the plan.

Panel A is a study in limited planting and colored earths—eight garden plots on a court of brilliant yellow clay. Around each plot is a double curb, blue tile and brick, and between the two, deep reddish earth sparsely planted with freesia. Set inside of this to further define the center



Detail plan of the rear gardens

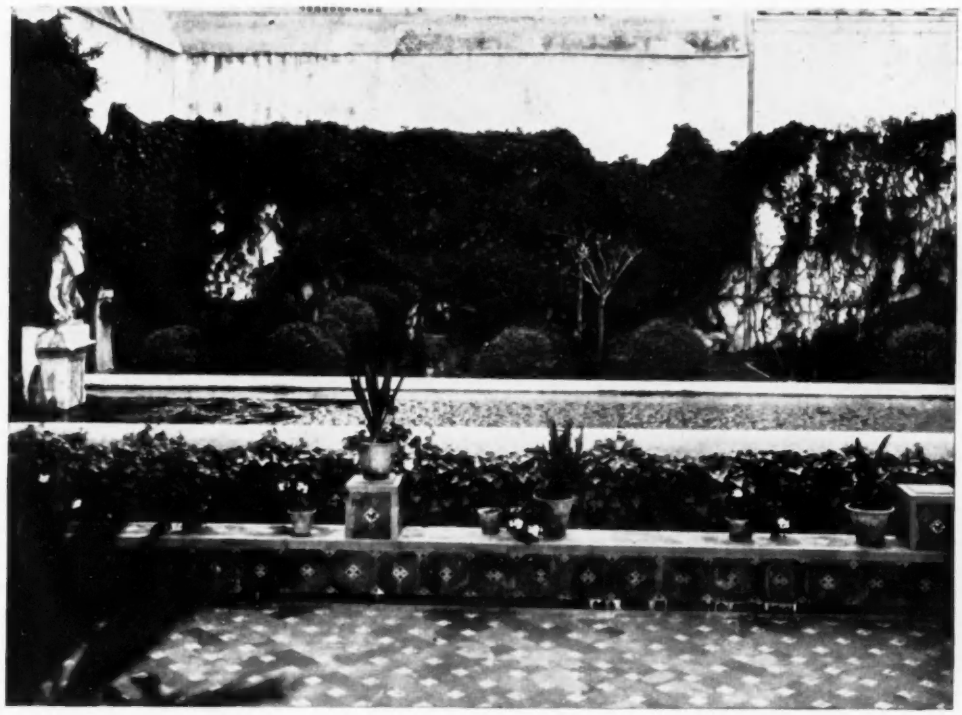
GARDEN OF THE DUKE OF MEDINACELI, SEVILLE



General plan of the palace and garden
GARDEN OF THE DUKE OF MEDINACELI, SEVILLE

Plot A, with paths of tamped yellow clay and beds of black loam edged with colored tiles

GARDEN OF THE DUKE OF MEDINACELI, SEVILLE



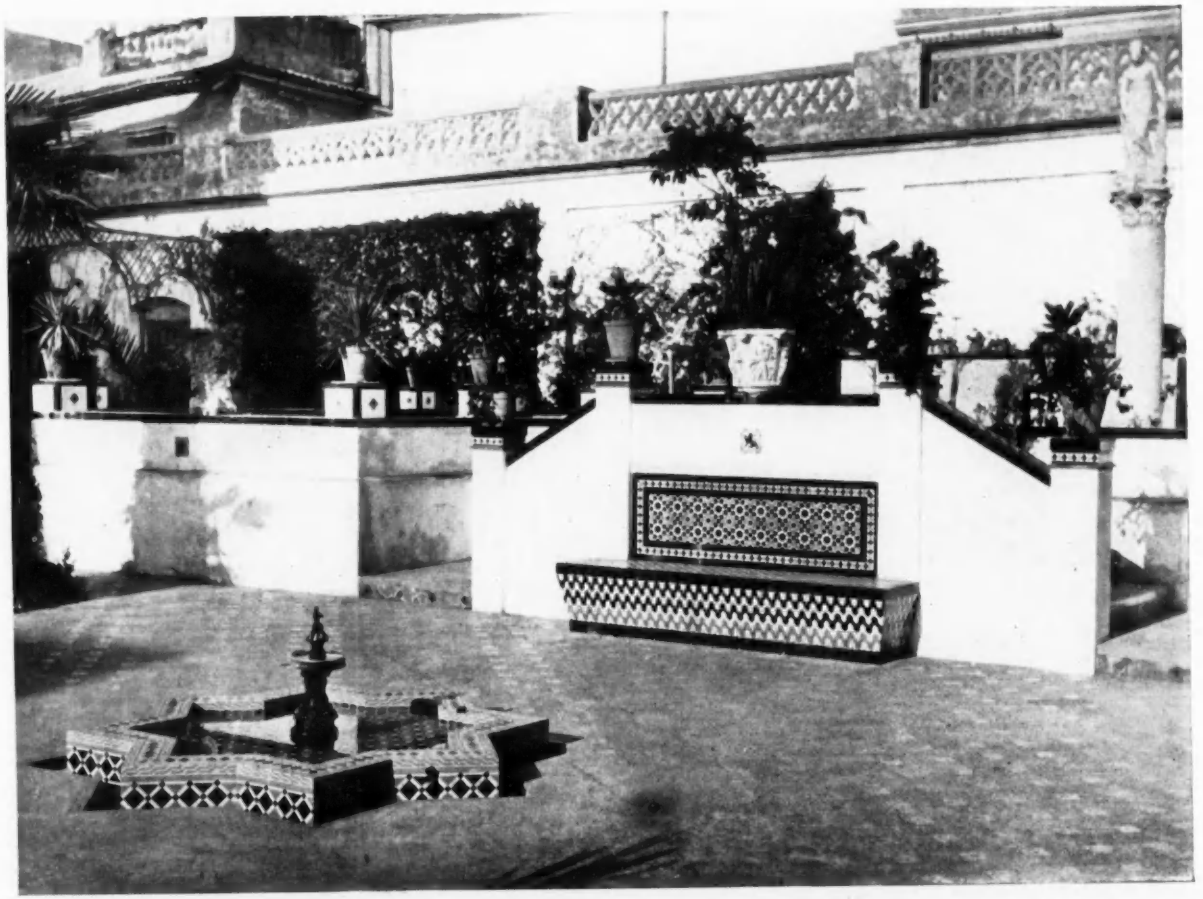
Plot B consists of a long narrow pool edged with ivy and nasturtiums
GARDEN OF THE DUKE OF MEDINACELI, SEVILLE

is an edging of green wooden hoops on whose outer side are planted little toy-like clumps of myrtle kept down to six inches. The center itself, of rich black earth, contains a variety of shrubs and flowers, among the latter violets, begonias and sweet lavender; in the corners of each bed and not visible in our photographs of three years ago, are large rounded shrubs. There is no tile fountain or basin; the only feature introduced by way of adornment is the statue at the far end against the vine-covered wall. This is one of the large collection of Roman antiques brought back in the latter part of the sixteenth century by Per Afan de Ribera, Viceroy of Naples.

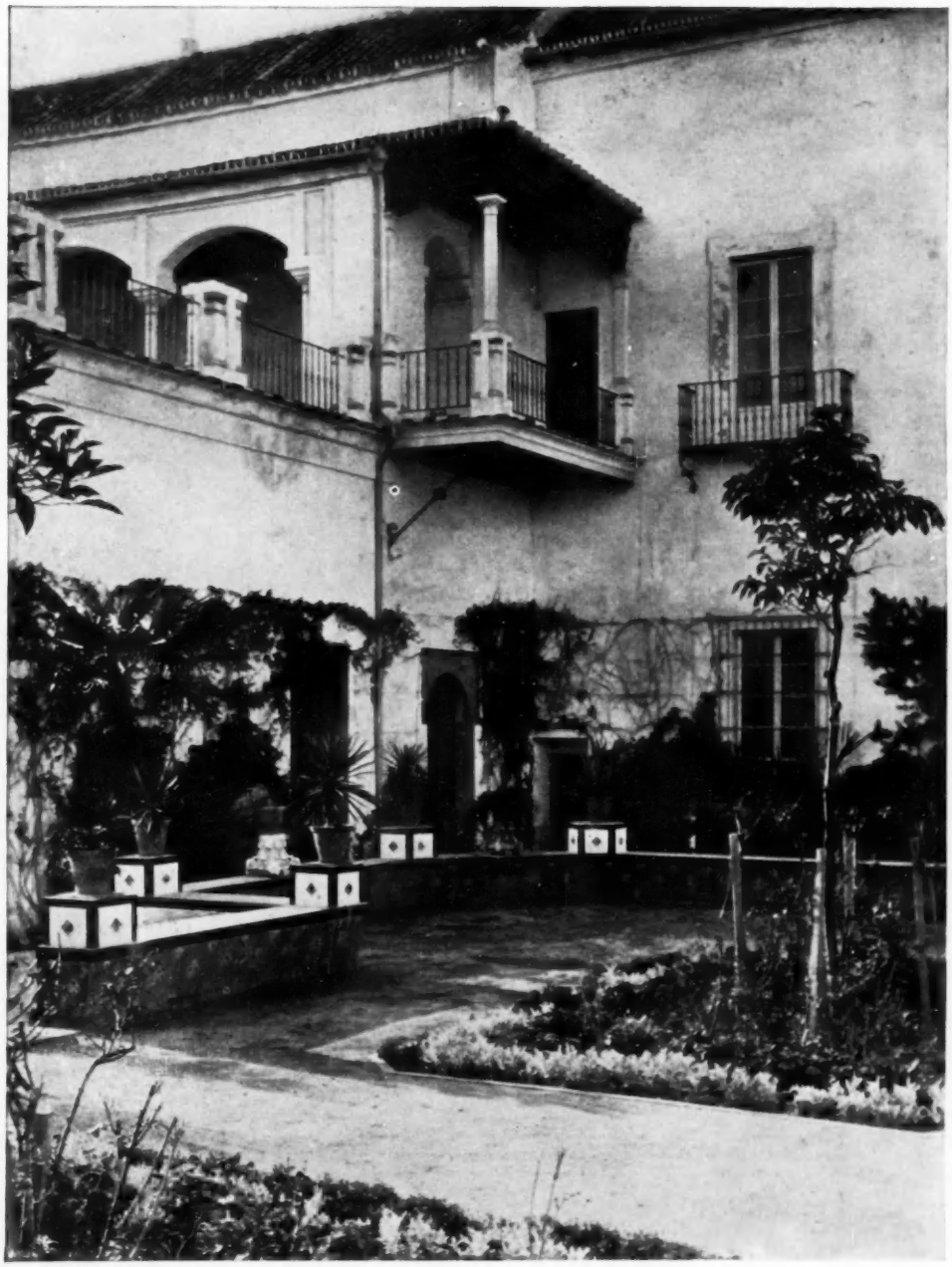
Panel B is wholly taken up by the pool. Some twenty by thirty-eight feet, it is built of cement with a rounded coping. At the wall end is a fragment of sculpture and the water surface is largely covered with large, flat lily leaves. Dark ivy and brilliant nasturtiums outline the whole pool.

In Panel C we have a tiled garden at its best. The entire area is paved, permitting no other planting than that of a small date palm in each corner. Flat red tiles laid basket-weave with colored insets were used for the pavement. Built-in features consist of the flat central fountain, the tiled bench along the pool side, and opposite, the white retaining wall, edged with green tile, of the corner panel which lies four feet higher. In this wall and on axis with the fountain is the double flight of steps leading up. To emphasize the artificiality of this panel, there is no planting against either the low retaining wall nor the high enclosing wall at the back. The pavement is frequently wet down during the day and glistens like a jewel. "Smart" in its most modish sense is the only suitable adjective to thoroughly describe this area.

Plots C and D, excellent examples of the Sevillian tiled treatment
GARDEN OF THE DUKE OF MEDINACELI, SEVILLE



Details of Plot C in polychrome tiles
GARDEN OF THE DUKE OF MEDINACELI, SEVILLE



Plot E, a combination of free planting and tile accessories
GARDEN OF THE DUKE OF MEDINACELI, SEVILLE

Plot D, a clay court set out with beds of close-clipped planting to simulate grass
GARDEN OF THE DUKE OF MEDINACELI, SEVILLE

Panels D and E are laid out with yellow clay paths and trim garden plots edged with blue and white tiles. Ground ivy and myrtle make the borders, and the center is densely planted with herbaceous shrubs. The few Roman and Moorish columns placed about blend harmoniously.

This is a precious bit of Andalusian gardening, and for its restoration the *Duque de Medinaceli* and his architects are to be congratulated; also for rescuing from threatened ruin the beautiful Renaissance iron reja which used to guard a window in a small and obscure rear patio and has now been brought out to a position more worthy of it, affording an excellent view of panel A.

The green garden to the northwest of the house is also to be admired, but is far less striking than the one just described. Like the loggias of the palace which so agreeably face on its several axes, the arrangement of the plan reflects Italian influence; in the details of planting and paths, however, we see the local tradition. The tiled paths are set almost a foot above the general level to permit of irrigation; and with this same end in view the earth is banked in patterns like miniature labyrinths. With the planting practically limited to deciduous shrubs and trees the garden has a quite European look.

Garden of the Duke of Alva, Seville

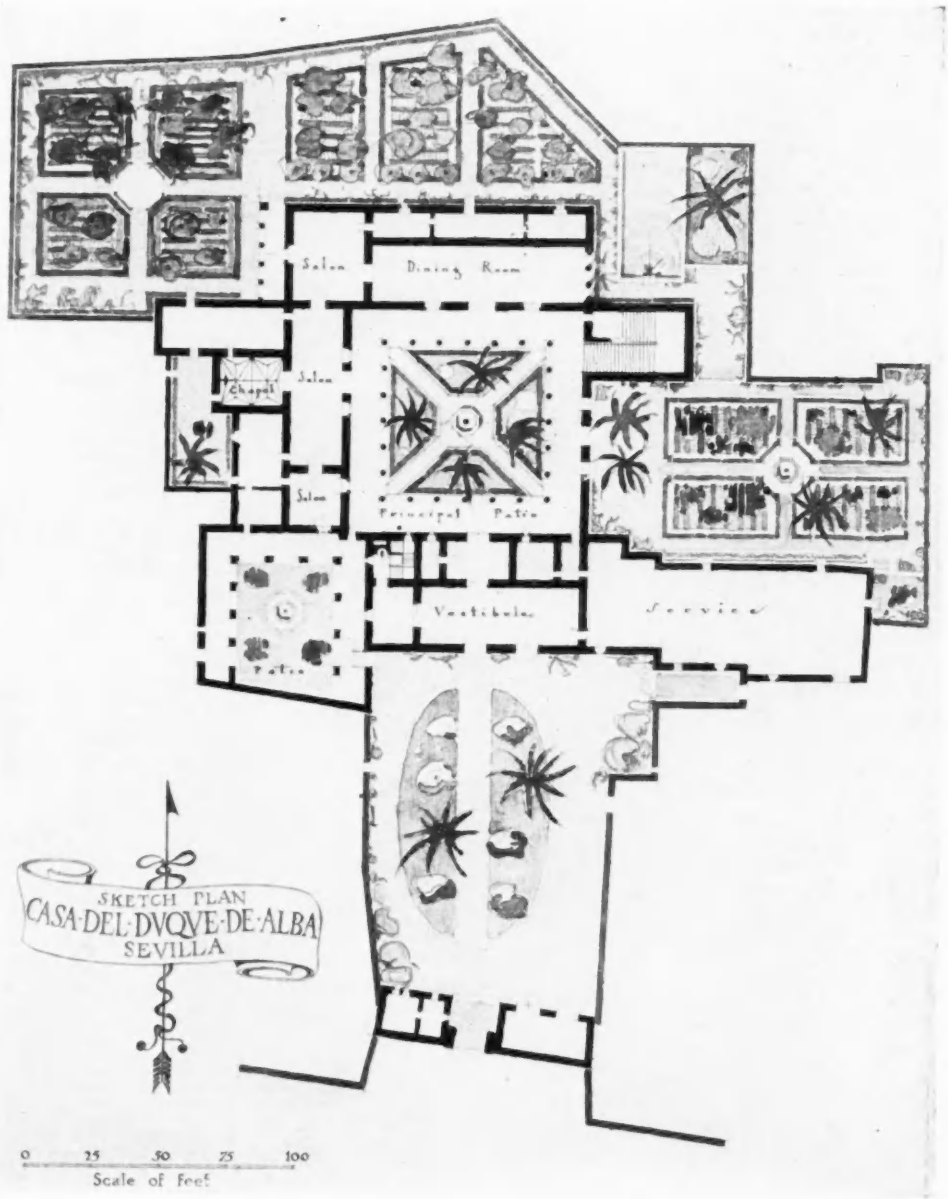
The Alva palace is usually referred to by the name of the small street, *Calle de las Dueñas,* from which it is entered. According to records it was once of much greater extent and contained no less than sixteen patios. Now it has but two. Perhaps, like the Pilatos palace, some of it was demolished during the uprising against Isabel II, and the large forecourt, so rare in Spain where palaces were placed flush with the street, may once have been occupied or enclosed by buildings. Neither forecourt nor façade is specially interesting; in Moorish fashion the attractions are reserved for the interior patios and the gardens behind.

As seen in the plan, the forecourt is laid out in a planted oval bisected by a straightaway. Around the sides and banked thick against the walls are pepper trees, lantana, acacia, and Spanish gorse. Against the house wall, to the right on entering, is a fine tiled watering trough, an old time necessity which in Spain has not yet given place to the gasoline pump.

Passing through the sanded *zaguan* or outer vestibule the principal patio is entered. This is Moorish in full decadence, rich and luxurious; a little museum of all that Moorish artisans were producing in the sixteenth century for Christian masters and hence classified like the Pilatos patio as *Mudejar*—carved plasterwork, wooden ceilings, and azulejos. (As to this last item, those who are interested in Moorish lustre can see in the family chapel to the left of the patio the finest tiles with gold reflections (*reflejos metalicos*) left in Spain. The patio garden is simple in contrast to the architecture. Paths are placed on the diagonal, thus not calling attention to the fact that the entrance is off center; at their intersection is a built up basin of colored tiles around a marble fountain. Originally the paths were laid in mosaic of polychrome marbles. When it became necessary to repave, unglazed brick was used, but a few panels of the mosaic were saved. As seen in the bird's-eye view, planting is reduced to a minimum. Beds are of black earth and outlined by dwarf box. Ancient date-palms tower high overhead, at their base a circle or star-form planted in lilies. The intervening area is neatly dotted with little tufts of dwarf juniper. All is set out and kept up with great precision. Lining the parapet of the patio are hundreds of flower pots, whose contents vary with the season; in either carnation or chrysanthemum time they form a veritable cresting of brilliant bloom to the wall.

A minor patio off to the left has never been refurbished and is none the less attractive for that reason. Surrounded by a plain brick pavement is a mellowed old basin built up of emerald green and purple tiles. This coloring along with that of the raised violet beds is in delightful contrast to the immaculate walls.

To the right of the entrance-patio is a typical Spanish screen-wall separating



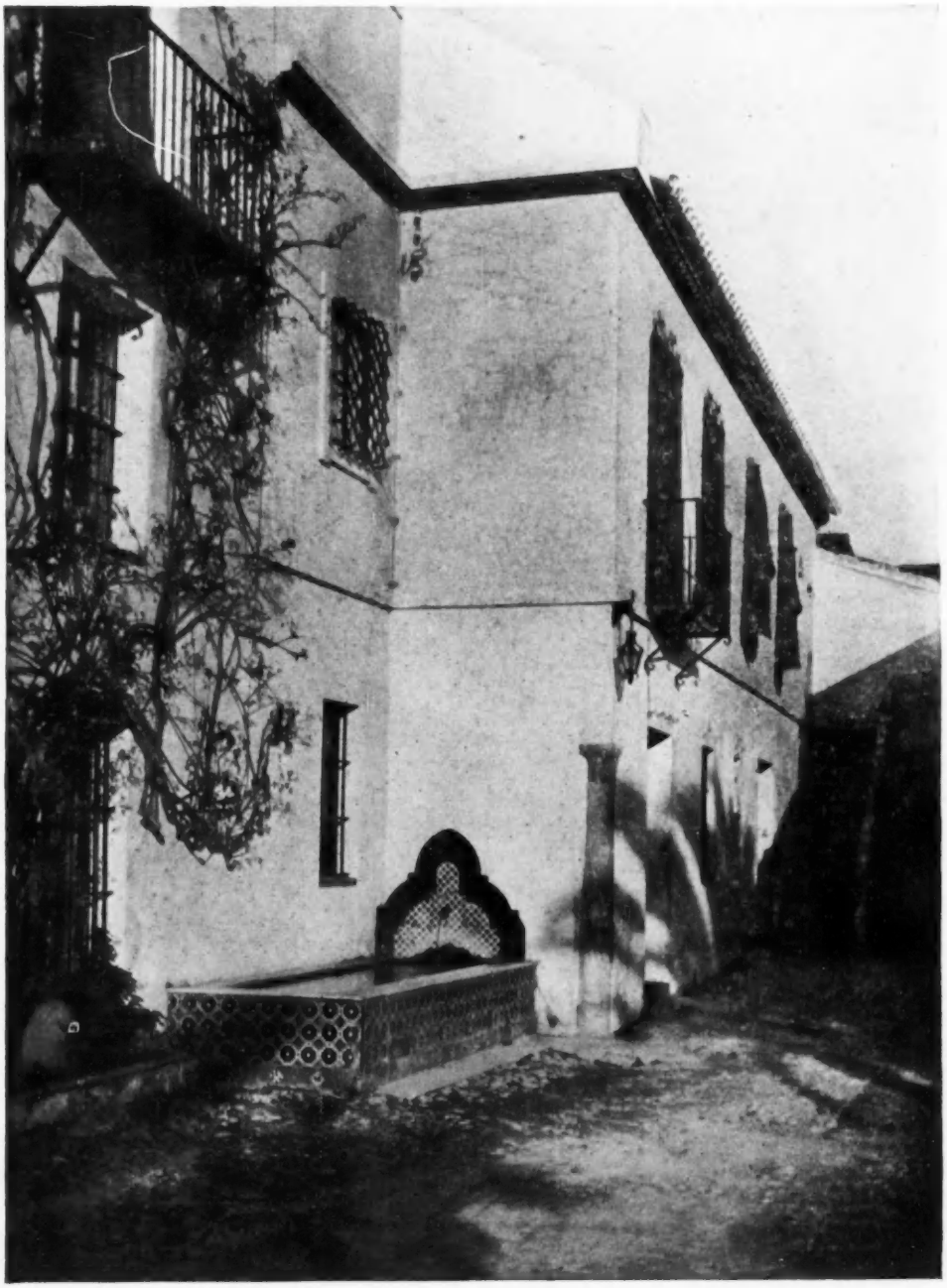
GARDEN OF THE DUKE OF ALVA, SEVILLE

The Architectural Record *August*, 1924

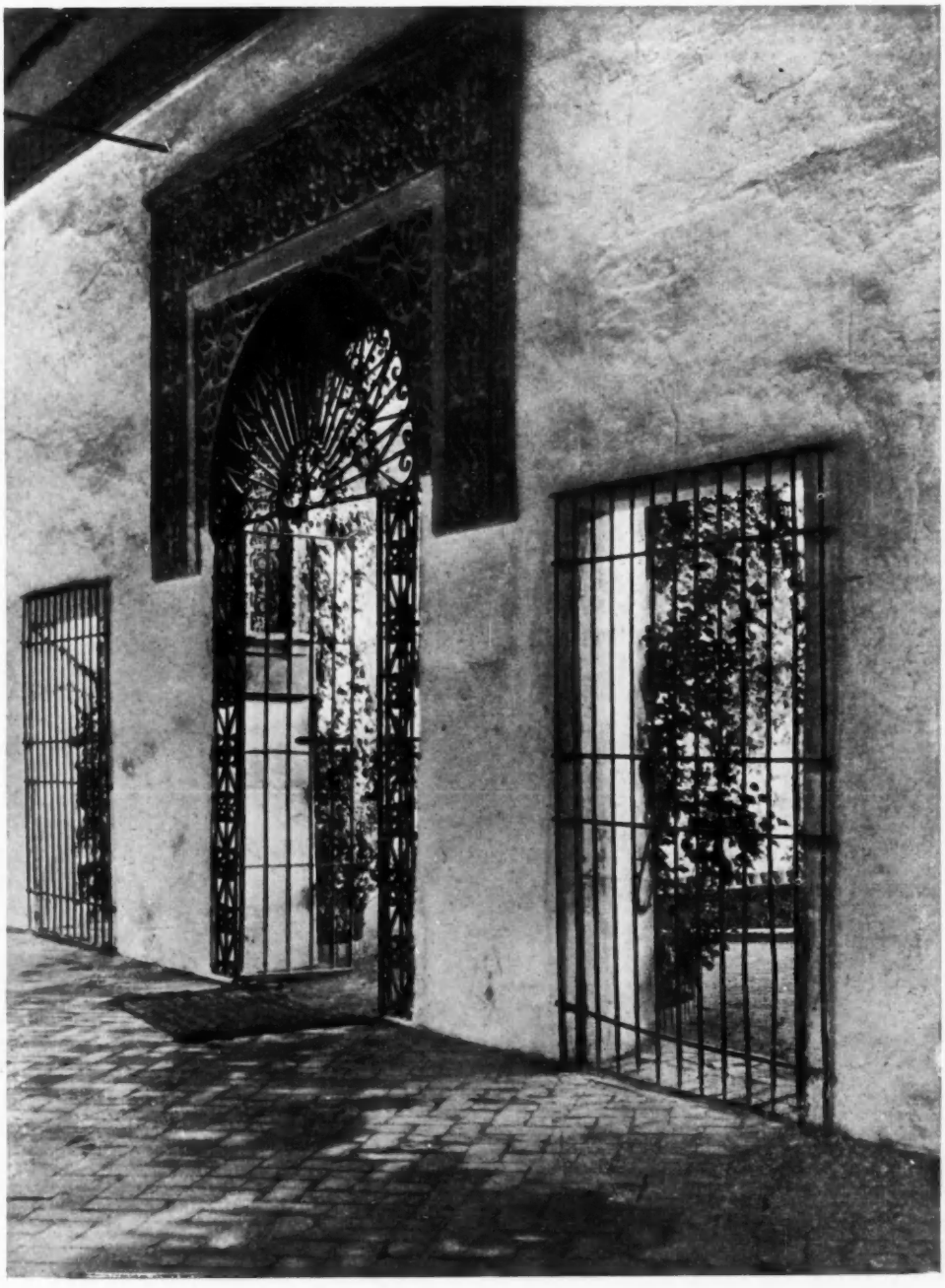
Principal patio of the Alva palace. Diagonal paths divide the court into four plots outlined with dwarf box

GARDEN OF THE DUKE OF ALVA, SEVILLE

A minor patio in the Alva palace, planted with bougainvillea and violets
GARDEN OF THE DUKE OF ALVA, SEVILLE



Front garden of the Alva palace. Watering trough of polychrome tiles
GARDEN OF THE DUKE OF ALVA, SEVILLE



The Alva patio, with iron grilles towards the garden
GARDEN OF THE DUKE OF ALVA, SEVILLE

Gallery overlooking the Alva patio, the whole parapet set out with potted plants
GARDEN OF THE DUKE OF ALVA, SEVILLE

The Alva patio seen from the gallery. Grass being difficult to grow, the plots are dotted with diminutive clumps like "hens and chickens"

GARDEN OF THE DUKE OF ALVA, SEVILLE

the house from the grounds. Through its several grilled openings nice perspectives may be obtained of the garden beyond. This is quite informal and consists of four main plots with the usual fountain in the center. The beds, outlined with hedges and shaded by lofty palms, supply the cut flowers for the house. Passing around the staircase wing and by the pool one enters the irregular garden precinct at the rear. Here planting consists almost exclusively of orange trees, and to permit of their constant irrigation, the paths are raised high above the level of the ground. Along the walls of the house are pleached geraniums growing to a height of twenty feet. Azulejos are conspicuous by their absence, and the whole effect is that of a rustic grove rather than of a city garden.

In examining an Andalusian plan it must be remembered that the house is divided horizontally into summer and winter quarters. Into the lower or summer story very little outside light and no sun are allowed to enter. Nearly all the openings give onto the patio whose planting and fountain helped to cool the air. The lower rooms themselves often have floor fountains whose open conduit leads out to the patio basin. In the case of the Dueñas plan the large dining hall across the back has the benefit of both the patio and the garden, one end, that towards the pool, having been left open in the form of a loggia.

The ARCHITECTURAL SIGNIFICANCE of the RICE MILLS of CHARLESTON S. C.

By Samuel Lapham, Jr.

IN THE INTEREST taken in the work of our architectural forefathers, one can but note, either from the wealth of material in certain fields or its application to present-day uses, that particular types from the days of the Colonies and the Early Republic are stressed in the published records to the proportionate exclusion of others. A casual glance at almost any work on American architecture will reveal this tendency. For the most part, they will be found to cover domestic and religious architecture with a glance at such public buildings as Independence Hall or Faneuil Hall. Therefore, to the general public at least, it would seem that our early architects stopped short with these types.

It should be remembered, however, that our early American architecture, until the Civil War, was all-inclusive, a natural movement and not an artificial one. Its spirit was not applied to the three above-mentioned types of buildings and left there. It spread over the entire face of American architecture that existed in those days. It touched all branches of architectural endeavor and left its mark thereon. Since that day some of these branches have grown greater and have developed off-shoots that were never dreamed of, then. Modern architecture has its garage architects, its hotel architects, its factory architects, specialists without number. In short, it has its field of industrial architecture.

Industrial architecture is a division of particularly modern origin for the most part. It is an evolution from the requirements of a full-grown nation, not of a new-born nation in a virgin country. Specific demands for service, a trade field, quantity production and an economic profit on investment are among the things that must be obtained before any phase of effort becomes a true industry. As such, practically no manufacturing nor trade industry existed in the days of the colonies, nor in the republic of the 18th and the first quarter of the 19th centuries. The Chicago *Tribune*, General Motors, the Cunard Line, Bethlehem Steel, did not and could not exist to build up each a type of industrial architecture. Such struggling manufactures or trades in the period of our history from 1700 to 1825 had no group action that demanded headquarters and coöperation; they were individual practitioners and, as a result, no industrial architecture in its true sense existed. The New England clipper ship might have provided a Colonial Cunard Building, but not being a corporation, their riches, transformed into architectural desires, took the shape of the homes of the sea captains of Salem and Newport. The New York farmers needed no produce storage building; the Virginia planters built plantation homes, not cotton exchanges.

In South Carolina, however, a field for coöperative dependence in place of entire-

CHISOLM'S MILL (1830—DEMOLISHED 1916)

ly individual effort had come into existence. The rice industry, first introduced between 1694 and 1700, had grown by leaps and bounds. By 1765, the colony was shipping 100,000 barrels yearly to forty-four ports of its trading world, whose outer edges were London, Lisbon, Quebec and Honduras. At first it was prepared for market by hand threshing and pounding, but by 1800 the demand grew so great that the machinery had to meet the demand. Wind, tide and, in 1817, steam were progressively applied to provide the power required in preparing a large supply for the consumer. But efficient machinery was large and costly. The small planter could not afford it and, though all of the large-scale plantations had their own mills, to the owners of the great majority of middle-sized plantations an efficient mill, though necessary for their own crops, was an unwarranted outlay for the return it gave. Thus coöperation became necessary and the greater cost was met by group action. Mills were erected near the common shipping port by those who could furnish the cost of construction, either individually or in groups. Once in operation, the rice of those owners could be prepared for market at the lowest rates while the rice of those who had no machinery could follow at a price that gave profit to one party yet meant a saving to the other. Mutual dependence was thus established to be rewarded with a stream of wealth. From the inland swamps, and from the diked river marshes, the flood of rice moved toward the mills in a tide of fortune that lasted for three-quarters of a century.

Here were met all conditions for an industrial architecture. The economic requirements of demand, supply, transformation of raw material and profits made wealth not of individual effort but of a coöperation that had responsibilities to meet and money to meet them with. Protection of its clients' products, upkeep of machinery, quality of output and competi-

tion with rival concerns had to be provided for, all of which meant a true though small-scale industry. And with industry, came the earliest specialized industrial architecture with its problems of design and mass for solution on a vaster scale than the architects had been generally accustomed to use. Further, these were problems that must be solved to the artistic satisfaction of clients having a full knowledge and appreciation of taste learned from a refined yet virile domestic architecture, eager for each new popular style, yet expecting something not one whit less in accord with aesthetic standards, as far as fundamental design went, than that to which they were accustomed in their residential and civic architecture. It is to give, possibly, a little further light on the ability of our architects of the first half of the 19th century, whose domestic works we cherish so highly, that this article is written. It is hoped that it will show them in a field not so well covered by architectural writers today, and prove that the problem presented was not beyond them, but merely gave them an opportunity to show more of their skill and greater proof of the adaptability of their style.

Of the many mills built in Charleston before the Civil War, two remain today, together with the wing of a third, whose main building was demolished in 1916. Fortunately, a photograph of this building in the course of destruction was secured by the writer through the courtesy of Mr. H. L. Beck, Superintendent of the 6th Lighthouse District, as the Government owns the property today. Thus we have an interesting series of three mills, built at intervals of about fifteen years reflecting in their architecture the same procession of style that we have seen pass in domestic architecture.

BENNETT'S MILL (1844)

These three are Chisolm's Mill, (1830—destroyed 1916), Bennett's Mill, (1844), and West Point Mill, (1860). The wing of the first is now the storehouse of the 6th Lighthouse District, the

second decays as a ruin on the eastern waterfront and the third, awaiting destruction for some modern purpose, operates occasionally, as the flood of rice is now but a dribble under changed conditions, and the cheaper product of the Louisiana uplands. All three are proof of a distinct type of building whose spirit can best be described as

for four stories in height in place of two or three, they still give accent to the corners in spite of the resulting thinness. The Corinthian modillions of the eaves and of the rake cornice, although unexpected, give a pleasing light effect to the large area of roof and add grace to the whole mass, unbroken save for the severe rusticated fortress entrance and heavy

DETAIL OF FAÇADE—BENNETT'S MILL

Early 19th Century-Georgian-Colonial-American (call it what you will) architecture in a generally unrecognized industrial phase. The actual architects of their design are unrecorded.

Chisolm's Mill is the earliest of the three and in the effort to meet the new problem of design, it shows certain residential touches. The architect, facing his new problem seems to have carried with him instinctively his standard forms. The quoins, long established in Charleston, since they appear on domestic work as early as 1733, were brought to the new proposition. Although stretched out

pediment, which had a circular occulus. The massive walls of brick are otherwise unadorned, yet, by skilful relation of solid and void and a consistent use of circular headed openings, a sense of scale together with a spirit of combined vitality and repose was created that are most satisfying. The value of the design of the main building is, if anything, accentuated by the loss of that spirit in the wing, where pilaster and bay construction combined with square-headed windows make a rapid approach to the lifeless factory buildings of today. The mill as built originally was damaged by fire in 1859 but was repaired

and in operation within the year, so it is probable that the engine tower with its stifled Scamozzi window and out-of-scale entrance was a replacement of that date. The pilastered wing is possibly a decade younger than the main building as that was the time of the vast expansion in the industry and there is a hint of Greek Doric influence in the brick caps and cornice. The lowering of the aesthetic standard in the secondary or wing building, although adjacent to the main building, will be found to occur in all three mills under consideration.

The Classic Revival was fully established in South Carolina after 1840 and at that time Gov. Thomas Bennett was one of the richest of the low-country plantation owners. He doubtless wished a mill that would surpass in design any of his rivals' and Bennett's Mill, built in 1844, succeeded in that respect. His designer turned instinctively to the Italian Renaissance type as expressing the desired spirit. It was the day when whatever was copied from books on the architectural detail of Greece and Rome was correct and sought after. The architect turned to Palladio, to Scamozzi, to Inigo Jones, to any thing he could find on the Renaissance in Italy. But, somehow, out of this scramble of many pieces he made something of his own. For that, we can forget we find traces of a copy of one Italian palace window in one place, an idea from another palace next to it, and a suggestion of a third somewhere else, all translated into brick. It makes us pass over the amusing accentuated Greek touch of the slanting jambs of the second story window frames, which as much as say—"This is to let you know that I have the Greek and Graeco-Roman forms at my disposal as well as the pure Roman ones." In spite of this he caught the spirit of the purpose of the building and made it instinctive of its calling in every line, and proved himself a true architect.

But along with this accomplishment common to all, in varying degrees, the architect of Bennett's Mill did more. He did not simply express its purpose behind a screen of copied details. Somehow, he breathed a glamour of romance over a structure built for storage, mechanical power and production. It is not a mechanical plant that we see in the tropical twilight. His Renaissance details, his masses, his voids and solids with their play of light and shade, blend against the sky and fade into the night mist and we have a castle of transformation, worthy of Poe, a castle where unseen obedient dragons, grind the white silver of the rice and transmute it into gold behind the still waters of the tarn. It is as perfect in its way as is Mt. Vernon, where, around a barn-like structure, there always dwells the atmosphere of periwigged gentlemen in gay coats and knee-breeches, who, hand on sword from the broad veranda, bow ladies into their waiting coaches. The Chateau of Chambord was said to be a Fata Morgana in a wild woody thicket; Bennett's Mill could equally be a Piranesi in a marshy plain.

In detail the Palladian window, although badly weathered, is beautifully done and is a wonderful example of scale, as well as the focal point of interest. It is almost a copy book example of the Mutulary Doric order. The use of the full column instead of a pilaster under the arch is an odd touch, but the sense of strength gained more than compensates for the loss of line. The richness of the window is added to by the simplicity of the plain flanking panels of brick and the large brick columns. These with their stone caps and lintel are beautiful examples of a high degree of craftsmanship in a common material, for the bricks are roughly ground, and except at close range, the line of entasis is satisfactory to the eye. The only weakness is in the entrances, where the architect's skill deserted him and his attempt at mass simplicity in wood became almost childish. This is accentuated by the refinement of his rustications, where he even provided an impost moulding to support the outlined curve formed by the quoined ends of his rustications meeting an imaginary arc around his circular-headed doors. It is of interest to note that in Bennett's Mill appears the American or running bond at a time when all other brickwork

in the city was being done in Flemish bond. Even West Point Mill, fifteen years later, as well as all residences at that time were still being laid up in Flemish bond. If the building was more removed into antiquity it would be a temptation also, to point out that in the compared with the slight loss that can be observed in a comparison of the domestic architecture of 1844 with that of 1860. We must remember, however, that once turning, the tide of taste would subside and show the change the quickest in the area in which it was of the least

WEST POINT MILL (1860)

spindled ventilators is the symbolic representation of the waving fronds of the rice fields at harvest time, but not being located in Egypt, we can only say that the architect might have had that thought in mind.

Sixteen years later we come to West Point Mill, built in 1860, the time of the greatest decade in the rice industry, when three and a half million bushels were marketed. A decided change has taken place in the character of the building, and while its proportions, as a whole, are good, and its mass is imposing, something has departed that the two elder mills had in spirit. The degree of change is great fundamental importance to the daily life of the people.

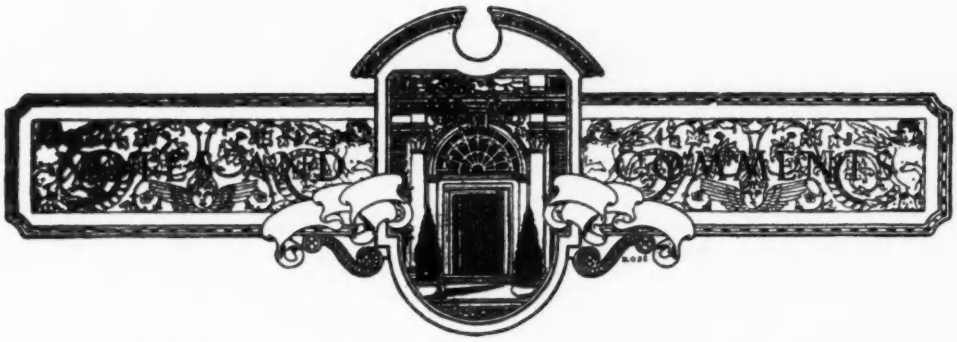
The massive pilasters of West Point relieve it from being an uninteresting mass, its pair of huge octagonal chimneys are marvels of brick construction and its proportions are good, but there is a feeling of something lacking. In the window openings we see a rapid approach to the segmental-head factory type, but being casements with transom heads, an almost modern French touch is imparted to the front. Beroofed after many hurricanes, with no trace of the original cornice left; shaken by the earthquake of 1886 and strengthened after that catastrophe by

tie-rods whose plates detract from the general effect, we cannot be too strict in judgment. We can say that a decline has taken effect and utility alone, without other regards, was soon to become the first thought. The sole variation from a set standard throughout is relegated to the rear, where between the chimneys is an impoverished Scamozzi window, rather cramped and decidedly out of scale with the rest of the openings. It is a far call from the giant Palladian window of Bennett's Mill, but although slowly dying, the old instinct for a mark of importance somewhere still held, and into the building it had to go. West Point was the last and largest of the great rice mills. The main building of Chisolm's Mill was 90 by 70 feet, of Bennett's Mill, 90 by 65 feet, of West Point, 142 by 42 feet, exclusive of the rear projections. One year after West Point was completed, the Civil War came and loss of wealth and of labor spelt the decline of the industry, hastened after the war by western competition. The new industries arising in other parts of the country in the architectural darkness of the '70's and '80's sought and cared for strict utilitarianism only, and their buildings became and still remain industrial construction only with no trace of industrial architecture.

This article has made no effort to present a study of these mills in regard to their plans, but is an archaeological treatise on early mill engineering. One cannot but mention, however, even to the most rampant disciple of paper design, the sheer strength and beauty of the timbers of all three of these mills. They are pieces of lumber of pure beauty. In places there are timbers polished to a sheen by the falling grains of rice pouring over them through the years, resulting in a finish that the hand of man could never equal.

There are pieces of 4 by 14, 8 by 14, 13 by 16, 14 by 18 inches, all-heart, long-leaf pine, single sticks, thirty, forty, fifty feet long with no defect or blemish on them, that make our present-day mill timber seem scantlings made of pulp wood by comparison. In the half gloom, among the vast spaces of the towering openings between stories is an opportunity for a Pennell or a Piranesi to make sketches that will embody the spirit of wood, as the one has already done for steel and the other for stone.

The subject is by no means exhausted but we have merely attempted to call attention to a phase of our early architecture, not well known, yet a link in our architectural history. One can but feel that the buildings give proof of the versatility and adaptability of our first architects and show that their sense of design was equal to all occasions. The mass, the scale, the proportions of these large structures are handled with a sure touch and a true realization of values that make them worthy of study today. The architects were faced by a problem calling for treatment of surface and mass, almost equal to the areas and volumes found in our smaller industrial plants of the present time. They solved their problem with the same skill, success and beauty that made their work a landmark in the domestic field.



CONTROLLING ECONOMIC FACTOR IN CURRENT BUILDING

When the economic history of the United States during the period immediately succeeding the war comes to be written, its controlling tendency will undoubtedly be described as the growth of the cities at the expense of the country and of industry at the expense of agriculture. There was a long stretch of American history ending in the last decade of the nineteenth century, in which the urban and the rural population increased at an approximately equal rate, and during which the American nation remained predominantly a democracy of land-owning farmers. Then there followed a couple of decades during which, although almost all the increase in population gathered in the cities, the agricultural population at least held its own. But since 1919 not only has all the growth in population and wealth concentrated in the cities, but the cities have been draining population and wealth away from the country. It is estimated that at least two million people who before the war were living on the land now derive their support from urban industry; and the end is not yet. Unless existing economic tendencies are checked, agriculture in America will continue to deteriorate, and may become as relatively negligible in the economic and social life of the country as it now is in Great Britain.

These considerations are, of course, a matter of great importance to all people who derive their living from the building industry. It has enjoyed during the past five years a period of great and profitable activity. At the end of the war there was a shortage of housing of all kinds; and the shortage was increased after 1920 by the prosperity of the cities as compared to the country. Indeed many economists believe that it was the revival of building, following as it did so quickly on the slump of 1921, which restored comparative prosperity to American industry. At any rate the volume of building has been until recently exceptionally large. Yet apparently the supply of new buildings for all purposes has not exceeded the demand. There may be no actual shortage of housing similar to that which existed in 1919, but there is certainly no surplus. Rents are still rising in most of the large towns and cities of the United States. Yet people are found who occupy the houses and pay the rents. There has been a tendency recently towards a smaller volume of general business and a slightly lower scale of prices, but business contraction, in so far as it exists, is not a reaction, as it was in 1921, from general expansion of credit and prices. It seems rather to be the indirect result of temporary excess of manufacturing and industrial energy and equipment, which enables the cities to produce more consumable goods than the country as a whole can buy at current prices.

The present business reaction may or may not endure, but it certainly suggests the wisdom of the adoption by business men connected with the building trades of certain precautions. The migration of population and wealth from the country to the city, and the consequent expansion of industrial and building operations, is not proceeding on a permanent and a wholesome basis. It has already produced a political insurrection on the part of the western farmers which is embarrassing the two older parties in carrying on the government of the country, but quite apart from its possible political effects, it is creating unmanageable conditions in the cities which cannot become much worse without bringing about an economic crisis. For one thing, the cost of housing in the larger cities is becoming so high that there is no way of building habitations which really poor people can afford to occupy. For

another, in cities like New York and Chicago street traffic is becoming so congested that within a few years drastic measures will have to be taken to relieve it. These measures will be enormously expensive and will increase the burden of urban taxation and the cost of urban living to an intolerable extent. There is certainly no sufficient anticipation of the critical economic and social problems which are being created by the quick and huge growth of the cities at the expense of the country.

In our opinion the result will almost inevitably be a steady slowing down of the rate of urban growth. The cities cannot continue to gain in population and wealth at the expense of the country, as the American cities have gained during the past five years, without injuring disastrously their own domestic markets and without destroying the balance of the national economic life. One of two things will necessarily happen. Either the political leaders of the country will adopt measures which will serve to prevent population and wealth from deserting the land and flocking to the city, or else the nation will find itself plunged into a subversive political agitation which will impair business prosperity and put an end to the conditions which chiefly account for the extraordinary industrial and urban expansion of the past few years.

HERBERT CROLY.

The American Institute of Architects and the Architectural League of New York announce a National Exhibition of Architecture and Allied Arts, to be held in the Grand Central Palace, New York City, April 20 to May 2, 1925. The Annual Convention of the American Institute of Architects will be held in New York during the period of the exhibition and will convene in the space devoted to Architecture and the Allied Arts. At the same time the Fortieth Annual Exhibition of the Architectural League of New York will be held in galleries erected for this purpose.

The purpose of this exhibition is to bring together the largest and most representative of architectural and building exhibits ever shown in the United States. This display will include all the accessories for exterior and interior adornment for both public and private buildings. The progress in city parks and rural communities will be shown by exhibits from landscape architects and town planners. In addition space will be set apart for practical accessories, such as plumbing fixtures, piping, etc., and structural details, columns, beams, steel work, etc.

The exhibition will prove an educational opportunity by establishing a visual contact with the latest devices and materials entering into the construction and decoration of a building. It will be correspondingly instructive to the building trades and technical professions through the comprehensive survey of the most up-to-date building appliances. No enterprise has heretofore been conceived of such inspirational influence for the whole country as this combined effort of art and industry.

TAPESTRY ILLUSTRATIONS OF SIXTEENTH CENTURY DOMESTIC ARCHITECTURE

At one extreme of the profession stand the architects who are more than half engineers, and at the other the literary romanticists. The former regard design as an afterthought of construction, and ornament as something to be added as the finishing touch. Since this is a mechanical age they naturally predominate, the more naturally, too, since the biggest and best jobs in architecture today are on steel and concrete buildings, where planning is a question of practicality rather than proportion, and stress and strain are more pressing problems than the profile of a moulding.

It is in reaction against the bald and insensitive utility of these structural engineers, that the latter, the literary romanticists, create their fantasies. The existence of so much architecture without charm puts an excessive value on mere charm. Colonnades that have the specious though compelling appeal of abandoned ruins, roofs that curve and collapse like the ill-cared for thatch of old world farm houses, though they are made of shiny new shingles, and plaster laid on with big smears so that no one can miss the hand troweling—all these poetic unrealities in building are the sentimentally exaggerated protest against the mass of our buildings that are all reality and no poetry.

Naturally these vagaries run most unrestrainedly riot in domestic architecture where there is the widest margin for eccentricities, and the tendency has popularized the Sixteenth Century styles that are adaptable to the picturesque. Starting with the manor house, rolling roofs, slanting walls and tilted gables have filtered down now through all economic levels until they have reached even the bungalow. As a result California, especially, is suffering now from an epidemic of higgledy-piggledy peaks on wobbly walls all coated with sticky plaster, frequently in an eczema pink.

Yet it is only a small percentage, after

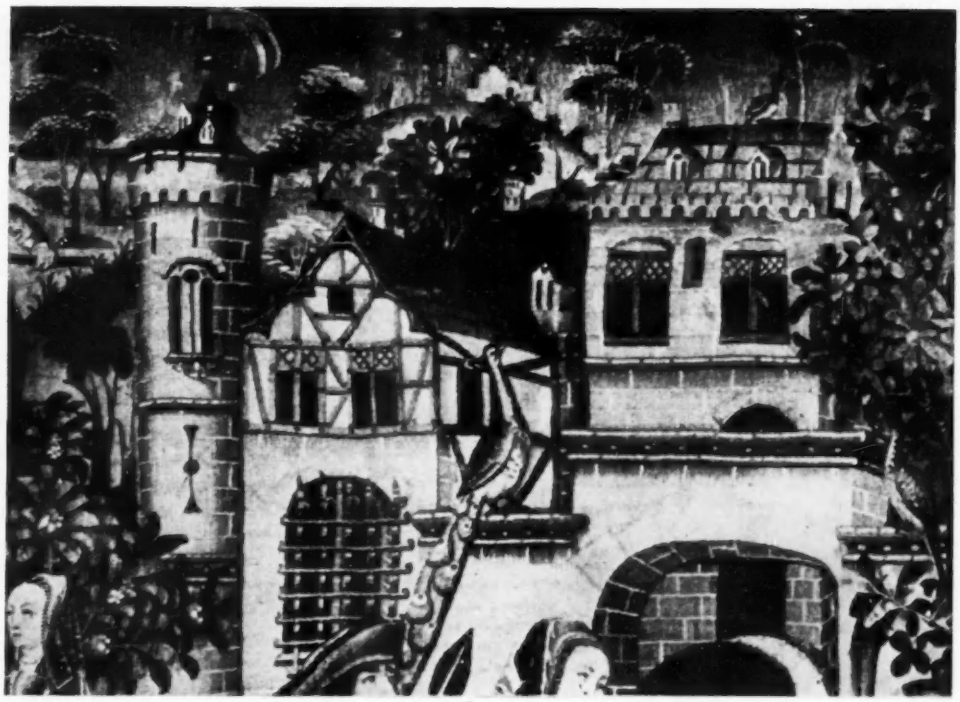
A peasant's hut in the background of a pastoral tapestry, woven in Touraine in the first quarter of the Sixteenth Century, shows charming asymmetries in the beams

all, that differentiates these story-book paper-doll houses from the real beauty of the style. For certainly the truth of Sixteenth Century domestic architecture does not lie in rigid accuracy. It is not the disintegration of age alone that has softened the angles and introduced the irregularities and curves. The half-timber houses of the Sixteenth Century were originally conceived and built on genuinely picturesque lines as is proven by the contemporary illustrations of typical examples.

Some of these Sixteenth Century illustrations of contemporary houses are to be found in paintings, part of the glimpse of landscape through an open door in an Annunciation or edging the sky above a Nativity. But here they are usually small and rather sketchily done. In the tapestries of the period, on the other hand, there are some very accurate records. Architectural features have almost from the beginning of European tapestry been an important decorative element. In the Fifteenth Century the designers used primarily minor details, columns or windows, or an arched dais. But in the Sixteenth Century whole houses were often introduced, especially in the scenes of country life so popular at the time.

Most of these tapestries that show the houses of the time are French, probably woven in Touraine. Ordinarily, they show rather elaborate châteaux, sometimes, as in the great "Hunt of the Unicorn" series now in the possession of John D. Rockefeller, Jr. very beautifully drawn. But occasionally they show also the more modest half timber houses that are of real interest to the architect of to-day.

One of the finest of these Sixteenth Century tapestry half timber houses is in a Flemish tapestry, a "Resurrection" of Brussels weave, in the collection of Mrs. William H. Crocker. This is an excellent example, both because the house itself is good, and because the tapestry is so accurately drawn and woven that the outlines are not at all distorted. And here are unmistakably the irregularities and softnesses of outline that are often credited to time, and for the imitation of which sincere architects have been rather scornfully called romantic. Time has had no chance on this house, for it is contemporary with the tapestry. Especially interesting is the gradually flaring concave curve to the gable, a very subtle curve of a contantly varying axis. Nor is this the sagging of thatch, for a similar outline occurs



One of a series of tapestries illustrating the Carrabarra romance. Note the concave sweep to the roof and the slightly irregular pattern of timbering

again in the half-timbered gable of quite an elaborate French château in a Touraine tapestry representing one of the episodes in the Carrabarra romance, one of a series in an American private collection. Here, too, the roof flares in a concave line that sweeps out in a continuously accelerating curve, and the roof is unmistakably slated. The point is important because hard, stiff roofs are the commonest deficiency in modern reproductions of the Sixteenth Century style, often marring houses that are otherwise very sensitively planned.

Other asymmetries also are interesting in these Sixteenth Century tapestry houses. In some the gables succeed each other with a casual irregularity, which we are apt to ascribe to the successive additions of several generations, yet here it is in houses that must at the time of reproduction have been almost new. Or, if the designer was not drawing from any one specific house, but rather depicting the type, such apparently haphazard compositions must already have been general by 1500 when none of these houses had yet had much chance to grow by accidental accretion. Thus, for example, in a thatched farmhouse shown in the Shepherd tapestry of the Musée des Arts Decoratifs, there is one wide gable at the left, a second one equally high but narrower and shallower, twelve or fifteen feet to the left and running therefrom at right angles a long low wing of only one story, a charming mass, as picturesque as any romanticist could wish, yet at the same time a normal and genuine building.

Especially picturesque irregularities are to be found in the timbering. In the more pretentious houses such as the château of the Carrabarra piece, there is a preconceived pattern to the beams. Yet even here there is no rigid symmetry. Where in the peak of the gable there is a diagonal on the right, it is missing in the corresponding space on the left, while a middle horizontal beam is omitted in the left panel of the lowest timbered story. And in the peasant cottages such irregularities run riot. A peasant's hut in the background of a pastoral piece in a New York commercial collection is at every point unmatched on the two sides, yet there is a certain instinctively balanced compensation. And this asymmetry is even more marked in another cottage in a second piece of the same series in which crossed beams fill one panel, while parallel ones are in the corresponding

space on the other side of the door, and the other beams tilt in first one and then the other direction.

The Sixteenth Century style itself, then, in its original and unselfconscious form as it was recorded in the tapestries of the time provided all the irregularity and variation that the most romantic designer could desire. These tapestry houses rebuke the mechanical minded, but at the same time they call to account those scenic-painter contractors who strive for effect without regard to decent building; for these illustrations prove conclusively that those who seek charm can revel in the picturesque without affronting the good taste which demands the genuine and direct.

PHYLLIS ACKERMAN.

MEXICAN ARCHITECTURE

"An Architectural Pilgrimage to Old Mexico," by Alfred C. Bossom, Charles Scribner's Sons, New York, 1924, $20, is a valuable addition to the increasing fund of data on the Spanish manner of the Renaissance in its varied phases of expression; the keenness of attention that is now centred upon that type of design, makes this subject one of considerable practical utility. The book makes no pretension to being an historical or archaeological survey of the style, but is compiled, as the title expresses it, as a pilgrimage to objects of beauty and interest. The author's profession, and his practical temperament assert themselves in the arrangement of the information; that is to say, we feel its compilation was guided by the same mental process which would cause an architect to arrange the notes of a sketching tour with the view to its subsequent service in his practice. Classification is convenient for reference under those headings which would naturally occur in the elaboration of work after that manner. The illustrations are arranged and indexed under the headings of Façades and Walls, Courtyards, Gateways, Cornices and Gargoyles, Towers, Porches, Doors, etc.

In a brief introduction, the author touches upon the applicability of Mexican inspiration to modern American requirements, which he explains with clearness and sound logic. The illustrations, sixty in number, are mostly taken by the author's wife, who has proven an adept in the complicated art of architectural photography. We have often had occasion to lament the scarcity of good camera renderings of architectural subjects in these columns; it is becoming a rather desperate requirement, hindering a more general recognition of modern architecture. In her photographs, Mrs. Bossom reveals an intuitive grasp of the most advantageous viewpoint, a feeling for dramatic composition, and, where the subject permits, a faculty for contriving a picturesque result with simple motifs. From the standpoint of architectural information these photographs leave nothing to be desired, as a condition of illumination has been selected in each instance, which gives the maximum amount of information; they convey the relative degrees of relief in ornamentation, and the projection of architectural members.

In studying the illustrations one is impressed by the extent to which the basic characteristics of the Spanish prototype were maintained throughout the radical modification of treatment which evolved in Mexico during the eighteenth century. In the finest examples we find that the essentially Spanish feeling, which produced such perfect coördination between the two extremes in architectural effect—ornamental elaboration and plane unbroken surfaces was in control. As the style grows towards full maturity of expression, we feel we are investigating the evolution of a beautiful European plant which has developed a tropical exuberance under cultivation in another clime. In the Mexican manner we see the Baroque in its most exotic form, built on a scale to withstand a range of vision which is rarely considered in Europe. There is a grandiose scale in their great churches with their polychrome domes, designed to carry the message of the magnificence and power of Rome across vast plains; they were the first human objects discernible to the approaching traveller, holding his vision and imagination as he traversed miles of uninhabited countryside. In Mexico, architecture became a medium for religious propaganda of the first importance. Its capacity for impressive effect was expressly contrived and developed for the physical growth and spiritual control of a materialistic and superstitious race. We are indebted to Geoffrey Scott for the complete reversal which the critical attitude has undergone toward the Baroque manner; its true significance was never appreciated before he so admirably expounded its artistic value in the "Architecture of Humanism," a work which has probably surpassed all others in the influence which it has exerted upon the esthetic appraisal of architecture. With the endorsement of such an eminent authority we now feel justified in allowing our admiration of the exuberant Baroque full rein, without the disquieting sensation

that we are indulging a debased and unorthodox taste. In that land of brilliant sunshine, the enrichment of translucent shadow, deliberately calculated, was capitalized to the maximum, but we never find that the intricacy of the embossed pattern, with which they ornamented so many of their structural features, detracted from the architectonic significance of the item so treated, nor was it productive of the smallest degree of confusion. We are astounded by the coarseness of the plastic technique with which so grandiose a scenic quality was contrived, and by the delicacy of the structure as a whole; that which was lacking in sculptural refinement was amply compensated for by the masterly manipulation of light and shade.

The author has not restricted his records to the most ambitious examples, but has given a number of illustrations which present the style in its more intimate interpretations as applied to the less pretentious buildings. These are particularly interesting as they reveal the ability of the majority of designers of the period, and the extent of stylistic influence. A number of these are of unprecedented character in architectural design, possessing that form of interest which is always present when a work results from an artistic aspiration more active than its author's technical knowledge, and when imagination is unrestrained by acquaintance with artistic tradition. A number of sketches by Alfred Bossom are of great value to the architectural student as they are essentially informative.

LEON V. SOLON.

"SELECTED MONUMENTS OF FRENCH GOTHIC ARCHITECTURE"

By John V. Van Pelt

The avowed object of the publishers of this "selection of a selection" is to make available at as low a cost as is consistent with proper presentation, material which is now prohibitive in price and unobtainable. This is excellent, for it is based upon the perfectly sound assumption that those who are most opulent in taste and talent are more often than not unable to buy the necessary food to feed these faculties. The artist has fallen upon evil days; the past alone is rich in beauty. The doors to those storehouses which contain this threshed grain of the ages ought to be opened and this is one way of opening them—the publication of such books at such a price—but it makes all the difference whether the recipient of the largesse uses it as *seed* or as *food*, that is, whether he be inspired by the great work of the great ages to create freshly from his own spiritual center, in terms of his own time, using its methods and materials; or whether he play the sedulous ape to ancient greatness, producing at best only faded and futile copies, and at worst, mere caricatures.

The present volume* presents examples of French Gothic from the early dawn to the late twilight of what was in many respects the most marvellous day that ever dawned upon the planet earth—not the most serene, nor the most magnificent, nor the most awe-inspiring, but surely the most surcharged with *wonder*. French Gothic is supreme in this, the glory of its sun-shot, sanguine and cerulean windows alone would prove it so, for they are unique and unsurpassed, but there is besides the straining upward of clustered columns which at a given point burst, rocket-like, into ribs which shatter themselves against, and yet support, a granite sky; there is the visible arithmetic of stone window-tracery which here freezes into crystals and there fuses into flame; there is all history and theology spelled out for the eye by the patient chisel of the sculptor, with naive additions and variations of his own.

Surely, if anything was ever divinely inspired it is this Gothic architecture of France, which seems to have been conceived by natural, law-defying mystics in some ecstatic state of trance, and carried to completion by the most rational of geometers and the most practical of artizans in wood and stone.

In order fully to appreciate and enjoy this book of pictures it should be looked at in connection with the reading of Henry Adam's matchless *Mount Saint-Michel and Chartres*, for that contains the *clue*, reveals the *motive*, and the pictures, in turn help in the understanding of Mr. Adam's text, for they supplement, in some measure, the great deficiency of the existing edition of this masterpiece, which is the lack of a sufficient number of illustrations. The lesson of both books is the same: conveyed in the one case by words, suggested in the other by pictures: this architecture sprang from a spiritually illumined consciousness, stirred to the praise of God as manifested in Christ and the Virgin through the creation of Beauty, not in any niggardly and frugal way, but generously, opulently—by the breaking of the alabaster box of precious ointment, actuated by love alone. And until that spirit of praise and worship again animates the hearts of

*Selected monuments of French Gothic Architecture. One hundred plates from *Archives de la Commission des Monuments Historiques*. With text by John V. Van Pelt, F.A.I.A., A.D.G.F. The Library of Architectural Documents. Vol. III. Published by the Pencil Points Press, Inc., New York, 1924. Price $6.00.

men, we shall strive in vain for such felicity of achievement as shines forth from the pages of these documents.

CLAUDE BRAGDON.

CO-ORDINATION BETWEEN MURAL PAINTING AND ARCHITECTURAL SETTING

In recent editorials we discussed certain examples of modern American sculpture from the standpoint of their capacity to fulfil a contributory function in architectural effect. The works under discussion were appraised primarily as decorative architectural items; they were considered as component parts of the architectural scheme, on a par with the carved capital or frieze; that is to say, they were expected to contribute effect-value of a definite denomination to the entity of architectonic effect. The lack of homogeneity which was discovered in many instances in the association of sculptural and architectural effect was attributed to the omission of a vital point of view on the sculptor's horizon. A clear conception of the precise ratio of architectural effectiveness which his composition should possess had not controlled creative effort. In the work of the rising generation of American mural painters we are sensible of the same oversight.

The ideals and mannerisms of the preceding generation of mural painters have been energetically discarded by the younger men, and the ordeal of creating new aesthetic objectives enthusiastically undertaken. In the absorbing pursuit of pioneering, it is not to be wondered if certain vital considerations are overlooked—particularly those which casual consideration might judge as appertaining more to the concern of the architect than to that of the painter. It is our desire to dispel any vagueness as to the responsibility of the painter who decorates the walls of a building; we will therefore endeavor to analyze those controlling factors which assure satisfactory results. A specific phase of critical faculty is mainly involved, which, in its complex activities is operative throughout the process of all artistic production.

A thorough appreciation of the precise meaning of *schematic significance* is more vital to the efficiency of the mural painter today than it was to his predecessors of the historic eras, as it is now necessary to make *deliberate* calculation as to the co-relation of decorative and architectural effects. Under the ancient condition which fostered the unification of aesthetic objectives and interrelation of effort in composite effect, this was intuitively sensed. Through the intimate association of builders, carvers, painters and craftsmen in the abbey workshops during the Middle Ages, the quality of fitness was the fundamental criterion in creative effort. Questions which concerned scale, decorative elaboration, tonal value, or the precise location of focal points of artistic interest, were all considered in their relation to the three dimensions of structurally enclosed space. All forms of painted decoration were conceived, and their development visualized, on the spot. The decorator of the Gothic cathedral was not expected to develop his theme upon the bare datum of linear dimensions such as are indicated upon the modern blue-print, and from which the mural-painter is expected to form an accurate concept of spatial dimensions. In the Middle Ages immature judgment was bound to reveal itself at the initial stages of execution, as an inadequate solution of the problem in hand exhibited its deficiencies from the moment that the project was tentatively traced upon the destined location. In addition to the disadvantage of a nebulous impression of spatial dimensions in an incomplete structure, our painters are often unacquainted with conditions of lighting at the time at which they are called upon to prepare cartoons; these necessarily affect the relative prominence of architectural features, and should control the tonal key of chromatic effect.

During the Renaissance periods, mural painting was assured architectonic adequacy through other circumstances than those which benefited the Gothic painter. At no other time in the history of the arts were architecture and mural painting so truly "sister arts." If we draw conclusions from the records of the artistic historians of that age, it was the prevailing custom to study both arts simultaneously. A practical knowledge of architecture was considered essential to the painter, who acquired its technique with such thoroughness that in a host of instances it is difficult to determine whether the individual could be considered primarily as a painter, without a measure of disparagement to his achievement in the art of architecture. With so intimate an acquaintance with architectonic ideals, a perfect attunement between the mural decoration and its structural setting was an unavoidable consequence; pictorial values were calculated absolutely from an architectural basis.

The modern mural painter is confronted with a much more intricate problem than were his predecessors of the Gothic or Renaissance eras, equipped with their heritage of craft-tradition. Of recent years we have seen American architecture using historic precedent as the fruitful soil, from which with free impulse it has blossomed and borne rich

fruit. The elements of historic expression have been reduced to the status of media for a racial expression which has materialized through untrammelled feeling born of unprecedented premises. In the subtle revision of scale which decorative elements have undergone, we see the mastery of purpose over medium. Mere archaeological accuracy shares the prejudice which attends the wearing of borrowed apparel, and literal transcriptions of structural or ornamental detail do not satisfy the fastidiousness of this newly-found ratio in scale. In view of the intimate relation which must necessarily exist between pictorial architectural quantities in their combined effect, it is vital that the painter keep abreast with this colossal architectural movement:—but what evidence is there in any recent mural work that it is even under casual observation? It is far from our intention to depreciate the usual form of study which is concentrated upon the works of the masters of mural painting, who made so great a contribution to the structural masterpieces of the past. Such study is in the main cultural, enlightening in technique, and of great inspirational value; but if those masterpieces be examined from the purely pictorial angle, they are impotent to teach their basic function, which is essentially architectonic. No serious mural-painter today cherishes the Mid-Victorian fallacy that the interior which he decorates is merely a shrine for his work; or, that in the detachment of his paintings from their architectural surroundings he assumes a form of aesthetic precedence. The mural paintings of Puvis de Chavannes possess a rare and dominant quality in their invariable capacity for architectural incorporation. His tonal key, and the sense of spatiality with which he invests so many of his compositions, adapt themselves admirably to the general chromatic austerity of the late nineteenth century formula for interior effect: his paintings have a definite schematic relation with the architectural impression. Brangwyn, on the other hand, is at a decided disadvantage under similar circumstances when considered in the architectural relation; the tonality and luxuriance of his coloring and the general weight of mass in grouping and the silhouette, produce a schematic value which calls for a totally different quality of architectural effect to that which aligns itself so well with the work of de Chavannes. The basic requirement for a better adjustment between this form of decorative effect and interior architectural effect lies in the painter's capacity to determine in terms of his own art, that complement to architectural effect which primarily achieves aesthetic entity. Such calculation should operate intuitively as a habit of thought which underlies imagination without impeding its freedom, which is fostered through the painter's complete familiarity with architectonic quality. For some time we have been encouraged to look to the American Academy in Rome as the training ground of those who are destined to brilliant achievement: yet, with each succeeding exhibit sent, we feel more and more that the potential capacity of its mural painting is diminished by a palpable lack of architectural comprehension and sympathy. Were it possible to make some revision in the curriculum to meet this serious deficiency, it would undoubtedly be productive of invaluable results. For those who follow this important phase of artistic expression, the intensive and sympathetic study of architecture when directed to the analysis of qualities of effect, is barely secondary to that of form, composition, and color technique; for upon the evidence of such comprehension the fitness of effort is appraised in the ultimate judgment.