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of the United States

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Recent Bank Buildings of the United States

Banking as an institution is as old as the hills, but there is, perhaps, no time-honored institution about the origin of which we know less. Of the use of money, the earliest record that we possess is the purchase, about B. C. 1859, of the field of Macpelah by Abraham, from Ephron, the Hittite for "400 shekels of silver 'current money' with the merchant." (Gen. xxiii., 16). The expression "current money" would imply that there was other money, the use of which was limited to certain localities and for certain purposes and which would be honored only when so used. Of brass money Homer mentions the existence in B. C. 1184, while Herodotus, the historian, says that the Lydians at Aegina in B. C. 183, were the first people who coined gold and silver money. The Parian chronicle, however, attributes the coinage of silver money, as well as of copper, to Pheidon of Argus in B. C. 895. The New Testament makes mention of the money changers who had tables in the Temple of Jerusalem, and as far as the writer has been able to discover, this completes about all that is known about banks and banking among the Israelites, Egyptians, Hittites, Babylonians, Persians and Assyrians.

When we pass on to Greek civilization, the records are more enlightening.

We know from the remains of accounts which have recently come to light that some of the temples were in a sense banks, that is, places where money was safeguarded. The temple at Delphi is celebrated in literature as the great bank of Greece. It was here that wealthy individuals from the different Greek states and even the states themselves could safely store their hoards. The religion of the land was to the Greeks of those days what the guarantee of the government is to us today, and, perhaps, in a higher degree. In the event of war, the treasure was perfectly safe from the attack of either side. But these banks, of which there must have been a considerable number, paid no interest, and for those individuals who were content to take the risk of having their money in a less safe place, there were the merchants who carried on, in addition to their regular affairs, a flourishing banking business, especially in Athens.

Apart from the security of keeping money and treasure in the temple, the control of so many important functions of government rested with the keepers of the spiritual man, that it is not surprising to find the edifices of religion doing duty also as treasure-houses. The temples which were especially selected to perform this service were those of Ath-

ena and Aphrodite Urania, in which a chamber will be found in an inner part of the temple under the name opisthodomos or treasure chamber. No doubt, some of the archaic Greek tombs which are called to the attention of students in architecture as the beginnings of classic art, were used to store treasure and money. One of these massive stone erections has come down to us as the Tholos or Treasure House of Atreus. Of course, we cannot tell but that Atreus was the Croesus of his time and built the underground domical room of massive stones simply to safeguard his own worldly possessions. But on the other hand, it may have been a depository for the funds of others, in short, a bank. Dr. Reber in his History of Ancient Art says of it: "The Tholos of the palace at Ithaca was an isolated circular structure before the court, and may, perhaps, be identified with the high thalamos to which Telemachos descended. In this also lay gold and metal in heaps, while shrines containing garments and amphoras (urns) filled with oil and wine, etc., stood around. Its double door of careful workmanship agrees with the character of a treasury. If this identification of the tholos and thalamos be accepted, no doubt can remain that we have here to deal with a space similar to many yet remaining in Greece generally known under the name of treasure-houses. Examples exist at Orchomenos, near Pharsalos, Amyclae, Meridi and in Mykenae. Of the five in Mykenae, that known as the Treasury or Tholos of Atreus, remains in an admirable state of preservation, especially as regards the interior."

Of the Roman system of banking and banks we have more positive knowledge. Roman literature records the fact that there were in the days of the Empire two kinds of bankers. The first were appointed by the government to receive the taxes and were, in consequence, officers of great public importance and held in high esteem, being considered eligible for the office of consul, the most exalted in the gift of the nation. These officials, however, did only business of a public nature, acting as depositories for

money and valuables and paying no interest on the money. According to their specific duties, they bore the titles of Argentarii, Mensarii, Numularii and Collybistae, and their places of business were variously called Tabernae, Argentariae, Mensae and Numulariae. Besides these, there was a large class of private or independent bankers who borrowed, lent and safeguarded money for their own gain, in very much the same way as it is done to-day. These latter belonged to a distinctly lower class of society, were not eligible for high public office and were generally held in low repute. As with the Greeks, the temples were the banks which the government bankers used, and the independent bankers, no doubt, did their business on the *forae* in a way similar to our curb business. The writer has been unable to find any record of the buildings in which these outsiders carried on their affairs and it is not unlikely that they, too, used the public depositories as safes. Several of the Roman emperors, it is known, discouraged the practice of borrowing and lending money for gain, by lending large sums without interest, against a suitable security.

The word "bank" which has come down to us is from the Italian *banco*, a bench. The Lombards, the earliest Italian bankers, had benches on the market place at which they lent and changed money and bills. When a banker failed, his bench was broken and hence we have the word "bankrupt."

The Venetians and Genoese of the early Christian era established banks, but ultimately in Mediaeval times banking as a business fell into the hands of the Florentines, whose financial position became so important that their affairs extended all over Europe, even to the extreme north, where loans were made contingent on their passing through the bank of Florence.

In Italy the oldest banks are those of Venice, 1157, the drapers' bank of Barcelona, 1349, the bank of Genoa, 1407. The last of these owed its origin to the debts of the state, as did also that of Venice.

In northern Europe the oldest bank is

the bank of Amsterdam, 1609, which financed the affairs of the enormous commerce of the Dutch East India Company. This bank was in charge of four burgomasters, who were changed annually and formed the model for most of the European banks now in existence which have varied in details according to local circumstances.

This short historical outline will suffice as a background and in a measure as a link, weak though it be, between the remote past and the marvelous growth of modern commercialism. Without the highly developed system of finance the business world of the present could not, of course, have been conceived and consummated. It is not, however, with the idea of giving careful consideration to the science of finance that some facts of its history have been here noted, but rather to lead up in logical fashion to a subject of more immediate concern: to show that modern bank buildings are the architectural expression of a problem which really has little or no definite precedent in antiquity.

The buildings in which modern banks are housed take their inspiration for the most part, from classic architecture. Nor is this surprising, as the earliest architectural reminiscences of bank buildings are the Greek and Roman temples, whose connection with the business of banking has been pointed out above. Of course, there was no such thing in classic times as a bank building pure and simple; it was only a part of the temple, just as the business of banking was but one of the activities of the keepers of that edifice. The type of building which we know as a bank is purely a product of modern times which has been considerably influenced by new developments in construction and interior equipment, as well as by those other influences which are potent in shaping other structures of a business nature.

The close and persistent relationship of modern bank design to classical architecture is apparent from two sides. The business of banking first took on importance during the golden age of Ro-

man art and under its closest influences. Into this art the commerce-loving and most marvellous organizers the world has seen interwove certain ideas which our modern minds cannot help adopting as the most telling qualities of bank designing. Other peoples succeeded the Romans and brought with them or developed on the Roman foundation other forms and ideas of architectural moment, but it so happened that the centre of finance remained in that part of civilization which remained, and remains to this day, very Roman in its fundamental ideas. Let the reader answer for himself the question of the influence on Italian architecture of post-Roman architectures. The early Christian, Byzantine, Moorish, Romanesque and Gothic schools, what really important influence did they exert on the art which Italy inherited so long ago from the Caesars? True, each of these styles has representatives and worthy ones in the great architectural monuments of Italy, but none of these epochs made a lasting impression on the Italians who remained classicists throughout. So much so, that after they had exhausted their ingenuity without result, to adapt to their classical conceptions the outward forms of the architecture of strict logic, which we call Gothic, they felt compelled to go for further inspiration to the inalienable heritage which Rome left them. The result was the Renaissance from the influence of which even we in America have not yet found it possible to emancipate ourselves to any degree.

The recourse to classic architecture in bank design is not, however, without modern exceptions. One does occasionally encounter a bank building in which the forms of another art have found a happy application. The writer has in mind an exceedingly comely bank in Cologne on the Rhine, where the outward symbols, and, to some degree, the principles of Gothic architecture are successfully applied. We have such examples in this country. There is Richardson's Stock Exchange in Cincinnati and Leopold Eidlitz's Dry Dock Savings Bank in New York City, showing a

ready application of Romanesque forms while a more recent example of strong design which owes its direct inspiration to no precedent is the little Farmers' bank illustrated in the last November issue of this journal, by Louis H. Sullivan of Chicago, and again illustrated here.

After the question of general external appearance has been disposed of, the more important questions of planning and general conception of the problem present a baffling variety of solutions, especially in our own land, where no one bank seems to be planned in its details like any other. In fact, there enters into the problem of bank designing a very individual element, the peculiar relation of the bank to the community in which it is situated and the nature of the business which results from this relation. The conclusion is inevitable, that the designing of a bank is an important factor in its success, especially for an institution which depends upon the patronage of a very large number of depositors. The effect of the structure must be one of great importance and dignified simplicity. It must make on the depositors the impression of being a perfectly safe place in which to leave their money and valuables. The importance of the bank's prestige as established by its quarters is a matter which is nowhere better appreciated than in the United States, where the prevailing note in a well-designed bank building is a consummate expression of the importance of the institution and a certain mystery which adds immeasurably to dignity of the management. The impression which it is intended to convey by these words is a perfectly familiar sensation to the average American, whether he frequents banks a great deal or very little. In this respect the architecture of our banks exhibits surer signs of being on the right track than some other classes of American buildings. Even if a closer inspection of their architectural expedients cannot always call forth such praise, the presence of a broad conception does much to offset other shortcomings in our American bank buildings.

In proportion as the banks, as institutions, have become one of the most important elements of modern progress, so have the buildings which house them risen from a secondary position to one of great architectural prominence. Throughout the country there is hardly a small town which does not boast of one or more bank buildings, which, though they may not invariably be of great architectural consequence, are yet among the most pretentious constructions in their respective localities. Whatever the critic of architecture may say of the design of current bank buildings in America, each one of these structures represents for the architect a different and individual problem. The problem which it offers is, above all, the creation of a place in which the particular kind of banking business may be most conveniently and comfortably conducted. And, as may be said of any important industry to-day, no two banks have precisely the same kind of a business, nor do they carry on their affairs in exactly the same way. On the subject of banks one might truly restate, but in this case conversely, the oft-repeated saying about art and the arts: While banking is one, the banks are many. It cannot be said that architects, in America, at least, have yet shown that they have considered the problem to any extent in this light. Too often they have regarded the designing of a bank merely as the categorical satisfaction of a given set of detailed requirements dressed up in a conventional architectural attire to look important and imposing and be executed in splendid and costly materials. This attitude has produced, it must again be admitted, a certain feeling of largeness in conception and given them a popular standing. Breadth of conception is, without doubt, as much a virtue in architecture as elsewhere, but one cannot help feeling that this merit has at the same time produced some rather commonplace buildings to which it is not possible to take exception in any one particular. The general sameness of appearance in American bank buildings seems to result from the fact that our architects have produced in them a gen-

eral type without special regard for a further development of that type taking into account the varying factors of local conditions.

As in many fields of endeavor nowadays, imitation also reigns supreme in bank designing. This imitation has extended, not merely to matters of decorative effect, but to the plan when solutions which were evolved under a given set of conditions have often been made to answer requirements to which they were either utterly alien or at best only second-rate solutions. A rather convincing example of such misguided transplanting of precedent was recently brought to the writer's attention in the planning of a large banking room. Of such importance was it deemed to have this room as free of furniture and as imposing to the public as possible, that the working quarters of the staff were found to have been reduced to such an extent that it became necessary to place some of the important employees in another part of the building, where they were not as accessible as their duties demanded they should be. The effect of dignity was obtained, but at the sacrifice of a vital necessity; the arrangement of the plan had been impaired and the result, however imposing, cannot be called good design. Another rather amusing instance of superficial imitation occurred some years ago in New York, where a prominent bank had just finished a very imposing structure in which considerable exterior bronzework was used. This bronze work was presumably treated with an acid to wear off its newness. The result was a rich green patina, producing an effect which it was considered very important to obtain in other structures devoted to similar purposes, even if it had to be obtained in a spurious way by being applied on a cheaper surface which could never be expected to come by it naturally.

The interiors of our banks have, of course, suffered, along with almost every other kind of structure, from the products of the well-meaning though misguided decorator-contractor, who has been the means of spreading much gilded plaster and more elaborate wood and

metal concoctions over and in them. The banks have, indeed, been a profitable market for his wares, which the glib salesman has successfully offered in glowing terms. But, after all, his "art" has at least an (appreciative?) audience; it is popular and thus far shows no signs of waning. Here, it would seem, is a serious question for the architect to consider. How to reach the owner and to reach him as effectively as the salesman of the "decoration" house is doing it today. It is the same old question of Commerce versus Art, and the owner being, by training and experience, wholly in sympathy with the ideas and ways of the man of business, naturally gives a willing audience to what he has to say. This gives the salesman an almost insuperable advantage, though he may be only repeating a well-rehearsed "line of talk." He experiences little difficulty in making the impression necessary to land the "order" for his house. His arguments are concrete and he can show the prospective customer the goods. The architect, on the other hand, professional man that he is, presents to his prospective client ideas which are often little understood or not understood at all. He cannot show samples of what he proposes to offer, or, if he can, even these must be so largely supplemented by ideas that his case is not materially strengthened thereby. His only hope lies in securing the confidence of the client in his ability to interpret his requirements, which, barring the personal equation, he can do only if that client has trained himself to see the difference between purchasing the capacity to design economically and appropriately and purchasing merely in vacuo a consignment of materials which may or may not be appropriate for his building or economical for his business. The distinction is one which is rather to be felt than described in so many words. It implies, in the building public, a real discrimination which can result only from a more thorough interest in matters of building and design. It is the architect himself who must undertake a large share of this popular education in these

matters. He needs it to maintain his rightful position and especially in this country, where the "decorator" on the one hand and the engineer on the other, are making serious inroads into his business. Their aims are just as legitimate as his, it is true, but their activities often infringe on and anticipate his to such an extent that he is wrongfully placed in a subordinate position, to the frequent danger of his own work and professional reputation. A building is conceived by him, only to be turned over in the rough to a "decorator" to be decorated. The result is unfortunate and stands as a criterion of the architect's achievements. In another case the design of a structure is practically determined to a nicety by an engineer (whose aim, it is always admitted, is perfectly legitimate) whose work, which consists in providing the utmost stability with the minimum of material, cannot, properly, be considered ahead of the architect's task, the disposition and arrangement of the parts into a harmonious whole. The architect takes hold of the project at this stage and is asked to "design" it outside and in. Again, the result is incoherent and unsatisfactory from the point of view of design. Many of our banks show how the misapplication of these agencies of building and design work out in practice.

The statement made above that there is a great sameness among American bank buildings must not be interpreted too literally. Perhaps it should be qualified by adding that the sameness referred to is intended to be understood as applying to those cases where identity of site conditions and size of building required have resulted in widely separated localities, in structures which are very similar whereas they have every reason to be dissimilar. Of necessity there can be but a limited number of different situations of the lot in relation to street or streets. In a large city where ground is exceedingly valuable the opportunities for a free and unobstructed bank site are practically out of the question. A corner on a wide avenue or on a public square is about the most favorable location that can be

hoped for. Corner banks seem to grow more and more numerous in proportion to the number of banks built annually. Among the many that we illustrate this type greatly predominates. Another interesting type of plan though still rare is that which has frontages on two streets by means of an L-shaped lot, narrow on the more important thoroughfare accommodating the entrance and entrance corridor and widening out into a good-sized banking room on the less important street where it is possible to get more floor area than a bank could afford if situated entirely on the more important thoroughfares. Of this class of bank buildings two notable examples were recently built in New York and published in these pages. The National Park Bank and, more recently, the Chemical National Bank, both near the financial district in New York, where large sites, especially for bank buildings, designed with little or no rentable area, are extremely scarce. The problem of designing a bank on such a site is a difficult one, both in planning and in its outward design, entailing especially a very careful compromise between the relative exterior importance of the two fronts. In the natural course of events the front on the principal street should present the most pretentious external aspect, being the entrance to the bank proper. The narrow frontage of this member, however, as compared with the wide one of the main banking room makes this a difficult matter to adjust considering a certain importance which must, at the same time, be given to the latter. In the Chemical National the architects have taken advantage of the character of the adjoining buildings to make the entrance member a one-story structure, preserving in the large domical banking room enough reminiscence of detail to satisfactorily explain the connection of the two outwardly separated parts. Despite the success of this design and of that of its predecessor, the National Park Bank, this type does not seem to have encouraged any imitations, so far as the writer has been able to discover. In fact, another important bank in the same vicinity of New York

has recently built itself new quarters, but on totally different lines. The bank in mind is the Importers' and Traders' National at the corner of Broadway and Murray Street. The block on which this building is situated offered, no doubt, opportunities to do what the National Park and Chemical National chose to do, but the Importers' and Traders' decided to use the narrow corner lot which they already owned and to break away from the traditional American form of having a large concentrated one-story room in which the entire staff is placed and the business transacted in constant view of its patrons. The plan which they have adopted and which their architect has successfully developed consists in classifying the different departments and placing each one on a separate floor. This has resulted in a six-story structure, taking into account not only the present needs of the institution, but providing two extra floors for future growth. Architecturally, the exterior of the building expresses the fact that the entire structure is devoted to the uses of the bank by means of the colossal Corinthian order reposing on the basement which embraces all the floors, the uppermost being in the entablature and lighted from above. Practically, the plan is said to work admirably. Have we not here the solution of an individual problem in an individual way? Whether the same idea would work equally well for another institution could only be determined by the nature of the functions to be performed. At any rate, it is a new word in bank designing and suggests the value of a closer study of the subject, for the banker as well as for the architect on restricted corner sites. On an inside lot the solution would, of course, be impractical, on account of the difficulty of obtaining sufficient daylight to properly illuminate the various floors.

The most progress in bank design has undoubtedly been made in what might be called the machinery of the banking business, the special equipment of the building. In a banking room matters of prime importance are the compactness, convenience and accessibility of its fur-

niture and the system of handling its documents, securities and cash. In the conduct of business the utmost simplicity and system must be observed. For instance, the closest and most convenient connection must be established between the vaults and the working space of the employees in whose charge are the valuables which have each day to be conveyed to and from the safes and vaults. It is to these important matters of management that great attention has been paid in our recent banks, resulting in every new important bank, in something more improved and better planned than that which it succeeded.

In illustrating the bank buildings which are shown in this issue, the object has been chiefly to show what has been designed in the last few years in this class of buildings in different sections of the country. The distribution is accordingly wide and the examples typical as far as it has been possible to obtain sufficient material for selection in a given territory. Variety also is to be found as far as it exists in buildings devoted to purposes of banking. Several different types, at least, are to be noted. There is the bank in the small town, of which the Farmers' National of Owatonna, a small town in the heart of Minnesota, has been so characteristically rendered by Mr. Louis H. Sullivan in his individual way. Contrast with this the little country bank, the Marine National at Wildwood, New Jersey, adhering as closely as possible to the accepted thing for an American corner bank. We might expect to meet it in any enterprising town in the East, or the West for that matter. Its design reveals nothing of the individual character of the institution. It is simply a bank whose design does not in any particular cause displeasure, but neither does it tell any story of the life which passes within. It is of the class of banks which exhibit the traditional adherence to precedent and turn their backs on individuality. To suggest how else this particular bank might have been moulded to give its proper individuality, it not an easy task. That is for the artist. Mr. Sullivan has done it at Owatonna and there is no

telling how he would have solved the problem, or if it had been presented to him, to design a bank for a small town in the Pennsylvania coal regions. This designer is, without question, pointing a new direction for architectural thought, which clearly is not a fad. On the contrary it seems to be founded on a solid basis of knowledge aided by strong artistic instincts. As a result of his close study of the skyscraper problem, his work has thus far been almost exclusively confined to that kind of structure. In the future we shall hope to hear from him in new fields of design.

The corner bank of a single story in the East is well represented among our illustrations by two dignified buildings in Boston, the New England Trust Co., by Messrs. McKim, Mead & White, whose best work in that class of bank design still remains; that Fifth Avenue structure for the Knickerbocker Trust Co. which was so fully published in this journal as a gem of modern Renaissance architecture. In the New England Trust Building these designers have forsaken, no doubt for good and sufficient reasons, the treatment of the colossal Roman order for the lighter and more delicate wall arcade. The resulting design fits in well with its surroundings and expresses the greater conservatism of the New England banking institutions over their New York neighbors. The other Boston bank referred to, namely, the Commonwealth Trust Co., shows a bolder and more vigorous handling of the design. The problem in this case was similar to that of the New England Trust, but the architects, Messrs. Parker, Thomas & Rice, have not chosen to take much account of the conservatism of Boston business methods. The plan of this bank reveals, moreover, a highly unusual consideration for the convenience of the pedestrian who has to pass in front of the building. The rounding of the corner is of such a nature that the sidewalk is very narrow at the intersection of the streets where it should, if anything, be wider than anywhere else. This desirable end has been brought about through

the liberality of the bank in sacrificing a portion of its lot area and the architects have made use of this cutting off of the corner to greatly simplify their plan and square off the banking room and offices. The shearing of the lot is likewise turned to the advantage of the exterior design. The curve which has been imparted to the front is agreeable and aligns the building agreeably with its uninteresting neighbor, while it permits the juncture of its two façades at an angle which is not too obtuse to disturb the apparent stability and squareness of the corner pier. It is also to be noted that the architects have avoided the use of the regular cornice features which tradition prescribes for the Corinthian order, for the reason that such a feature as the far projecting bracket of the order would have done much to defeat the advantageous solution of turning the corner which constitutes, in fact, the most important part of the exterior design of the building.

Two other Boston banks, which we illustrate, the First National and the Cambridge bank exhibit the discreet average of American bank design without any startling innovations, unless such innovations be the splendid equipment of the former.

Among the more monumental buildings of the selection are four, in which a dome or domical ceiling gives significance to interior or exterior or to both. They are the Girard Trust Company of Philadelphia and the Bank of Montreal by Messrs. McKim, Mead & White, the Cleveland Trust Company, by Messrs. George B. Post & Sons, and the Suffolk Savings Bank in Boston by Mr. Cass Gilbert. Of these, in the Girard Trust and Cleveland Trust, the dome is the all-dominant note of the composition, while in the other two the dome is of secondary importance or, in the case of the Suffolk Savings Bank, only of account for the interior design. In point of importance the Bank of Montreal stands first among the banks illustrated in this issue, as well as being, from the standpoint of the architect, one of the most important bank buildings in America. As it stands today, it is practically

an entirely new edifice, the only visible part of the structure which preceded it being the pedimented colonnade through which the entrance leads by means of a monumental corridor into the great banking room, one of the most impressive of its kind in existence. It is a room of such colossal proportions that few designers would be apt to handle it with such consummate skill and dignified simplicity. This building shows emphatically that element of largeness of conception and thoroughness of scholarship which is the contribution to American architecture of the firm of McKim, Mead & White. There are those who will refer to this phase of our architecture as book architecture and archaeology, but, even admitting such a point of view, it is impossible to shut one's eyes to what it has accomplished in establishing a higher standard of popular taste. Its influence has been far-reaching and sure penetrating by means of the work of this firm of architects and through the work of men trained by them to the remotest parts. Other designers also have been influenced by their buildings and have rendered the fruits in their own work according to their ability and training. In the two small banks at Charlotte and Battle Creek have we not instances of such influence? Here in two small Michigan towns we find these buildings standing out in contrast by their largeness and simple motives, to utterly commonplace surroundings. Their designer has undoubtedly been influenced, though unconsciously and indirectly, by work of the type alluded to above, and the importance of the bank, as an institution, has given him the opportunity to express this influence. If this conclusion were based on an inspection of the treatment of the detail, it would, doubtless, be invalid for that clearly bespeaks contact with the methods of the Ecole des Beaux Arts, but the origin of the design lies, we believe, deeper down in the subject and nearer home. It shows a hopeful condition, indeed, to find institutions in the romoter and less important places, in point of size, attaching so much importance to the appearance of their bank buildings

to want them designed with a consideration for architectural propriety. This seems to be the feeling everwhere, affording the competent designer new chances to plead his cause effectively and in concrete form.

Among the monumental structures which, during the past five years, have been produced in our national capital, the bank buildings fully hold their own, not only in number and size, but in the architectural importance of the buildings as well. Washington as a city has been particularly fortunate in its recent bank buildings. The two which we publish, the National Metropolitan and the Union Trust, are fairly typical of the best class of banks which have recently been erected there. Both of these structures show a happy compromise on the part of the designers, as well as a sacrifice on the part of the institutions to produce the substantial results which have been attained. It was a condition of the problem in designing these two buildings that the banks could not afford to occupy entirely for their own uses all the space which the improvement of the site made necessary. The problem was thus complicated with that of a real estate speculation, but the bank, especially in the case of the Union Trust Company, was desirous of occupying a large share of the most desirable space in its new building. It realized the necessity of obtaining some small return on its investment and to obtain this return it was willing to slightly modify its plan, but the presence of the tenants must not materially incommode or confine the freedom of its actions or impair the outward appearance of the building as a symbol of the institution's individuality. These conditions the architects, Messrs. Wood, Donn & Deming, have happily expressed in the Union Trust Company's new building. The narrowness of its corner lot would under ordinary conditions present a problem full of difficulties of design, but with the added conditions which were here imposed the difficulties measurably increase and the solution which has satisfactorily met so many of them is to be commended in proportion.

The moral effect of an imposing structure which leaves no doubt of its purpose is a fact well recognized in business, and banking is no exception to the rule. Of course, there are banking institutions whose position in their community is perfectly established and which depend for their success upon a limited number of very large business transactions. They appeal to a very select and small class of depositors on whom the bank could hope to make no more favorable impression by erecting an imposing structure which would

forego the moderate return on a large real estate speculation. Such institutions have done as have several whose buildings are shown in this issue. Notable among these are the Corn Exchange National Bank, the Commercial National of Chicago, the Third National of St. Louis, and the Knickerbocker Trust Co. on lower Broadway, in New York, whose huge skyscrapers, while not at all bank buildings in an individual sense, are monuments to the importance of banking institutions in developing real estate on an enormous scale.



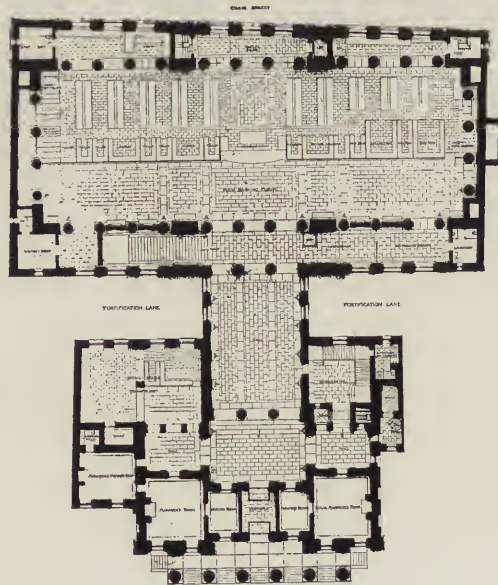
DIME SAVINGS & TRUST COMPANY.

Peoria, Ill.

J. E. Tabey, Architect.



The impressive entrance to the new bank retains the monumental pedimented columns of the old structure.



Plan.

THE BANK OF MONTREAL.



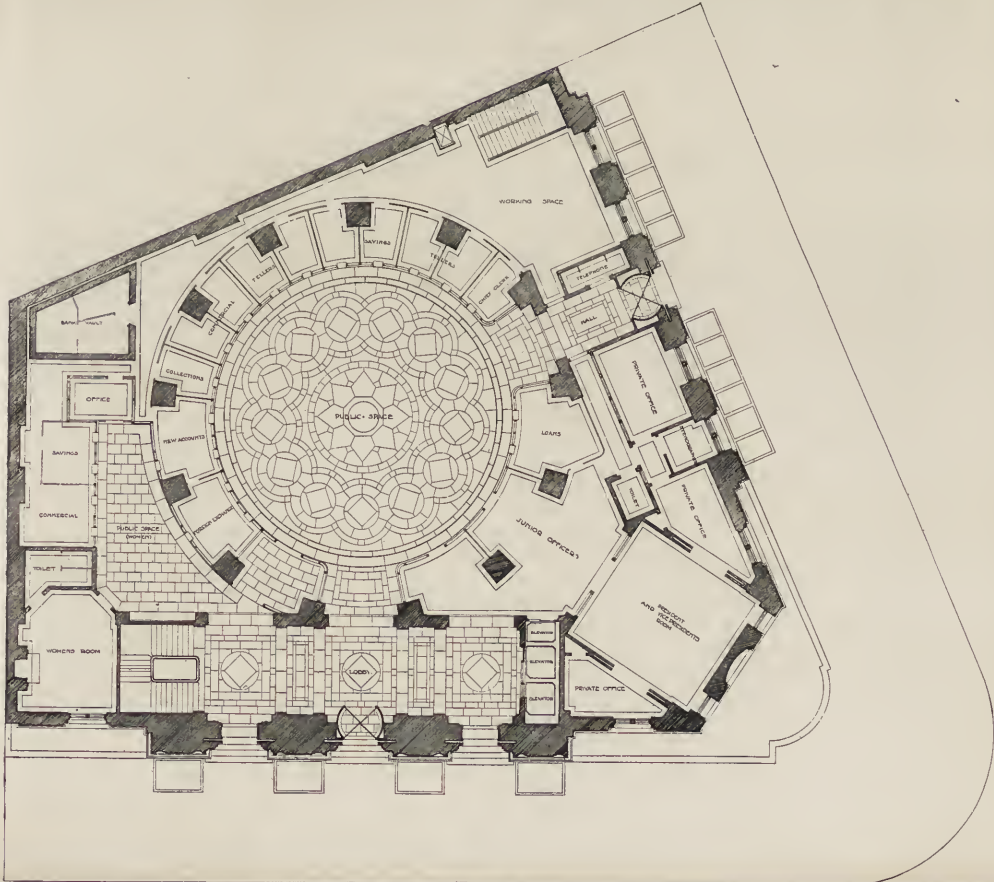
THE GREAT COLONNADED BANKING ROOM—BANK OF MONTREAL.

McKim, Mead & White, Architects.

Montreal, P. Q.



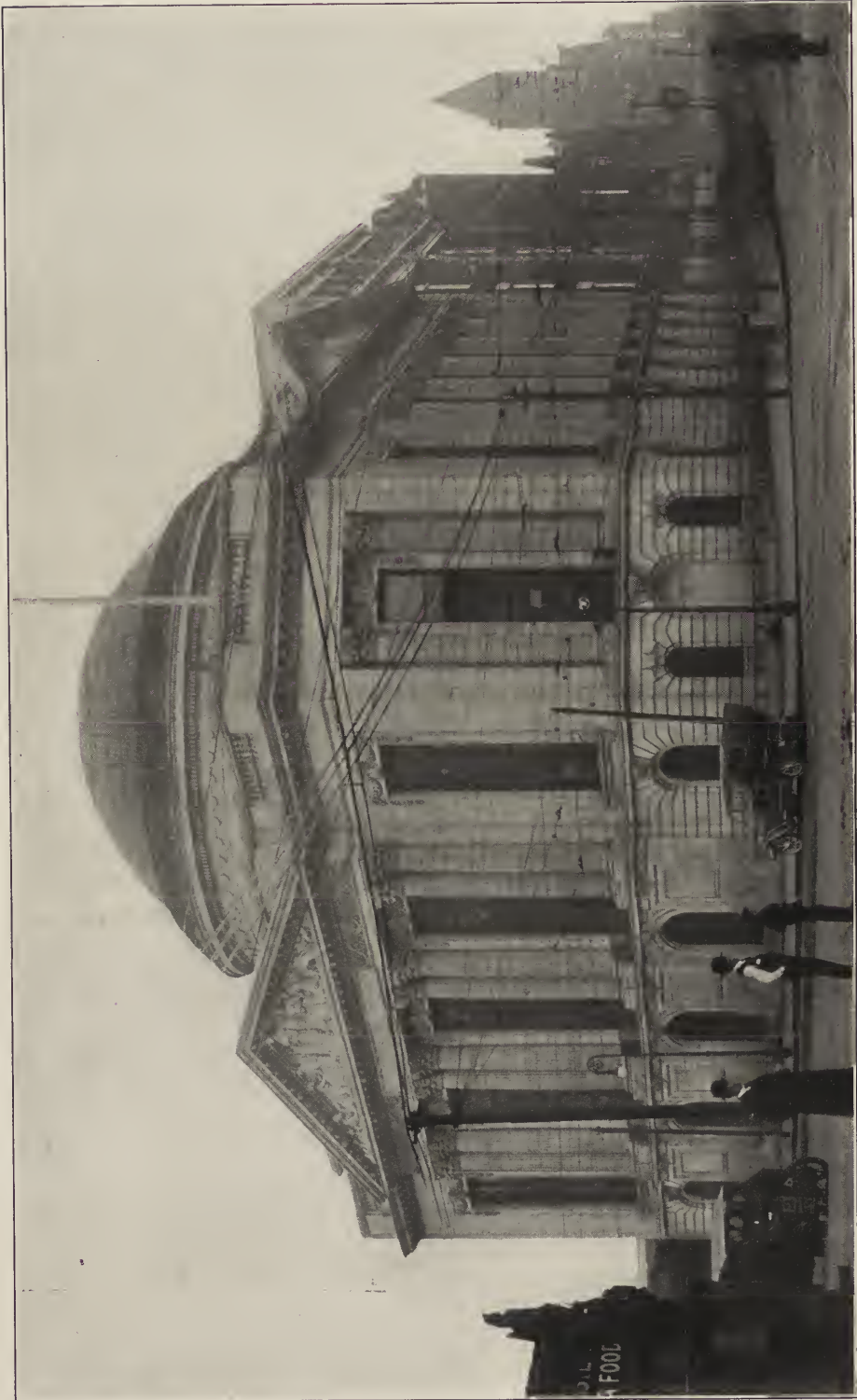
THE FAÇADE BEHIND WHICH IS THE GREAT BANKING ROOM—BANK OF MONTREAL.
Montreal, P. Q. McKim, Mead & White, Architects.





THE DOMICULAR BANKING ROOM—CLEVELAND TRUST COMPANY.
Cleveland, O.

Geo. B. Post & Sons, Architects.



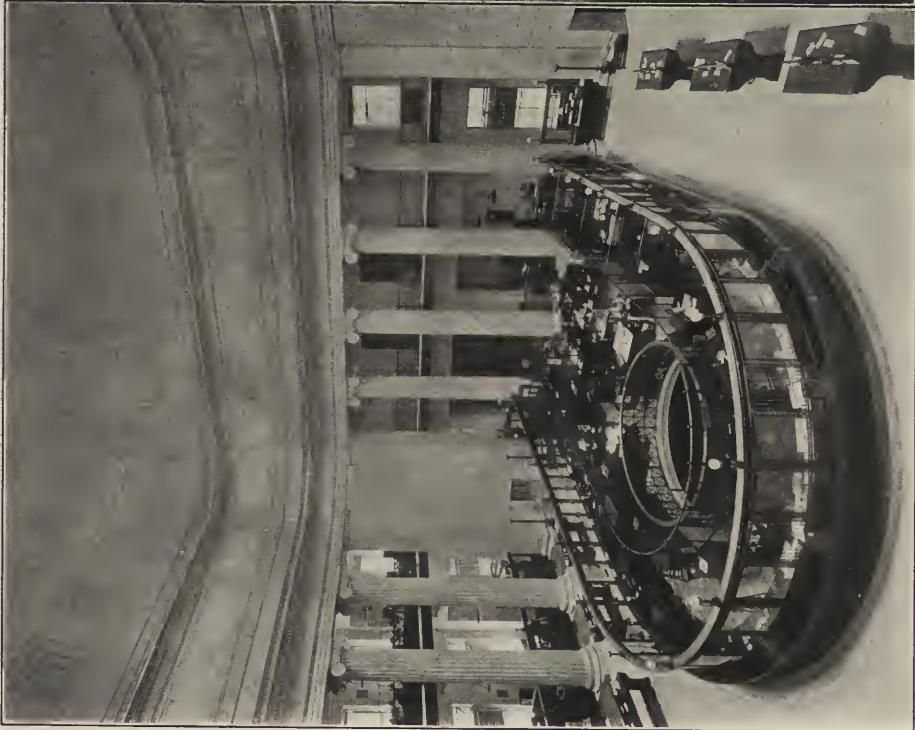
CLEVELAND TRUST COMPANY.

Geo. B. Post & Sons, Architects.

Cleveland, O.

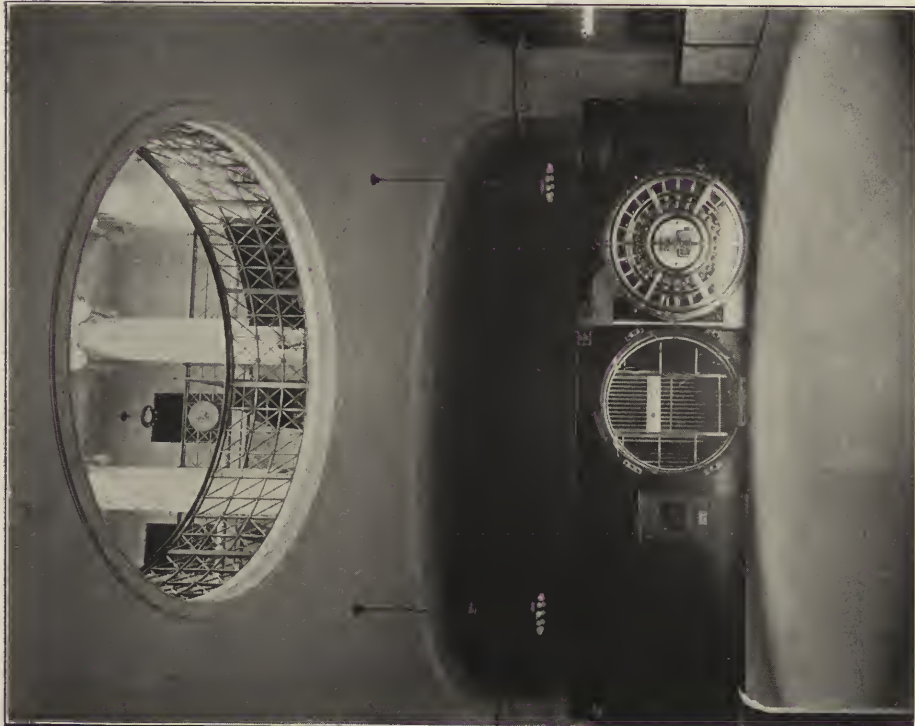


GIRARD TRUST COMPANY.
Philadelphia, Pa.
McKim, Mead & White, Supervising Architects,
Furness, Evans & Co., Associated.



View in banking room, showing also the bottom of the coffered dome.

GIRARD TRUST COMPANY.
Philadelphia, Pa.

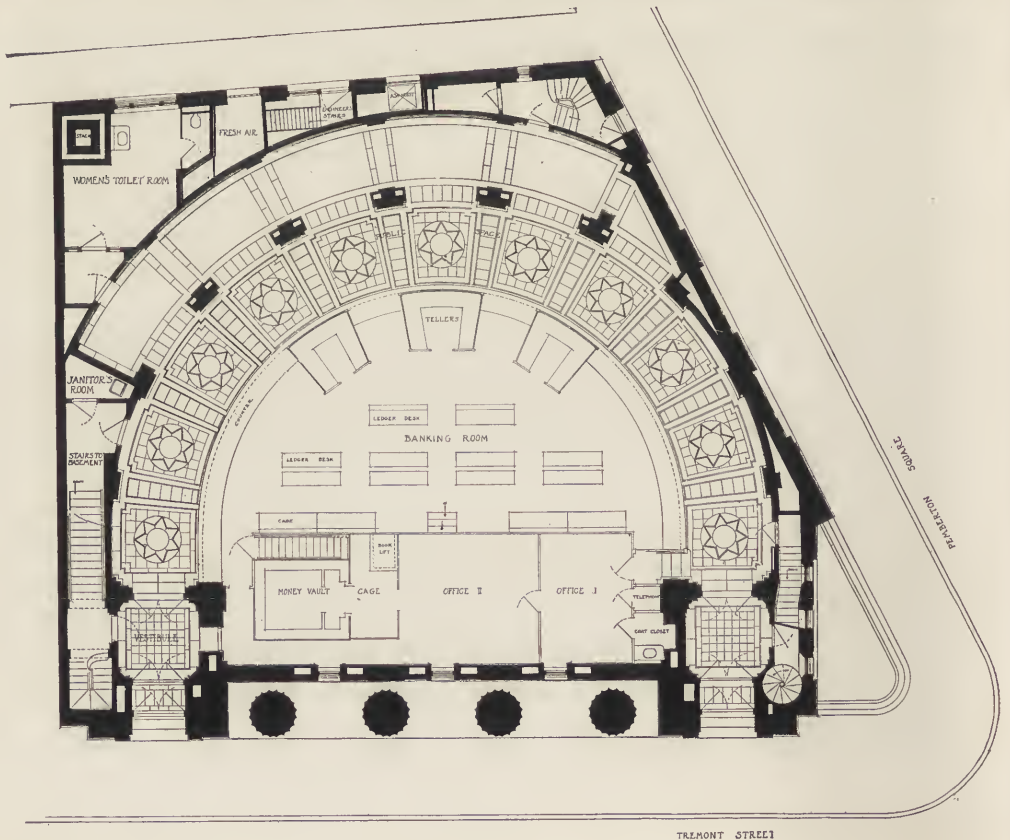


Looking up from the vault, the circular aperture which is also visible in the view on the left.

McKim, Mead & White, Supervising Architects.
Furness, Evans & Co., Associated.



View of exterior.



Plan.

Boston, Mass.

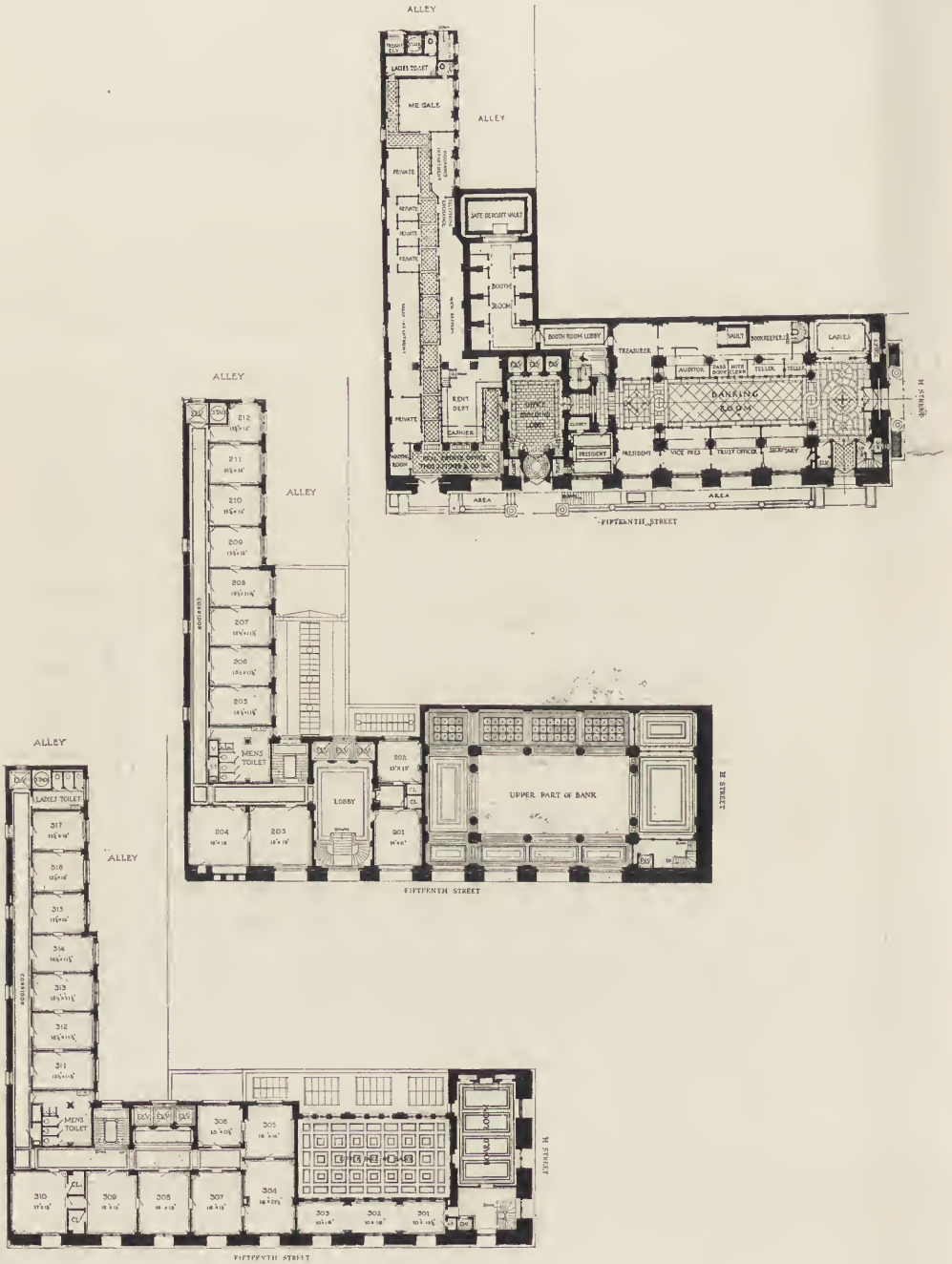
SUFFOLK SAVINGS BANK.

Cass Gilbert, Architect.



View from the corner of Fifteenth and H Streets.
UNION TRUST & SAVINGS BANK. Wood, Donn & Deming, Architects.

Washington, D. C.



Plans of banking floors.

UNION TRUST & SAVINGS BANK.

Washington, D. C.

Wood, Donn & Deming, Architects.



Views in the banking room, which extends through three floors.
UNION TRUST & SAVINGS BANK

Wood, Donn & Deming, Architects.

Washington, D. C.



NATIONAL METROPOLITAN BANK.

Washington, D. C.

B. Stanley Simmons, Architect.



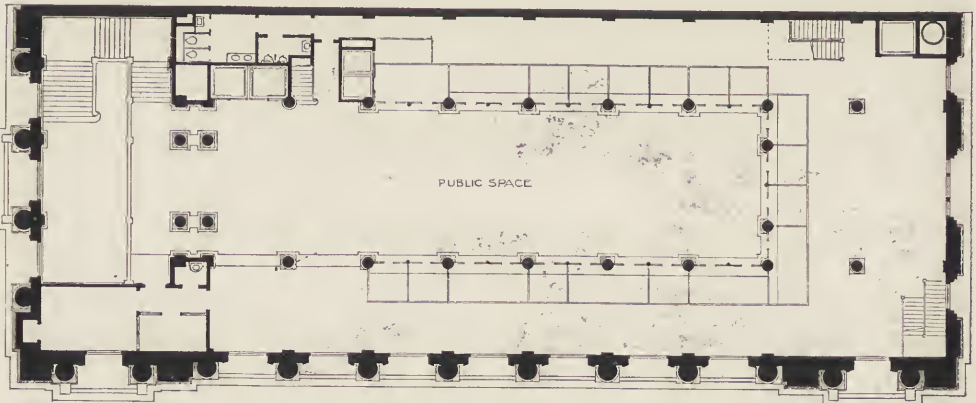
View in banking room.
NATIONAL METROPOLITAN BANK.

Washington, D. C.

B. Stanley Simmons, Architect.



View of exterior.



Plan of main floor.

Chicago, Ill.

NORTHERN TRUST COMPANY.

Frost & Granger, Architects.



THE GREAT COLONNADED BANKING ROOM—NORTHERN TRUST COMPANY.

Frost & Granger, Architects.

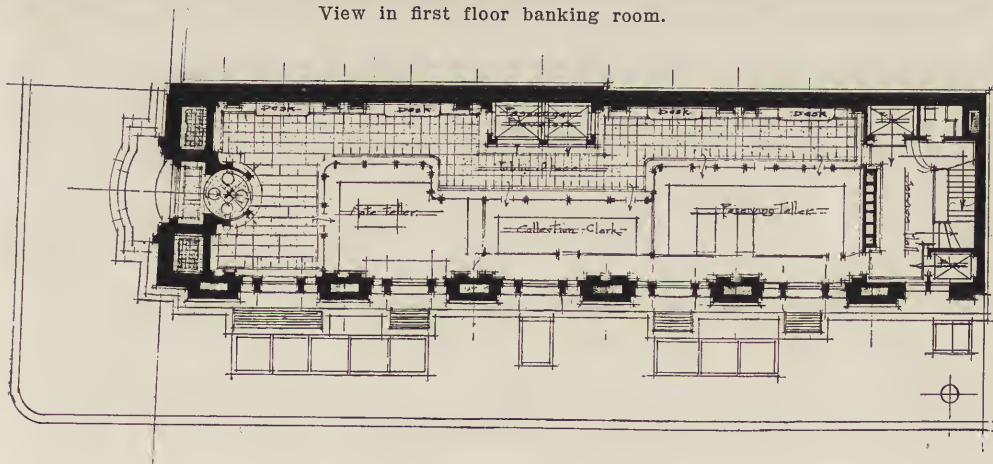
Chicago, Ill.



THE IMPORTERS' & TRADERS' NATIONAL BANK.
 Murray Street and Broadway, New York. J. H. Freedlander, Architect.
 (Photo by A. Patzig.)



View in first floor banking room.



Plan of first floor.

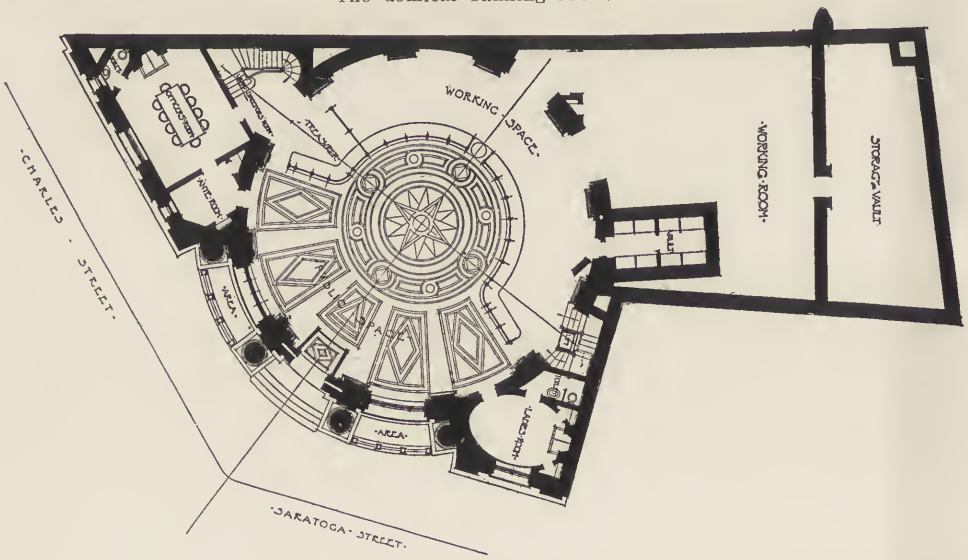
IMPORTERS' & TRADERS' NATIONAL BANK.

Murray Street and Broadway, New York.

J. H. Freedlander, Architect.



The domical banking room.

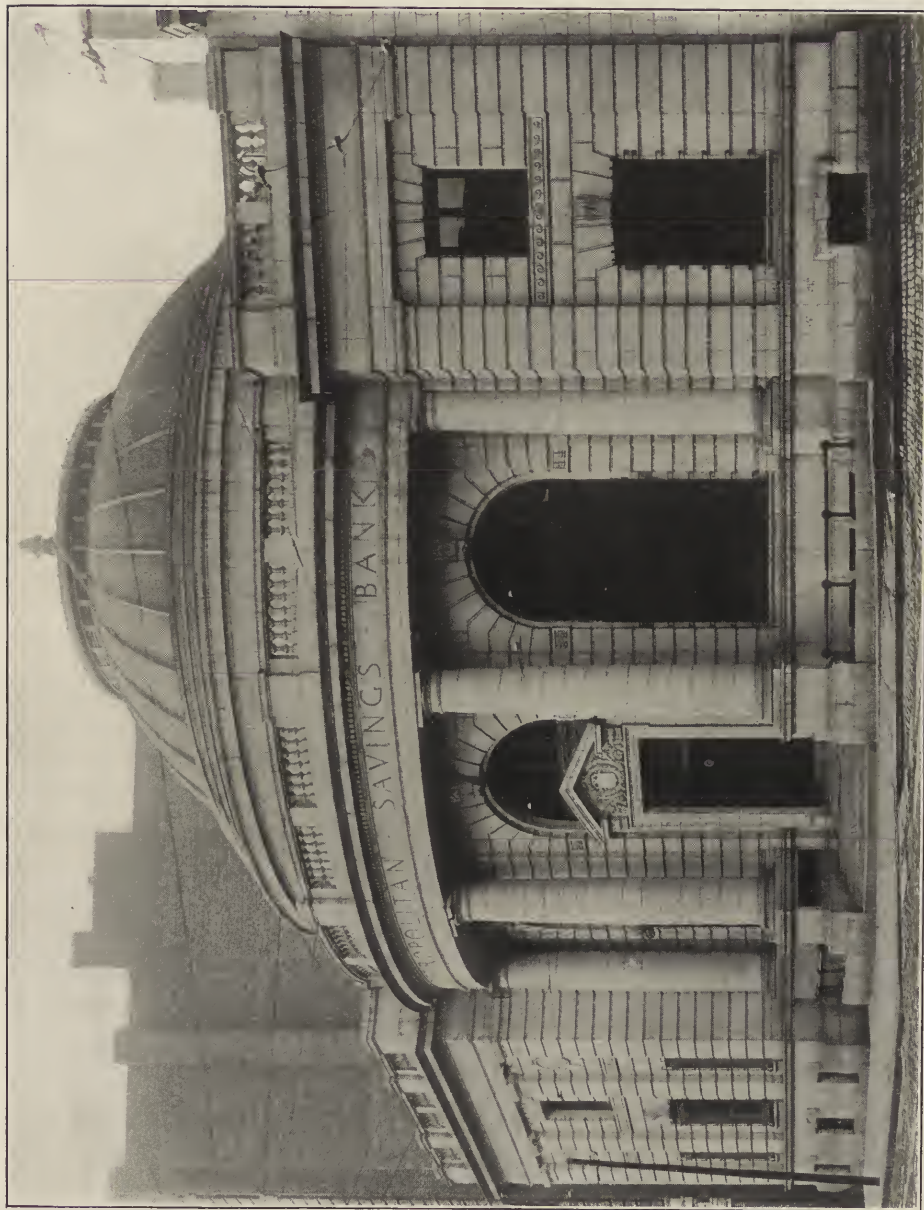


Plan.

METROPOLITAN SAVINGS BANK.

Baltimore, Md.

Parker & Thomas, Architects.



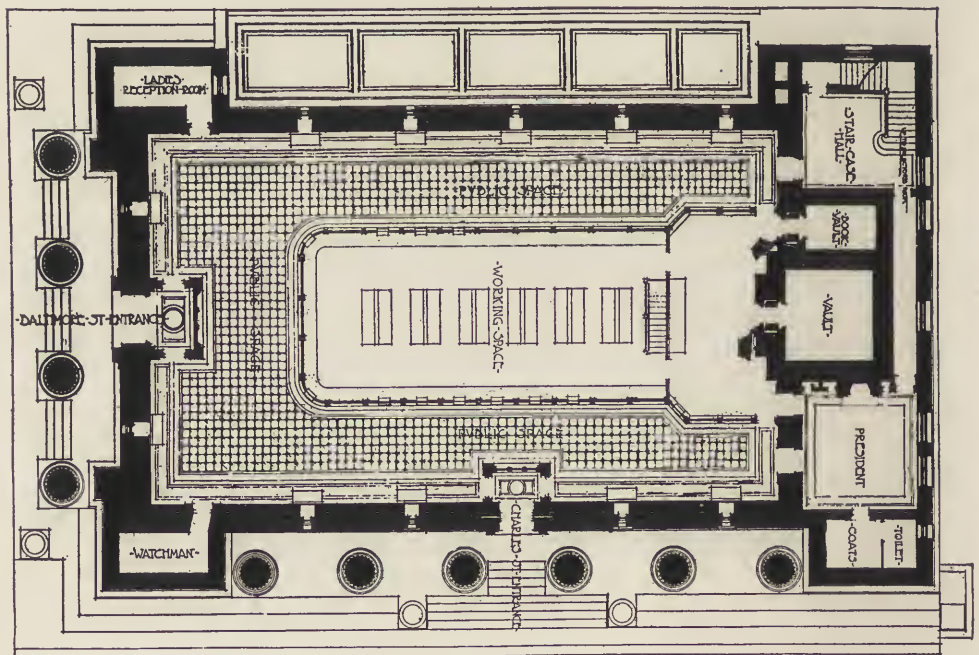
Baltimore, Md.

METROPOLITAN SAVINGS BANK.

Parker, Thomas & Rice, Architects.



The Banking Room.

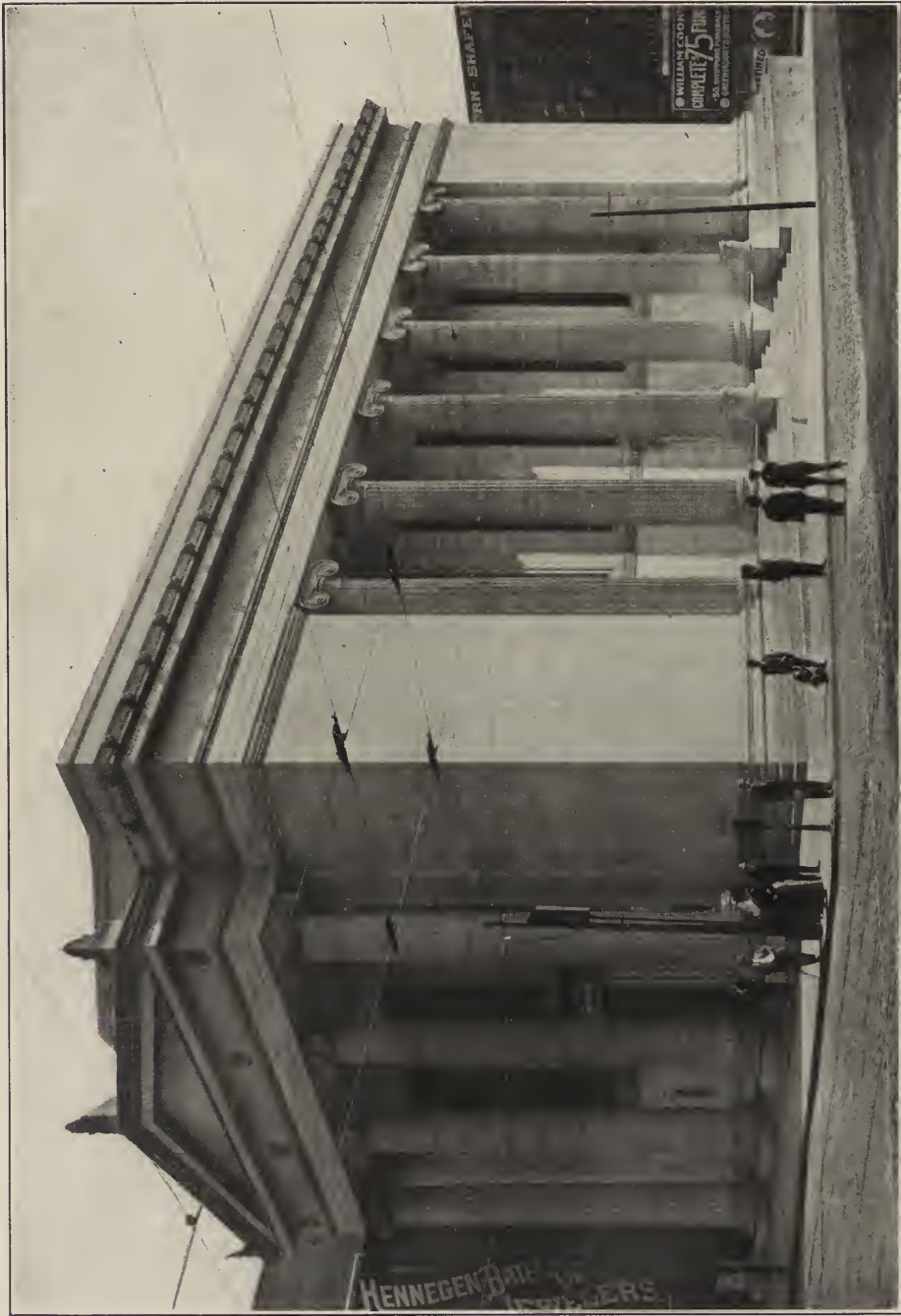


Plan.

SAVINGS BANK OF BALTIMORE.

Baltimore, Md.

Parker, Thomas & Rice, Architects.



Baltimore, Md.

SAVINGS BANK OF BALTIMORE.

Parker, Thomas & Rice, Architects.



NEW ENGLAND TRUST COMPANY.

Boston, Mass.

McKim, Mead & White, Architects.



THE BANKING ROOM OF THE NEW ENGLAND TRUST COMPANY.
McKim, Mead & White, Architects.

Boston, Mass.



FIRST NATIONAL BANK.

Boston, Mass.

Sturgis & Barton, Architects.



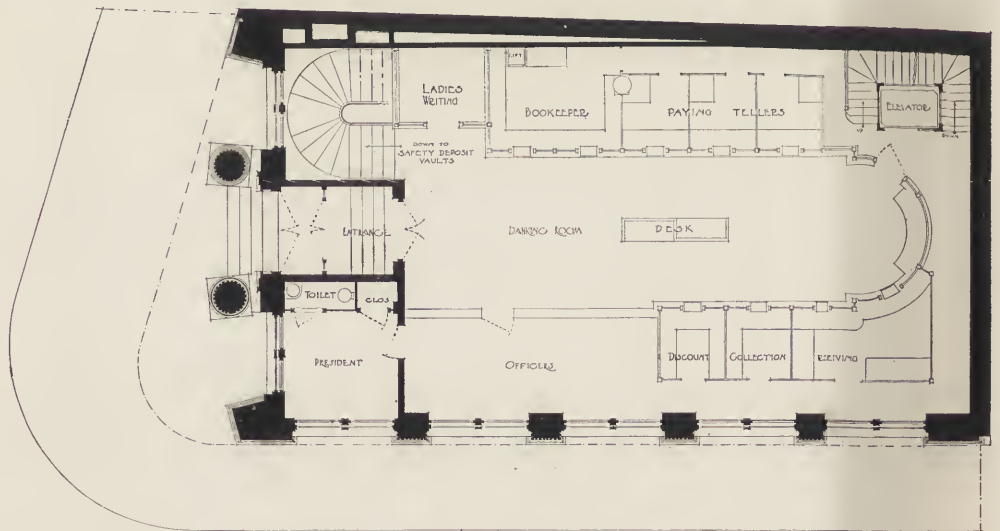
THE BANKING ROOM OF THE FIRST NATIONAL BANK.

Boston, Mass.

Sturgis & Barton, Architects.



View from the corner.

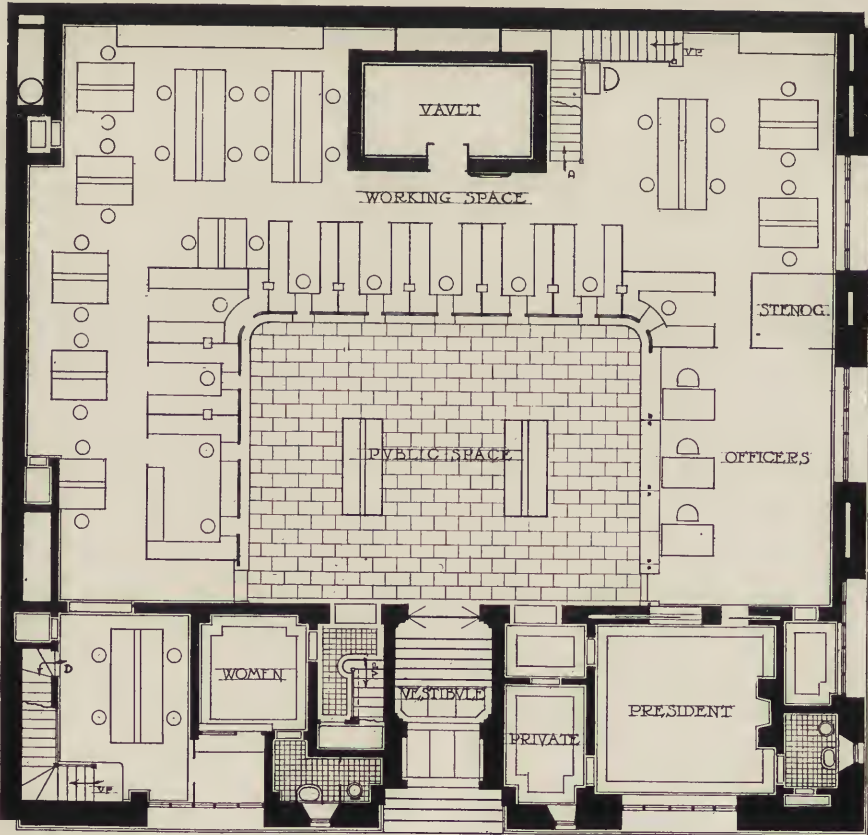


BANK FLOOR PLAN

COMMONWEALTH TRUST COMPANY.

Boston, Mass.

Parker, Thomas & Rice, Architects.

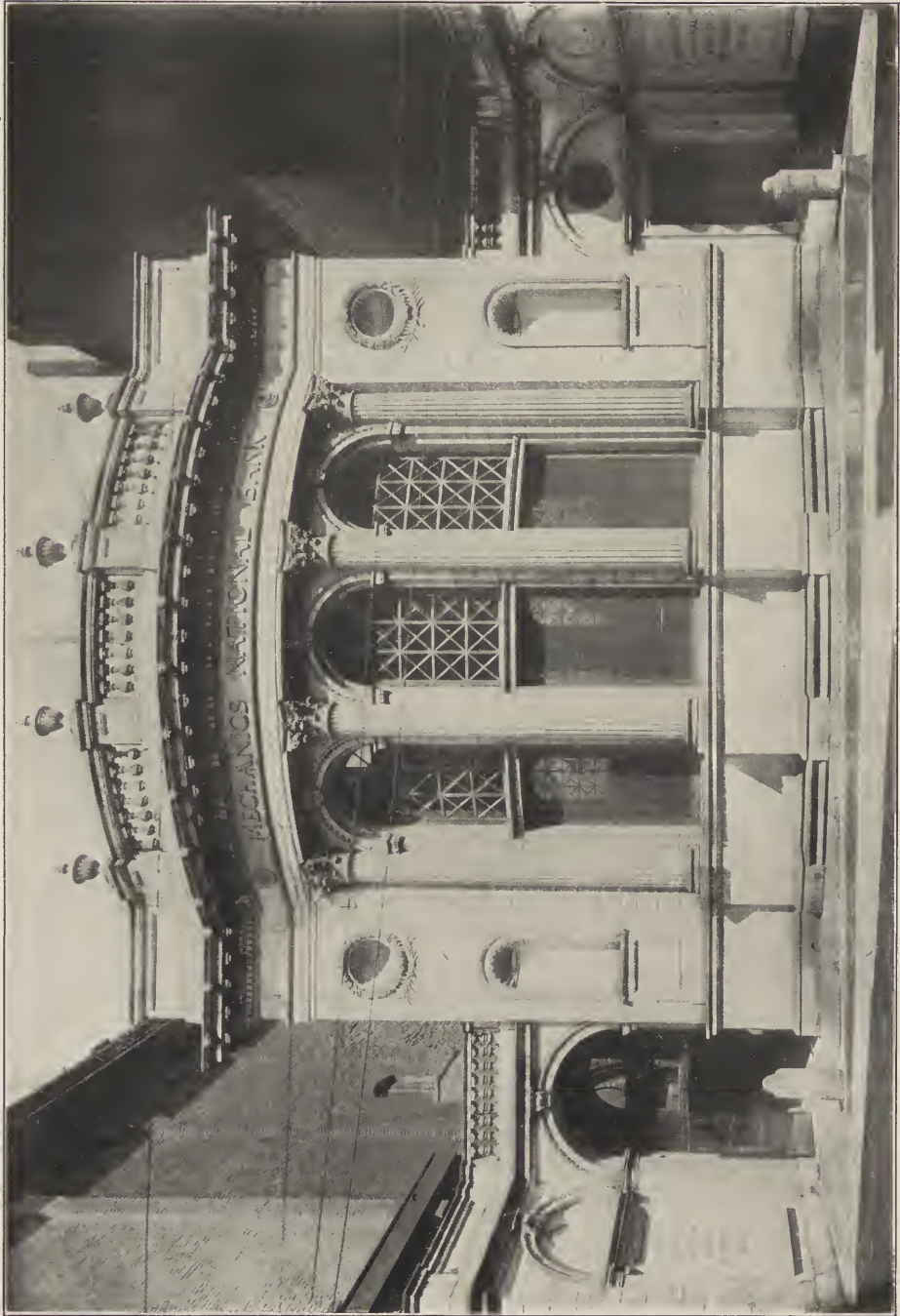


Plan.

NEW ENGLAND NATIONAL BANK.

Kansas City, Mo.

Wilder & Wight, Architects.



This building offers the novel case of an isolated bank on an inside plot.

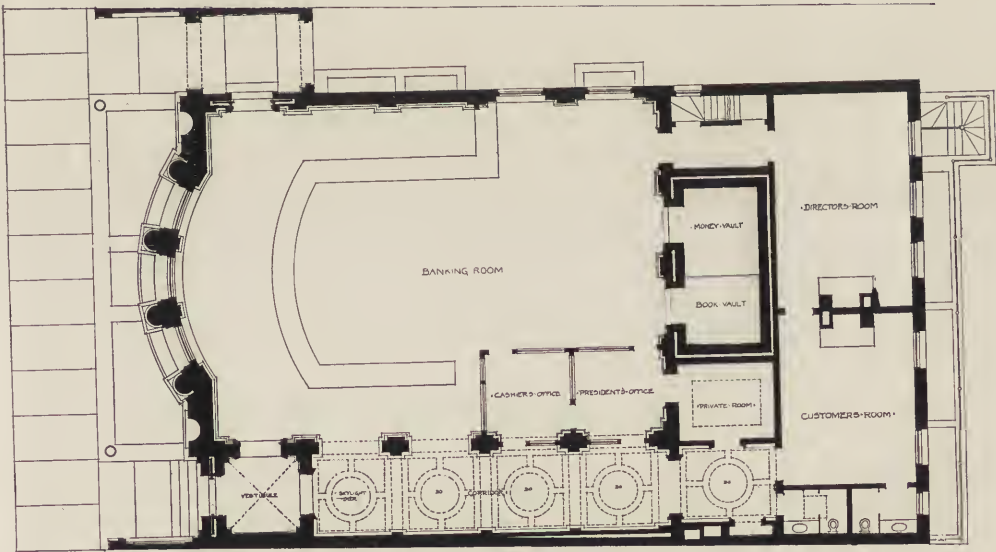
MECHANICS' NATIONAL BANK.

Pittsburgh, Pa.

Alden & Harlow, Architects.



View in Banking Room.



Plan.

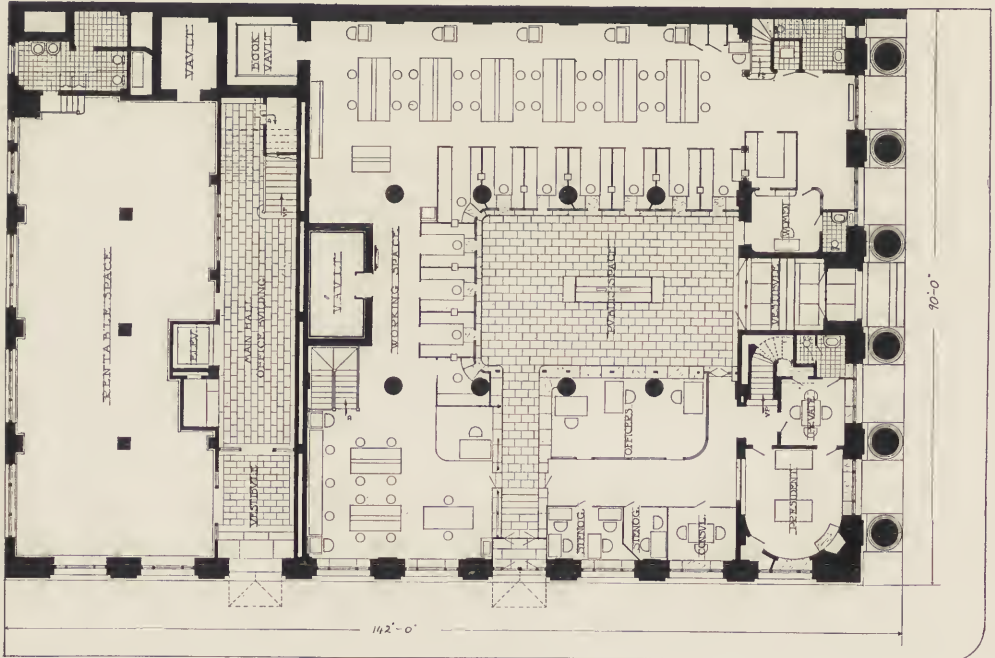
MECHANICS' NATIONAL BANK.
(Now the Pittsburgh Stock Exchange.)

Pittsburgh, Pa.

Alden & Harlow, Architects



View of exterior.



Plan.

Kansas City, Mo.

FIRST NATIONAL BANK.

Wilder & Wight, Architects.



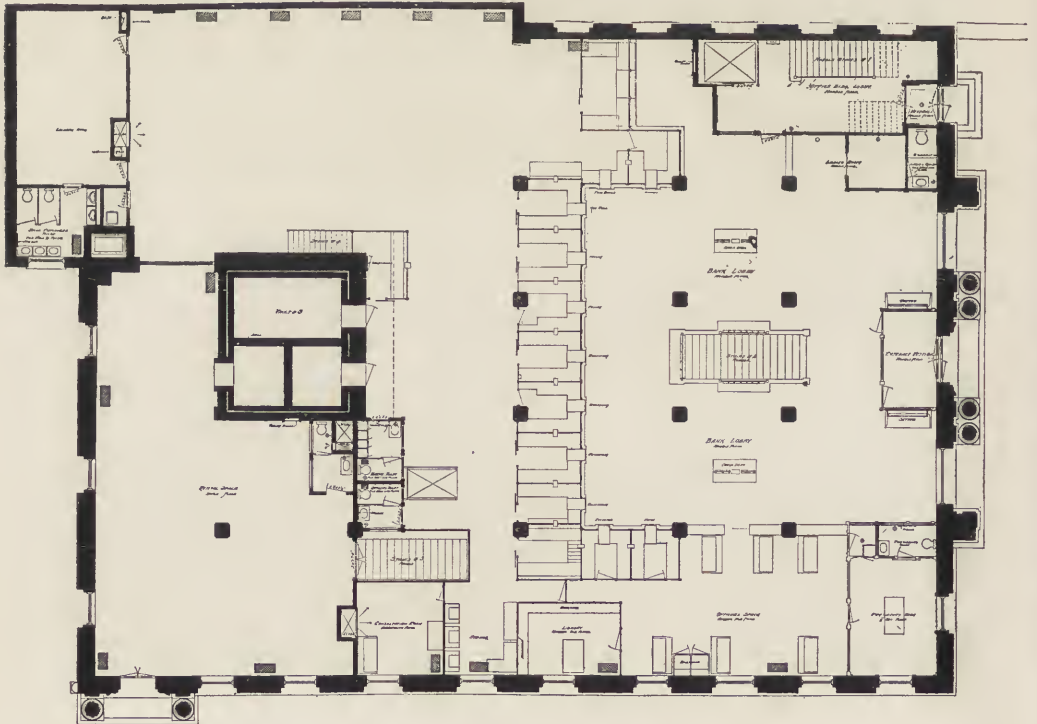
THE BANKING ROOM OF THE FIRST NATIONAL BANK.

Kansas City, Mo.

Wilder & Wight, Architects.



View of exterior.

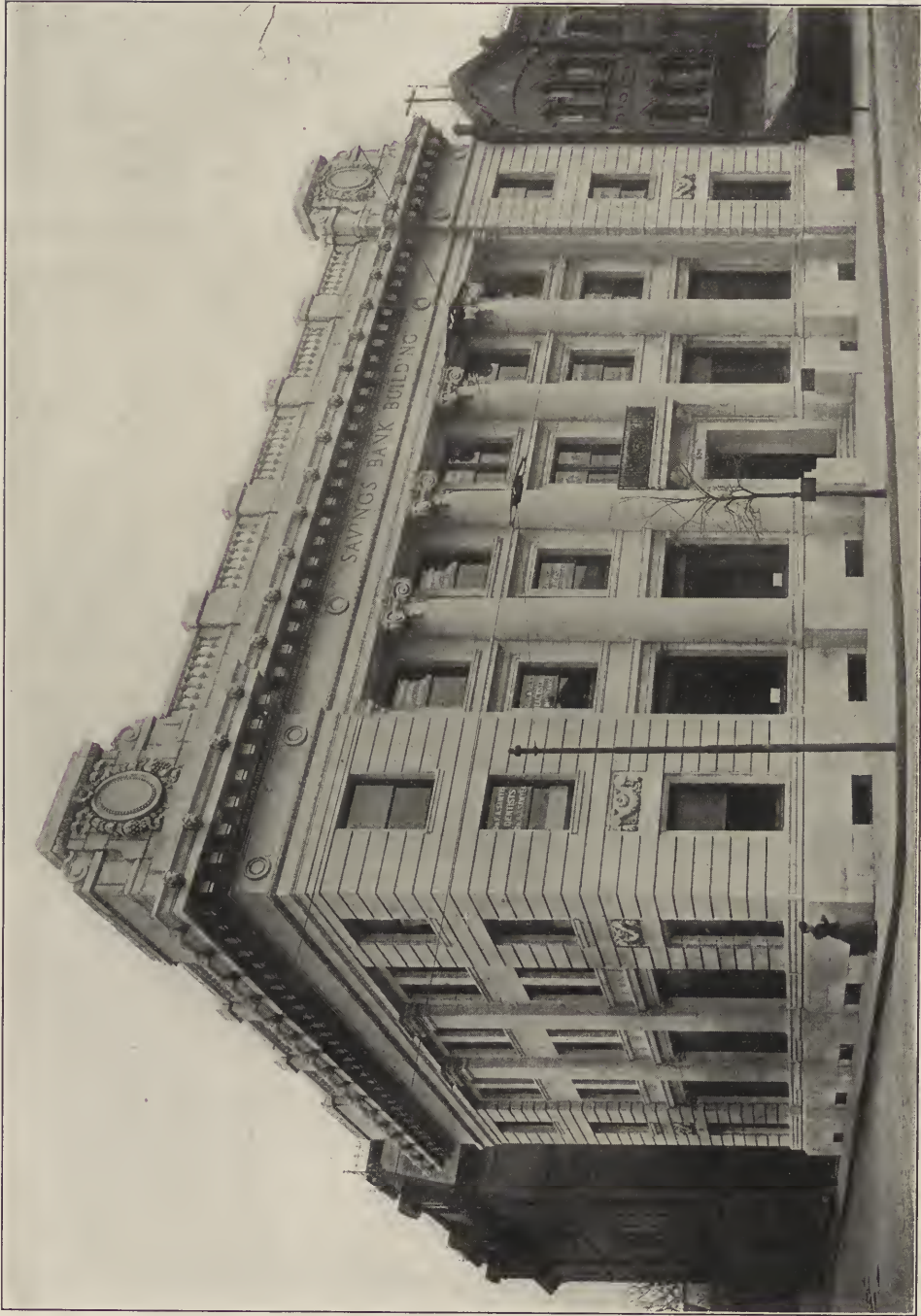


Plan of main floor.

AMERICAN NATIONAL BANK.

Indianapolis, Ind.

Holabird & Roche, Architects.
Weary & Alford Co., Designers of Interior.



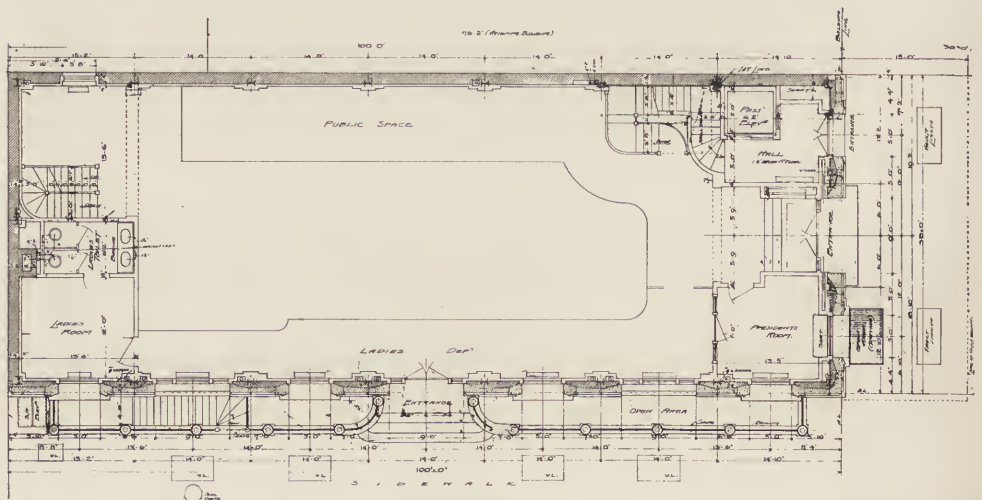
SAVINGS BANK BUILDING.

Cambridge, Mass.

C. H. Blackall, Architect.



View of exterior.
(Photo by A. Patzig.)



Plan of first floor.

SECOND NATIONAL BANK.

5th Avenue and 28th Street, New York.

McKim, Mead & White, Architects.



Views in banking room towards and from the 5th Avenue entrance.
SECOND NATIONAL BANK.
McKim, Mead & White, Architects.
5th Avenue and 28th Street, New York.
(Photos by A. Patzig.)



Englewood, Ill.

FIRST NATIONAL BANK.

Julian Barnes, Architect.



Englewood, Ill.

THE BANKING ROOM—FIRST NATIONAL BANK.

Julian Barnes, Architect.



John D. Thompson, Jr., Architect.

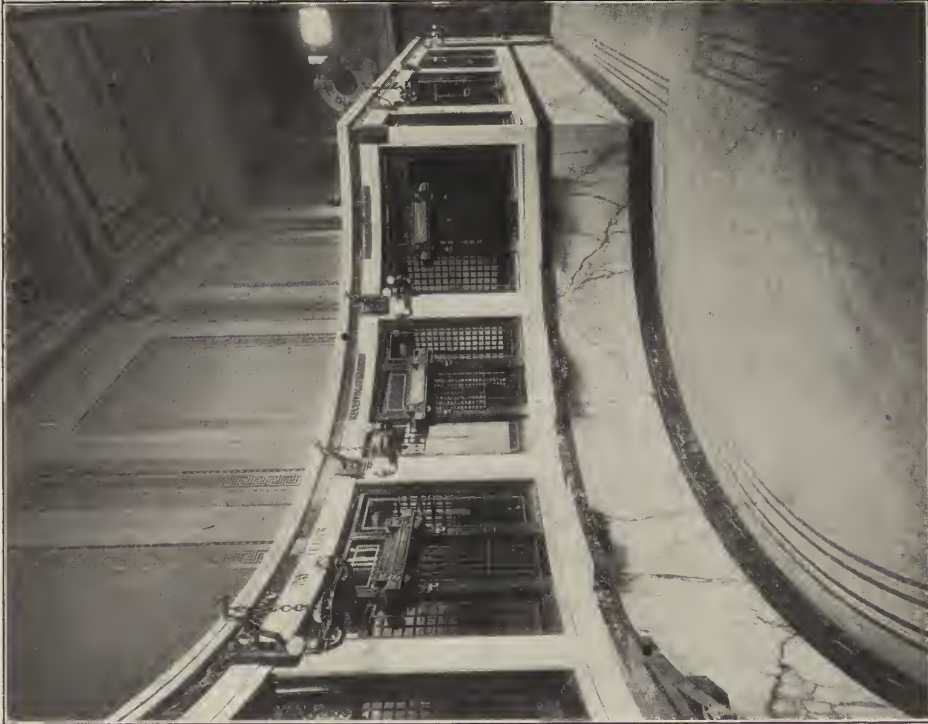
UNION NATIONAL BANK.

Wilmington, Del.

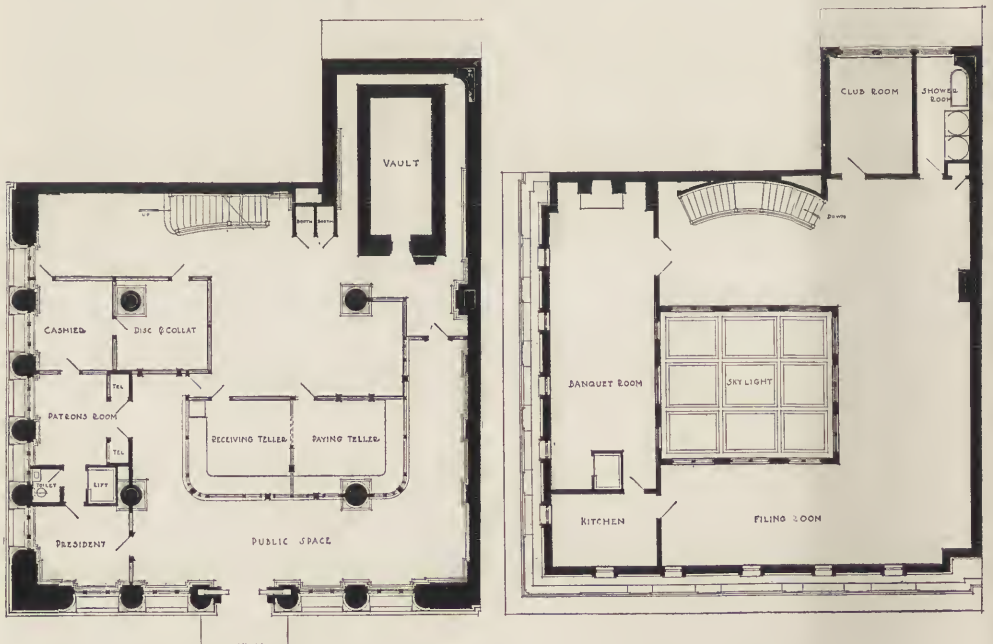


Views in the banking room.
UNION NATIONAL BANK.

John D. Thompson, Jr., Architect.



Wilmington, Del.



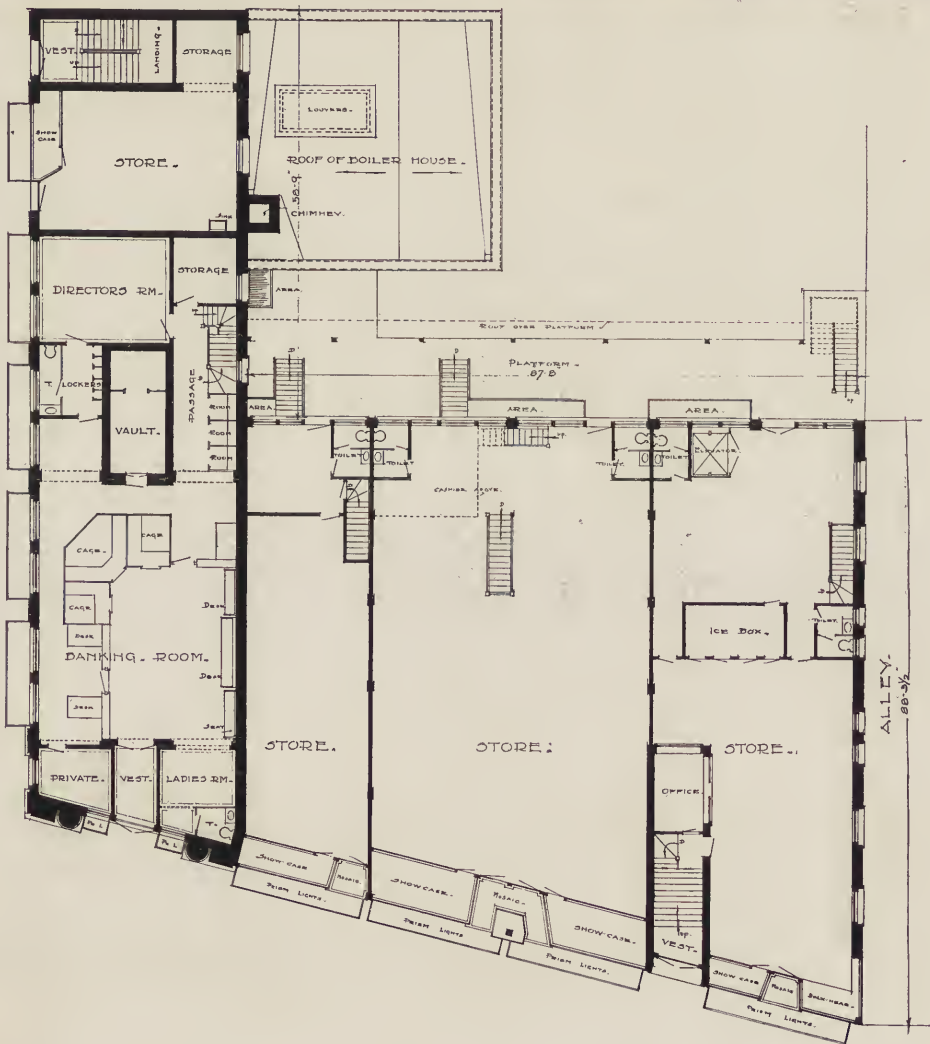
Plan of first floor.

Plan of second floor.

Philadelphia, Pa.

UNION NATIONAL BANK.

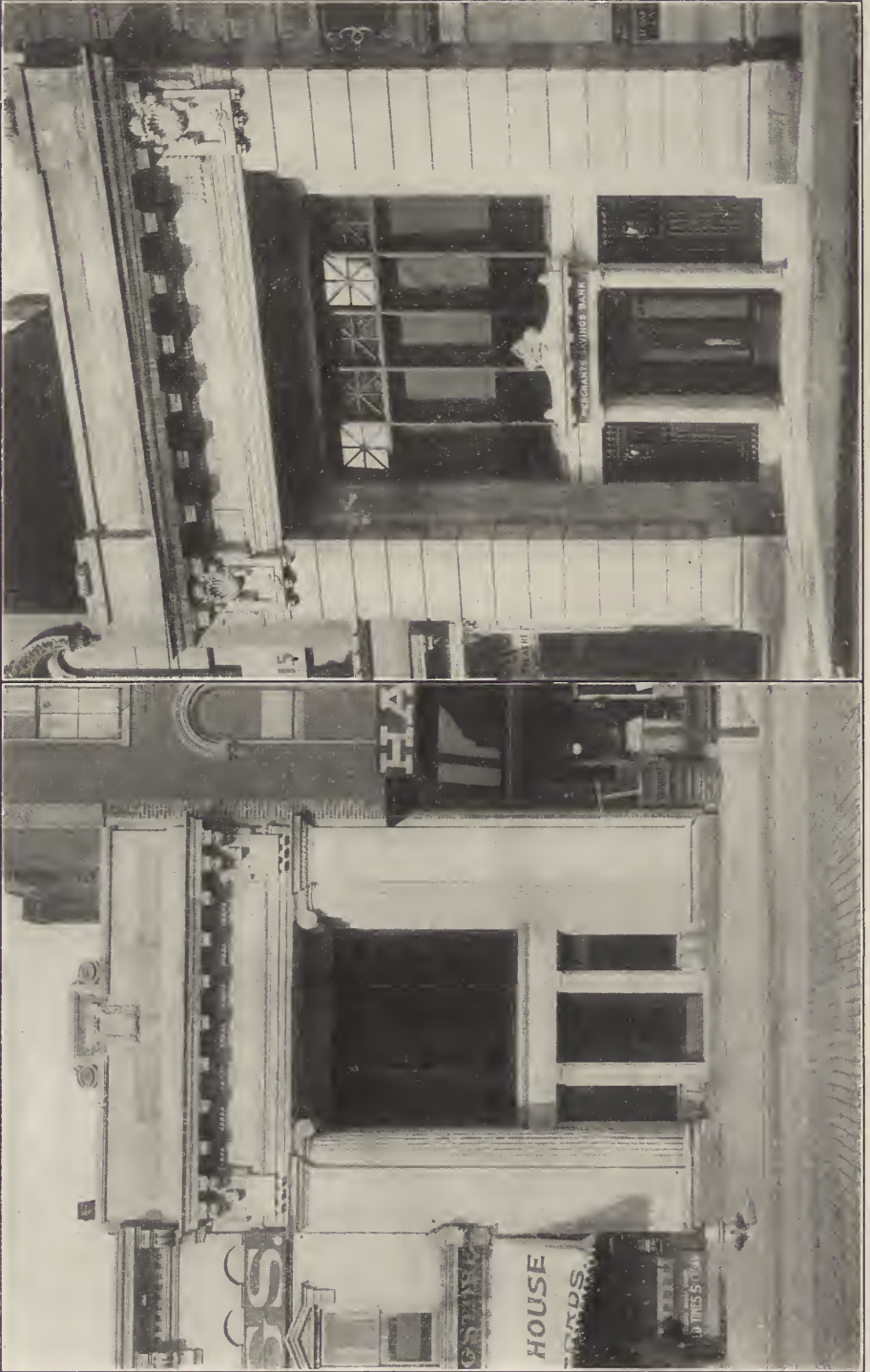
Newman & Harris, Architects.



Plan.
LA GRANGE TRUST & SAVINGS BANK.

La Grange, Ill.

Jos. C. Llewellyn, Architect.



FIRST NATIONAL BANK.

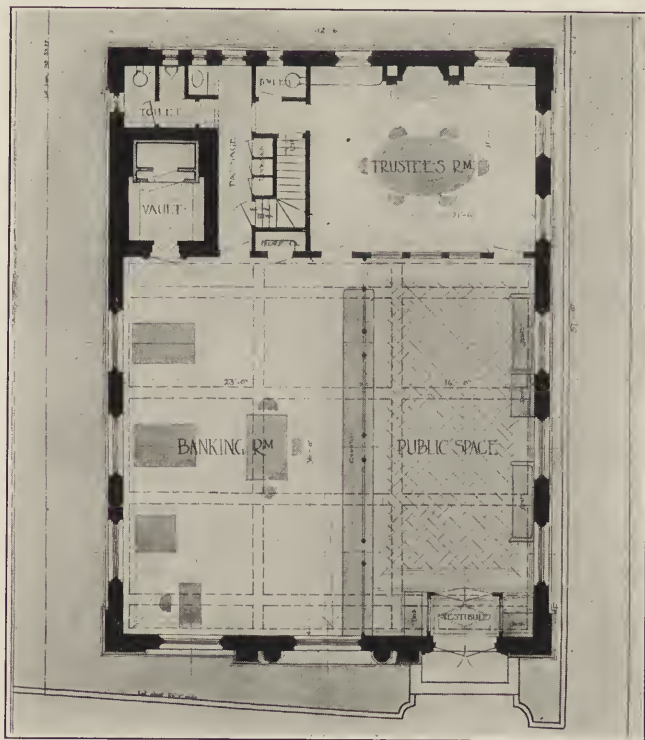
Charlotte, Mich.

MERCHANTS' SAVINGS BANK.

Battle Creek, Mich. Jos. C. Llewellyn, Architect.



View of exterior.



Plan.

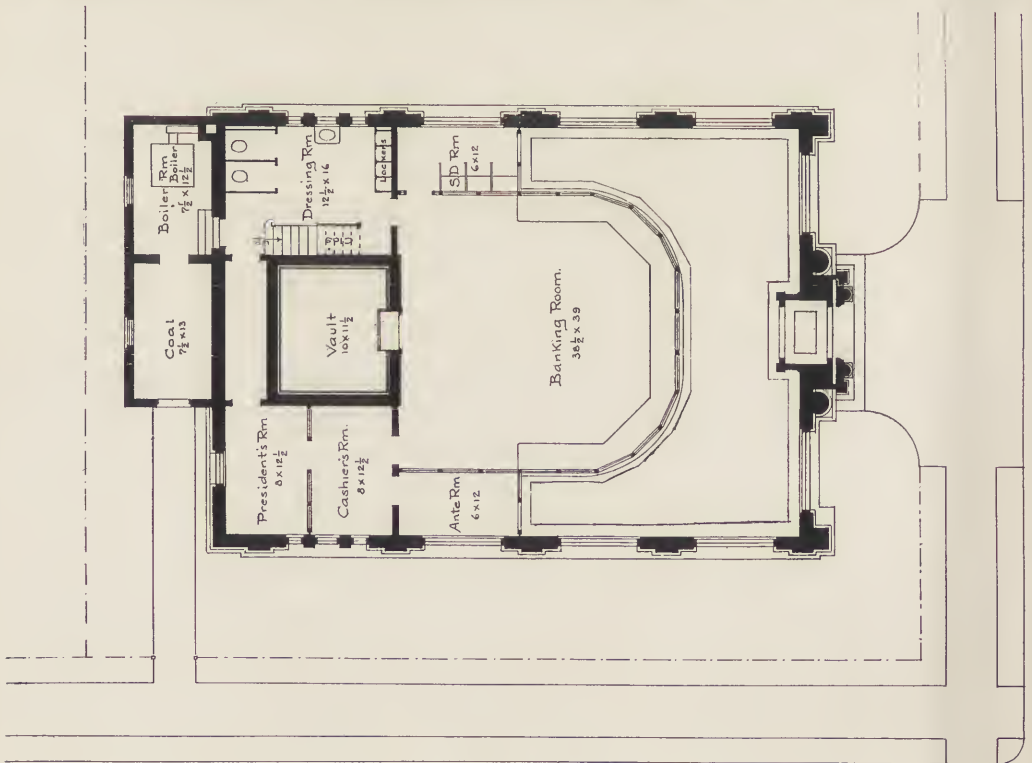
NORTH CAMBRIDGE SAVINGS BANK.

Cambridge, Mass.

Gay & Proctor, Architects.



The country bank on an isolated site.

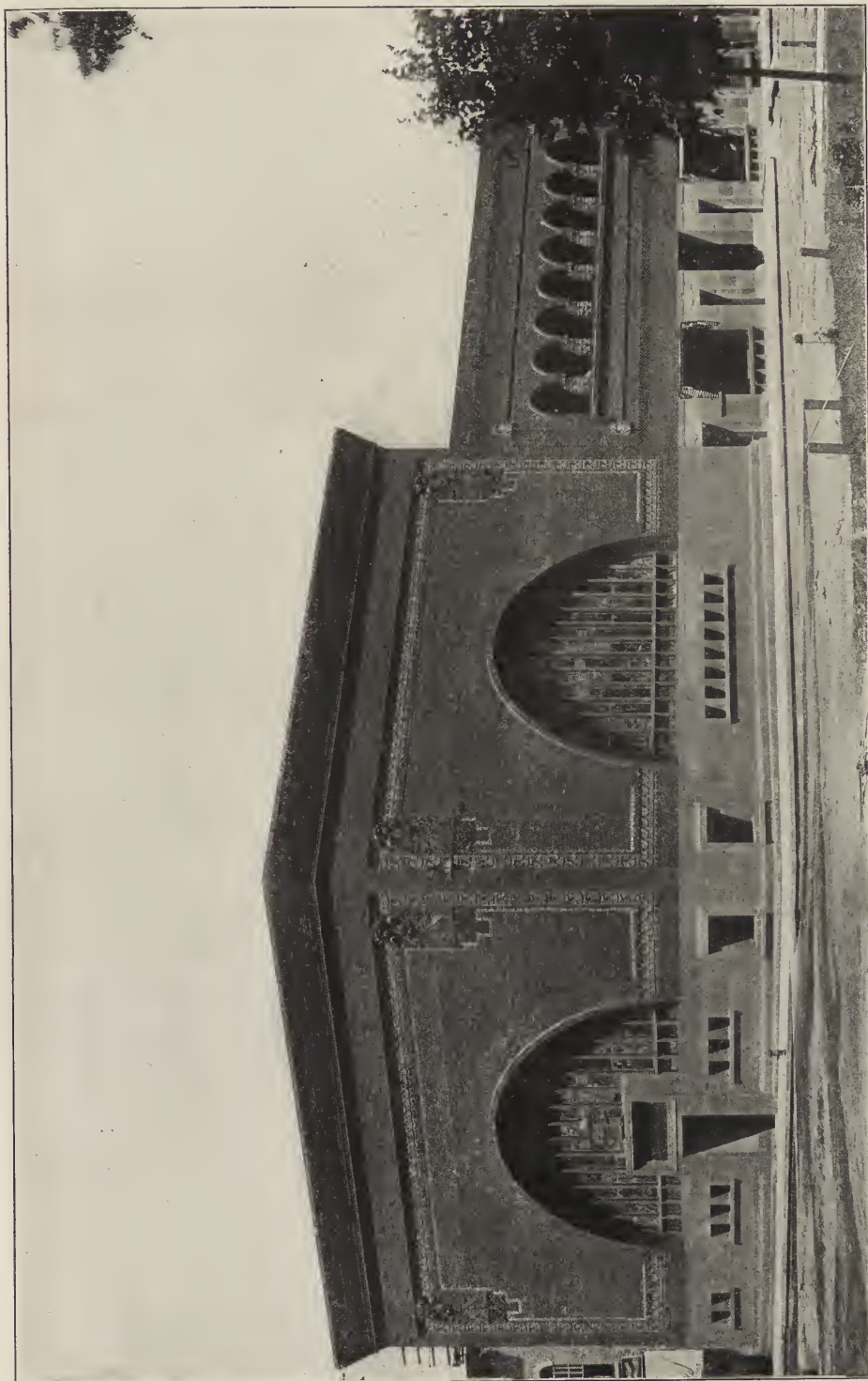


Plan.

MARINE NATIONAL BANK.

Wildwood, N. J.

Henry A. Macomb, Architect.



Owatonna, Minn.

NATIONAL FARMERS' BANK—EXTERIOR.

Louis H. Sullivan, Architect.



CORN EXCHANGE NATIONAL BANK.
Chicago, Ill. Shepley, Rutan & Coolidge, Architects.



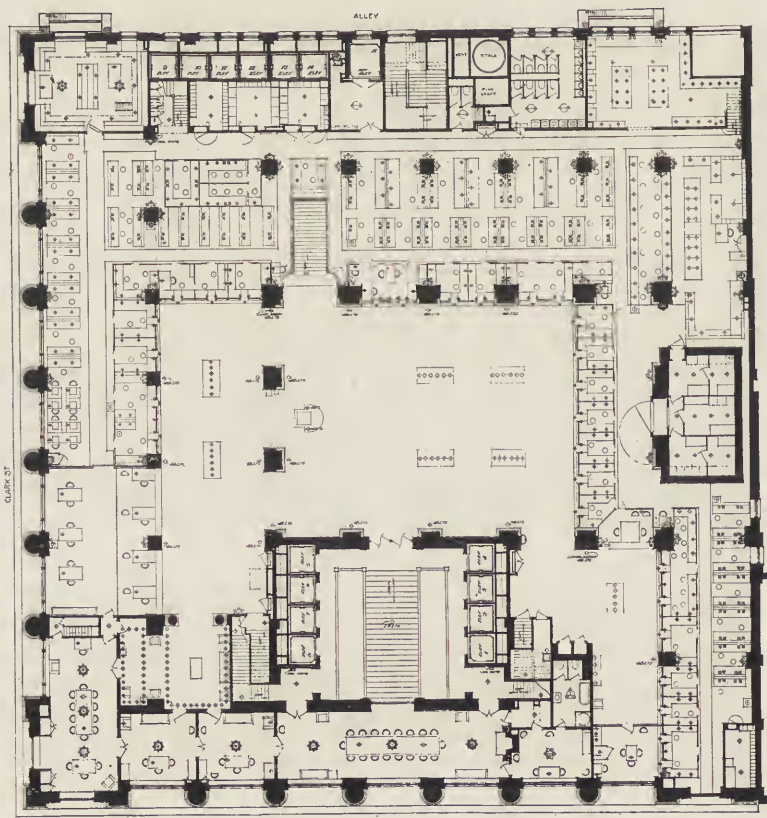
View in banking room.
CORN EXCHANGE NATIONAL BANK.

Chicago, Ill.

Shepley, Rutan & Coolidge, Architects.



View in banking room.



Plan of banking floor.
COMMERCIAL NATIONAL BANK.

Chicago, Ill.

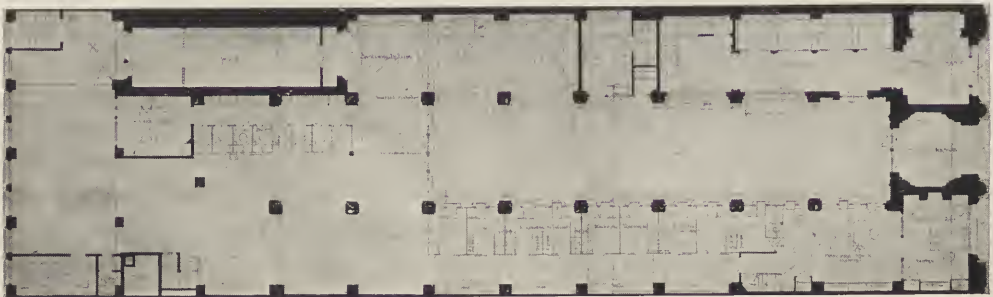
D. H. Burnham & Co., Architects.



COMMERCIAL NATIONAL BANK.

Chicago, Ill.

D. H. Burnham & Co., Architects.



Plan of banking floor.
HUMBOLDT SAVINGS BANK.

San Francisco, Cal.

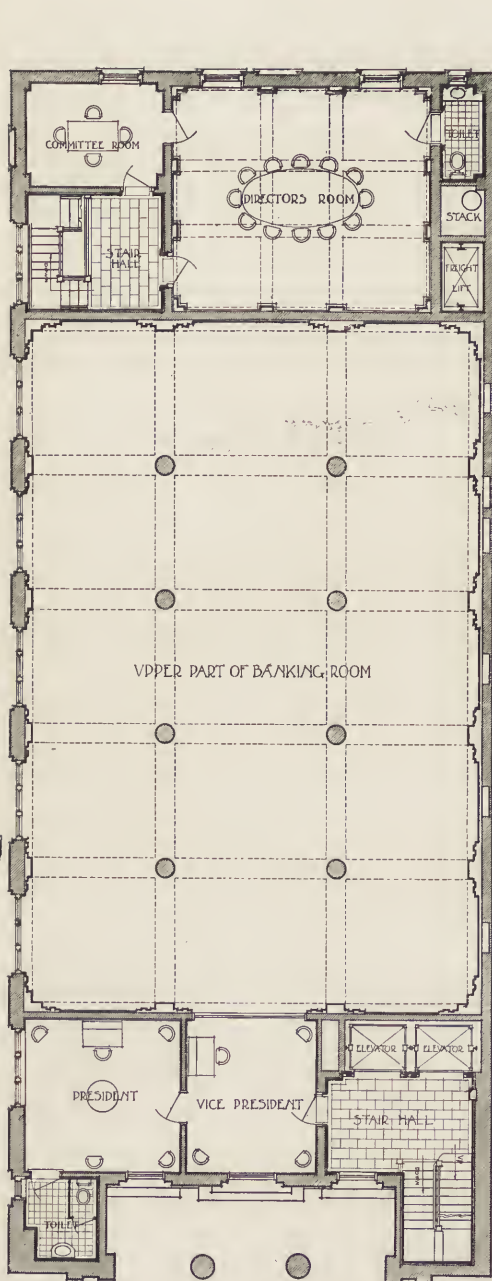
Fred. H. Meyer, }
Smith O'Brien, } Architects.



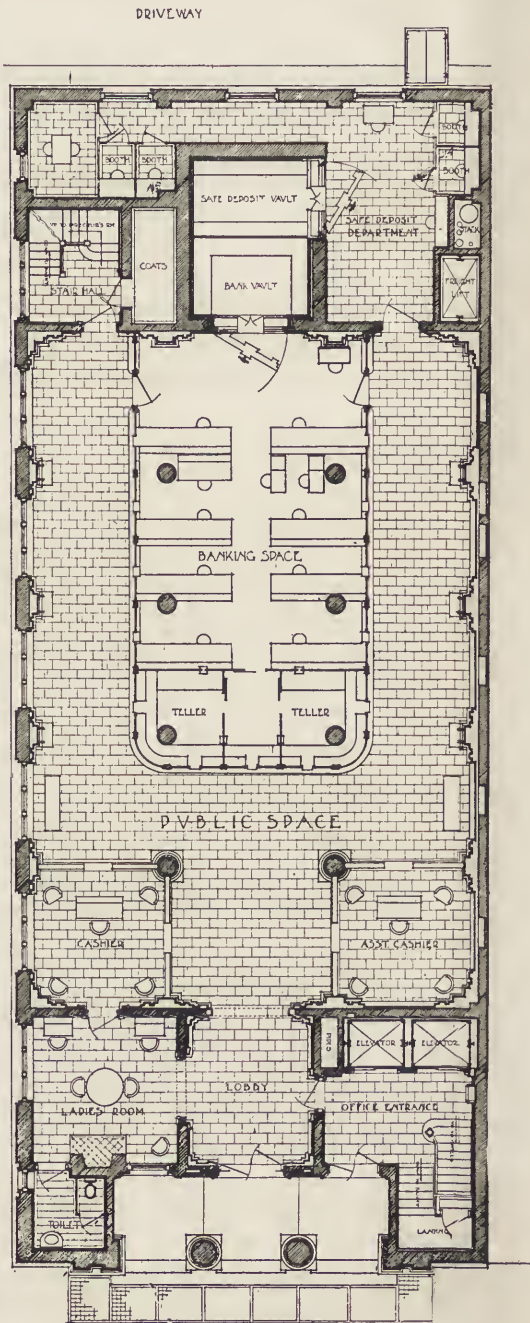
VIEW IN THE BANKING ROOM—HUMBOLDT SAVINGS BANK.

San Francisco, Cal.

Fred. H. Meyer } Architects.
Smith O'Brien }
Weary & Alford Co., Designers of Interior.



Plan of second floor.



Plan of first floor.

SECOND NATIONAL BANK.

Wilkesbarre, Pa.

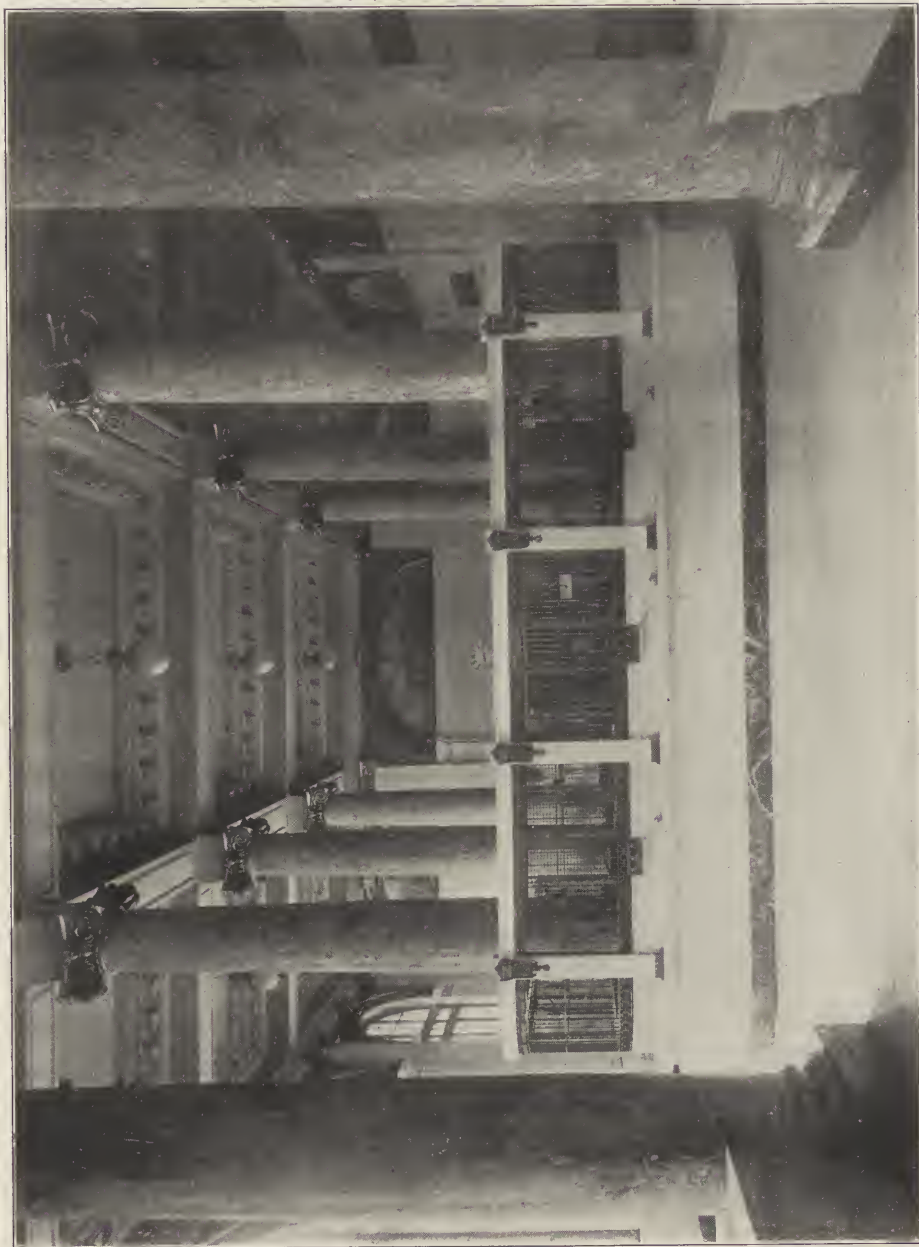
McCormick & French, Architects.



SECOND NATIONAL BANK BUILDING.

Wilkesbarre, Pa.

McCormick & French, Architects.

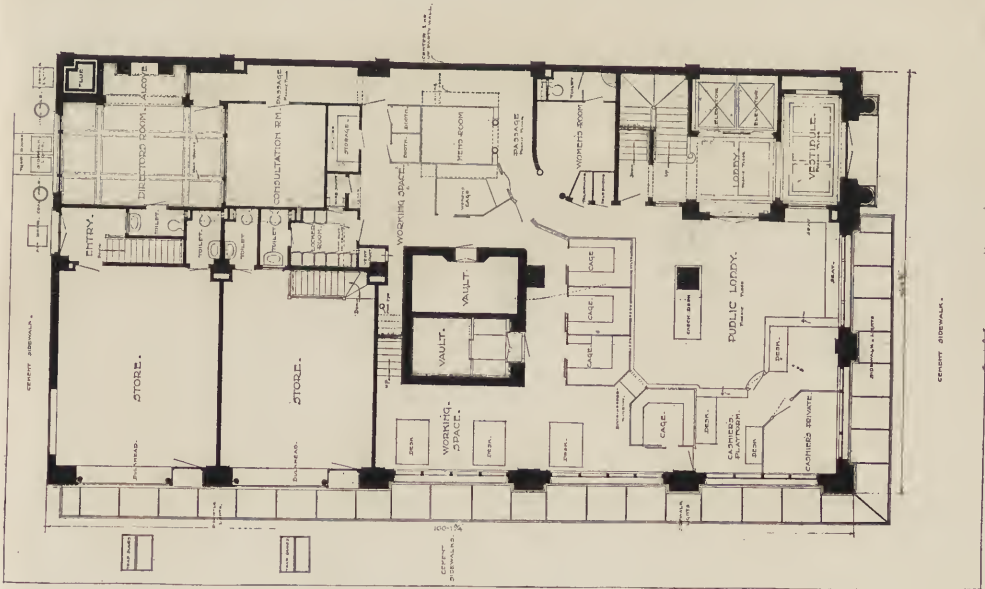


THE BANKING ROOM OF THE SECOND NATIONAL BANK BUILDING.
McCormick & French, Architects.

Wilkesbarre, Pa.



View from corner.



Plan.

KALAMAZOO NATIONAL BANK BUILDING.

Kalamazoo, Mich.

Jos. C. Llewellyn, Architect.



THE NEW BUILDING OF THE KNICKERBOCKER TRUST COMPANY.
Exchange Place and Broadway, New York. McKim, Mead & White, Architects.

NOTES & COMMENTS

THE MADISON SQUARE GARDEN IN NEW YORK

Attention has frequently been directed in these columns to the ephemeral nature of American buildings and especially to the saying of the late William

Renwick, to the effect that if a New York structure endured for a full generation, it served its term of usefulness, all things considered. The truth of this remark has been borne down upon us with increasing force as we have seen buildings disappear from our midst, particularly in New York, where demolitions and new erections follow each other in such rapid succession that we hardly have time to miss our old friends before their successors loom up in unexpected forms and colors. In many cases the buildings displaced were so much more worthy of being seen than those that have succeeded that it might be put down as one of the reasons for the lack of comity in our architecture, that conditions of building and affairs are so constituted as to impair the good influence that might result from the good things in our buildings were they permitted to stand long enough to make such influence operative.

The placing up at auction of the Madison Square Garden in New York seriously threatens to be a case where the beneficial influence of one of our best endeavors in public architecture is to come to an untimely end, having endured less than twenty years. It is strongly to be hoped that some new and more remunerative purpose could be found which the building could be made to serve without material harm to its general constitution. But such a consummation would amount, no doubt, to hoping against hope, in a time of such eager real estate development and especially in New York, the very center of such speculative ventures. One cannot help deploring the fact that a more appropriate site was not selected for a structure so important both in the life of New York as a city and as one of its chief points of interest for the traveler who is wont to remember the city chiefly by the impressions which its important buildings have left with him. If for, instance, the Madison Square Garden had been placed on one of the blocks bordering on Madison

Square, how imposing and appropriate it would have been as a structure and how much more effective would have been its graceful tower, than "the highest in the world" now thrust upon that public square which deserved a better fate. At any rate, given the Madison Square Garden situated as suggested, the question of its failure as a paying enterprise would, perhaps, never have arisen and there would be now no occasion for regret at its loss, which at this writing seems likely.

The loss to New York of the Madison Square Garden would indeed be a severe one. In these times when superficial ostentation clothed in the most untutored architectural language is still popularly considered "architecture," the Garden stands with comparatively few other New York buildings to proclaim to the public that it has need of revising its notions on art. It plainly says that it matters not in what tongue an artist chooses to express himself, so long as he is an artist and therefore has some definite message to convey. How many hundreds of buildings could one note in a morning's promenade, either through one of our residential, or, for that matter, one of our business districts, that have the appearance, to our average observant New Yorker, of being architecture of a high order! Every time he beholds such a building he remarks: "Splendid building, elaborate architectural work," and with that comment the subject passes out of his observant mind without his being attracted by anything to make him think. Such an individual could not pass the Madison Square Garden and some other New York buildings with the thoughtless remark above alluded to. He becomes conscious of the fact that he is standing in the presence of a large idea expressed, it is true, in terms which are strange to him, but which arouse his curiosity and in so doing compel him to use his thinking powers. Here begins his education in matters of art, and if we possessed more buildings of this "think-compelling" kind, our popular idea of architecture would be by that much the gainer. This is another reason why we have expressed a hope that the Garden will longer remain with us to exercise its desirable influence.

TO THE PROFESSION

To the architects and others, for their liberal co-operation and their more than usually active interest in the bank issue of the *Architectural Record*, the editors desire to express their appreciation, especially for their aid in supplying plans of their designs. A common complaint made by members of the profession is the lack of attention which architectural magazines pay to plans of buildings. The criticism is just, beyond a doubt, but surely the remedy lies with the architects themselves more than with the publishers. It is the difficulty which editors experience in obtaining plans suitable for the purposes of reproduction that causes the omissions complained of. The making of such suitable plans is often difficult in the short time allowed, but if their purpose be kept clearly in mind the element of time will seem relatively unimportant as the amount and character of the drafting generally necessary to explain the particular planning is reduced to the bare elements of the structure, piers, openings, partitions, enclosures and the like. Rendered drawings in monotone or several colors are unnecessary and, at best, do not serve the purpose as effectively as simple black ink tracings showing only what a diagram need contain. The better understanding which has recently come about between architect and publisher in the matter of drawings for reproduction cannot fail to have an enlightening influence on the reader, who is, in many cases, the architect's prospective client. Herein lies an opportunity for the architectural journal to bring about a complete understanding between owner and architect to their mutual advantage, a work in which it is our desire to participate to the utmost.

ARCHITECT AND CLIENT

In the November "Craftsman" Mr. Carl K. Bennett, Vice-President of the National Farmers Bank of Owatonna, Minnesota, contributes an illuminating article upon how that bank managed to get so good a building. The building itself, fully illustrated in the October number of the *Architectural Record*, has been acclaimed as a striking success by all sensitive persons who have seen it in the fact or in the photographs. In some respects, comparatively humble and comparatively inexpensive as it is, it seems to

be the highwater mark of Mr. Sullivan's architectural achievement. The masses in his work are always effective and well placed, at one end of the scale, the decoration at the other more inventive and more exquisite than any other living architect can show. But between these comes the functional modeling of parts. It is here that Mr. Sullivan has heretofore betrayed a comparative weakness. But one who studies this expressive and beautiful design can here in this respect "note no deficiency." There is an assured ease of mastery about the whole and all its parts that marks it as its author's masterpiece. And the effect, the careful inspector cannot fail to note, comes from a faithful and sensitive following out of the actual conditions of the problem and from nothing else. Not a sign anywhere of the architect's desire to lug in a favorite but irrelevant motive. When the Dry Dock Savings Bank in the Bowery in New York was completed, a generation ago, the architect of it remarked: "I think it is a success. It is a bank with a dwelling house on top of it. Nothing else can be made of it, and it will cost more to take it down than it has cost to put it up." Mr. Sullivan can say the same thing about his village bank, as to its specific expressiveness. The chief interest of Mr. Bennett's article is its showing how this admirable result has been brought about, and in thus indicating the responsibility of the client for his architecture. "Because," says Mr. Bennett, "architects who were consulted preferred to follow precedent or to take their inspiration from 'the books,' it was determined to make a search for an architect who would not only take into consideration the practical needs of the business, but who would heed the desire of the bank officers for adequate expression in the form of the building of the use to which it would be put." It is an excellent way. This was not only to be a bank but a village bank, and not only a village bank but a farmers' bank, comprehending a "farmers' exchange" or club furnishing such social facilities on week days as the church steps or the church "horse shed" supplied to the old-fashioned farmer on Sundays. All these requirements have not only been complied with, but have been made the basis of the design. The result is interesting and beautiful and individual because it is so exactly expressive. And it could not have been reached if the client had not made search for the right architect beforehand, and had not loyally supported and co-operated with him after he was engaged. The architect in such a case must divide his laurels with his client.

INTERURBAN BOULEVARDS

The reference last month in these pages to some big plans for interurban boulevards has brought a rejoinder that the projects of that sort are not all on the two ocean fronts. More than a year ago there was serious talk, we are informed, of a scheme for connecting Ann Arbor and Ypsilanti, Mich., by "a double boulevard" twenty miles long, that should not only join the cities but make a connecting link between their considerable park systems. There has been a good deal of talk, too of a boulevard between Buffalo and Niagara Falls, a distance of something over twenty miles; plans have been made for a nineteen mile boulevard between Aiken and North Augusta, S. C.; and no doubt there are many such projects. There is every reason to believe, indeed, that the next few years will see a number of such schemes transformed into realities, and that the country home on the interurban boulevard is the coming opportunity and problem. The "addition" may find rival in the "radial" as a real estate venture.

NEW BRIDGE AT HARTFORD

In the dedication recently of the new bridge across the Connecticut River, at Hartford, there were a good many matters of interest. In the first place, the bridge itself is a notable structure. With its eight granite arches, its length of some twelve hundred feet, and its width of more than eighty feet, it is said to be the largest stone arch bridge in the world. But besides that it is beautiful. Incidentally, it cost \$2,000,000. Because it is so big, so costly, and especially because it is beautiful, its dedication was made a great civic occasion, lasting through three days. All the fraternal organizations in and about Hartford took part in the events; the parade of masons was said to be the largest ever held in Connecticut; there was the now inevitable historical pageant, and scores of thousands of visitors came to the city to see the bridge and to have a part in the celebration to dedicate it. There was even a great parade of school children, who had thus impressed upon their minds the worth whileness of doing well what is done for the municipality. If we read of such events in the Renaissance, we

would be sighing for the lost hold of civic art on the populace. There is another point not to be overlooked. A long strip of river frontage was bought by the bridge commission, and a large sum has been expended in the construction of a boulevard. This not only connects with the bridge, but it has practically obliterated Hartford's old tenderloin and has transformed an eyesore into a tract of beauty. There has been little heard about that new bridge at Hartford, but it is really a notable thing in municipal development.

A GARDEN CITY INVENTORY

The Garden City Association in England is publishing a small monthly paper. A recent number, containing the reprint of an article in the September issue of "The Millgate Monthly," gives some interesting statistics of the First Garden City. Building was commenced in 1904, and "at the moment of writing," the author says, the following was true: The area of the estate is 3,818 acres. Of this the town site area is 1,318 acres. The number of "houses built and in course of erection" is 1,110, and the population is 6,000. There are 24 factories and workshops built or building, 45 "shops," and 9 public buildings or places of worship. Eight miles of new roads have been made and eleven miles of sewer constructed. There are 17 miles of water mains and twelve miles of gas mains. Included in the town area are 200 acres of parks and open spaces. The lands of the estate cost £151,569, or under £40 per acre. About £100,000 has been spent in development. A recent valuation has appraised the property at £379,500, making an increase of £128,000 in four years. As to the people who live in the city, the article throws this curious side light on their characteristics, putting the words into the mouth of Ebenezer Howard himself, whom the writer is interviewing: "Of course, the new community has its problems. Some have been of a personal character, and may be guessed when I say that here we have a hatless brigade; another contingent that scorns hose and wears sandals; ladies whose loose robes with floral embroidery would do equally well in a Grecian garden as in a Garden City; men who prefer knickerbockers to trousers; sixty vegetarian families, and some people who commenced their career at Letchworth by living in huts and wooden shades." It were a pity to add a comment.

**A PROGRAM
FOR
PHILADELPHIA**

The report of the City Parks Association of Philadelphia (the twentieth annual) is as usual a synopsis of hopes and dreams of city beauty for Philadelphia, offering a stimulating program of endeavor. The report urges with especial emphasis the proposed creation of an art center around the art gallery which is to be erected on the site of the Fairmount Park reservoir, where the new parkway from the city hall enters Fairmount Park. Says the report: "The presence of the river," at one side of the proposed group, "is the one thing that was needed to make the opportunity unsurpassed. . . . The money, it will readily be seen, can easily be made available through the generosity of Mr. Widener, and through the fact that the Academy of Fine Arts and School of Industrial Art own buildings on Broad street, which, if sold, would fully meet the cost of the erection of classic buildings in the position indicated by the Fairmount Park Art Association's commission." The report urges that four acres of Stenton Park be at once acquired; it recommends that boulevards be built along the banks of the Schuylkill and Delaware rivers; it expresses dissatisfaction with the present methods of tree planting in Philadelphia. "In the city," it says, "it does not do to dig a hole and stick a tree in it. Proper precautions will result in the tree living and growing." It urges that League Island Park, for the improvement of which a half million dollars will soon be available, be made a great water playground. The preparation of a city plan is again advocated. "The plan cannot be prepared in a day or a month. It will take time, it will take thought and it will take money. Ten, fifteen or twenty-five thousand dollars will not do it. Fifty thousand at least will be required if the experience of other cities is any criterion." The demand for this is noted as a summing up of the whole report. All the hopes and dreams of community aesthetics and development resolve themselves, it is stated, into the necessity "that the best that is practicable shall be accomplished." It is well said: "That the legislature has drawn an imaginary line in the middle of a creek or at a certain angle with the equator, as a political division, or that the federal government has designated a certain line in the middle of a river as a boundary, does not in any way bear upon the question of the development of this community. The community in which we live does not end at

the Delaware River on the east nor at Cobbs Creek on the west. . . . It covers all the territory which pulsates with the life of Philadelphia endeavor; and this territory, which is constantly widening with increasing transportation facilities, is the territory covered by the flow of our daily population." The request is for "a commission of recognized experts," to act in connection with the present director of public works and the chief of the bureau of surveys.

**FIGURES
OF
CITIES**

The census bureau report on "Statistics (for 1906) of Cities Having a Population of Over 30,000," has just been published. It contains a mass of data both valuable for reference and interesting in itself, and for the comparisons it offers. It well supplements for the country at large the data for Massachusetts cities and towns which was lately published by that State's Bureau of Statistics of Labor and reviewed in this department.

The number of cities included in the report is 158, of which fifteen had over 300,000 inhabitants, twenty-seven between 100,000 and 300,000, forty-eight between 50,000 and 100,000, and sixty-eight under 50,000. For all the sneers at the far flung boundaries of Chicago, it appears not only that the city of greatest land area is New York—with about twice the area of Chicago; but that the second city in area is New Orleans. Chicago is a poor third. In the matter of municipal expenditures, it is interesting to learn that of what are called "corporate payments"—from which are excluded payments for temporary transactions and all payments made by one department, enterprise or fund of the city to another—sixty-seven and six-tenths per cent. are for current expenses of operation and maintenance, while 31.4 per cent. are for improvements of a more or less permanent character—a larger proportion than probably most persons would have guessed. One per cent. goes for the reduction of indebtedness. The corresponding percentages in 1902 were 71.2 for expenses, 27.3 for outlays, and 1.5. for reduction of debt. The relative increase of payments in the five years was, therefore, somewhat greater for permanent improvements than for expenses of operation and maintenance. The total per capita corporate payments for the 158 cities in 1906 were \$26.54. The corresponding payments from 1902 to 1905 were \$22.48, \$24.77, \$25.72, and \$25.80, respectively. In

four years the costs of municipal government has increased 18 per cent. faster than population. That salaries and wages have more than borne their part in this increase, is shown by the fact that while they were 68.8 per cent. of the general expenses in 1906, they were only 66.4 in 1902. Taking individual cities, the largest per capita corporate payments were made in Boston, New York and Washington—\$48.52, \$43.39, and \$37.84 respectively. Of the total general expenses for all cities, schools take the most—92 per cent. Recreation, including parks, receives only 3.4 per cent. and libraries and museums account for 1.3 per cent. The total per capita debt of the 158 cities was put in 1906 at \$75.69. There had been a gradual but steady rise from 1902, when the figure had been \$62.04. The total per capital debt less sinking fund assets was \$60.54 in 1906, having increased about the same as the gross debt in the four years. It would seem, however, that elaborate city schemes and the luxury of modern city building had not seriously effected urban finances.

**A WAVE
OF
PLAYGROUND
PROGRESS**

especial attention to the twelve months' progress in the playground movement. In it, indeed, they find "perhaps the best" evidence "that the year has been one of rapid and substantial growth in the spread of preventive measures." The significance of this estimate concerning the relative measure of playground development lies in the breadth of the field which is surveyed by those who make it. It means that whatever else may be overlooked in the social and civic progress of the past year, the playground movement at least must be considered. The secretary of the Playground Association of America in his annual report, submitted at the convention in September, stated that the playground expenditures for the year—a year when neither individuals or municipalities were feeling rich—had probably exceeded a million dollars a month. He reported that while sixty-six cities were maintaining playgrounds a year ago, the number by September, 1908, had increased to one hundred and eighty-five. Of this number 116 were publicly supported; and in 118 additional cities and towns steps were being taken for the immediate establishment

of playgrounds. Various other evidences of the progress of the wave are recorded. A clipping bureau which found eighty-three articles on playgrounds in one month of 1907 furnished 1,566 articles on them in the same length of time eight months later. Two new companies were formed for the manufacture of playground apparatus, and yet of the two old companies the business of one had doubled while the sales of the other had gained 200 per cent. There were no hard times in that line. It was significant, too, that at the convention the emphasis was on more intensive work, not, as in the previous year, on extensive; it was not, that is to say, on gaining new converts to the playground idea—they were coming very fast; but on increasing efficiency of the playground's service. The playgrounds for little children and the athletic and recreative fields for youths and adults may now be said, as the result of the last year's progress, to have been definitely accepted as parts of the well ordered city.

**WHY ENGLISH
GARDEN
CITIES
SUCCEED**

The contributor of the unsigned "Notes from Europe" that were lately printed in "The American Architect" has some interesting comments to make on the English Garden Cities development and the pending town planning bill, to which reference has been here made so often. He notes reasons that have been, perhaps, too little appreciated for the success of the recent English experiments. "Manufacturers," says he, "are moving out of London. The 'Garden City' idea has taken root and is flourishing, . . . and manufacturers are finding that it pays better to operate where daylight is not charged for, where the ceilings of manufacturing rooms may be more than nine feet high without mixing up with local regulations which limit the total height of their buildings, and inflated land values which prohibit horizontal extension. . . . It is interesting to compare the land values, for these show what has brought about the present exodus from London. Land at Letchworth is leased upon ninety-nine years agreement for as little as \$75 per acre, annual rental, while for the same area the yearly rental in some manufacturing districts in London runs to as much as \$15,000." Then of Mr. Burns's town planning bill he says, after describing its purposes, "It is doubtful whether any bill will or can provide for all that Mr. Burns hopes to ac-

comply. Doubtless he has in mind the creation of Bedford Parks, Hampsteads and Port Sunlights all over the country. . . . But Bedford Park owes its beauty to the fact that all of the houses, the shops, the church, the club and the 'Pub' were designed by two of the best architects England has produced in many years—Messrs. W. Eden Nesfield and R. Norman Shaw. To the latter is due much of the architectural beauty of Hampstead, though many of the new houses are the work of Mr. C. H. B. Quennell. It is the same case in all of the 'Garden Cities,' their beauty is due to the architect who planned them and his co-workers who have designed the individual buildings, for, no matter how carefully a law may be framed to provide for beauty, this will not

be the result unless there is the perception and intelligence found to create it. . . . I doubt, for instance, that, except by requiring more land to be given up to each house, Mr. Burns's measure could improve such a scheme as the latest Garden City—the Hampstead Garden suburb planned by Parker and Unwin and E. L. Lutyens, architects. Is it probable that a government official could suggest much to improve such a layout? Could it provide for better plans than some of those by M. H. Baillie Scott or better exteriors than those by Michael Bunney and by E. Guy Dawber?" This is well said, and it needed the saying. The ground plan of a town is very important but it is not all, nor even the most obvious feature in the town's beauty.

Technical Department

THE ARCHITECT'S PROBLEM

The architect has many things to consider in the choice of an exterior building stone for an edifice, like banks, churches, State buildings and Capitols, and great monuments, in which it is sought to express dignity and beauty combined. Naturally the material must be appropriate for the style of architecture, and it must be free, so far as possible, from the changes wrought by the extremes of cold and heat and the dust which is everywhere in the atmosphere.

Granite, which probably is the material most used in such buildings and memorials, is naturally rough in finish and dark in color. Dust from surrounding streets soon make it look darker than its original tone. The discoloration from rain penetrates so deep below the surface that even the sandblast cannot restore its former colors.

Frost and weather play havoc with marbles and limestones. They quickly discolor and lose their sharp edges.



KALAMAZOO TRUST CO. BANK
Kalamazoo, Mich.



SOLDIERS' AND SAILORS' MONUMENT
Vicksburg, Miss.

Terra Cotta, while cheap and quite a good resistant to fire, lacks entirely the dignity and character of white granite and marble. Another disadvantage is that the enamel soon "crazes" through the influence of frost.

The problem is to find a material which is,

First, absolutely non-absorbent and, therefore, non-staining and unaffected by frost;
Second, is beautiful in tone and character;
Third, which possesses a great crushing strength;

Fourth, which has maximum heat resistance;

Fifth, which lends itself readily to carving and molding;

Sixth, which can be obtained in sufficient quantities;

Seventh, which is moderate in cost.

More and more architects are finding all these qualities in a Southern product—Georgia Marble. Building reports show that increasing numbers of ornamental structures are being erected from this material—magnificent buildings, like the Girard Trust and Banking Company building of Philadelphia, and the Metropolitan Bank of Washington, D. C., of which photographs are shown on pages 16 and 22. Their lasting beauty is constantly gaining new converts for this splendid marble.



GIRARD TRUST COMPANY
Philadelphia

As an example of its wonderful non-absorbent qualities, the writer saw a cube of Georgia marble drilled to be used for an inkstand. After such use covering months, this material had absorbed no more color than if it had been of glass. It is a well known fact that ordinary marble would have absorbed the ink within a few hours.

As to its strength—ordinary building stone, according to a report made from the Ordnance Department of the United States Army, at Watertown, Mass., will crumble under a pressure from 3,000 to 8,000 pounds per square inch. Very few of the very best granites will withstand the enormous pressure that Georgia marble will resist without even cracking—as high as 12,000 pounds per square inch.

Georgia marble, like other marbles, has very high heat-resisting quality. It is a fact that Georgia marble buildings came through the Baltimore fire with less need of repair than those of any other material. Some of them were put into use as soon as they became sufficiently cool.

Dr. Hiram Cutting, Ph.D., who conducted a series of tests for the WEEKLY UNDERWRITER, disclosed the startling fact that the damage by fire to a granite building is about equal to that suffered by a structure of wood, under similar conditions. In the matter of heat resistance Dr. Cutting ranks building materials in the following order:

1. Marbles.
2. Limestones.
3. Sandstones and freestones.
4. Granite.
5. Slate.
6. Conglomerates.

Nature seems to have favored the Georgia quarry as well. It is recognized by geologists as the most wonderful marble deposit in the world, for it is a mammoth, continuous block in which no break has ever been discovered. The winters of Georgia's climate are mild and are free from the interruptions by ice, which put a stop to outdoor quarry work in the North. Thus, the output of the Georgia deposits is limited only by the demand.

The marble for the Girard Trust and Banking Company's building in Philadelphia, the Metropolitan Bank of Washington, D. C., and the Soldiers' and Sailors' Monument in Vicksburg, Miss., was quarried by the Georgia Marble Company at Tate, Ga., and was finished by the Blue Ridge Marble Company of Nelson, in the same State. Both these companies are represented in the Northwest and Canada by the L. H. Dapprich Co., Chicago. This company will furnish further information about this remarkable and ideal building marble on application.



ONE SOLID BLOCK OF MARBLE
Georgia Marble Co. Tate, Ga.

THE ARCHITECTURAL RECORD

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GEORGE P. F. R. NALD

GARDEN SEAT IN TAORMINA, OVERLOOKING THE SEA TO THE
STRAITS OF MESSINA.

The
Architectural Record

Vol. XXV.

FEBRUARY, 1909.

No. 2.

A National Co-operative Movement for the Advancement of Better Architecture and Construction

Editorial announcements usually have an air of the superfluous. There are occasions, however, when perhaps they are warranted and are not strictly in the nature of confidences solely for commercial purposes. An occasion has arisen, we believe, when we may legitimately speak to our readers of certain plans of ours.

Architectural publications are, in the main, technical. No publication can transcend its contents or reach out beyond the natural limits of its subject-matter. Being addressed strictly to the profession, the interest of architectural periodicals is confined to architects. The value of the pictures they print, the news they distribute, is bounded by very narrow limits. The professional publication, therefore, so far as architecture is concerned, does nothing to awaken any general interest in the buildings people inhabit. They merely carry the designs of architect "A" to architect "B," and those of architect "B" back again to architect "A." At this point their usefulness terminates.

If the chief interest of architecture lay in professional intercommunication there would be little need for further effort. But one may well ask the question—Does the sole or chief service that can be performed by an architectural periodical lie within this restricted boundary? We venture to think there are other things of greater importance that should be done.

Perhaps more than any other artist, the architect needs to be in close touch with his public. If his public is indifferent or uninformed his efforts suffer. He is restricted in his work or confined in his aims.

It is not long ago that Speaker Cannon asked, "What is an architect, anyway?" Bluntness of speech usually is an indication of bluntness of mind. Was the mental condition of the Speaker exceptional? Evidence does not favor this saving view. The public spectacle of even our main streets, public curiosity concerning our buildings, both indicate that general appreciation of architecture is of an order low enough to be negligible as a working force for better things. It is abundantly evident that the standard of public taste is much below the average of trained architectural capacity.

The trouble lies largely with the owner. Architecturally speaking, he is a barbarian, and, as with all barbarians, he has no right sense of values, and he is more personally pleased with the meretricious than with the meritorious. He may accept good architecture as "fashion," but never as an intimate personal possession of value.

As a result, the trained architect receives only a moiety of the commissions which the growth and development of the community affords. In place of well-designed structures, scientifically built, scientifically planned, the architectural spectacle presented from Maine to Cali-

fornia is literally a nightmare of ignorant endeavor. The untrained draughtsman, the builder-architect, the paper-made duplicated plan is rampant everywhere, and there is no police to arrest offenders.

No improvement of this condition of affairs can be brought about by the reformatory machinery now visible. It cannot be done by our architectural associations nor by our municipal organizations, nor by law, nor by our educational institutions. We must, somehow or other, elevate public taste by operating in some manner upon its standards of appreciation and desire. The popular magazines do not help mend the situation. They are either given over to the always-delightful discussion of the small details of decoration, or to showing the uninstructed how they can "beat the game" and build a house that looks like a six-thousand-dollar house for a maximum of forty-five hundred. The practice of architecture undoubtedly has many delightful surprises in it. None of them so far has established this severe economical achievement as a permanent reality. Its fictitious results are unfortunately fallacious as tending to improve public taste or even public conscience and manners. Nothing has done more to depreciate the real demand upon the real architect, or to expose his solid labors to the flippant ridicule of the ignorant. No! Judging from past performances, there is nothing to be hoped for in the way of assistance from the purely popular periodical.

The building material manufacturer might, indeed, add something to the cause of good construction, but he is met with strenuous opposition by the alarming demand for false cheapness that prevails in the construction of buildings. Anything is good enough in the owner's estimation, so long as it is cheap enough and—so long as it makes a brave show of being something that it is not. Few owners want the "real thing" for what it is, and for the service it will render perfectly. They prefer the veneer for what it is not, the sham article for what it seems to be. The "mercenary" standards of a "non-alcoholic

champagnated" modern civilization are far too general to be wholesome promoters of a real enduring architecture. We cannot get anywhere with shams. We must, somehow, abolish the entire system of "substitution." We must get down to real things, no matter how humble they may be. We must pound into the public head the conviction that an humble material is not artistically disreputable. We must get everyone possible to understand that there is no element of real economy in poor tin roofs, cheap plumbing, insufficient heating, low-grade interior trim, poor masonry and all the other scamped and deceptive abominations that compose so large a percentage of so many of our houses.

In other words, we must increase the chances, the legitimate opportunities of the trained architect, the thorough craftsman, the honest building material manufacturer.

A task of this magnitude cannot be accomplished speedily. Illusions on that point are hopeless. Reformation is the slowest process known to man. But it is the most hopeful, for here the stars fight for the righteous cause. Reform is probably the only human effort that, despite all vicissitudes, is never in the end defeated. But drastic measures are useless. We have to turn to the slow methods of persuasion. We must reform from what is and not against what is. We must rely largely upon insistence.

We have no desire to exalt the power of the editorial function at this moment. But we profoundly believe that if the public is to be educated it must be done by public means, and we know of no other public means more readily at hand, more probably effective in its issue, than the means afforded by the press.

When the Architectural Record was founded it was the purpose of the publishers to give the magazine as much of a popular meaning as circumstances permitted. The Architectural Record never has believed that the word "popular" is interchangeable with "undignified" or "uninstructed." No man ever attempted to "write down" to the public who did

not also write *under* the public. But if we may compare small with great the efforts of men like Tyndall and Huxley would illustrate the character and meaning that may be given to the word "popular."

Recently the Architectural Record has been in communication with most of the leaders of the architectural profession, with the better-known craftsmen and with a large number of the reputable building material houses. We asked frankly whether they recognized any real need for a co-operative movement in which Architect, Craftsman and Building Material Firm would be joined for the purpose of improving general architectural conditions, the action of each, of course, being confined to his own particular province. We received several thousand replies, and the answer, without a single exception, was heartily in favor of the co-operative movement. Some of our friends pointed out the difficulties ahead. The difficulties indicated are not insuperable in any case. They are all of a kind that we can recognize without the slightest discouragement. Nothing that is truly easy is perhaps really worth doing. Obstacles, so long as they are not insurmountable, afford an incentive, so long as the object ahead is worth the pains of the effort. All architects recognized their need of a larger public, a more instructed and sympathetic public. They realized fully that this larger public cannot be obtained by interprofessional inspection of one another's drawings. Merely professional publicity among themselves is relatively a small matter in the advancement of architectural practice. Given the opportunity and the favorable conditions, the architect is not likely to be behind in satisfying the requirements imposed upon him. Nor is the architect to be helped greatly by the strictures of critics, lay or professional. There is, of course, a wholesome necessity for criticism. Criticism even has a high measure of efficiency. But criticism in a public sense is not a great force with the average man, even the average man of some intelligence. Instruction is a much greater force in our present con-

dition. The public need to know what the architect is driving at, the purpose of his efforts and intentions, the limitations that hamper him, the possibilities open to him. In every way the Owner needs to know more about the architect and the art he practices, and the architect needs from the Owner a heartier support and more substantial working sympathy.

Henceforth, therefore, the Architectural Record will work more and more with the Architect than ever, but always *with* him in relation to his clients or his possible clients. Its efforts will be to penetrate to the Owner through the Architect, and will endeavor to create a taste and desire for at least architectural decency, earnest craftsmanship and reliable building materials. The magazine will try to banish all forms of substitution—false art for real art, false craftsmanship for real craftsmanship, inferior and therefore more costly building materials for superior and therefore cheaper articles.

This new policy will not be attended immediately by any radical change in the contents of the magazine or by any revolutionary methods. We shall progress from point to point in consultation with friends who have encouraged us on all sides to attempt the new co-operative movement for the advancement of architecture and sound construction.

Of the thousands of replies to our recent letter, to the members of the profession, the following extracts are fairly typical of its attitude towards our plans:

Cass Gilbert, New York City.

"I think in general that the idea is an excellent one and I wish you success in the undertaking."

Delano & Aldrich, New York City.

"We thoroughly agree with all you say."

Wilder & Wight, Kansas City, Mo.

"Your scheme seems to us a good one. We shall be glad to be of assistance in any way possible."

Marcus T. Reynolds, Albany, N. Y.

"You have done a great deal of this in the past, as I find a great many educated people who have no direct interest with architecture as regular subscribers to your magazine."

Prof. A. D. F. Hamlin, New York City.

"I approve this movement heartily and only regret that present pressure of my work prevents my writing to you more fully and formally to this effect."

Prof. Frederick W. Revels, School of Architecture, Syracuse, N. Y.

"An effort to interest and educate the general public in things architectural cannot be too strongly commended."

A. L. Brockway, Syracuse, N. Y.

"I will pledge myself personally to do anything within my power to promote your efforts."

Prof. H. L. Warren, Harvard University, Cambridge, Mass.

"The scheme seems to me excellent if it can be done."

E. B. Patterson, New Orleans, La.

"You are about to undertake a gigantic task, in which I wish you all success."

Bliss & Faville, San Francisco, Cal.

"We realize that a tremendous field could be covered if the work was carried on as outlined in your letter. We find the Record is probably the most appreciated of any of the magazines among our clients."

Prof. Clarence A. Martin, Cornell University, Ithaca, N. Y.

"I grant the difficulties in general, but am not convinced of the diagnosis in detail, nor is the remedy quite clear enough to warrant my unqualified endorsement such as you ask, as it seems to me indorsement must necessarily mean more than the mere 'effort.'"

J. Walter Stevens, St. Paul, Minn.

"I think you have undertaken a monumental job."

Hill & Woltersdorf, Chicago, Ill.

"Your plan to make your paper the medium of creating a live interest in architecture in the public mind seems to me a splendid idea."

Myron Hunt & Elmer Grey, Los Angeles, Cal.

"We use your magazine now for just such purposes. As long as it is as good architecturally as it is now, the more popular you make it the better we shall like it. We have distributed many hundred copies of past numbers and we encourage our clients to take it regularly."

Carrère & Hastings, New York City.

"The suggestion is most attractive and interesting and we think is just the sort of thing that ought to be done and that you can do justice to."

Patton & Miller, Chicago, Ill.

"The carrying out of this policy would make your paper of great value to the profession."

Hugh S. Magruder, Baltimore, Md.

"There is a crying need for just such a campaign of education as you suggest."

Somervell & Cote, Seattle, Wash.

"We approve of your proposed scheme and are only wondering why such a step was not taken prior to this."

Allen & Collens, Boston.

"We approve of the policy and should be glad to be of service to you in any way possible."

Alden & Harlow, Pittsburg, Pa.

"It is a question to which we have given some thought without any tangible theory suggesting itself."

Newman & Harris, New York and Philadelphia.

"Your proposition appeals very strongly to us and we shall be most interested in the development of your idea."

Cooper & Bailey, Boston, Mass.

"We wish you to feel sure of our cordial support."

Hutchisson & Garvin, Mobile, Ala.

"The Architectural Record has already done a great work in this line."

Claude F. Bragdon, Rochester, N. Y.

"The Record is the only architectural paper I find the layman knows anything about."

Prof. Thomas Nolan, University of Pennsylvania, Philadelphia, Pa.

"Such a step will bring the magazine into closer touch with all architects."

Reed & Stem, St. Paul, Minn.

"We are entirely in sympathy with the idea presented."

Prof. N. Clifford Ricker, University of Illinois, Urbana, Ill.

"The new line proposed seems to be excellent."

Ernest Flagg, New York City.

"The plan you outline should meet with the encouragement of the architectural profession."

Sicilian Hill Gardens

Illustrations by the Author

In view of the calamity which has fallen with such terrible force upon so many of the coast towns of Sicily and Calabria, the article which follows should be of special interest. The text and sketches were made on the spot by Mr. Fernald not many months ago and exhibit in consequence that freshness of touch and accuracy of portrayal which can result only from intimate contact with and an abiding love for the subject.—Editor.

Not to be compared with the gardens of Northern Italy, or with other gardens equally celebrated, these little gardens of Sicily have an individual charm all their own. They are the image in the soul of the Italian gardens as Sicily is the key to it all.

In the first place, one does not expect to find gardens in this turbulent, mountainous country, amid barren rocks and precipitous cliffs, and who can describe the delight in discovering real gardens and castles in the air, nestled on the hillside or perched on the mountain peak, surrounded by tufts of green and classic gardens. We are apt to have a confused notion regarding our love of Nature and this wonderful land. To many of us it is not so much Nature in its frankly natural guise that appeals, as Nature humanized and made intimate with our lives. Here is beautiful solitude, yet if this solitude is inhabited, how much more beautiful becomes the solitude!

High above the sea, the road leads one to this fairy land. An attractive feature of the landscape is the white serpentine road and colored parapet wall bordering it, which creeps along the seashore up into the fastness of the rocky promontory, appearing, disappearing, and re-appearing, gliding through a level garden of olive and almond trees, making a turn to avoid disturbing some ancient catacombs, under vine-blanked walls, and switching about the foundation cliff of the Greek theatre, on, and upward to Taormina, an impressive testimony to the patient effort of man.

No one goes to Sicily without admiring Mt. Etna, "that pillar of Heaven," as Pliny called it, and yet how much more can we enjoy the grand panorama before us from a garden seat and frame

of classic columns, or as we sit in the auditorium of the Greek theatre, peering through the proscenium arches at the mountains and sea beyond.

Etna, although active, and always seen wearing her huge white plume of steam floating over the crater, is not regarded by Sicilians as treacherous or revengeful, but as the source of great fertility. The eastern slopes producing three-fold is the envy of all Sicilians, and well it might be for it is considered the most fertile spot for its size in the world. Many mountains of the interior and lonely peaks two and three thousand feet high are cultivated in the same way, with the homes of the workers of the field capping their summits, the sites of the old Sekelian cities, where a large portion of the population live in the same old Sekelian way, working their farms on the mountain sides to the valley, and going back to the protection of the city for the night. The hill towns of Italy are ant-hill towns compared with these lofty perched cities. It is only when the mountains are absolutely precipitous, like the rock of Pelligrino or the cliffs of Cefalu, that they are uncultivated and barren, for every part of Sicily is cultivated, making one vast garden. On every mountain side are seen tier upon tier of terraces, making level spots for cultivation and producing an effect of great flights of steps from the seashore to the mountain peaks, the lower terraces covered by an uninterrupted grove of mandarin, orange, lemon and other fruit trees.

How much is added to this wonderful land by the touch of the Greek hand! Classic influence and tradition is handed to the succeeding races, and the effect is easily seen on every side. Behind the very walls of the Greek Theatre, and the walls of the street leading up to



VIEW FROM MONTE VENERE (VENUS), OVERLOOKING THE POINT OF NAXOS, WITH CATANIA, SYRACUSA AND MT. ETNA IN THE DISTANCE.



THE VILLA WRITTI, TAORMINA; CALABRIA IN THE BACKGROUND.

it, are characteristic gardens of a most classic character. Passing between the high walls we hear the hum of voices and inhale the fragrant air, heavy with bloom, but little more is known of what lies beyond, so secluded are the gardens. When we step inside, we find it easier to measure them in feet than in acres, but the effect of symmetry and ordered details impresses us at once. Although none of them are large, or overly well kept, we are surprised at finding any gardens at all in a country so mountainous that it is difficult even to find a foot-hold. They cling to the brink of the precipices, as if in fear of falling into the sea, and we forgive their simplicity and irregularity of outline when we see the real garden and its formal pattern.

The views are unsurpassed, so beautifully are they placed and planned for vistas. The villa seems a part of the cliff, and the retaining walls of the garden are but ridges that help the outline of the mountain to step down more gracefully. Nature is tempted to invade the realm of art. Here is a union of the two such as will be seen in very few places. The flowers in the crannied walls are familiar. We like to see the stucco walls giving hospitality to a rush and tangle of vines clambering over rocks and reaching up to the top, where vines from many flower pots droop down to greet them. The sturdy cactus reaches out its arms to embrace the wall, where soil, moisture and sun are to its liking. When the loose retaining walls are being built on the hills, they are made more secure to the cliff by the assistance of the strong armed cactus, of the prickly-pear species, the leaves of which are broken from the vines and scattered through the loose stones, where they soon take root, twisting in and out among the rocks, and in time anchor the garden walls to the cliff in a most secure manner.

Every inch of flat space that can be found is used for gardens and terraces, while the wall following the edge of the cliff, often encloses a very irregular area, from which the peasants, with their natural instinct for balancing

things, ingeniously develop from the central space a most formal and classic design.

There is to be found a regular pattern of cross walks with fountain basins and pergolas leading up to vistas. In the centre is a calm water basin, surrounded by tall-back stucco sofas, shaded by fig and dark cypress trees. Cross walks and flower beds form patterns of squares and diamonds, as the wall bordering on the cliff may suggest. At the end of the pergola are seats flanked on either side by huge oil jars, spilling over with sea pinks. Many pedestals and statues populate the walks, and pose at important intersections of the pattern. Classic water jars, blanketed with myrtle and frost vine form a stately procession, alternating with many other flower pots of varied style.

There are many attractive bits of terra-cotta work to be found in Sicily, with a great variety of vases, flower pots, jardenières, water bottles, jars; urns and pedestals, which are the fragments of marble which are placed throughout the gardens, giving them a very Pompeian character.

The old Duke Sanstefano was responsible for appropriating so many marble fragments of the Greek theatre for his garden, while like so many of the other gardens and villas throughout Taormina, shared in the spoils of this wonderful ruin. The variety of thirty marbles with which the hills and riverbeds abound were famous in the days of Archimedes. They were used by the Architect Filea of Taormina with the assistance of Archimedes' ingenuity, in lining the baths of the famous galley built for Ptolemy, and given to him as a present by Heron of Syracuse. The Siculi from their high perched castles could almost drop a plummet line on the decks of this thousand-oared galley as it swept past to Callabra and its ruin.

After the view of the sea and wild mountain country, our eyes return to the garden, and find rest and repose in the ordered details and quiet shade. A broad walk leads to the cliff at the rear of the garden, where a cool grotto,



SAN DOMINICO GARDEN.

roofed with shimmering moss and maiden-hair fern, invites you to dripping water, and a cool retiring spot from the blazing sun, where wines and almonds were never known to have such a flavor.

As our eye follows the wall leading from the grotto, our sight is checked by the huge burst of bloom which the parapet wall is holding in its trough-like basins that are sunk in the top of the wall at intervals. Monstrous flower pots, filled in with camellias, flank the ends of a seat and attract our attention to the wonderful vista before us with the turquoise sea in the distance. All the stucco work in these gardens is tinted in soft pinks and yellows, and with a sturdy pier topped with a big yellow urn, draped in pale lavender wistaria, the effect is more easily imagined than described.

There are few really active fountains in these gardens, and the water gods become quite inactive and moss-covered. A huge cesspool is constructed in a corner of this hill garden, sufficiently large to hold water for a supply throughout the dry season, which begins with May and lasts until September. A great volume of water is continually pouring into the reservoir from the conductors of the villa during the rainy season, and released again through an elaborate cistern of cement troughs which covers the flat areas with a net work of flowing streams, making the entire mountain side terraces a cataract of water falls, as the water is used over and over again as it flows to the different levels. Most luxuriantly fertile orange and lemon groves are thus obtained. This system of irrigation, dating from the Saracenic domination or perhaps much earlier in the Conca d'Oro, about Palermo, attains its most elaborate development. Besides this way of irrigating, deep shafts of sunk and subterranean waters are tapped and brought to the surface by pumps, as in Arabia and Persia. With a little additional nourishment in the spring, the ancient tufa scoria and lava soil produces three-fold. One has but to trample a root in

the fresh soil and it will grow on, forever.

The floral richness in the wild flowers of Sicily have forever made this island famous, and their variety is certainly marvellous. They fill the vales and meadows to overflowing and nod from every crack and crevice in dizzy heights. The stately asphodel is the classic flower with its associations as old as Homer. Cyclamen, marigold, fennel, spurges, genesta, anemones, violets, oleanders, acanthus, sage and broom, dwarf pink champions spread over the grass like daises. As you walk further into the hills, the narcissus growing like a flowering rush, or many headed like the blossoms fatal to Proserpine, whiten the meadow grass, and higher still by the gleaming road the mountain iris of many hues brightens the Sicilian moorland. It leaps aflame with huge marigolds, glowing almost scarlet, but not as yellow and brilliant as the vigorous fragrant spurge gushing from the ancient lava streams of Etna. Corn breast-high is grown, and as you tread through the paths, beneath this tiny forest, the pink scentless garlic, the wild convolvulus dashed with bright blue, the pinipernela of brighter and the borage of lighter blue, and in the sheltering forests on Etna's height, undreamed of wild peonies of rose pink and white can be found. Among the many ruined walls dance and wave the crimson bells of the gladiolas and fresh pink snap-dragons. The leaf of the Selinum which gave this important city its name, a sort of wild celery, occupied a very sacred place in the lives of the Greeks. With it they crowned the victors of their games, and with it they crowned the dead. The papyrus plumes and the silver plumes of the vermouth, the wormwood that yield the wine are none the less interesting. There is in fact every known variety, too numerous for mention, as the cornucopia of Floris still abundantly full. It all shows the productive quality of this ancient soil. Not only is the soil rich with growing properties, but it is also rich with the treasures of the many races who have left there, imperishable articles of do-



AT CAPE S. ALESSIO, IONIAN SEA.

A seaside cemetery storm-swept, which was entirely engulfed by the recent tidal wave.

mestic life, used before the Carthaginian came, 400 years B. C. Hardly a spade of earth is turned in Sicily without yielding a bronze vase, a coin, terra cotta lamp or statue in marble. Within

the present season a wonderful gold necklace of the best Greek period was found while the ground for a new villa was being excavated. The workmen came upon the walls of an old cistern

filled to the surface of the garden with earth. In excavating this, the earth was found to be filled with many Greek utensils, which had been thrown in with

of the Villa, and the garden combined. On Mola's heights are look-out gardens, very much the same in character as the Sicilian, from whence the bar-



A TYPICAL SICILIAN TERRACE ENTRANCE, TAORMINA.
The Greek acropolis on the first hill in the background.

the dirt to fill up the cistern. The brilliant yellow gold necklace was found at the bottom. Of course this find was of sufficient value to pay for the entire land

barians looked down contemptuously on the fastidious Greeks, buzzing like bees in the Acropolis below, while the Greeks could look down again on their

fair city of Naxos, resting gently by the sea.

From the dizzy perch of Mola, you have the whole panorama of the Ionian

huge diamond set in blue. There Ceres flew to light her torch, at Etna's cone.

There on that earthly seat of Jove things grow on forever, and the hills



THE TOWN OF PACE, A BELVEDERE OVERLOOKING THE STRAITS OF MESSINA.

sea. On the left Scylla and Charybides, on the right, the wide fertile field of Etna, lifting her snow wrapped crater high in the heavens, like some

are as fresh and fair to-day as when Proserpine gathered flowers in Etnas' perfumed woods.

As your thoughts and eye returns

again to the rocks and precipitous cliff on which you stand, you hold your breath at the dizzy height. If anything can render these rocks and precipices more terrible, it is the vision of that awful tyrant. Dionysius, creeping up from the sea shore with his troops for the purpose of indulging in the pastime of butchering the troops of Mola. This was B. C. 304. Naxos had been ravished and laid waste by him; the few people left had been sold as slaves, and the Grecian site offered to the native Siculi. But they were not to be allured from their lofty stronghold of Mola, in which they were as nearly secure in their garrison, as they would be in a balloon basket, while the fortress of Mola, impossible as it looked, frowned down, inaccessible and grim. Dionysius took advantage of one dark and stormy night to climb that perpendicular track, the same which still leads to this aerial basket. The path led over acute precipices, and the storm beat in his face, but that was nothing to him. They succeeded in reaching the top and forcing open the gates, when the Siculi, with one desperate effort, massed themselves together and forced him and his troops head long down the sheer cliffs to the abyss below.

Wherever you may wander, amid the terrace farms and gardens, you find stately fence-post sentinels, guiding you through a straight path to a circular path surrounding a water basin, shaded by lofty waving bamboo Eucalyptus trees, with their tasseled heads sixty feet above you. A simple shady retreat for Pan. This is not the work of skilled landscape gardeners, but frequently accomplished by the hand of the humble peasant, with the strong instinct of classic tradition born in him. Their work charms you with its ease, grace and simplicity, in a manner seldom felt in other gardens. Where the Greeks walked, temples and statues to the gods appeared and gardens blossomed. They lived in the open. Poetry was in the air, and such is the effect that it is felt by the succeeding races.

It is always a pleasure to see these picturesque graceful people about with

their dark, Oriental coloring, gentle eyes and manners gallant and gracious. At no time do these Oriental manners show these people in so amiable a light as in the discharge of their duties. Indeed the severities of these southern people have ever been softened by this virtue which so happily flourishes where it is most wanted. They have the dignity of the ancient Greek, yet so tempered by tenderness and humanity that it commands that graceful respect which is otherwise scarcely known or expected in a country where inferiors are so much oftener taught to fear than to love.

The gardens are so simple and graceful in moulding, blending in form and coloring to their setting, making a lasting impression of their charm, and sickening one of the very thoughts of so many bad imitations of Italian gardens.

The gardens or enclosures about the Villas are not filled up with clumps and strips of trees, after the undigested ideas of a builder or decorator, or planted out with helter-skelter patches of rare shrubbery by a nurseryman. Here is taste and display to advantage, where there is neither great extent to work on or an immense sum to be expended. It is natural for a mind unacquainted with the power of Art to suppose that professional assistance can effect little in laying out small gardens or places of a few acres, but this is to infer that nothing can be beautiful that is not also expensive. Beauty or expression depends no more on dimension than on expense, but is the result of a combination calculated by its fitness and utility to gratify the mind, and by its effect to charm the eye.

The rule for the formation of such combinations, in rural scenery constitute the art of laying out the grounds in the application of which, to a small place, the artist will often meet with difficulties unknown in places of greater extent, since these, by their magnitude, naturally possess a certain greatness of character, while a small spot is a blank, depending for its effect wholly on the skill and ingenuity of him who undertakes to fill it up.

Gardens, parterres, and such small



GARDEN AT CASTILLO-A-MARE.

subjects as are seen at one view, and in which symmetry, or at least undisguised art, must necessarily appear, bear with them their own apology. They are and must always be characterized by avowed art of some description. By giving examples of the ancient mode of displaying this avowed art in gardening a great source of variety is obtained.

The application of the geometrical style to places of several acres is at first sight, less defensible, and is at all events more obnoxious to many tastes, but only in such cases is it better to introduce this art occasionally, and that in flat and level situations, having little or no distinct prospect and no facilities or capabilities for the more modern and free taste. Every unprejudiced amateur in rural affairs will allow, that in such situations this art produces more marked and imposing character than the modern picturesque or natural style admits of, and tends also to vary the appearance of a flat space. It is the peculiar property of the geometrical

characters to counteract the natural indications of the surface, and confer its own character, and on the flat it is all powerful: it has nothing to oppose it. The Italian Villa rears its formal, but majestic front, and flings around its stately mantel of alleys, avenues and groves. Thus the principle of a marked character, though formal and unnatural, is far more interesting than an insipid expression or no character at all. It belongs to the geometric style to create a bold and imposing grandeur which will leave no room to regret the want of variety of surface or of distant prospect.

A real Italian garden is, in short, a quaint combination of Art and Nature, in which Nature after a time is allowed to have sway and run riot at her wildest. Hence the inevitable failure of the Italian garden when transplanted to the North. We try to keep it altogether too tidy, or we go to the other extreme and effect ruin, leaving no signs or trace of cultivation, not even the walk, while in our more formal garden no

fern draperies or vines in crevices are allowed, as it would send our gardeners into "fits."

There are, it is true, many features of the Italian garden which we can adapt, but otherwise even their archi-

tecture is not for us. The stucco decorations, which are effective enough in Italy, cannot resist our damp freezing atmosphere, and without them, Italian gardens are apt to be bald and cod.

George Porter Fernld.



VILLA AT TAORMINA.

A National Department of Public Works

The American Institute of Architects, which lately completed its annual convention here in Washington, has officially approved the plan of urging the creation of a governmental Bureau of Fine Arts. A most laudable movement, but certain things have to be coped with and especial conditions recognized. To have such a bureau exercise any influence or control it must have some authority. To secure that authority, Congress must act. Generally speaking, Congress is opposed, as a body and individually, to anything that is exclusively and solely artistic. It believes that in its accountability to the people all legislation must have a "practical" value. And for some reason or other men such as our great and good Speaker have not yet realized that anything practical can ever come from the aesthetic or be suggested by a mere artist!

Greater results could, no doubt, be obtained and sooner by clothing these artistic desires of ours in a practical garb and it would seem to me that we should turn our energies towards securing what has been so often suggested in the architectural press and that is the separation of matters structural, artistic, etc. from the Treasury and other departments and merging them all under a new department, with a cabinet officer, and properly called a Department of Public Works.

We have been putting up a good fight to secure the adoption of a systematic plan for the improvement of Washington to which all improvements made year by year should conform. An Art Commission was appointed but it rests purely upon executive favor; it is not recognized by Congress and has absolutely no authority, being merely a number of public-spirited and able gentlemen who, at the invitation of the president, respectfully suggest that this and that be done, and it is a matter of some indifference to congress and to bureau heads whether the advice be taken or not.

The Treasury Department is altogether too comprehensive. Congress realized that some time ago and separated some of that department's bureaus from it and grouped them under the new formation of a Department of Commerce and Labor. It is timely that we should urge upon congress the substraction of still other bureaus from that department and from other departments. We now have post-offices and court-houses built under Treasury direction, barracks, stores, etc. under the War Department management, waterways in charge of the Engineer Corps, etc. The thing is a jumble. To have the War Department in charge of great public works with a commercial flavor is a good deal of a farce and that the public buildings should be under the Treasury Department is equally silly. The head of that department is generally a financier, yet all matters of importance about public works and buildings go to him for final decision. The Supervising-Architect's office must oftentimes be most seriously hampered because of the unfamiliarity with construction and such matters on the part of the responsible chief of the department. I do not know of another country where there is not a distinct and separate department of Public Works. We might as well have education, labor, and finance administered by the Navy Department as to have our public works administered as they are now. Under this new department should be grouped everything in the nature of construction and maintenance of buildings, of waterways, of federal roads and anything else that involves improvements of a structural nature. Naturally the head of such a department should be an architect or an engineer, for pretty much the same reason that a lawyer is always selected as Attorney-General, or a financier as Secretary of the Treasury.

In the development and planning of such a department attention would naturally be given to the essentially

artistic. There would be a bureau or commission that would attend to just such things as the architects recite in their plea for such a special bureau, but this bureau, being a part of a department in charge of all public works, would have authority, would be more than merely, advisory and there is infinitely more probability of getting it through congress in such shape than as it is now proposed. To it would come all questions having any bearing whatever on matters artistic, the selection of designs for our coinage and stamps would even be part of its functions. Its authority would be fundamentally federal but its influence would be felt in every direction. While not clamoring for anything over paternalistic that would tend to the centralization of power I firmly believe that the department would be of infinite advantage to all the states and to the individual. The Weather Bureau is for the benefit of all the people; the Agricultural Department not only attends to matters federal in that line but its advice and services are available and are given to all state experimental stations and to every farmer in every state who asks

therefor. So with the Artistic Bureau would its advice and help be at the disposal of every State or city having artistic problems to solve. Its trained assistants and its advisors, men of the highest attainments in the arts, would be ever available and anxious to aid anyone seeking to improve, to beautify a city, a park, a railway terminal or what-not of a public or semi-public nature. It would urge all our cities to have formulated a fixed and artistic plan for progressive growth, one not necessarily involving the immediate expenditure of vast sums but a determinate plan to which would conform all improvements as they became necessary or for which funds became available.

It is eminently desirable and timely that the scheme of the architects to secure an Art Bureau be merged into the larger and more important and probably more easily obtained Department of Public Works. We need such a department. The business man realizes it; congress realizes it, and if gone at with a will and a vim, the project can be brought to a happy consummation during the next Session of Congress.

F. W. Fitzpatrick.



A garden temple of Taormina.

Concrete Construction

The Testimony of the Roman Forum

During the past ten years many methods for using concrete have been devised, a multitude of different shaped steel rods designed for reinforcing it have been patented, and the whole subject of reinforced concrete has created much comment among all interested in the various phases of building. Nearly every builder familiar with the ordinary processes of construction has felt that he was familiar with the processes of concrete also, and has undertaken concrete buildings with seemingly little or no serious thought of the exigencies of the problem, and not infrequently difficulties have been encountered that require practical experience to overcome. Many well-intentioned persons, with no knowledge of building whatever, and apparently ignorant of the simplest customs of concrete, have brought about failures which have caused not only the loss of property, but the loss of life also. These failures on the practical side have greatly increased the budget of the theorists, and, consequently, we learn from time to time what takes place in the mind of the man who does his building in his imagination. We are told that concrete is liable to disintegration of various kinds; that water will dissolve its substance; that it may be asphyxiated by escaping gas; that it can be weakened by electricity, and can succumb to an attack of electrolysis; that its success is entirely dependent on the proper and permanent setting of the cement, but nobody knows how long the cement may stay set. With this last theory in view, it is as easy as it is alarming to imagine what might be the result of any relaxation of its setting powers. It is no wonder, then, that the calamities of the impractical and the vagaries of the theorists have tended to incline the prospective user of concrete to the be-

lief that concrete is still in the experimental stage, and that the time is yet to come when all the excellent qualities recognizable in it shall be made conformable to the practical uses of building.

To controvert the idea that concrete is a new and untried material, and that it must be left to the future to demonstrate its powers of endurance, we give here photographs of some concrete foundations unearthed in the Roman Forum and on the Palatine Hill, and which are reproduced, we believe, for the first time. All the concrete illustrated dates from about the beginning of the Christian era, and is, therefore, but little less than two thousand years old.

That the Romans were very familiar with concrete, and gave careful consideration to its use, examination of the concrete work in the Forum clearly shows. Their concrete contained generally only two kinds of stone—travertine and selcie—in equal parts. Selcie is a hard, closely knit rock, very similar to our bluestone or trap rock in color as well as quality. Travertine is a volcanic rock, not so hard as selcie, considerably lighter in color and was desirable on account of its porosity, which insured a good bond with the cement. In all the Roman work the combination of the travertine and the selcie is clearly distinguishable. The mortar itself was composed of two parts of pozzolano, a splendid natural cement, and one part of lime, made by the burning of marble. In some instances the proportion of lime exceeded this, though this mixture was usually observed and is in general use at the present day. Pozzolano corresponds somewhat to our Rosendale, but is harder, although it has not the strength or tenacity which is so striking a quality in all of the good

brands of Portland cement now in general use.

The Romans mixed their concrete exactly as we mix ours—in a general batch, that is, stones, cement and lime were mixed together and then thrown into a wooden form, precisely as we do it to-day. The marks of the wood forms, are at all times discernible, and especially is this so in the corridor of the house of Augustus on the Palatine (Figs. 1 and 2) where the grain of

as elsewhere in Rome, thrust their arches through the air with such poise and precision that they are to this day the admiration of every beholder and gave to the Romans their proud position among the master builders of the world. The structure of brick above these concrete walls has succumbed to the ravages of time and to the hand of the destroyer, but the concrete remains without a crack or a fracture that could be discovered by careful and frequent



FIG. 1.—CORRIDOR IN THE HOUSE OF AUGUSTUS ON THE PALATINE HILL.

the wood can be clearly seen. These walls are some twenty-four feet above the ground level, and though the construction of the forms seems to have been carelessly done, as the photographs show, yet the result is none the less interesting. Here is a splendid opportunity to see concrete and to leisurely inspect it from every point of vantage. Above these concrete foundations rose the Palace of Augustus, formed of those stupendous walls and vaults of brick which here,

examination. Its adhesion is perfect, and that there has not been the slightest disintegration of even the outside surface is attested by the fact that the grain of the wood from the old forms may still be seen on the concrete, though its imprint was made over two thousand years ago.

Some recent excavations at the Arch of Titus (Fig. 3) have disclosed the fact that this structure rests entirely upon a monolithic base of concrete, approximately 45 feet long, 20 feet

wide and 12 feet deep. This foundation was poured into wooden frames exactly as we should do it now, and when the concrete had set these wooden formes were removed; they were constructed of planks 11 inches in width, with vertical braces 12 inches by 6 inches, 3 feet 8 inches on centers; these braces were put on the inside of the forms, and not on the outside face. The excavations at the Arch of Titus, while deep, have very little width, so

combination of travertine and selcie in the concrete is here found. The selcie and travertine, instead of being mixed together in the usual way, were laid in separate layers of all selcie and all travertine; these layers vary little from seven inches in thickness, and may be easily observed in Fig. 5, where, at the nearest corner, directly under the heavy course of travertine rock which forms the base of the Arch, may be seen the first layer of selcie; the selcie



FIG. 2.—HOUSE OF AUGUSTUS ON THE PALATINE HILL.

Nearer view of the walls showing the impressions of the wood forms as well as the actual grain of the wood.

that it is impossible to get a good photograph of them, but Fig. 4 was taken with the camera pointing directly into the opening, and while it gives little idea of the depth, some idea of the surface may be had where the impression of the wooden forms is seen and the leakage of the concrete between the joints in the planking leaves a slight ridge on the surface and establishes the exact width of the timber used. A very interesting example of the com-

is easily distinguished, as it is much darker in color than the course of travertine above. Directly under the first layer of selcie is the first layer of travertine, which, though made up of small stones, may readily be seen to be of the same color as the heavy course of travertine above. Below this first layer of travertine may be seen the second layer of selcie, and below this, in a spot where the traffic has worn it bright, appears the second

layer of travertine. These alternations continue with distinctness in the concrete, but are not quite so apparent in the photograph. This clearly shows how much thought and attention were given to what we are inclined to call unimportant details. After so long a time we can see that the concrete, composed of alternate layers of selcie and travertine, has no especial advantage over a general mix, and that this



Fig. 3.—Arch of Titus. The excavations were in progress on Feb. 12, 1908, the date of this photograph. The planks which guard it show the exact location.

variant from usual conditions is principally valuable as showing that the subject of concrete excited enough interest, even in those days, to develop experiment, and, perhaps, controversy also.

On the east side of the Forum is a mass of concrete which formed the fill of the sub-structure of the Temple of Julius. The general view of this is shown in Fig. 6. It was on this site that the body of Cæsar was burned, and the history of the Temple, supported by this concrete, is so interesting that I quote Ch. Heulsen's description of it in his "Roman Forum," translated by Jesse Benedict Carter:

"When, on March 15th, B. C. 44, the dictator Cæsar was killed in the Curia of Pompey, his

followers carried his body to the Forum, and there Antony delivered that famous speech by means of which he excited the populace to a passionate enthusiasm for him who had been slain. From the tribunal of the praetor, which lay hard by, chairs, tables and boardings were fetched, and in front of the Regia an extemporized funeral pyre was built, upon which the body was burned. The ashes were placed in the family burial place of the Julii in the Campus Martius, and on the spot in the Forum where

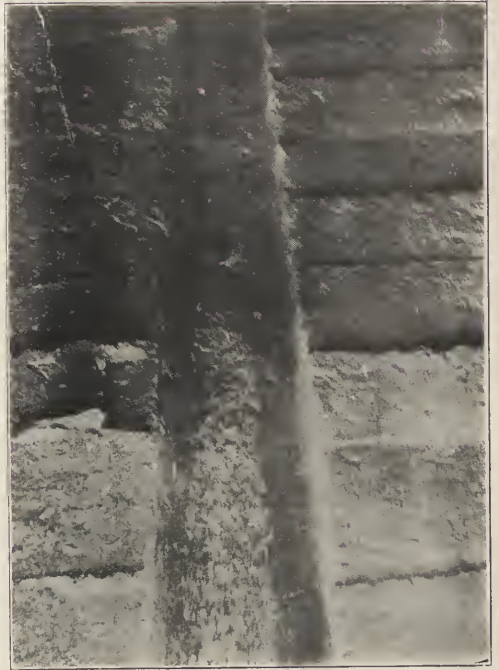


Fig. 4.—A nearer view of the foundations. The marks left by the wood forms are clearly visible. The vertical groove is that left by the upright brace placed inside the forms.

the body had been burned a column was erected, bearing the inscription, 'To the Father of his Country' (Parentii patriae), and in front of it a sacrificial altar was placed. To be sure, this monument lasted but a short time. The consul Dolabella, a few weeks later, took away both the column and the altar, and laid a new pavement. But in B. C. 42 the triumvirs (Octavian, Antony, Lepidus) decided to build on the same spot a temple in honor of Caesar, who had been placed among the gods. . . . But the Civil Wars, which followed, delayed the actual dedication, and it was not until August 18th, B. C. 29, that the temple was dedicated by Augustus. . . . In the reign of Septimius Severus the temple was injured by fire, possibly at the same time as the Regia and the Temple of Vesta, but was restored; it survived the fall of Paganism, but its ultimate fate is unknown."

Directly in front of the ruins of the Temple of Julius is a large concrete base (Fig. 7), in which also the vertical marks of the wooden forms can



Fig. 5.—Showing the layers of selcie and travertine in the concrete. The stratification and porosity of the travertine rock may be observed in the large course of travertine which forms the base of the arch.



Fig. 6.—Concrete substructure of The Temple of Julius.

be clearly seen. The excavations here do not permit a view of this entire structure, but enough of it appears to give a fair idea of its state of preservation, which is perfect. There is not a crack or fracture in it, and though located in a marshy part of the Forum, it shows no effect from the moisture to which it has been subject for so many centuries. Some appreciation of its size may be had by noticing in the pic-

ture the foot-rule which stands in front of the black box, directly on the corner of the monolith.

Back of the Temple of Cæsar is the fine Temple of Antoninus and Faustina, which also stands on a foundation of concrete, which may be observed in Fig. 8. The hat in the picture shows directly against a block of travertine; this block is the lowest course of the stone structure, and below it may be seen the long, dark monolithic mass of concrete projecting in front and to



FIG. 7.—CONCRETE BASE IN FRONT OF THE RUINS OF TEMPLE OF JULIUS.



Fig. 8.—Temple of Antoninus and Faustina.

the right. This concrete, like the others noted, remains unaffected by every strain that has been put upon it.

Near here the hardest and perhaps the most convincing example of concrete in the Forum is to be seen in the foundations of the Temple of Romulus (Fig. 9). On account of further excavations, it was necessary to cut off the front face of the concrete base, so that the interior structure has been laid bare. If anyone could doubt the permanency of concrete while looking at the outer surface, all such doubts must



Fig. 9.—General View of Temple of Romulus.

disappear upon a close scrutiny of this inner part. The example given in Fig. 10 was taken with the camera as near to the concrete as it was possible to get it, and the density and compactness of the mass can be appreciated by a little study of the picture. The light color of the travertine fragments shows in contrast to the darker tone of the selcie. That this concrete has been impervious to any action of the elements is proven by the absolute solidity of the mass. A piece, the size of a pine-

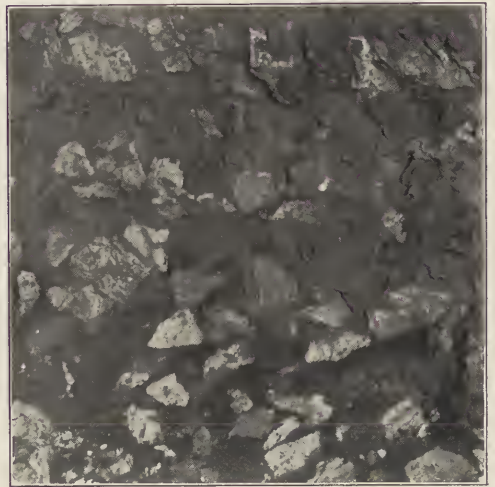


Fig. 10.—Photograph of Concrete, the face of which has been recently cut down..

apple, was broken off to give to the author, and an examination of the fresh fracture shows that the particles of cement and stone, after having been encased as concrete for two thousand years, come out with their color as clear and bright as if the pozzolano had just been dug from the Campagna and the selcie and travertine were fresh cut from the quarry. In this example alone we have the most convincing testimony as to the ability of concrete to retain its integrity and to withstand all natural conditions indefinitely.

In an article on "Foundations," of recent date, written by an engineer in one of the weekly engineering journals, it was stated that the Romans used concrete only for their cheaper foundations, and the inference seemed to be that they must have regarded

concrete as an inferior building material, and did not employ it in their most important work. This statement may or may not have been a reference to the careful and well-contrived stone sub-structure which supported the Temple of Castor, frequently, but incorrectly, called Castor and Pollux. These foundations are well known for their size and the care with which they were made. Though the article just referred to was read after my return from the scene, as an architect who is continually confronted with conditions of cost, I took particular interest in the foundations of the Temple of Castor, as the photographs may show, because of the perfection of their technique—in the main—and what must have been the great expense required to insure the same. Some idea of their magnitude is seen in Fig. 11, which shows the foundations as well as the three columns on top—all that is now left of the Temple itself. This foundation is some thirty-eight feet in height, composed of huge blocks of tuffa, 2 feet 6

inches high, and numbering fifteen courses all told. These blocks of tuffa were laid together without mortar, and the joints were so carefully made (Fig. 12) that they must have been rubbed, as the contact between the stones is perfect at this day. Each stone was dovetailed to the next (see Fig. 13) with painstaking care, and though a better connection would have been made by the use of cement mortar, the architect thought otherwise, and depended on the dovetail to keep his blocks in position. It can now be plainly seen that this was an unwise decision, as nothing can be found of these dovetails, though they are supposed to have been of wood; at any rate, they were useless, as the stones have retained their position on account of their great size and weight, and not on account of the connection devised by the builder.

No one can see the present condition of the foundations under the Arch of Titus (Fig. 4), under the Temple of Romulus (Fig. 10), or the large concrete base shown in Fig. 7 without realizing how immeasurably superior they are to the foundations under the Temple of Castor, just described. It may be that the Romans, in their day, did not appreciate the full value of concrete, notwithstanding its general and continual use. If they did prefer other methods, but on account of cost or expediency used concrete, then they certainly builded better than they knew; and if there was any doubt in the minds of the Romans as to the length of life of concrete, the present condition of the concrete put in by them can leave no possible doubt in our minds as to the value of concrete as an enduring construction. In the few examples here noted it has been shown that it can successfully withstand the most trying test known to the builder—the test of time—and this reaching over no less a span, in human knowledge and experience, than twenty centuries.

Any statement leaning to the view that concrete is a new or an untried material is about as far from the actual facts as it is possible to get. If we



Fig. 11.—Temple of Castor and Pollux.

have failures in concrete construction the blame must be laid directly at the door of the individual, who by his failure, has proven only that he is quite unfamiliar with the material he has essayed to use. The silent and sturdy witnesses in the Roman Forum and on the Appian Way give convincing testimony as to the efficiency and durability of concrete. Looking back through the centuries in which this

character has been so notably maintained, we must see that here is a material on whose merits we can form a definite and certain judgment, and the judgment thus formed impels us irresistibly to the conclusion that we have no building construction which, viewed from any standpoint, measures up to the incomparable standard established by concrete.

Alfred Hopkins.



Fig. 12.—Indicating perfection of joints.



Fig. 13.—Showing dovetails in foundations.

The Draughtsman*

A little group of English men and women were gathered on the piazza* of an Italian cathedral town, admiring the slender, graceful lines of its beautiful Campanile. "How I should like to have been the architect!" remarked one of the ladies. "I rather envy the draughtsman" replied a tall, patriarchal man to whom the rest all deferred. It was John Ruskin. Times have changed since then. Our architecture, its aims and purposes, its characteristic forms of expression and the influences affecting it, have been exhaustively discussed while the architect's training, standing and achievements at home and abroad, have received their share of attention. But the poor draughtsman, "the man behind the gun" so to speak, to whom is due the evolution of both, seems to have been utterly ignored. He is regarded simply as a "necessary evil" without position.

It seems hardly necessary to prove that he should be given a chance to reap the reward of his hardly-attained knowledge and that this reward should be proportioned to his ability and experience. That he does not obtain such reward is amply proved by the prevailing conditions. In the early days of building draughtsmen were apprenticed for a term of four or five years, receiving no compensation during the first year and gradually advancing in succeeding years to an average of ten dollars a week as they acquired the necessary practice. In return the architect bound himself to impart to the apprentice the principles and some of the routine of the profession with a steady position at the end of his apprenticeship. This was almost a universal rule in our best offices being borrowed from time-honored custom abroad where it worked well, as it did in this country also. Such men as Richardson, Upjohn, Eidlitz and Hunt profited by and sanctioned it by practice but it survives in but few offices to-day.

*Piazza is here used in its Italian meaning, "a small square"

The procedure necessary to become a draughtsman today differs widely from the course of study which must be pursued if the seeker desires to become a full-fledged architect. To attain the latter noble position, it is essential to take a course of from four to six years of study in one of our technical schools and then by the aid of political or socially influential friends to secure a place in the office of some architect of wealth and high social standing. Should the experience of being a draughtsman not be his liking, this college course may be supplemented by attendance at a foreign school, preferably the Ecole des Beaux-Arts in Paris. This *cachét* acts as a patent of nobility in his case and with social position or financial influence he succeeds like magic. But it is to the average draughtsman that attention is here directed. Many members of this large and constantly growing class are the products of those "hot frames" called correspondence schools, "hybrids" of the night classes in our public and semi-public and trade schools, graduates from the classic curriculum of the successful speculative builder, or "mushroomed" from the furniture and interior decorator's shop. The average draughtsman must begin to earn money too quickly to afford time for thoroughness upon which moreover, no great premium is placed. The emphasis on training abroad is placed and placed heavily on thoroughness. The young man just out of school with no technical training and no means to pay for it, may begin as an office boy, or if somewhat proficient in his school drawing, may become a tracer at from five to eight dollars a week. If he shows marked inclination and develops proficiency he is promised advancement. His training consists largely of office tasks, blue printing, running errands and tracing. In his spare time he may be encouraged to copy Vignola or study from photographs and some of the older draughtsmen may help him when not

busy but he is not encouraged to any extent. He may achieve ten or twelve dollars a week in time only to be "laid off" or "fired" in the dull periods now so frequent. With a queer hodge-podge of ideas, some idea of drawing and tracing and little knowledge of any practical value, he is thrust out into the building world, a draughtsman—*forsooth!* The army of young men turned out by the night schools and correspondence classes cannot aspire to positions in the best offices and as "scrubs" or "hacks" to use office slang, they are at the mercy of the speculative and frequently unscrupulous branch of the profession. They are the menace of the capable draughtsman of to-day, and they cannot hope to rise higher.

An occasional but rare opportunity is offered by competitions to the exceptional young man of natural ability. These opportunities are sometimes instituted by wealthy individuals but in the public competitions have degenerated into political tugs-of-war when controlled by municipal, State or Federal officials. For the average draughtsman success is attained, if at all, at the expense of health and eyesight. Conditions producing such results cannot be called ideal nor beneficial, nor do they make for good architecture and safe building.

Without going into the merits or demerits of the system and courses taught at the *Ecole des Beaux-Arts*—the so called *Beaux-Arts* methods—it seems proper to consider the effect of imparting these methods upon the large number of draughtsmen who have never been abroad and who consequently graft the superficial manifestations of some of its teachings upon their meagre store. A small but rapidly growing number of our practising architects have studied at the *Ecole* and returning, have here and there instituted an *atelier* in imitation of their Parisian confrères. Some of them have taught employed draughtsmen in the evening, giving personal criticism and instruction, with occasional prizes and diplomas for good work in competition. But few draughtsmen can afford this instruction long enough to really acquire

thoroughness and expertness in design and as a result acquire but few of its virtues and all of its defects; these latter are chiefly a certain "sloppiness" of line termed "sketchy," facility with a soft pencil upon paper, termed "artistic" and great freedom with color in adding unimportant details and backgrounds. The result is unsatisfactory and not to be commended.

Some instances coming under the personal observation of the writer, who had the benefit of such instruction to an extended degree, may not be amiss in showing the results of this strange admixture. In the office of an architect trained under the American *atelier* system a draughtsman was recently discharged for "in-artistic" line work in drawing a transverse sectional working drawing although the drawing and the scaling were admittedly correct and good. Another man was condemned for the way his shadows were rendered upon a set of working elevations of a hurried job.

That clients do not always agree with the architect's demands was well illustrated to the writer's knowledge, when the wife of a wealthy New Yorker demanded that only plans and elevations of the walls of her rooms, be prepared to show the scheme of decoration. She rejected the usual highly colored perspectives "which" she said, "serve only to deceive." With the plans and elevations I can really judge how my rooms are going to look." Few clients are so intelligently posted however and most are talked into easy compliance with the habitual methods.

Draughtsmen with the large furniture and decorating firms are usually better paid considering their experience and knowledge than the architectural draughtsmen but their hours are those of the factory and they usually lose all holidays and vacations. They must be specialists, that is sketchers, renderers, or detailers to surpass the ordinary wage; for no smattering of classical or periodic ornament will suffice. Foreign influence in this line is widespread, nay supreme and the only chance for future draughtsmen here lies in the increasing vogue of the "Modernists," for example, Sullivan

among the architects, and Gustave Stickley among the decorators.

The Germans were the pioneers in our cabinet and interior woodwork and together with the Swiss and Italian carvers, have first choice of positions to-day in the large factories and decorating shops of America. The head men and managers are nearly all Germans, have a manner of detailing peculiarly their own and secure results to the exclusion of all but the German-taught workmen. They employ fine detail complex jointing and intricate fitting and setting-up which requires the thorough German training of the draughtsman and expertness on the part of the ordinary workmen. The English method and the French (from which the English was largely copied) seems equally beautiful and strong to the writer are simpler and less "finicky" and do not require such expert workmen nor such costly detailing.

It seems to the writer very important that some system should be established of equitably adjusting the salaries of draughtsmen according to their real ability and experience. Our architectural development should be as carefully looked to and assisted in this important factor as in others less vital but perhaps more obvious. From a legal standpoint the architect's fee is always assured; not so, his draughtsmen's salaries and cases of large arrears in return for weeks and months of hard work, with no legal re-

dress are all too frequent. The building public share with the architect the blame for this state of affairs. The draughtsman's position, from every standpoint anomalous, seems to be that of a "necessary evil."

A remedy for evils of long and steady growth does not seem easily nor quickly found. Every draughtsman should be afforded the opportunity to become an architect but no architect should be allowed to practise without a certificate attained by passing a series of graded examinations conducted by a Council or Institute of men, high in the profession. The grade of examination successfully passed by the draughtsman should determine his salary within a reasonable time-limit not too short for thoroughness. These suggestions are not offered as a complete solution, but they would be steps in the right direction and might result in securing for competent men salaries more nearly equal to those received by competent men in other professions—in one word—justice. The good draughtsmen are doing heroic, pioneer work to the best of their ability and they keep on more from a deep abiding love for their profession than for the inadequate wage they commonly receive. The writer is most thoroughly and heartily at one with them in their efforts and trusts to share with them better days in the future.

F. W. Moore.



GEORGE PORTER FERNALD

THE TOWN OF LETOJANNI.

Entrance to Lemon Orchard near the Ionian Sea.

Truth and Tradition*

It is not given to everyone to be a genius. Hindered as he was by the perversity of clients whose tastes usually differed from his own, by the meagre funds placed at his disposal, by unfavorable sites, and, above all, by his own imperfect talent (whose limitations he was the first to recognize), J. W. Brownie had been accustomed to design churches, residences, bank buildings and what not, to the fullest exercise of his limited powers and with all the ardor of a tyro. Yet for these, and other reasons, his work was not always of the highest originality. He consoled himself, however, with the thought that the Parthenon itself was only the copy of an earlier temple—a fact which did not, after all, prevent that building from acquiring a certain vogue among lovers of art. But since reading a recent magazine article, urging him in the most persuasive terms to believe that this way of designing was hopelessly bad, his peace of mind was at an end. For it is too true that ignorance is bliss.

The reading of this article was the beginning of a long period of uncertainty, and this began with the article itself, in spite of its promising title. As anxious as anybody to establish a national style of architecture, he found embodied in the article the following illuminating arguments

1. *An Indian war dance on the tomb of that unfortunate Colonia! Architecture which he had so far used without remorse and to the great delight of his lady clients.*

2. *The sad story of an unfortunate houseowner, deprived of a free circulation of air by the machinations of a wicked Beaux Arts architect; a melodrama worthy of being published in the same collection which includes "Dolor-*

ous Dick" and "Thirty-five Years in Captivity."

3. *A strong arraignment of the practice of casting shadows at 45° on the elevation, with reflections on the malice involved in putting statues in the plan which you do not afterwards show on your elevation. Also the fiendish malignity of showing water in perspective.* And that was about all. Nothing was said as to what the author might really mean by "truth," and he found especially no rule for determining when a thing becomes, or ceases to be, truthful. But this was not enough; for however well "truth" may sound, it is not on fine words that one builds the smallest work of art. Therefore, Brownie had to go elsewhere to find out about truth and directions for using it.

First of all, he went to an eminent archaeologist, an undisputed authority in everything which pertains to antiquity. Full of the majesty of the centuries gone by, this great man regarded Brownie with disdain for his implied suspicion that truth should be sought for elsewhere than in Greek art. "The last word in art was said," he remarked, "when, in the fifth century, before our era, the Parthenon sprang from the rock of the Acropolis like Athens in full panoply from the brain of Zeus. Those ignoramuses of the fifteenth century, who imagined they were continuing antiquity, have, in reality, created forms that no man of taste would care to discuss."

"I believe, myself," continued Brownie, "after my careful study of the papers of Mr. Barney, that the architects of Florence and Touraine were mere bad boys, who 'tortured and twisted' classic forms until their true functions had been entirely lost sight of. And yet, if architectural truth consists only in using forms in accord with their functions, why did the Greeks put in their friezes triglyphs, which are the

*This article is written in answer, or as a continuation to, as the reader may choose, of the article in November issue by Mr. J. Stewart Barney—"Our National Style of Architecture will be Established on Truth, Not Tradition."

ends of non-existent beams; or why did they put in marble the ends of the rafters of their roof; or why, again, did they copy carefully the wooden pins which had been used to fasten the furring of the boards in the old temples built centuries before the Parthenon?"

Brownie would have continued his questioning longer, but the eminent archaeologist, whose face had shown an increasing disdain, remembered that he had an urgent engagement. Our despondent architect began to believe the Greeks were perhaps not more truthful than the architects brought up in the Ecole Des Beaux Arts, so he went right away to a famous architect who makes his reputation by repudiating all the classic past. "I have," said Brownie, "abjured my past errors, and I will, from now on, design all my buildings in the national style of architecture; that is to say, the architecture based on Truth. But where shall I find the Truth?"

"My young friend," answered the famous architect, "have you not happened to come across any of my writings, or have you never seen any of my work reproduced in the architectural papers? I think I have demonstrated to everyone's satisfaction that Truth dawned for architects from 1327 to 1469 inclusively. Before that, all is barbarism; after that, untruthfulness. Of course, you must understand that it is only within the limits that I surrounded with a red line on this map that Truth appears. Don't look for it elsewhere. After that period the human mind went to sleep up to the time I began to build myself. Study Gothic art; there only will you find logic and Truth."

"I am sure of it," said Brownie. "However, some points still seem obscure. Why, for instance, considering the logic of the architects of that period, did they find it necessary, when they needed a tower into which to put the bells, to build another, or several others, at great expense, only to leave them empty, open to every wind and haunted by birds and spiders? Why did they sometimes roof those towers with acute pyramids of stone, open, like lacework,

to every rain? Why did they use, at the same time, and sometimes in the same building, steeply pitched roofs and flat terraces? If one of these processes of roofing be logical, the other is hardly defensible. Why do the fronts of the cathedrals hide so carefully the real shape of the building behind a screen of meaningless horizontal lines? Why do we find the gable, if it is, as Mr. Barney says, 'the truthful expression of the end of a hipped roof,' used as a wall decoration? Why make in churches triforiums, where nobody ever went since the gallery of the Roman Basilica was contracted to the dimensions of a two-foot passage?" Or, if we consider modern adaptations of this traditional architecture, why do Gothic architects now use piers which seem to be built of stone and which, like new Trojan horses, hide their real strength in the steel columns which support their vaults and roofs?"

"One moment," said the celebrated architect. "You do not seem to understand the basic principles of architecture. There are truths to be obeyed, it is true, but there are other considerations to be accorded a higher place, such as symbolism."

"Where shall I then draw the line?" asked Brownie. "Will not one of those wicked Beaux Arts architects tell me that his balustrade, 'up in the air, on a solid base, three times its own height, while the directors' room is ten feet below,' symbolizes the efficacious placing of the funds on deposit in the bank out of reach of some too enterprising director * * *?"

But the famous architect was already far away, and Brownie began to think that our predecessors seemed to have really cared for Truth about as much as does a sheep for a pair of cuffs. "I begin to fear," reflected Brownie, "a na-

²The author of the November article will not be offended if I correct one of his statements pertaining to architectural history. As he makes a profession of despising tradition, he is, of course, more excusable than anyone else for ignoring it. The balustrade used on the roof during the Renaissance period and after has no Roman prototype. It is a Gothic invention, and, what is worse, it is Gothic architects who first give us bad balustrades, useless on account of their location, or used simply as a wall decoration.

tional architecture not established on tradition and not embarrassed with precedents has little chance of development so long as men remain what they are; that is to say, very much like their forefathers. For, if in the course of the thirty centuries that we know, they have obeyed laws which do not seem to have always been dictated by a love of truth, it seems that it is not to deal in 'theory' like a university professor, if one believes that they will continue to do the same in the future. It is men, then, who must be changed, as Mr. Bernard Shaw declares."

Brownie then began to study the works of that well-known dramatist in order to discover some way of improving imperfect human nature. He found first something which shook slightly the faith put into his soul. "Here, then, as it seems to them, is an enormous field for the energy of the reformer. Here are many noble goals attainable by many of those paths up the hill difficulty along which great spirits love to aspire. Unhappily, the hill will never be climbed by man as we know him. It need not be denied that if we all struggled bravely to the end of the reformer's path we should improve the world prodigiously. But there is no more hope in that *if* than in the equally plausible assurance that if the sky falls we shall all catch

larks." "Men like Ruskin and Carlyle will preach to Smith and Brown for the sake of preaching, just as St. Francis preached to the birds and St. Anthony to the fishes. But Smith and Brown, like the birds and fishes, remain as they are." And further on: "Our only hope, then, is in evolution. We must replace the Man by the Superman."³

Brownie was dumbfounded. "Our only hope, then, is in evolution!" Evolution is a slow process, and the prospect of knowing that superman, forty thousand years from now, will perhaps build truthful architecture, is a rather comfortless contingency.

Meanwhile, as he had to build, being an architect, he set himself again to the task of designing churches, residences, bank buildings and the rest as well as he could, though still hindered by the tastes of the clients which were not always the same as his own, by the meagre funds put at his disposal, by unfavorable sites, and, above all, by his own talent, of which he was the first to recognize the limitations. . . . Everybody cannot be a genius.

Paul P. Crét.

³The November article, which advocates war to everything which savors of classicism, is placed under a quotation from an author of the eighteenth century. We will then be excused for defending tradition with quotations from an ultra-modern writer.



A fountain in Taormina.

The Superiority of the French-Trained Architect*

It is to be regretted that in this twentieth century opinions relative to the teachings of the Ecole des Beaux Arts do still appear from time to time in print, voicing the sentiments of a small clique of malcontents of some fifty years ago. The patient and probably irresponsible public are again inflicted with a rehash *ad nauseam* of the time-honored Violet-le-Duc pet theories. That most militant apostle of the anti-Ecole propaganda exposed his views on architecture, it must be admitted, with a vigor of style, a precision and clearness of expression, so eminently French, that his words were well worth reading, both for literary merit and novelty of idea. Why, however, should his theories in insipid counterfeit, shorn of their novelty and the magnetism of the master's mind, be again thrust upon the reading public?

To Violet-le-Duc, the able champion of a period of great architectural achievement, we owe much. His passionate appeal for the preservation of the great monuments of the Middle Ages, was a factor of the first importance in widening the architectural horizon of his time. Imbued with a sort of architectural national fanaticism, he regarded only that French art national which preceded the sixteenth century. In this idea we concur so little as to be of the opinion that American citizenship cannot be applied properly but to a full-blooded Sioux or Pawnee, or, that American architecture can be called such only if developed from the tepee or wigwam. The ancient Gauls were ardent patriots and defenders of the soil, and from Cæsar's commentaries we infer,

*A proposition to be qualified of course. The data in the shape of mental and physical aptitudes must be equal to demonstrate the excellence of one method of training as compared with another. In other words, that there be no misunderstanding, let the premises read "The Superiority of the French-Trained Architect, everything being equal."

closely resembling in racial traits their modern French cousins. To be truly national; then Violet-le-Duc should have stepped still another few centuries back into the past and counseled the rehabilitation and perpetuation of the Celtic Dolmans.

In point of fact change, evolution, metamorphosis are universal conditions and apply to man and his manner of thinking, his body and the products of his genius as to every insect of the earth and to the earth itself. Architecture is the great national manifestation of a nation's manner of thinking or in other words of a nation's civilization. There is no reason why the American people should have one architectural form or idea of composition thrust upon them more than another. We are said to be a free and self-reliant nation, a race blended of many. In that blend certain bloods prevail. The percentage of English, Irish, German, Scotch, Scandinavian and also Italian stock is found to a large degree in our makeup. It cannot be said that Americans of French extraction or descent preponderate in numbers. In point of fact the amount of French blood in the American nation exists in a relatively insignificant quantity. Any influence that would come naturally through blood ties therefore would be rather prejudicial to France than otherwise, in so much, at all events, that England and Germany have always combated French influence, and have been antagonistic in race feeling for centuries. Let us say however, in behalf of England that recent years have witnessed a "rapprochement" between her and France, which if persisted in, can act only for the betterment of the two countries. Nor can it be said that we Americans, as a people, have a feeling of gratitude towards France, for the part she played in our war of Independence to a degree, that would incline us to a

preference for all things French to the detriment of our own interests. Then, neither from race affiliations nor from national traditions are we susceptible to French tendencies. There must be something therefore in French thought and accomplishments that appeals to us purely on its merits. This thought and these accomplishments must then either be worth while or we must admit that the level, shrewd, discriminating American head is a vain boast. For the sake of our *amour propre*, let us suppose if for no other reason that they are worth while.

We see the American borrow rapidly from his neighbors, appropriating what best meets his requirements. With his genius for organization, as applied to production and business methods, he excels the European in many ways. He is absolutely unbiased in his selection as a buyer. English, French and German goods receive his patronage along the lines that appeal to his wants and to his likes. Now as it happens the goods that the French people are blessed with and in many instances to a greater extent than other nations, are things immaterial. We mean to say ideas.

The French are preeminently a race wedded to ideas and to ideals. For centuries one of the chief manifestations of their aspiration has been in the domain of art where they have excelled and continue to do so. The French are masters in expression, and art is but the dramatic setting of a need, an idea, a desire. The influence of France is felt in all parts of the world, not through the relative small number of French emigrants or their descendents scattered over different countries, or through the extent of her commerce, which, in the immense volume of the world's goods, is insignificant, but through the pre-eminence of French thought. That influence concerns us in this paper solely as applied to the arts. Architecture is certainly an art peculiarly sympathetic to the constructive tendency of the French mind and has always been treated by them in an essentially constructive way. Logic, clearness and truth are as indissolubly welded to French architecture as to French literature or to any other mani-

festation of popular French thought. Voltaire aptly expressed French thought by his saying, "if it is not clear it is not French." Similarly, French architecture seems to say, if it is not constructive it is not French architecture, and by constructive architecture we mean simply an architecture exquisitely proportioned, of course, thoroughly grammatical and in accordance with the laws of statics, but supremely expressive of the sentiment it would embody. Just so much it means and no more. Whether we examine those delicious cloisters in the Provençal Romanesque, the mighty cathedrals of the middle ages, those luxurious shooting lodges of the house of Valois, the humble cabin of the Breton peasant or the stately palace of a Louis it is invariably that dominant constructive sense peculiarly French which prevails. *La raison d'être* is the pass-word in any composition. A building that cannot answer with a "parceque" in every part of its composition and detail to the "*pourquoi*" of the critic is a building at fault. It is note-worthy that French thought is eminently critical and analytical. No public building is erected without running the gauntlet of the competitive talent of France. The results have been and are such as to appeal to the American mind. We like French thought, its lucidity, its vigor, its charm of expression and we do well to suffer its influence. We should however, as the French most emphatically advise, seek for ourselves an expression in our architecture compatible with our climate and our mode of living. An expression in our architecture which will unmistakably stamp a work as American will undoubtedly come in time. No one man makes a nation's architecture, and an infant must creep before it can walk. Still in the matter of interpretation the nations do grow to resemble one another. The climatic conditions of France are not so very unlike our own. There are some points of difference in the modes of living but these are not fundamental. Why then is there such a protest against the design which for the same purpose could with equal propriety have been erected in New York or Paris?

The architectural expression as found in different countries is determined by three conditions; climate, materials, and traditions. The climate naturally controls the sort of building and the tropics and arctics give different solutions to the same problem. The materials add to the local character of the building, for even to-day with our great facilities of transportation the local materials prevail. Tradition is inherent in the habits of man and cannot be eradicated. Our materials and climate impose certain conditions upon us as do our traditions, for we are but emigrants from other lands, which also had traditions. Our architecture, therefore, is no more individual than our literature, our painting, our sculpture, our music, or any other of our arts. It has some nationally personal qualifications that distinguish it but it has no nationally original ones. The teachings of the *Ecole des Beaux-Arts* are, as indeed are all teachings, purely scientific. Teaching does not create an imagination where there is none although it should and does foster one when there. The teachings of the *Ecole* as applied to architecture are along the lines of composition. The program which the student must solve in the atelier will in later years become the program submitted by the client. How to solve an architectural equation in the most architectural way, that is the problem. And that means in the most expressive, intense, virile, dramatic way. Sta. Sophia at Constantinople and Notre Dame at Paris are vastly different in their architectural expression or envelope, yet the programs for both are admirably met, and the religious rites inherit in the homes of these great faiths splendid accommodations. The character of the envelope will be determined as we have said by climate, materials and traditions, but the scheme, the "*parti*" will be in the hands of the architect. It is for him to establish those ratios of proportion that will make the building supremely "It." The clothing of the ideas then, in functional and decorative parts, will further contribute to the effect of the complete work.

It is a composition therefore, that is

the key stone of the *Ecole*-Teaching. It is epitomised in Guadet's "*Elements et Théories de l'Architecture*." The ateliers of the school reflect these teachings and add that personality of touch and expression, which is inherent in their traditions. The students are proud of the traditions of the atelier. They realize that all human knowledge is built from the ground up. That perhaps Adam was not aware of the spherical form of Old Mother Earth, nor of the constructural features of the Wright aeroplane, that all knowledge is based on tradition, that man is a tradition himself in a link of tradition, that truth is based on tradition and without tradition there could be no truth. The very fact that we are on the earth today is by an act of tradition. The splendid architecture of ancient Greece was supremely an architecture of tradition and very substantially founded on that of the Egyptians. To proceed to do anything without tradition is an impossibility. The materials which we are using have been manufactured and used before. We study them, that is we study what has gone before, (tradition) and we seek to improve. Tradition must be the foundation, the "*point de départ*." To build without tradition is to be built without the use of any of the present materials in use, it is to build houses without roofs, walls, cellars, or foundations it is to build without the use of our hands, our eyes and our feet, and supposing such houses miraculously erected, they are not for us, for living in houses is tradition. It is unnecessary to go into a reply in detail to show the absurdity of the statements made in The Architectural Record in the article entitled "*Our National Style of Architecture will be established on truth, not tradition*."* There seems to be such a want of sincerity and good faith on the part of the author of this article, that it hardly deserves comment. Something should, however, be said for the reading public in reply to certain specific criticisms, perfectly understood by the profession but on which the uninitiated might look with semblance of credulity.

*November, 1908.

On pages 384 and 385 of that article, mention is made of presentation and of perspective effects. The presentation of architectural drawing is purely conventional and is bound to remain so, even as architectural drawings themselves must remain conventional. Designs from time immemorial have been projected on three planes of projection. The horizontal, vertical and profile planes according to the laws of descriptive geometry. For the sake of making the drawings easier to understand, shadows are cast on the elevational and sectional views. The rays of light are assumed of the same angle as that of the diagonal of a cube which has its sides parallel with the horizontal and vertical planes of projection. The horizontal and vertical projection of this diagonal is therefore seen at 45 degrees in plan and in elevation. Any other angle of projection would do, provided the angle was adhered to for all parts of the same drawing. The relative effect would be the same. The angle of 45 degrees however, is the most practical, as it is by far the easiest to construct in projection. There is also another advantage, namely, in using this method objects are given their real relief and when one has grown familiar with this conventional representation it is very easy to read the relative value of the component parts of a design. Architectural drawings are not made as pictures for the public. To the uninitiated they are false and misleading. An architect must see his building through drawings in some such way as the musician perceives the symphony through the score. An architectural drawing may itself, of course, be a remarkable piece of draughtsmanship and in-so-far, simply from the point of view of a decorative bit of ink and water-color, a sort of work of art. But it would have an insignificant value as such if it did not combine as well in the design the elements that would make it worth while if executed. The drawing is only a means to an end. It is not for the uninitiated. No amount of water color effects or ingenious indication, while they may illicit favorable comment and excite the interest of those good humoredly indulgent, can swing an

able jury of architects "into line." The plans, sections and elevations tell the story; the rendering if conscientiously done makes it easier reading, but only that. It is through the drawing that the experienced eye of the master-judge will see the building erected and pass on what he reads will be its appearance from all sides and at certain points of vantage due to its location. And at this point it is proper to speak of the value and assistance that perspective can render the designer and of the error he is subject to if he confides too implicitly in this means of architectural representation.

As has been stated architectural drawings are represented by means of orthogonal projection on the different planes of projection. By perspective is meant a conical projection of a design, or we might say of a model of the design upon a plane of projection. In perspective the apex of a cone of light or projecting rays is the eye of the observer who is at a fixed distance from the building and in the position he desires to occupy in reference to the building. He, may, and of course would, were he a competing architect in a competition, select this station point in such a way as to show the building to the best advantage. From some other point of view the perspective of this same building might show up very poorly. It is therefore apparent that the perspective of the building is necessarily taken at a definite distance from the building and at an elevation and angle that are also definitely fixed. In any other position the building would not appear the same. If the architect were dependent on perspective alone to form his judgment as to a design his duties would, of necessity, be extremely onerous before coming to a decision as to its merits, for a great number of perspectives would be required, and they would give only certain views of the building which would be of infinite variety of appearance with the changing position of the spectator. The great value of perspective, which as has been stated, is only a branch of descriptive geometry, using conical projection, is to facilitate the faculty of the student to see in space. No

building is or can be composed in perspective. But in the architect's mind as he studies in plan, section and elevation, a great series of perspectives are constantly before him and he grows more familiar with the real building through these air-castles, than would the layman before the plaster model.

Charles Garnier, the architect of the great Paris Opera, had full knowledge of what he was doing when he composed that admirable edifice. He foresaw and discounted the perspective effects. He realized the magnificent possibilities, born of his imagination, fixed on paper and executed on the job, before ground was broken, and *that* no end of perspective studies could do for him. A building like any object has certain points of vantage. It is unquestionably true that from certain positions a building has a peculiarly bold and imposing character. The profiles stand out to full advantage, the silhouette outlines in splendid movement against the sky. With conventional architectural drawing the public has no wish to concern itself, but the public should and does ask results in the erected building. The architects, (I am speaking of course of those who are qualified to use that title) do ask, when submitting drawings in competition, for jurys so constituted that the architectural profession is responsibly represented and therefore offered a guarantee for the impartiality and competency of the judgment.

America has nothing to be ashamed of in the past few years concerning her progress in architecture. Nor has she to apologize for her architects of French

training beginning with Hunt and Richardson, to speak only of those who have gone before. In spite of scattered and superficial criticisms, generally unwarranted and of a trivial nature, young men will continue to pursue their studies in our many splendid schools, which have found pattern in the Ecole des Beaux-Arts and are its proselytes. Tradition has, does, and always will form the essential part of that training, and the architecture of the future will continue always as that of to-day and of the past the missing link between the old and the new, as the greatest "*precursors*" of any time stand with their feet on the rocks of tradition while seeking the ineffable ideal perhaps within the clouds. Tradition is only the crystallization of the habits, manner of thought, and experience of a nation. Everything is subject to the laws of evolution, even tradition. But tradition is not incompatible with truth. It is a truth voiced by a great agglomeration. The laments and accrimination of individuals against following its lessons are hopeless.

The American people are primarily practical and I believe its architects are not an exception to the rule. Show then these architects something that will replace to advantage the present methods of indication and representation in conventional architectural drawing, and I am not sure they will not readily accept the suggestion. What is wanted is criticism of a constructive nature, fertile in results, not destructive and pitifully futile.

Theodore Wells Pietsch.

The Château of Montrésor

An irregular line of white houses, surrounded by gardens and orchards, lies on the side of a sunlit hill; a graceful château stands on the summit, protected by the ivy-covered walls and towers of a castle of feudal times; and an irreproachably limpid little river, gemmed with white and yellow water-lilies, slowly meanders through a vine-clad valley. Such are the essential features of Montrésor, which is on the right bank of the Indrois, a tributary of the Indre, some fourteen miles to the west of Loches; and on a sunny summer morning, especially when the orchards are white with blossom, or when the fruit is reddening on the tree, they form an unforgettable landscape.

Montrésor! Did village ever receive a prettier name? How it awakens your expectation on hearing it for the first time, and how delightful a picture it calls up in the minds of those who have been there, whenever it is repeated in after years! Place names are not, as a rule, the safest of guides to the natural characteristics of localities, but in the case of Montrésor the appellation is singularly appropriate. Philologically, it has, of course, nothing to do with either natural beauties or a buried treasure, though legend, which tells a pretty tale about King Gontran falling asleep on the banks of a stream, with his head on the knees of his shield-bearer, and dreaming of a grotto containing untold wealth, which he secured through the assistance of a miraculous lizard, puts in a claim for the latter derivation. It is derived, say some philologists, from the words *Mons Thesauri*, its name from the ninth to the eleventh centuries, and it was so called because it was then the property of the Treasury of the Cathedral of Tours. "Unless," say others, "it comes from *Mont tréhort*, *tressort*, or *trésort*—that is to say, the hill with three *cort* or *hort*, which means 'enceinte,'" In our opinion, the reference to the triple fortifications which crown

the hill is palpable. The former explanation is most probably the correct one, but, since it is always possible to point triumphantly to the fortified hill, I suppose there will never be wanting someone to take the opposite view. The fortifications of the Château of Montrésor are a very substantial reality, and form an excellent basis for a weak argument. You see the first of them on following the winding village street, and on coming face to face with the stout outer wall of the old castle. The second is not apparent until you have passed through the entrance and are within the ground. The third is the later château, which, however, in spite of its machicolated towers and its thick walls, was built more with the idea of serving as a residence than as a place to resist an enemy's attacks.

It is difficult to say who laid the foundations of the older castle. There was a Lord of Montrésor as early as 887, and he had a stronghold somewhere on the hill above the valley of the Indrois, but whether it had any connection with that which is still partly standing is not made clear by history. Even his name has not been handed down. Perhaps Roger, surnamed the *Petit Diable*, who was a strong supporter of Fulk the Black, had a hand in its construction. At any rate, he was one of its early owners. After his day and that of his sons it was owned by Henry II. of England, from whom it was taken, however, in 1188 by Philip Augustus. It next passed to members of the Chauvigny and Palluau families. In 1190 a Chauvigny, André by name, accompanied Richard the Lion Hearted, to the Holy Land and fought there with great bravery. At the end of the fourteenth century the castle belonged to the Beuil family, and one of the members, Jean IV. de Beuil, made considerable improvements to the outer wall, the way of the rounds and the towers. To make the place impregnable rather than agree-



VIEW OF THE CHATEAU OF MONTRESOR, ACROSS THE INDRHOIS.

able as a residence was the ideal of the men of those days.

But the time was drawing near, after the ownership of André de Villequier and his sons, the Lords of La Guerche, and others, when a change was to take place. Towards the end of the fifteenth century Imbert de Batarnay, the nobleman who then owned it, became dissatisfied with his prison-like castle, and, having had many opportunities, whilst

and its double enceinte, the only entrance to the château was on its western side, where a drawbridge led into a courtyard. The ruined walls of this entrance and the two towers which defended it still stand and form one of the most picturesque features of Montrésor. On passing through the gates you find on the right the stables and outhouses, formerly in the same style of architecture but now, with the exception of a



CHATEAU OF MONTRESOR.

Facade facing the garden with its row of orange and lemon trees.

sharing with Jean Bourré and Philippe de Comynes the lifelong confidence of Louis XI., of educating his taste for such things as fine houses, decided to build a new one. The work extended over a period of thirty years, the château, when completed, consisting of a large building, occupying the entire length of the plateau. Of this fifteenth-century residence only a portion remains—but a very interesting portion, with its mullioned windows, its ornamented dormer windows, and its spiral staircase. Defended by deep entrenchments

and its double enceinte, the only entrance to the château was on its western side, where a drawbridge led into a courtyard, considerably modified.

The mutilations which the Château of Montrésor has undergone were not wholly the work of men of turbulent ages. After passing through the hands of various members of the Batarnay, Bourdeilles and Beauvillier families, the château was sold, in 1831, to Count Jouffroy-Gonssans, who was responsible for the destruction not only of one of the wings, but of a chapel which faced the courtyard to the west of the existing building. That they were in a ruined

state is possible, but it is a pity they were not left standing for a few years longer, for they might have been partly, if not wholly, restored at the time that Count Xavier Branicki, who became the owner in 1849, undertook the general restoration of the château. To this wealthy Polish gentleman and to his nephew, the present owner of Montrésor, is due the credit of having put this historic house into the fine condition in which we find it to-day.

Count Xavier Branicki, aided by the judgment of his wife, did more, however, than repair the château's crumbling architecture. He turned it into a veritable treasure-house of art, and, what is unique among the château of France, French and Italian art devoted to Polish subjects. It was a strange experience, after steeping ourselves in the atmosphere of the Middle Ages and the Renaissance whilst viewing the château from various parts of the grounds, to step into that of the tragic and glorious history of Poland. Nowhere, when once you have crossed the threshold, can you direct your eyes without encountering some object which recalls either the sad or heroic days of that down-trodden country. Side by side with Paul Veronese's "Adulterous Wife" is Tony Robert Fleury's "Massacre of the Poles at Warsaw," and on the opposite wall of the same room is a picture representing a cardinal begging Sobieski, the King of Poland, to relieve the city of Vienna. John III. is the subject of the majority of the finest of the works of art to be seen at Montrésor. In the drawing-room, above a sixteenth-century Italian cabinet, are four magnificently carved oak panels, inspired by two of the leading events in the life of that valiant Polish sovereign. The first of these bas reliefs, which are from one to two yards in length and about a yard in height, depicts the victory gained by Sobieski over the Turks on September 12, 1683, whereby Europe was saved from the Mahommedans. The rival armies are engaged in a hand-to-hand struggle around the principal figures of the composition—John III. and the Grand Vizir Kara-Mustapha, whose

head is about to be cleft in twain by his royal adversary's upraised sabre. Sobieski's triumphal entry into Vienna is the subject of the second panel. Wearing his crown and royal mantle, the king advances towards the city across the battlefield strewn with dead and wounded. He is accompanied by his chief supporters, amongst others Prince Maximilian of Bavaria, Prince George of Saxony and Prince Louis of Baden. The third bas relief shows the victor's apotheosis. Sobieski, dressed like a Roman emperor, is being crowned by two women, one of whom holds a palm, the other a branch of laurel. The throne on which he stands, with his left hand resting on a shield bearing his national arms, is supported by five Turkish prisoners, who are attempting to break their chains; and the background against which his imposing figure stands out consists of St. Peter's, representing Christian Rome, and the statues of Bacchus and Pluto, symbolizing ancient Rome—the two cities in one which he saved from the infidel. As spectators, and as it were sanctioning the coronation, are two figures representing Heaven and Earth, one on each side of the throne, and near them a Roman soldier wrapt in admiration. The fourth panel completes the series in a very appropriate manner by showing within medallions, supported by allegorical figures, the portraits of John III. and a young man with long, flowing hair, holding in his hand a commander's staff. The latter is thought by some to be that Prince Eugene who fought under Sobieski at Vienna, and who became a field marshal in 1687, at the early age of twenty-four. These beautiful works were produced by Pierre Vaneau, a native of Montpellier, where he was born on December 31, 1653. He was a *protégé* of Mgr. de Bethune, Bishop of Le Puy, and was also commissioned to do many carvings, most, if not all, of them dealing with the exploits of Sobieski, for the princes of Poland. The Branicki family possesses other works of his at their Castle of Villanof, near Warsaw.

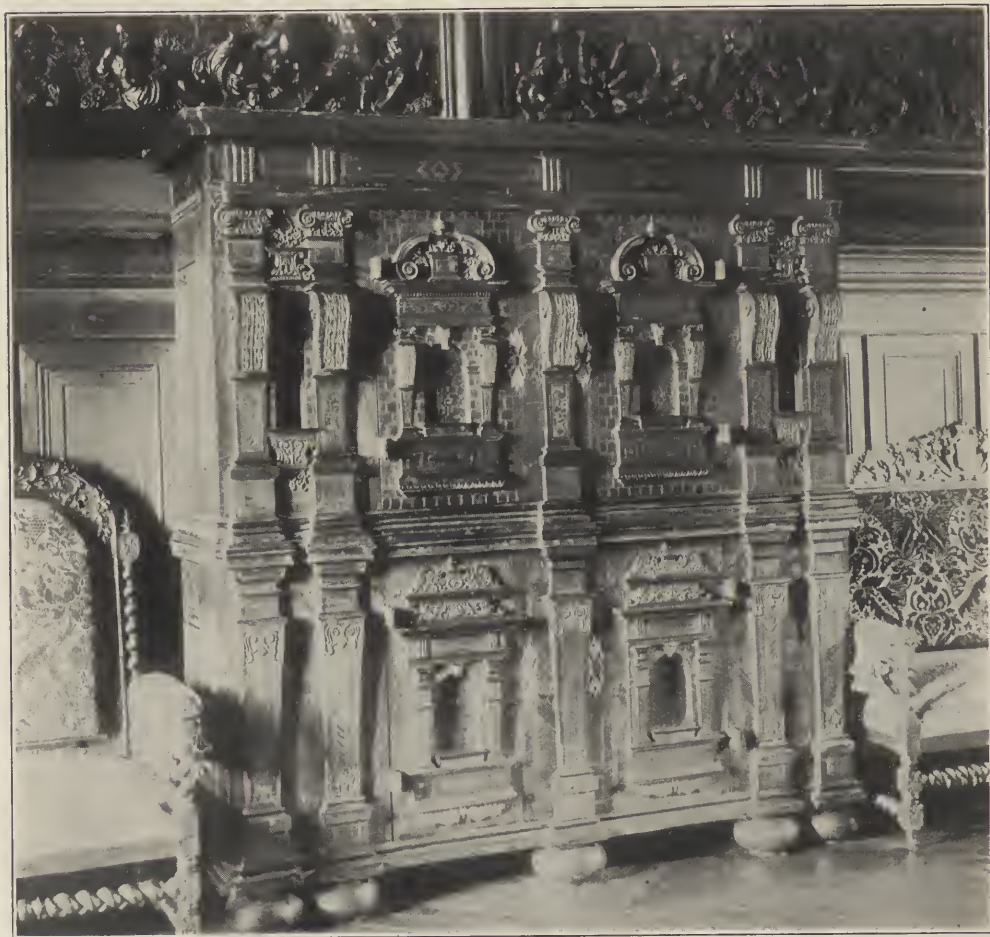
Priceless as these four panels are, they



DRAWING ROOM AT THE CHATEAU OF MONTRESOR.
The entrance to the treasure room is in the corner to the right of the fireplace.

do not constitute, however, *the* treasure of Montrésor. This is kept in a small adjoining room, to the right of the fireplace, on either side of which, by the by, we noticed family portraits by Ary Schaffer. The entrance is hidden and cannot be discovered, even though the woodwork of the corner be examined ever so carefully. Only those who are in the secret know which part of the wainscot can be slipped aside and the keyhole disclosed to view. Then, when the key is inserted and turned in the lock, a portion of the paneling gives way, swings silently and heavily inwards on its hinges, like the door of a safe, and allows you to pass through a many-feet-thick wall into a chamber which will hold at the most but half a dozen people.

It is lit by a small and jealousy guarded window, and against its walls stand the glass cases which contain the solid gold plate of the Kings of Poland. Solomon's golden vessels and those of the house of the forest of Lebanon made, surely, no finer show than these plates and vases and goblets, ornamented with exquisite designs, and bearing, generally in company with the crown and eagle of Poland, the names of the sovereigns to whom they belonged. There is a salt-cellar incrustated with medals which stood on the table of Sigismund the Great at the beginning of the sixteenth century, and which, owing to the beauty of its workmanship, is attributed to Benvenuto Cellini. A plateau, decorated with sixteen medals bearing the effigy of Sigis-



ANCIENT CARVED CABINET, 16TH CENTURY WALIAN WORK, IN THE DRAWING ROOM AT THE CHATEAU OF MONTRESOR.

Above are the sculptured panels by Pierre Vaneau.

mund II., dates from 1564; a larger one, resembling it in shape and ornamentation, from 1623, in which year it was made for Sigismund III., as can be seen from his portrait and monogram, an interlaced S and T (*Sigismundus Tertius*), on each medallion. The cylindrical vases are Nüremberg work of the seventeenth century. On the seventeen medals with which two of these are enriched are the profiles of Sigismund III.,

work that the goldsmith could produce. But what is the glory of all these objects compared with that of the principal piece of the collection—Sobieski's soup tureen? Here, indeed, is a piece of plate worthy of being set before a king! Its huge size, its beauty of workmanship, and its historical value combine to make it a work of unique interest. It was the gift which the city of Vienna made to John III. in 1683 in recognition



CHATEAU OF MONTRESOR.—DINING ROOM.

his son Ladislas IV., who came to the throne in 1632, Duke George of Saxony, Queen Christian of Sweden, and Fred-eric John Langerhens, a German nobleman. Similarly, a beer mug of pure gold recalls Ladislas IV., Ferdinand I. and Ferdinand II., the Emperor of Germany, and the first centenary of the Reform. The spoons, forks and knives, all made of the same precious metal, with the exception of the blades of the last named, also bear witness to their original owner's desire for the richest

of his victory over the Turks. Four bas reliefs depict the part played by the great soldier in that momentous struggle. One represents the meeting of the Polish chiefs when they decided to go to the aid of Austria; another, Sobieski's arrival; a third, the fight under the walls of the capital; and the fifth, the interview between the King of Poland and the Emperor Leopold after the battle. With great appropriateness, the legs supporting the tureen bear the arms of the leading chiefs of the Polish army.

The cover is surmounted by a statuette of Sobieski, in addition to being ornamented with his portrait and that of Leopold I.

That a treasure of this importance—(its artistic and historical value is any sum you like to name, provided it is not lower than \$2,000,000, whilst its intrinsic worth is perhaps about half that amount)—that a treasure of this importance, I repeat, should have aroused a feeling of covetousness in the heart of a dishonest

plated door, and that complicated system of electric burglar alarms which are believed to be proof against the smartest cracksmen who ever used a jimmy. The precautions taken twenty years ago to guard the treasure were, he said, practically nil. The guardian whose duty it was to look after it at night was notoriously fond of the bottle, and the nearer midnight approached the less capable he was, as a rule, of answering for his faculties. The treasure-room



CHATEAU OF MONTRESOR.—SMALL DRAWING ROOM.

visitor to the Château of Montrésor is not at all surprising. Some twenty years ago a daring attempt was made to steal it. The village locksmith, into whose jovial company we had the good luck to fall after leaving the castle, gave us a full account of the robbery; and that he was well qualified to do so is evident from the part he played soon after its discovery, for he it was who was called in to provide the treasure-room with its present ingeniously concealed and armor-

plated door presented not the slightest difficulty to the veriest tyro in burglary. And as to electric or other alarms to doors and windows, they were, of course, unheard of in that part of the country in those days. This state of unpreparedness naturally attracted the attention of those who are ever on the lookout for easy cribs to crack. One summer day a stranger arrived in the village and took up his residence at one of the inns, where he announced his intention of

the château and castle, whose walls—stopping for a few days “to study the antiquities of the district.” Archaeology was his passion. He made long excursions in the neighborhood in search of ancient buildings, such as the ruins of the Château of Villiers to the south of the Village; he meditated over the beauties of the Collegiate Church of Montrésor; and he went into ecstasies over

Taking advantage of the more than usually copious libations in which the guardian had indulged overnight, someone, who had evidently concealed himself in the château when it was closed for the day, the owners being then absent, had broken into the room containing the treasure and had made his escape through the narrow window with several of the most precious pieces of the col-



Funeral urn in the oratory at the Château of Montrésor, containing the heart of Claude de Batarnay.

especially those on the side where the treasure-room is situated—he was noticed to examine with all the love of a born antiquarian. The treasury itself, too, interested him not a little, as was observed on the one public occasion on which he was remembered to have visited it. Early one morning, some three or four days after his arrival, the big bell of the château sounded the alarm.

In case he was disturbed during his operations, he had prepared to sell his life dearly. Nearly all the weapons above the mantelpieces and on the walls had been removed and distributed in various parts of the drawing-room, so that wherever he might be, if surprised and driven into a corner, a dagger or a sabre would be within reach of his arm! Suspicion, in the mind of the now thor-

oughly sobered guardian, fell upon the stranger of antiquarian tastes, and as he was missing from his inn a hue and cry was set up after him. He had several hours start. Had he lived in the days of motor-cars that would have been ample to have enabled him to get away not only with what he had in his possession, but with the entire gold plate of the kings of Poland. But he had only his legs to carry him to Loches, so had to face the inevitable. Two detectives met him on the bridge in that ancient town and taxed him with the robbery. He blandly protested. Protest was, however, useless. They opened his coat, and there, one under each arm, were the golden plateaux of the two Sigismunds. He was sentenced, some months later, to twenty years' penal servitude.

Before leaving Montrésor to return to Loches and continue our travels along the valley of the Indre we visited the beautiful Collegiate Church which was founded by Imbert de Batarnay early in the sixteenth century. Its exterior is particularly remarkable for a beautiful entrance, with bas reliefs representing scenes in the life of Christ; its interior, for the still more charming tomb of the

Batarnays, a rectangular tomb ornamented with statuettes of the Apostles in niches and bearing the couchant statues of Imbert de Batarnay, Georgette de Montchenu, his wife, and François, their son. Some historians have said that the third statue is that of Claude de Batarnay, who, wounded at the battle of St. Denis, died in Paris on November 18, 1567, in his twenty-second year. But that is an error. There is no document to prove that other remains than his heart were brought back to Montrésor, and this, as we know, was placed in a marble urn in the church of his ancestors. It is now in a little oratory at the top of one of the towers of the château. For our special benefit the heavy lid of this urn was removed, the box inside was taken out, and the heart of the young captain was placed in our hands. It was a rare sensation, one we would not willingly have missed. To think that that misshapen ruddy mass, dried and hardened by more than three hundred years of repose in its faintly fragrant sepulchre, had once throbbed with the quick-flowing blood of a young man!

Frederic Lees.

A Thousand Island Estate

One of the most naturally beautiful localities where pretentious country homes have been erected is amid that portion of the St. Lawrence River where the so-called Thousand Islands occur. The opportunities afforded by the topography of the islands, the picturesque surroundings and the alternating vistas of land and water have long been appreciated by individuals of wealth seeking in their summer homes the natural advantages of such variegated scenery. Some of these pretentious homes are of such extent and cost as to place them among the most important dwellings in America while not a few are excellent examples of the skill of the architect and the landscape engineer.

One of the most picturesque of these places is upon Heart Island. Situated on the American or main channel of the river opposite Alexandria Bay, the island forms a conspicuous site for a structure of any kind. Advantage has been taken of its size and contour to erect a group of buildings which practically occupy all of the island with the exception of the grounds needed for the walks, gardens and immediate surroundings. These are so located that in places they literally rise from the water's edge. Thus the vista presented is not of a pile of masonry projecting above a forest or standing alone upon a rocky eminence and the effect of isolation so common in connection with the country home is absent. An idea of the magnitude of this place can be gained when it is stated that the plans include the erection of no less than eleven structures in all ranging in extent from the residence to the boat houses. Yet even the summer houses and miniature pavilions are formed of stone work as the illustrations show. Heart Island is indeed an imposing site for such a home as has been planned. Its forest covered sides though rising quite abruptly from the waters of the St. Lawrence are nevertheless broken into natural terraces which have been further graded

and leveled by the landscape engineer. Resting on the summit which forms the center of the island the château proper has a very impressive appearance resembling some of the mediaeval conceptions to be seen in the valley of the Loire. The foundation wall below the main entrance has been designed to project beyond the entrance and thus its roof forms a small circular veranda from which the porch rises supported by massive stone pillars. This entrance is toward the American channel and from the veranda to the water's edge extends a beautiful park amply shaded by the natural forest, through which winding paths have been laid out ornamented by statuary. Immediately adjoining the main structure to the east is an Italian garden which when completed will be one of the largest in the United States while in design and decoration it is a faithful facsimile of some of the famous works of Italy.

The main house has a front extending a distance of 160 feet facing Alexandria Bay while the average depth is no less than 170 feet. As will be noted by the views, the exterior walls are of granite, the upper part of the building being diversified with the turret towers and chimneys so characteristic of the French châteaux. From the northwest corner rises the main tower a lofty pile of granite terminating in a spire that reaches high above the roof. On the opposite or southeast corner the house terminates in a round tower or "keep," which is utilized as a pigeon loft. The exterior facing of the château is of a light granite secured from quarries on Oak Island ten miles distant. The quarries are owned by the builder of Heart Island and from them also came considerable material for the other structures. In addition to the stone the other exterior material is terra cotta, the roofing being composed of porous terra cotta tile.

The dimensions of the château accommodate an unusually large number of apartments. Upon the first and second

floors are the reception room, dining room, ball room, library and billiard room in addition to what is known as the main hall. This is very spacious and one of the principal features of the house, extending by means of a broad marble stairway to the third floor although elevator service is also provided. The bed rooms on the upper floors are sufficient to accomodate a house

nel crossed by a rustic bridge. This building which so closely resembles in design a mediaeval structure is put to the very prosaic use of a power house. It is provided with an electric generating plant for illuminating the grounds and buildings, for driving electric motors to be used in the chateau and for pumping water for domestic purposes. In it are also apartments for the engineers, ma-



THE ESTATE OF MR. CHARLES C. BOLDT.

Heart Island in the Thousand Islands.

Hewitt, Stevens & Paist, Architects.

1—Main House.

2—Power House.

3—Alster Tower.

4—Italian Garden, Terrace and Fountains.

5—Dock at Tower.

6—Covered Dock.

7—Promenade.

8—Servants' Dock.

9—Peristyle and Boat Shelter.

10—Swan Pond.

11—Fish Pond.

party of fifty or more guests besides the family, while in the rear of this building are the rooms of the house servants.

Next to the chateau proper the most imposing structure in appearance is the castellated pile standing on what seems to be the extreme eastern end of the island. In reality it covers an islet separated from Heart Island by a small chan-

nel crossed by a rustic bridge. This building which so closely resembles in design a mediaeval structure is put to the very prosaic use of a power house. It is provided with an electric generating plant for illuminating the grounds and buildings, for driving electric motors to be used in the chateau and for pumping water for domestic purposes. In it are also apartments for the engineers, ma-



General view showing house boat, water gates, keep at left of building and the main structure.
THE CHATEAU OF MR. CHARLES C. BOLDT.



NEARER VIEW OF THE CHATEAU OF MR. CHARLES C. BOLDT.
Heart Island in the Thousand Islands. Hewitt, Stevens & Paist, Architects.

Adjoining the wharf is a building utilized as apartments and club house for the servants also for an inclosed dock for power and row boats. It is over a hundred feet long and though constructed of less expensive material than the others, it harmonizes in design with the general scheme. Consequently the rear view of the island is as picturesque and

country seat, utilized it for several years as a residence. Standing on the very edge of the island, its walls are formed of a variety of brown stone. It rests on a base of masonry about twenty feet high approached from the four sides by flights of stone steps bordered by heavy balustrades. The lower part of the tower is enlarged by ornamental windows



THE ESTATE OF MR. CHARLES C. BOLDT.

The Power House.

Heart Island in the Thousand Islands.

Hewitt, Stevens & Paist, Architects.

as attractive as what is termed the front.

Perhaps the most interesting of the series of structures fringing the water front is what is called the "Alster Tower." It is designed in connection with the main entrance to the island and was the first work to be erected. In fact Mr. George C. Boldt the owner of Heart Island and the builder of this unique

and doorways but its principal entrance is by a spiral stone stairway reaching the second story. The top terminates in battlements which slightly project from the main walls. It is extremely picturesque in appearance and although on the lower part of the island its proportions make the tower a very conspicuous object as viewed from the river. It is intended

for recreation purposes and is of surprisingly large dimensions. On the first floor is what is known as the "Shell Room" so-called because of the shell shaped ceiling. It is used for dancing and musicales for guests, while in the basement below is a bowling alley. The floors above contain a billiard room, lib-

age. Skirting the edge of the shore is a water wall of cut stone interrupted by pillars at every few feet. In one portion of the wall stands a massive arch under which a branch of the river flows creating a lagoon surrounding nearly half of the island. The canal which it spans has one termination in a covered dock also



THE ESTATE OF MR. CHARLES C. BOLDT.

The waterfront at Heart Island showing a part of the lagoon with the Alster Tower behind the water gate.

Hewitt, Stevens & Paist, Architects.

rary, also a café and kitchen and the upper part of the tower is divided into several bed rooms with bath rooms.

On this section of the island the elaborate work in adorning and beautifying the land and water surroundings to the château can be seen to the best advantage.

built of stone which is large enough to shelter a fifty-foot boat. From the dock a path winds up the hill to the main entrance. The lagoon referred to is over 500 feet in length and 100 feet at its greatest width. On the outer side it is bordered by an embankment lined with

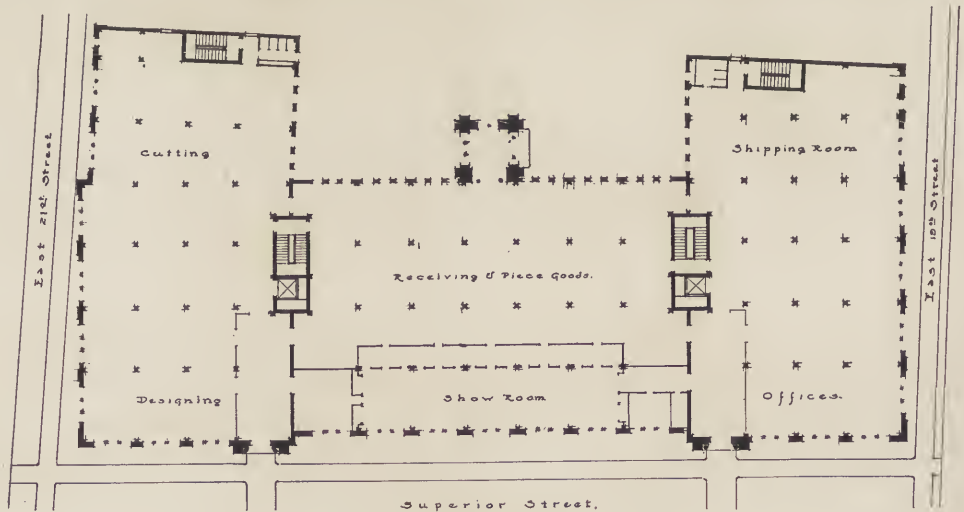
ornamental trees and shrubbery which are useful in strengthening the embankment although a rock wall protects it from the river current. This levee, if it may be called such, is used as a promenade and here and there is connected with the main part of the island by rustic bridges spanning the lagoon. At night the grounds are lighted with electric lamps making a beautiful spectacle.

The Italian garden is the most elaborate feature of what might be called the outdoor decoration. The contour of the island lends itself peculiarly to this feature the garden being laid out on a rock plateau at such an elevation that it can readily be seen from the river as it is over 100 feet above the surface of the water. As auxiliaries in completing the landscape vista, the summer houses and pavilions are essential. Composed of the variety of dark red sand stone that forms the tower, the power house and the water gate, they stand here and there upon the wooded avenues, the huge stone pillars supporting the ornate roofs resting in turn upon foundations of masonry while even the floors inside are also of smooth stone slabs.

While Heart Island is unusually interesting on account of disposition and character of the buildings on it, it is notable also as being largely the idea of its owner, Mr. Charles C. Boldt.

Mr. Boldt not only owns the island, but others in its vicinity, including a portion of Wellesley, one of the largest of the group, where he now has a large country home. When he decided upon the Heart Island project he had plans prepared by Messrs. Hewitt, Stevens & Paist of Philadelphia who as experts have also supervised the work of construction. This has not been done by contract, however, but largely by men in Mr. Boldt's employ under his own foremen and superintendents. As already stated, the stone was brought from his own quarries. It was finished for building purposes by the force of stone cutters and laid by masons he employed and carried to the island in his fleet of barges. Much of the sand needed came from sand pits owned by him. The wood work, roofing, paving, grading in fact all of the labor except some requiring special experts was performed by the force of employees in the employ of the owner. Consequently Heart Island is a striking illustration of how a man can make use of his own facilities in creating a country seat even on such a scale. Just what the total outlay has been is known only to the owner but it is calculated that for the improvement of this seven-acre island have been thus far expended fully two million dollars.

Day Allen Willey.



Cleveland, Ohio.

FACTORY OF H. BLACK & CO.

Robt. D. Kohn, Architect.

Architecture and Factories

Perhaps no field of building work has had so little of the serious attention of the trained architect as that of factory design and construction. Up to 1860, in this country, the manufacturing buildings were mostly modifications in size and detail of the ordinary types of houses. In the seventies there developed a type of building adapted from the heavier mill construction, which allowed of larger windows, and finally, under the encouragement of the mutual insurance companies, there resulted the so-called slow-burning type, excellent from the practical point of view, but devoid of intelligent attempt at good looks. As a result of many causes, including the rise in price of heavy timber and the reduction in cost of cement, reinforced concrete factory construction is to-day rapidly displacing the others.

Another important change has been the gradual recognition that in all but a few industries, low buildings, large floor areas of one-story height lighted from above, are preferable to high buildings for manufacturing purposes in all those districts where the cost of land is not prohibitive. With all this progress it is noticeable that little has been done to develop for manufacturing buildings an honest dignified distinctive type of design, such as a few of our architects are in the way of doing for our skyscrapers. It is true of the mill engineer and unfortunately, of many architects that they consider the proper method of beautification of a factory building to be the application of pressed brick and a stone cornice to the exposed fronts of buildings otherwise stupid in mass, arrangement and fenestration.

It would be unfair not to lay some of the blame for these conditions on the average manufacturer, who insists that his buildings need have no qualities other than practical ones. Fortunately, the number is growing constantly of those who have a different point of view. As one broad-minded employer recently ex-

pressed it "I don't see why I shall spend half my life in an ugly box of a shop and only have good looking things around me at home. I feel that way, too, about the people that work for me—as most of them can't have or don't have enough to have beautiful things in their homes, I ought to give them something pleasant to look at while at work." It is curious that most manufacturers should pay so much attention to the power and light of their factories, the entries for the raw materials and exits for the finished products and practically no study to the entries, exits and comforts for the most important contents of their establishments, the most important element in their undertaking: their employes. To be sure so-called "welfare work" is imposing itself little by little upon our manufacturers who sometimes even consider its acceptance to be a generous act (or in some cases, alas! a good advertisement). The writer feels strongly that the advantages of proper healthful working conditions, intelligent thought given to the life of the employe while in the establishment and even the beautification of his surroundings during that period may be demonstrated to be of as great economic importance as the handling of the raw material. The writer has frequently been called in to give advice on the "conveniences" of establishments already built because no one thought that these subjects needed consideration until after everything else was done. And these problems of the employe and of the administration are problems for the architect, to be considered from the start and to be worked out in conjunction with the engineer who designs power, light and heat.

If the writer may be permitted in order to explain his point of view, to refer to one building in particular, he would call attention to certain points in connection with photographs published in this issue of a particular Cleveland establishment for the manufacture of women's



FACTORY OF H. BLACK & CO.—VIEW OF FRONT.

Cleveland, Ohio.

Robt. D. Kohn, Architect.

wear. Of the ordinary details of arrangement and construction little need here be said; that the building is of skeleton reinforced concrete construction with brick exterior walls, that the big work rooms are lighted from above by saw-tooth skylights, that there are adequate staircases placed in the lines of dividing fire walls, that there are large locker and lunch rooms, fresh air supplies and foul air exhausts to the work-rooms; these are almost commonplaces of intelligent factory building to-day. But in this particular building more than this was attempted. It was hoped this

building might show it possible to build a common-sense, economical factory, practical in every particular and reasonable in cost, of simple, low-priced materials, and yet a building fairly *good looking* inside and out. This factory is probably built of exactly the same materials as a dozen others within a radius of a few miles, which are, however, lacking in any interest, and will always be a blot upon the landscape. The difference is that in this building an attempt has been made to use these same materials with skill, taste and what the owner once called "affection."



FACTORY OF H. BLACK & CO.—VIEW OF REAR.

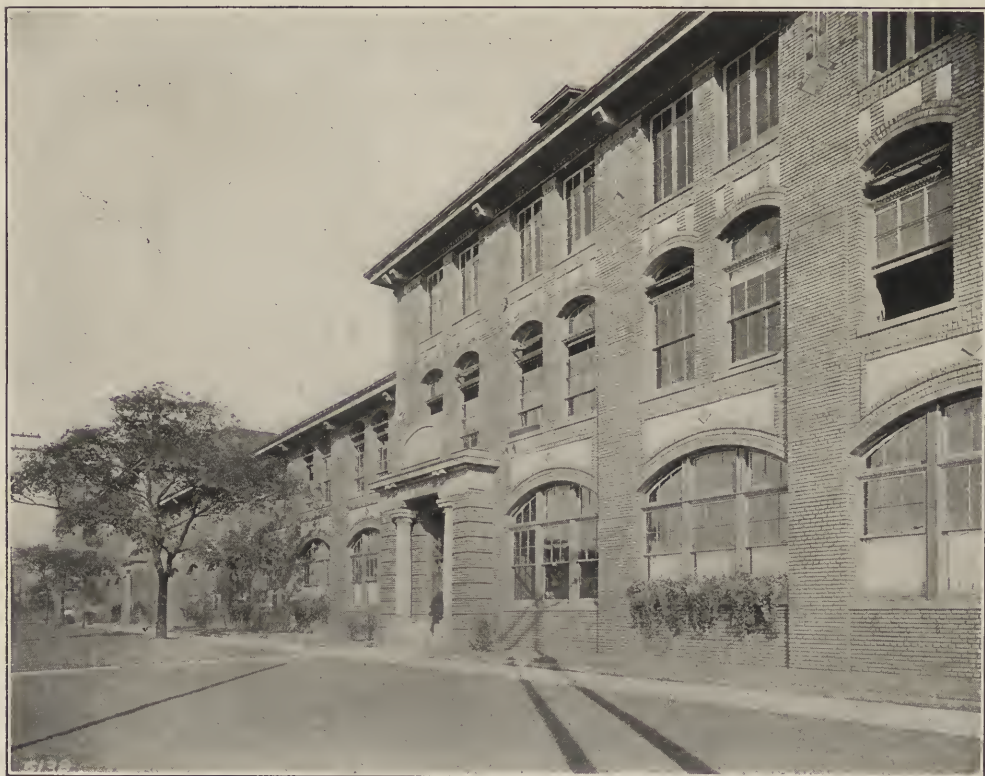
Cleveland, Ohio.

Robt. D. Kohn, Architect.

To cite but a few instances: The exterior walls are solidly of one kind of common brick. Not a facing of fancy brick covering up common brick, such as is so often the case. Such pressed brick facings usually cover merely the front of a building and then disappear naively around the corner where the wall becomes ugly and uninteresting. Here the same brick has been used for the outside of the wall as has been used for the body of it, only that this six-dollar per thousand common brick in the face of the walls is laid with a little more care and with wide, dark purple joints deeply incised, and the walls, therefore, have an interesting texture. This expedient can be employed in almost any building no matter how cheap. The contractors estimated the additional cost of laying this common brick with deep cut colored joint at about \$1 a thousand. The cheapest of pressed brick would have cost \$15

or \$16 a thousand for the brick alone, irrespective of laying. The sprinkler tank tower might have been the usual skeleton steel affair which plays so important a part in the sky-lines of our factory towns. The owners chose to build at a surprisingly small increased cost a tower of brick with panels of stucco and tile which incidentally afford space for a shipping room, rest room and considerable additional storage space.

There are decorations in colored tile under the main cornice in the panels of the tower, in the walls of the entrance hall, and even the bare rear walls of the factory (where the future extensions are to be attached) are made interesting by these inserted panels of blue and green. The total cost of this colored tile for the whole building, including the tower, did not exceed five hundred dollars. In the big work room, where nearly five hundred people spend the greater part of



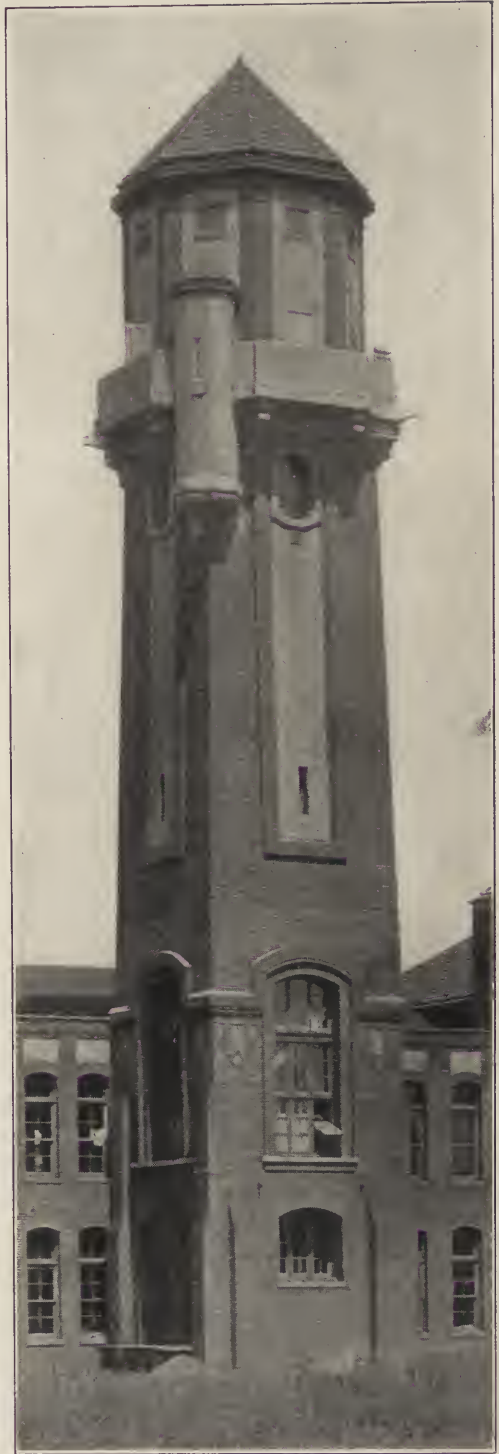
FACTORY OF H. BLACK & CO.—DETAIL OF FRONT.

Cleveland, Ohio.

Robt. D. Kohn, Architect.

their days, an attempt has been made at wall decoration—mainly applied to the tops of the concrete columns and the ends of the transverse concrete girders. It is in two flat colors, in a simple geometric "weaving" pattern, which relieves in a surprising manner the monotony of the white walls and ceilings. Two workmen with a stencil applied all this in a few days, and it cost something less than sixty dollars. It does not seem unreasonable to suppose that there are many factories in this country that could afford such a sum in order to give a simple indication of a desire to make its employes' surroundings good-looking, nor one that would not actually profit by an expenditure in some such way. It does need one thing beside sixty dollars—it needs trained thought. In this particular building the total amount spent on these "betterments," over and above the bare necessities of such a building, did not exceed seven per cent. of the total cost. This would include the increased cost of better brick laying, tile roof, stucco and tile panels, tank tower, etc.

The writer does not for a moment wish to be considered as holding up this particular building as being the "last word" in factory design. We know of a number of admirable factory buildings recently erected in the United States. There are some splendid power-houses along the lines of our "electrified" railroads, the dignified structures of Mr. Wright at the Larkin works in Buffalo, the interesting Fleischman group on the east bank of the Hudson, and others. But, after all, these are but infinitesimal in number, compared to the mass of factory buildings going up all over, buildings in which an enormous number of our fellow citizens spend the major part of their waking hours. It is to the problem of their construction that we hope to bring a more intelligent thought, a more artistic training. The subject is one which would warrant a whole series of articles. It includes all the many problems of sanitation, ventilation, lighting, power, heat, transportation and the more intimate ones of lunch rooms and lockers, facilities for cleaning, fire-fighting apparatus and shop administration. The writer, in this brief note, hopes only



FACTORY OF H. BLACK & CO.
The artistic treatment of the factory tower.
Cleveland, Ohio. Robt. D. Kohn, Architect.



FACTORY OF H. BLACK & CO.—THE SIMPLE AND HONEST TREATMENT OF
FACTORY INTERIORS IS HERE ADMIRABLY EXEMPLIFIED.
Cleveland, Ohio. Robt. D. Kohn, Architect.

to call attention to some of the problems involved, and to indicate a few efforts towards improvement in the type of factory design in America.

Robert D. Kohn.

The American manufacturing plant is a commercial type of structure which the architect has so far played an insignificant part in developing, and it comprises so numerous a class of buildings that their effect of absolute poverty and bareness is especially noticeable. We have published in these pages, from time to time, structures in which a few members of the profession have had an opportunity to introduce some element of design. It has not been possible, however, to find many such instances, nor has it hardly been possible to find in those which have actually shown a tendency to consider a factory as a worthy subject of design any consistent effort to solve the problem in a serious way. The American factory building has always been considered a subject strictly for the engineer, whose duty it has been to simply lay out the construction of the building, which was afterward to be covered with brick and allowed to go at that. The manufacturers for whom these buildings have been built have come to believe from long experience that this method of constructing

their buildings gives them everything they needed or that they can afford to have in their business.

Perhaps, in time, they will see that they have worked largely in the dark if they read the foregoing article, which raises the entire question of factory design in a wholly admirable way. Perhaps they will agree that attractiveness of surroundings for their employes is in a measure as much a business facility as the proper handling of their materials to meet the detailed requirements of their business. The manufacturers have, no doubt, in the past, hesitated to invite help in the matter of creating a higher standard of design in their buildings from a belief that such higher standard would mean to them an entirely unnecessary expense. Perhaps they do not know that very often no larger expenditure of money is necessary to produce a more attractive-looking building than to continue erecting the bare and uninteresting brick walls which have come to typify American factories. They may also agree, on reflection, that more attractive factory buildings mean generally not only more economically planned and constructed buildings, but also establishments which will lend to their business a prestige with which they can ill afford to dispense.

—*Editor.*

America's Largest Banking Institution in Its New Quarters.

In the December issue of this journal, the occasion was taken to congratulate the directors of the National City Bank on their moderation in preserving to New York one of its most notable architectural landmarks instead of yielding to the very natural, yea, almost inevitable, temptation to make the old Custom House, on Wall Street, a profitable real estate investment. At that time the building was not completed, but construction had sufficiently advanced to offer the opportunity of extending congratulations to the architects to whom was committed the difficult task of superadding to the old structure four stories without destroying the inherent architectural value of Isiah Rogers' composition.

Now that the alterations are entirely completed and its tenants are in possession, one can have no hesitation in saying that the architects have acquitted themselves with credit on their treatment of the great banking room and on the planning of the different chambers. The task of planning was of course, limited, to a certain extent, by the fixed condition of the doors and windows in the walls of the old building, which were left practically intact, the interior filling alone being entirely removed. It is inevitable that the planning of a building should very largely determine the disposition of the exterior design, and the architects were perhaps not as free to say in the superposed stories what would have been their choice had the design of the entire building been theirs to determine, regardless of anything existant. To still further multiply difficulties, it was not desired entirely to forego the opportunity of rental return, and it was, consequently, made a condition of the problem that the four superadded stories should be planned for business offices, admitting of subdivision and provided with many smaller windows, rather than

with fewer larger ones. A roof story was desired, to contain the bank's dining rooms, kitchens, libraries and other domestic services. The plan of the altered building, it will be patent, was thus very definitely determined, and it should not be very difficult to draw the plan in the mind's eye. The great banking room occupies the height of the old Ionic colonnade, and is lighted from the ceiling through a rectangular court in the middle of the building, admitting, at the same time, light to the upper or office floors which could be lighted from no other source on account of the great dimensions of the building. Exteriorly, the three lower of the four superposed stories are treated not in the most interesting architectural manner, it is true, but with great respect for the work of Isiah Rogers, which still remains after the alterations the dominant feature of the design, and if that was the sole idea of the architects, they could not have done their work better. But there is, of course, the question whether they could not have retained all the virtue of the adopted solution and have added interest to the building, besides.

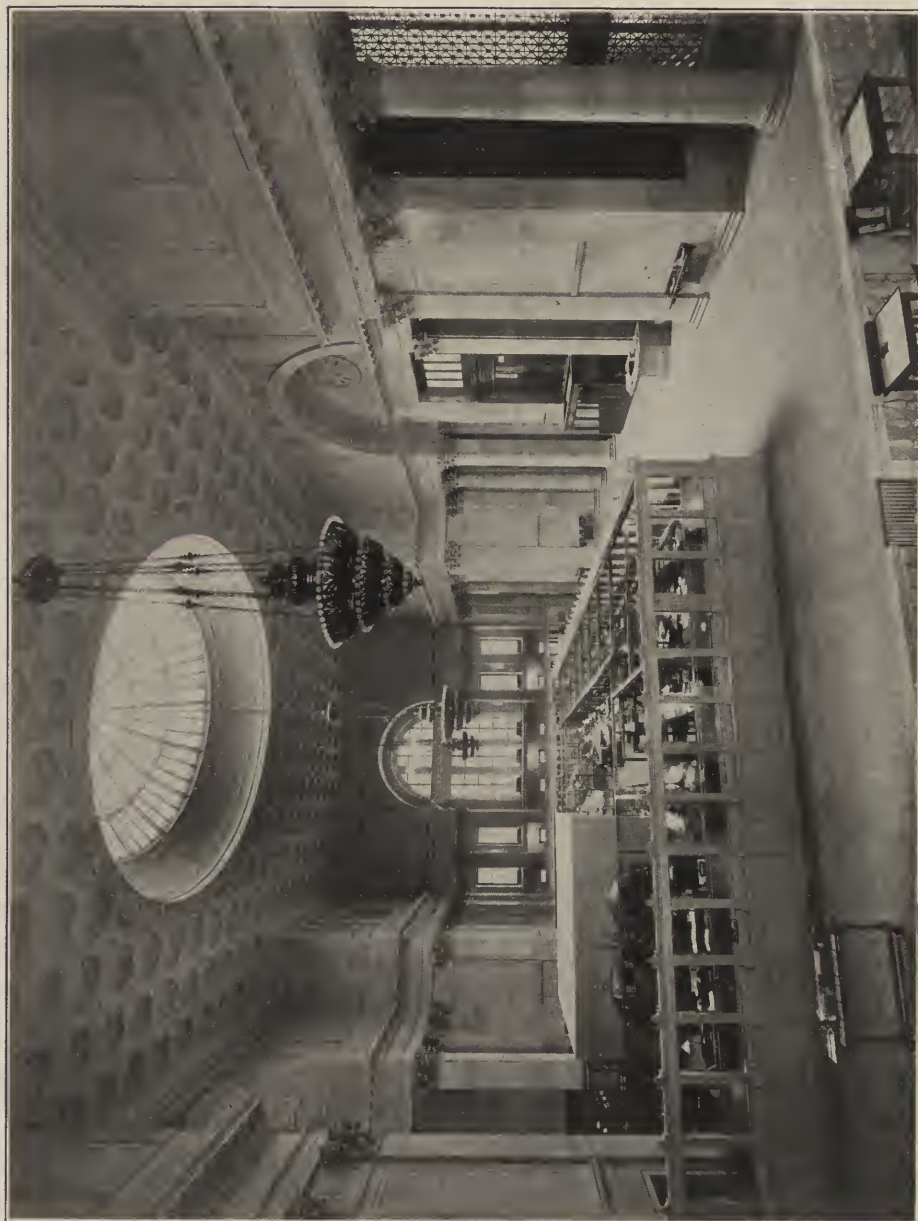
One does not become aware of the colossal scale of this building, a quality which the architects have succeeded in duly emphasizing, until we enter the great banking room, 60 feet high, some 200 feet long and about 170 feet deep. The realization of largeness is more surely impressed on the spectator when he turns round after entering to view the opening through which he has gained admittance. He was perhaps under the impression that he was passing through one of many doors, and what is his surprise when he notes from a more favorable point of vantage on the banking room floor that the doors through which he entered are of so little consequence in the composition of the 30-foot stone door, in the bottom of which they are



THE NATIONAL CITY BANK.—VIEW LOOKING EAST ON WALL ST.
Wall St., New York.

McKim, Mead & White, Architects.

(From drawing by Birch Burdett Long.)



THE NATIONAL CITY BANK.

The great banking room which is about 60 feet high, nearly 200 feet in the direction of the view, and 170 feet in the other dimension.

Wall St., New York.

McKim, Mead & White, Architects.

set, as to be hardly noticeable. Due to a lowering of the floor to decrease the steepness of the entrance steps, this door, which was formerly of heroic size, has become one of the largest doors in existence.

The greatest opportunity offered the architects in the work of remodeling the building, and one which is not apt to occur very many times in a professional career, was the decorative treatment of the great banking room. While one's verdict on the result cannot but be highly favorable in the main, it may not honestly be said that this room is as successful as might have been expected of the designers of such a room as that of the Bank of Montreal. The color of the Botticini marble, with which the walls are incrustated, is an extremely pleasing warm light gray, which is echoed in the banking screen of the same material, and tends to support the dignity of the monumental architecture on walls and ceiling. The floor, too, harmonizes in the subdued play of lights and shades in the gray color scheme. The architectural members of the room, it has been pointed out, have been ably brought into scale with one another; but one cannot claim the same amount of co-ordination for much of the ornament which is largely lost in the immensity of the space and height of ceiling. This latter feature, though treated in good relation to the other members, seems

somewhat trivial, and one cannot readily become reconciled to its penetration by the circular glass dome which so unfeelingly interrupts the ceiling coffers. There seems to be here a member which has not been well digested into the decorative composition. One cannot particularly object to its size or its shape, but rather to its lack of attachment to the ceiling.

The bank equipment has the appearance of having received the utmost care in disposition and in design, and it is plain that the co-operation between the architects and the officers of the bank was of the closest where equipment and the machinery of the bank was involved. On the part of the bank, it is understood that Vice-President Horace M. Kilburn and Assistant Cashier G. E. Gregory devoted the better part of a year to the study of the details of the bank's new quarters.

While it was a proud day in the earlier life of the city of New York when the Merchants' Exchange opened its doors in 1841, the day when the National City Bank shifted its scene of operations to the present larger and worthier edifice should be notable not only in the history of America's greatest banking institution, but should be equally remembered by New Yorkers and Americans as an occasion by which we have enriched our country by a monument worthy of our commercial importance.

NOTES & COMMENTS

THEY WANT TO KNOW

The cry for an original and American architecture is now so frequently raised not only in the professional press but in our weekly and daily papers whose readers expect, more and more, that some attention be paid to architecture and especially to the designing and building of dwelling houses in town and country. The fact is that building is rapidly becoming, more than we suspect, a topic of popular interest, and the press feels bound to keep its readers, to some extent at least, informed as to what is going on in this field of activity. Where a criticism on our attempts to build rationally and beautifully would, ten or fifteen years ago, hardly have been noticed by the public it is to-day being read with almost as much avidity as an article on a topic of more immediate national concern. The recent editorial in a New York morning paper alluding to the views of a visiting French architect on some of our recent New York buildings is a case in point.

This interest in architecture and building is, however, still rather superficial with us, due, no doubt, as much to the desultory methods of the press in general as to any shallowness of public opinion. The symptoms, however, are healthy and require only cultivation to be developed.

THE POINT OF VIEW

Popular notions on architecture are scarcely less definite or more comprehensible than is the bulk of professional writing on the subject of an American architecture. Not only is much of this writing vague and intangible, but one finds in it very little agreement among the several writers.

Some will say that there is no such thing as an American architecture, and that there never will be made any progress towards a national style until our architects cease to use the forms and devices of other periods to solve the totally different problems of to-day. These writers say it is necessary to

seek inspiration in new channels and to revolutionize to a large extent the process of thought in designing buildings, which has been developed in the course of centuries.

There are those who are content with the literal copying of the best styles of the past. For them an American style of architecture falls on deaf ears; the development of building in conformity with the conditions of the age means nothing. For them the development of the art of building has long been completed, and any new attempts are futile. Nowhere is this theory carried out in practice with greater persistence than in our interior decoration where the paramount issue always is: In what style shall such and such a room be decorated.

Then, again, there are those who are eclectic in their views, recognizing that times and conditions change, but that certain elements in traditional art are fundamental, and can no more be successfully disobeyed than can the rules of algebra. These individuals maintain not only the possibility of an American style, but go so far as to state that there is such a style, and if the impartial, but interested, spectator of our progress in building could but remove himself to a suitable distance so as not to be under American influence, he would see that we are steadily and surely evolving an American art of building, with due regard to the past and a freshness of conception characteristic of our time.

PROGRESS

Nor is our time wanting in sources of inspiration for the building art. Are we not using new materials and old ones in new constructional ways and in new forms? Have our attempts in concrete construction, rudimentary, as they are, no meaning for our architecture? Have we not in this material alone enough direction for our efforts to meet architecturally present and ever-arising conditions?

Hollow tile for structural purposes is a new means of building which we have recently done much to develop,

especially for dwelling houses, where the scarcity of seasoned wood and its abnormal price have been closely seconded by the desire for greater protection against fire, and better sanitary arrangements in our dwellings. Has not tile a story to tell of its peculiarities and advantages, of the opportunities for beauty of surface, perhaps? Is there not sufficient food here for the architect's imagination and for the development of the art of building suitably, beautifully and economically?

Herein, doubtless, lies progress in architecture.

ARE TAXES TOO LOW?

In an interesting letter to the "Times," John Martin has lately made a plea for more liberal expenditures by the City of New York for parks, schools, health and charity, on

the ground that the increase in taxes during recent years has been nothing like as great as the increase in property values. This opens a rather unusual and suggestive line of argument, which could probably be applied to many other cities, for the test is secured by comparing the two items of total tax and total property value. This, Mr. Martin believes, is the only fair test. In New York, since 1899, the first year of Greater New York, there has been an increase, he finds, of 35.2 per cent. in the total amount of taxes and of 129 per cent., or three and one-half times as much, in the total assessed value of real estate. If allowance be made, as, of course, it ought to be made, for the fact that in 1899 assessments were at only "two-thirds" of real value, and in 1908 at "ninety per cent." of real value, the increase in values would still be about seventy per cent. Putting the matter differently, Mr. Martin finds that in nine years there has been paid in taxes a total of \$793,729,249; and that in these years the increase in the value of the land has been \$1,582,422,754, leaving a clear profit of \$788,693,505—a stupendous total, due, in some part, at least, to the very expenditures for public improvements. To let disbursements for schools, parks, health protection, etc., so lag behind the increases in property value is, he argues, an injustice to tenants. It should be added that an essential premise to this interesting line of thought is that rents do not fluctuate with taxes; and as to little things like unpaid taxes and the limit to the city's possible indebtedness, which is

imposed by the restriction on the percentage that real estate can be assessed, these do not particularly affect the theory, as a theory. With reference to the city's great needs, it is interesting, indeed, to learn, from a compilation made by Mr. Ivins for the benefit of the legislative investigating committee, that the taxable value of the real property in New York City (including special franchises, taxed as really under the decision of the Court of Appeals in the franchise tax litigation), aggregates \$6,722,-415,740, and is nearly \$1,000,000,000 in excess of the taxable real estate values in every city, county and State west of the Mississippi River; that the values which New York may assess for taxation are greater than the combined taxable values of real estate available for city, county and State taxation in Massachusetts and Pennsylvania, or in Ohio, Indiana and Illinois; and that the exemptions of real estate values from taxation in New York City, on account of use for religious, charitable or city purposes, are greater than the entire taxable values in Boston or in Philadelphia.

AN ARCHITECT WHO WAS HEEDED

The City Beautiful was the subject of a long and very comprehensive paper on civic improvement that was read by Eugene H. Taylor, Fellow of the A. I. A., before the sixth annual convention of the Iowa Chapter of the institute. Mr. Taylor made a strong plea for expert planning, and said: "Fortunate, indeed, is the community that heeds the promptings to do things properly before time and money have been spent and wasted in wrong ways." The development of the park idea, noted as the usual first step, "is but a small part," he added, "of that which is necessary to make a city what it should be." A city is made up of certain major and minor focal points, and the location of these, he says, are determined by private as distinguished from public interest. "Hence, when an awakening does come for the recasting of a city, a comprehensive, consistent, logical and practical plan must be prepared by a disinterested trained expert. City improvement means more than simply cutting a street through a block of buildings to reach a given point by the shortest route, or zigzagging vaguely to avoid some particular building or feature in reaching a goal. The natural resources of contour and scenery * * * should be devel-

oped. * * * The city which would redeem itself must begin with a realization of its topographical advantages. It may have derived its name from a distinctive feature of interest and beauty in the river it is situated upon, and until the civic improvement idea takes root its chief asset is worse than ignored. To have a pleasing river with surface broken into never-tiring interest by falls or rapids; an island set in its midst furnishing a fit site for imposing edifices, and a breathing spot at hand in the very heart of business for those who cannot go to the suburban parks; but to do absolutely nothing with this gift of nature except to fringe the river banks with the inevitably offensive and unsanitary outhouse, stable yard, garbage heap or even the rear elevation of business buildings, and to convert the island into a dumping ground, without even enlivening the scene with a festive goat to feed on the tin cans; or to allow it to be covered with common mercantile buildings—is well nigh sacrilege." All this is well said. But the most interesting part of the matter is that the meeting was in Cedar Rapids, where an outside authority had made just such a study and report only a few months earlier; and where an improvement club had been formed, with Mr. Taylor as one of the officers, to secure the carrying out of the recommendations; and where, a few days after this address, the people voted, by a majority of about thirteen to one, to buy the neglected island in the river in the heart of town as a site for public buildings and a park, as the report had urged.

BEAUTY FOR SCHOOLS

There has lately been organized in Los Angeles the League of the School Beautiful. Its purpose is to unify and strengthen efforts, and, if necessary, to initiate new efforts for "suitably decorating" the public schools by securing for them, without public expense, objects of art. The Board of Education has endorsed the plan, and a newspaper article says that although at first designed to be only a local movement, inquiries have been received in regard to it from so many other places that the scope of the league may be enlarged. The idea is that those persons interested in a particular school shall constitute an individual chapter of the city league. Each of these chapters will be to a large extent self-governing, but they will

unite in council to help the schools which most need help in this respect. A traveling "collection of masterpieces" is one of the plans under consideration, and it is proposed that the league shall not only endeavor to bring art into the schools, but will seek to discover and encourage budding genius among the pupils. Whatever its measure of success in doing this, there obviously is room to supplement the good work of the playground associations and parents' and teachers' leagues with a society to foster the art spirit and to bring beauty into schools.

AN IDEAL FOR A CITY

Eugene C. Gardner, an architect of Springfield, Mass., presented at a recent meeting of a local literary club, a long paper on the city beautiful that could be and should be made of Springfield. The article has been published in "The Republican." The most striking paragraph is perhaps that giving a prophecy which Mr. Gardner made fifteen years ago. He quotes it as follows: "Somewhere in the civilized world at the beginning of the next century there will be the most beautiful city that the sun shines upon. It will have the best government, to which other cities will come to learn wisdom, the best schools, the cleanest streets, the finest architecture, the noblest monuments. All of which will not mean the greatest wealth or the most numerous population per square mile or per city, but the best taste, the soundest practical judgment, the clearest common sense." The prediction concluded by the statement that there was then no apparent reason why Springfield should not be that exalted city. "I am of the same opinion still, as a prophet ought to be, except that I would not extend the time to the end of this century." In fact, he hopes to live to see the day he pictures. The ideal, suggestive of that of a Greek philosopher, is in sharp contrast to the usual ambition of an American city, and it is so much better that its mere statement makes one pause to read it over, to wonder and to wish. Mr. Gardner, however, is obliged to add: "But if my optimism were not of the most ingrained and indelible sort, I should stand appalled at the crimes committed in the name of civic art and public improvement. * * We may have 'beauty spots,' but never a beautiful city until we work for unity. Only when artificial productions become organic do they display

some of the charms of Nature's work; only as they indicate an intelligent, harmonious design are they worthy of admiration. We recognize this readily enough in our private work. If we plan a house, write a book, paint a picture or preach a sermon, we know the thing undertaken will be a dismal failure unless there is a consistent, definite purpose showing through it from beginning to end." After that he begins his long, concrete account of the things he believes should be done in Springfield; but much greater than the steps he recommends as leading to it, is his quoted, briefly sketched, ideal for a city.

Arnold W. Brunner,
whose word on the sub-
ject is entitled to
weight, is another
architect who has lately
made a similar plea on
general lines. This is
in an article contribu-
ted in the summer to the Saturday Evening
Post, entitled, "Building Beauty into Cities."
Mr. Brunner frankly took for his argument
the commercial point of view. Beginning
with Whistler's dictum, "art happens," he
declared that sometimes, and especially in
the development of American cities, it doesn't
happen; and that to secure beauty for cities,
there are needed forceful thought, energy,
concerted action, and civic pride. The way
to obtain these, he believed, was to put aside
theories and show that art pays. He said:
"Perhaps the Greeks would not have reason-
ed in that way, nor would any artistic
nation, but we are not artistic; we are pri-
marily commercial." Yet, he believed, "we
are cultivating artistic tendencies, and are
rapidly coming to know the value of beauty
as applied to manufactures, streets and
towns, and we are offering to the artist in
every branch the greatest encouragement.
* * * A city, like a house, should have a
definite plan. No great enterprise, nor a
small one for that matter, could be carried
on successfully without a definite line of
thought and a definite plan of operation, with
due provision for the future. What greater
enterprise could there be than the building of
a city? And yet, in the most important of
all our undertakings, we have adopted the
most short-sighted policy." "The making of
plans," he added, "is not antagonistic to
commerce, but, on the contrary, the greatest
aid to it. Let it be understood that the first
step toward the beautification of cities is
municipal common sense." * * For example,

**CIVIC ART
AN
INVESTMENT**

"streets should be ample for their traffic. This seems a simple proposition, but in the commercial districts of our larger cities it is quite disregarded. Ten thousand men pass a given point in three-quarters of an hour in the usual order of military procession, which means an unobstructed roadway and favorable conditions. But ten thousand people are poured out into the streets at almost the same time in many localities from skyscrapers that contain thousands of tenants each. When the space for vehicles and trucks is also considered, it is readily seen how inadequate the average street is becoming." He showed how small parks promptly pay for themselves in the increased value of abutting property, and he remarked that where a Hausmanizing process was needed, to move cautiously was not necessarily to move wisely. In short, Mr. Brunner said well a good many things that needed saying in a paper which goes to so large and miscellaneous a lay public as does the Saturday Evening Post of Philadelphia.

The annual report of
the Massachusetts Civic
League contains, as a
portion of the secre-
tary's report, some un-
usually interesting com-
ments regarding the
work of the committee
on housing. This special committee was
appointed, Mr. Hartman says, "to consider
methods for a more careful study and ex-
tended agitation along fundamental lines.
Practically nothing is known," he declares,
"about housing conditions in Boston and in
the other cities and towns of the State. In-
vestigations must be made by experts"—of
whom, it would seem, that some, certainly,
should be architects—"before we shall know
what we have to remedy. Then there is the
additional work of laying down a definite
housing policy for all urban and rural dis-
tricts, so that future slums may not be
possible. To attempt to handle the matter
by curing slum areas as fast as we may
will amount to nothing as long as people are
allowed to proceed as rapidly as they will
in developing newer and worse areas in
other sections. A rigid system of preven-
tion must be established and maintained.
When this is done the clearing up of present
areas will have a visible end. Because New
York was forced to take the lead on ac-
count of the existence of a system which
was proving fatal, other American cities
have tended to follow and to make the New

**RATIONAL
HOUSING
REFORM**

York regulations the norm by which to establish regulations for themselves. This is as fatal as it is short-sighted. New York is like no other city in the world, in so far as congestion of population is concerned, and there is no reason why any other city should ever be built like it. The German, Swiss, Swedish, English and other European peoples have established sane methods of laying out cities and towns and of erecting houses in them. It remains for an American State to do likewise, and Massachusetts has a chance to place itself in an enviable position of leadership if it does not allow some other awakening communities to get ahead of it."

PLAYGROUNDS AND ARCHITECTS

It is significant of the broadening interest in civic affairs which architects are showing in their professional capacity—their individual and personal interest was to be expected—that at the October meeting of the Rhode Island Chapter of the A. I. A. the subject was the location and distribution of playgrounds. The principal speaker was Henry A. Barker, the father of the metropolitan park system of Providence and its neighboring cities and towns. His plea was for action by a commission, which should make "a comprehensive and equitable scheme for the apportionment of open spaces," instead of leaving the location of playgrounds to the bargain of the aldermen from rival wards. "It is not at all likely that the wards which need playgrounds most will be blessed with the most influential and energetic councilmen and aldermen." But the argument and plea are less novel and significant than was the choice of subject for a chapter meeting of architects.

PLANS FOR SACRAMENTO

Sacramento, Calif., is now to be added to the list of state capitols—a list which is growing long—for which comprehensive improvement plans have been prepared. Through the initiative of the Chamber of Commerce, backed by the Realty Board, the Woman's Council, and individual subscribers, Charles Mulford Robinson of Rochester, New York, visited the city in the autumn and made a Report on its improvement possibilities.

There was before the people of the State an Amendment to the Constitution which, if carried, would transfer the Capitol from Sacramento to Berkeley. When Mr. Robinson began his work, this was voted down by an overwhelming majority—a fact which greatly increased the interest in the problem offered. The suggestions covered a wide range of improvement topics. They included as principal items the possible diversion of the American River, which now annually overflows its banks, and the creation in the reclaimed area of an industrial center; the extension of the city's boundaries, in order that control might be exercised over the platting of sub-divisions, now progressing in a most confusing manner; the building of some diagonal thoroughfares, centering on the capitol dome; a new station and its approaches, and a country park system. Sacramento is laid out in perfect checkerboard fashion, and is peculiar among American, and especially among Western cities, in that, while having a population of only about 50,000, it presents actual conditions of congestion. This is because it is enclosed on two sides by broad rivers, and on the other two—so serious are the flood conditions—by broad levees, just as mediaeval towns were enclosed by ramparts. To this difficult situation, aggravated by the location of railroads built and projected, the Report devotes much attention.

From the architectural standpoint, the most important suggestion was the creation of a diagonal avenue from the proposed new station site to the capitol—a distance of 2,000 feet, exclusive of a half-square to be bought in front of the station as a plaza. Midway on the diagonal, stands the new post office; and at its station end, balancing the new station and with one front to the plaza, the new court house. The course of the diagonal is through valuable business property—though as yet none of it happens to be expensively improved; but it was suggested that as its great function would be to open up, and emphasize and give dignity to, the Capitol, the State might be asked to aid in meeting the expense.

The architects of the National Metropolitan Bank, Washington, D. C. are Messrs Gordon, Tracy & Swartwout and Mr. B. Stanley Simmons, Associated. On pages 22 and 23 of the January issue the name of Messrs. Gordon, Tracy & Swartwout was inadvertently omitted and we take this opportunity to express our regret and at the same time to correct the error.

Recent Books on Architecture and Building

A TIME SAVER*

A manual for arriving graphically at the ordinary solutions of steel I-beams and channels should result in saving considerable time to designers who have occasion to compute the members of steel floors. Such is the volume before us. The author in explaining the construction of the charts of curves assumes a knowledge of the theory and the mathematical processes involved. While not a text book, in any sense, it will, no doubt, be widely used as a check by those who at present get all their engineering from the handbooks of the steel companies.

THE MODERN ARTISTS†

This is neither a book of history nor a book of biography. On the other hand, it is more than a series of essays linked only by a common subject-matter. The author has selected and the basis of his selection is a desire to exhibit the modern spirit as expressed in painting through the lives and the works of certain characteristic figures. The essays which embody the story are, as the author acknowledges, frankly sympathetic and appreciative. One can find no fault with this programme, because up to a certain point it possesses great efficiency and a sympathetic approach to an artist's work, which is, perhaps, in the end, the best guarantee of finally understanding it in a thoroughly critical manner. These essays, fourteen in number, form as many chapters, and are accompanied by typical illustrations that serve their purposes admirably. The text is a serious and meritorious

*Curves for Calculating Beams, Channels and Reactions, by Sidney Diamant, E. E., New York, 1908: McGraw Publishing Company.

†By Christian Brinton. New York, 1908: The Baker & Taylor Company.

attempt at interpretation. We believe it will be found fortunate enough to carry the interest of both the professional and the lay reader. It is fluent and scholarly, and though its tone is that of warm admiration, the praise bestowed is given with discrimination. The author possesses a rare subtlety of description. The book, in short, is one of the best of its class that has appeared for some time. We recommend it without reservation to anyone who wants to obtain a survey of modern painting.

REINFORCED CONCRETE STANDARDS*

The popularity of reinforced concrete in building construction during the past five years has resulted in establishing the fact that much of the work has been done without a proper understanding of the relative properties of the two materials as used in the structural members of a building. Gradually there has been established from the experience of the best qualified constructors of concrete work a set of rules for guidance in the disposition, attachment and assembling of the material for economy and strength. Such a set of rules appears in the volume at hand, a manual of reinforced concrete standards to be applied in the construction of buildings. The subject is approached from the engineer's standpoint, but in a clear and logical manner. It would be interesting to note the result if some architect who is inclined to pay sympathetic attention to engineering would continue the discussion of reinforced concrete in building construction. He would be in position to approach his subject with a feeling for the structural facts, but always with a view to the artistic result.

*Practical Reinforced Concrete Standards for the Design of Reinforced Concrete Buildings, by H. B. Andrews, M. Am. Soc. C. E.

THE ARCHITECTURAL RECORD

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RUSSELL STURGIS

One of the most frequent, copious and valued of the collaborators of the *Architectural Record* has just passed over to the majority. The death of Russell Sturgis was by no means premature, according to the ordinary standard of longevity. He had overpassed the Scriptural limit, being in his seventy-third year. But to those who knew him, the death was premature. That so eager and omnivorous an intellectual curiosity should have been balked, so avid a capacity of intellectual enjoyment, have been nullified, before the curiosity showed any signs of dulling, the enjoyment any signs of slackening, still seems to his friends a cruel and untimely blow.

It has been set forth by the obituaries of the daily press that Mr. Sturgis, though his architectural work entitles him to recognition as one of the practitioners of his early years who practiced architecture with credit and scholarship, was not a born architect. His works, the buildings for Yale, the pretty Gothic Savings Bank in Albany, entitled him to respect, although, with quite characteristic generosity, he assigned the chief measure of credit for this last to his associate in it, Mr. Babb. Richardson, when he was in Albany doing his share of the Capitol, and doing the City Hall, spoke of this building even with enthusiasm. But Sturgis was not a Richardson. Whatever could be attained by study, in an art, which appealed to him, he might quite be relied upon to attain. But he had not that "impulse to create" which results in the manifestation of an artistic individuality. Whereas anybody can pick out the work of Richardson, and any very sensitive person can discriminate it from that of his imitators, Sturgis's work is simply up to the best level of scholarly attainment of the time and not assignable to an in-

dividual. One may say that he would always rather discuss than design. And it was a good thing for him and for the rest of us that he was early withdrawn from design to discussion. The first time I remember hearing his name was in answer to my inquiry, addressed to John Dennett of the Nation, who had written a certain criticism of the then new and now superseded and demolished old Park

Bank, on the site of the present edifice of the same name, which had appeared in that periodical. From that time until his death, criticism and not creation was evidently the real line of action for Russell Sturgis. His knowledge was so wide, so "encyclopaediacal," it has been called since his death. his anxiety to be right on any point of fact, and to take nothing for granted without proof, was so keen, that his reader might go along with him on any disputed or disputable point with a singular confidence, even though that reader might differ from the artistic judgment that accompan-



RUSSELL STURGIS
1836-1909

ied the erudition. The present writer, in reviewing the "Dictionary of Architecture," took occasion to quote from Samuel Johnson to the effect that Mr. Sturgis never "frolicked in conjecture." When the editor next met his reviewer, he said: "I am exceedingly obliged to you for pointing that out." This accuracy and secureness in matters of fact are a great source of strength to a critic or an historian. They give his readers the confidence which Mr. Sturgis, among careful readers, never failed to inspire. Readers of the *Architectural Record* have profited by this care and this circumspection exerted upon a great variety of subjects, historical and contemporaneous, for now these many years.

One may fairly say of Mr. Sturgis that,
(Continued on page 220.)

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FIG. 1. THE OLD EAST RIVER BRIDGE (1883).

John A. Roebling, Engineer.

Our Four Big Bridges

One of the reflections which force themselves upon the New Yorker who has occasion to investigate for himself, and in an amateur way, the way of the lover of beauty and fitness, the two biggest and costliest of the bridges at present under construction by this municipality of Greater New York, is a discouraging reflection. How grievous is the injustice that is done us by our press.

In the matter of public works the press seems to be interested only in the incidental scandals which may arise out of them. All, or almost all, columns are joyously opened to scandals about bridges, as about other costly and important public works. If they turn out to be, or are even plausibly alleged to be, inadequately designed, that is well. If they can plausibly be alleged to be "gigantic jobs," that is immensely better.

But if they are simply uncommonly and creditably well done, so as to be among the glories of the city and the country, you will be long in finding out that uninteresting fact from the ordinary newspapers. One who has of his own motion investigated the construction of the newer bridges across the East River, for example, feels himself to have a grievance when he finds a wealth of interest in them, and a just source of local pride, of which his newspaper had given him no hint whatever. Not only has it not told him "the half." It has had nothing at all to say about the matter. Perhaps he ought not to repine at having so nearly a virgin field, and ought to be grateful even for his grievance. But what a social symptom the grievance nevertheless is!

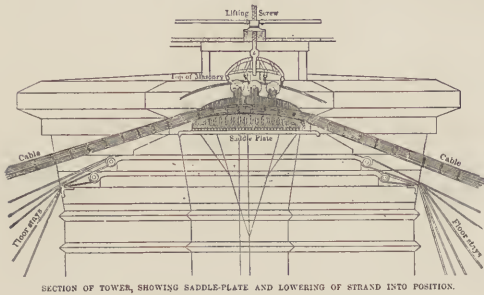
In truth, one who visits the Black-

well's Island and the Manhattan Bridges finds great matter for wonder and admiration at the enormous artistic advance they show upon the older bridges across the East River. This is very especially the case with the present writer, who may be pardoned for recalling that he made, a quarter of a century ago, a critical examination of the then new and now old East River Bridge, for Harper's Weekly, in which the results published, were so far as he knew or knows the first attempt that was made in this country at an aesthetic consideration of an important engineering work. It was an endeavor to test an engineering construction by architectural principles—to judge it, as Ruskin has it, "by those

kind to be seen than the gossamer structure of the metal, the airy fabric that swings between the towers.

The spider's touch, how exquisitely fine!
Feels in each thread and lives along the line.

The stiffening truss itself of the roadway asserts itself as a stiffening truss without asserting itself unduly. And nothing could be happier than the relation between the "camber" of the roadway, with the enormous radius of its slowly climbing curve, and the swifter swoop of the catenary curve of the suspensory structure. These things, it is plain, are simply submissions to the dictates of mechanical laws and of the actual conditions of the erection, the requirement in the interest of navigation of a minimum height above the river at the centre, the requirement in the interest of accessibility and accommodation of the situation of the terminals. The resultant relation is artistically perfect. The height of the towers, again, is fixed by the length of the span and the imposed necessity of keeping the bottom of the catenary at a fixed height above the river; the bulk of the towers, given the necessary massiveness of their masonry, by the load they have to sustain and the necessity of maintaining them against any wind that can blow. These things, again, are as perfectly satisfactory to the eye as we must assume that they are responsive to the mechanical requirements. But in the detail of them we cannot help seeing that caprice has been allowed to play its part; that the form is by no means "inevitable;" is, in fact, contradictory of the function. The function of the towers, for example, is merely that of cable-holders. Nobody would ever guess it to look at them. The curve of the cables continues over the saddles, which are shaped accordingly, and it is a necessary condition of the operation that the cables should move freely in the saddles, thus providing for expansion and contraction under stress of the weather, allowing the "play," which the late Abram S. Hewitt, in his admirable address at the inauguration of the great work, pointed out was so essential to the working of so huge a structure



SECTION OF TOWER, SHOWING SADDLE-PLATE AND LOWERING OF STRAND INTO POSITION.
Fig. 2. Old East River Bridge—Section of Tower, Showing Saddle.

larger laws in the sense and scope of which all men are builders, whom every hour sees laying the stubble or the stone." Specifically, what one demands in such a work is "the adaptation of form to function," or, in other words, the following out of the indications inherent in the mechanical dispositions and devices, instead of the imposition upon these of ideal or of conventional forms. In this mode of procedure, as an eminent American architect has described it, you do not so much design your edifice as you "watch it grow." And, in the old East River Bridge, it is interesting and instructive to note that the successes are all won by letting the structure "do itself," so to speak, the failures all incurred by forcing it to do something else. (Fig. 1.) Even to-day, much as with our present lights it might have been still further lightened and skeletonized, there is no finer thing in its

of expansive and contractile metal. Quite manifestly the cable-holders should have been so modelled as to express this function, modelled in their turn into "saddle-backed" roofs. In fact, they are so modelled, in deference to antique monuments which had nothing whatever to do with the case, as quite to conceal this primary function as though it were something to be ashamed of, instead of something to be exhibited and emphasized. The half catenary seems to be imbedded in the tower on each side, and there to cease and determine, instead of being a necessary link in a continuous and mobile chain. One more or less vaguely feels, in the presence of the actual work, how "irrelevant, incompetent and impertinent" to the purpose of the structure is this actual tower, with its flat top, of which the flatness is emphasized by the projecting conventional cornice copied from monumental structures of far different conditions and purposes. But one perceives it in a clear and even in a ludicrous light when he examines the section (Fig. 2) in which the course of the cables is shown, and the form of the enveloping structure, which has nothing whatever to do with the case. The new architecture of spun metal discredits and shames the outworn and out-of-place survivals of the older architecture in massive masonry. One is a "graphic linear demonstration" of the mechanical facts of the case, the other a crude approximation to an expression of them



Fig. 4. Old East River Bridge Warehouses in Manhattan Approach.

where it is not a senseless departure from them.

The anchorages of the old bridge share the defects of the towers. The savage who essays a suspension bridge across a gulch in the Andes must drive down stakes or heap up stones, or tie his grass-woven cable to a tree to hold it in place while his crazy structure is swinging. To hold the cable-end firmly is equally the function of the anchorage of that wonder of mechanical refinement, the modern suspension bridge in metal. But there is no mechanical refinement about the design of these anchorages. They are simply huge cubes of masonry into which the cable disappears, not by which it is visibly clutched and held. Most spectators of the Brooklyn Bridge probably fail to distinguish the anchorage, which is an integral part of the structure, from the approaches of which the purpose is simply to give access to it. In these approaches, and in these alone, of the old bridge, architectural counsel was invoked by the designer, although unhappily the design of the sheds at either end was confided to the untutored and unassisted engineer, with grievous results, the most grievous of which is, perhaps, that the great structure itself is rendered quite invisible from either end, and that you have to go out upon the river or scale a skyscraper to get a look at it. Upon the whole, the approaches vindicate the taking of architectural counsel. But there is one detail of them



Fig. 3. Old East River Bridge—A Street Crossing.



Fig. 5. The Williamsburg Bridge; Department of Bridges, Engineers.

which in its results is more than a detail, and that is the employment, in all the arches of the approach, of the form called "Florentine," that is, circular within and pointed without, and hence deepest at the crown and shallowest at the haunches. As was remarked in the study to which reference has been made, this disposition is "the reverse of that which would have been dictated by mechanical considerations alone," and whoever discards mechanical considerations in a great work of utility like this assumes a grave responsibility. It is true that the form enhances the perspective effect and the apparent length of a diminishing arcade, such as the arcade of the approach is, looking landward, or from the larger to the smaller arches. But it correspondingly shortens the apparent length and diminishes the perspective effect of the enlarging arcade in the view toward the river, which is the more important view. All this, however, does not prevent the Manhattan approach to the old bridge from being tremendously impressive. The great openings that span the streets (Fig. 3) have the advantage of giving, what one finds so rarely in our rectangular town, random and accidental and picturesque points of view, and some sense of wonder and expectation and mystery, as of

an arch wherethrough
gleams that untraveled world,

And one does not in the least regret, contrariwise one welcomes, the effect of the humble brick fronts, of red and yellow, which have been put in as filling to the intermediate arches to utilize them as practical warehouses and places of storage. (Fig. 4.) The manner in which these interpolated fronts have weathered and mildewed, within only a quarter of a century, makes them as grateful objects as a hunter after the picturesque can find in the street architecture of New York, gives New York, indeed, so far as their effect goes, that air of an "Eternal City" which it hardly anywhere else conveys, excepting in the rough and smoke-stained masonry and brickwork of the old Harlem Tunnel, which such a spectator regrets to see being supplanted by frameworks of metal. The one lamentable addition to the approaches of the bridge since its erection is the slim metallic supports of the widened roadway, which are not only perfectly unimpressive and unattractive in themselves, but which tend to vulgarize and destroy the effect of the massive masonry before which they are placed, and without any real utilitarian excuse, since it is quite plain that the widened roadway could equally have



Fig. 6. The Williamsburg Bridge—Base of Tower.



FIG. 7. APPROACH TO WILLIAMSBURG BRIDGE.

been carried upon projecting brackets as upon vertical stilts, and would in that case have even enhanced the effect which it now disfigures. But, when all is said against it that can fairly be said, it will remain true that the old bridge is a great credit to its builders, a valuable artistic possession of the city which it serves with a service so far transcending the expectations of its projectors.

The Williamsburg Bridge, not far from midway, in point of time, between the old East River Bridge and these two later, of which one is hardly finished and the other in an early stage of its construction, doubtless shows a scientific advance upon its predecessor, so active and fruitful in the history of engineering was the decade or more that intervened between the completion of Roebling's work and the beginning of this. But by common consent there was no corresponding artistic advance. Quite the contrary. (Fig. 5.) In fact, the ugliness of the Williamsburg has been the means of an increased appreciation of the beauty of the East River. One does not imagine

what stream the later could suitably span, unless, indeed, modern progress should supersede Charon's ferry by a bridge for the traffic of the Styx, in which case passengers outward bound might perhaps feel that their conveyance was appropriate to their destination. In spite of the proverbial prohibition against speaking ill of the bridge which has carried you safely over, the Williamsburg, as a work of art, has no friends. The most conspicuous of the differences between the two is that the towers are in the older of masonry and in the later of metal. Presumably the difference was primarily economical. One can hardly imagine an engineer preferring a tower of attenuated metal to one of massive stonework if he were free to choose. And, indeed, it might well be wished that some architect worthy of the work had had the opportunity to show what grandly monumental objects stone towers as huge as those of the old bridge might be made by modelling them with reference to their functions, and not at all with reference to inapplicable precedents,

antique or mediaeval. But, even if one admits that masonry is the more eligible material, one is not forced to admit that nothing much better can be done with metal than was done with it in the towers of the Williamsburg. The Tour Eiffel already stood to show what grace and inspiration could be imparted to a metallic tower by the right designer. And Mr. Lindenthal's unexecuted project for a suspension bridge across the North

deem. The most effective aspect of these towers is the view from underneath (Fig. 6), where this deviation of line is not noticeable, and where the towers, with the arch between them, form a really impressive example of the skeletonized architecture of metal, in which attenuation and articulation become the elements of impressiveness, as opposed to the massiveness and solidity of aspect proper to masonry. Another deviation of line en-



FIG. 8. PROPOSED MANHATTAN PLAZA, WILLIAMSBURG BRIDGE.

Palmer & Hornbostel, Architects.

River was also extant (was it not?), reproducing with great effectiveness, and on a scale not so very much smaller, the continuous concave outward curve from summit to base of the Parisian monument in metal. The chief ungainliness of the towers of the Williamsburg is imparted by the abrupt change of direction of their bounding lines, from a very pronounced "batter" above the roadway to a very nearly vertical line beneath it, an unhappy change that gives the towers an uncouth and bandy-legged aspect which no cleverness of detail could re-

tails almost as disastrous artistic results as the change of direction in the outline of the towers. Instead of the continuous slope of the East River Bridge from approach to centre and down again, it is here only the roadway between the towers which shows a curve, abruptly changed to a straight line outside them. And a third deviation of the same kind puts it quite out of the question that the structure can ever compete as a thing of beauty with the older bridge. This is again an abrupt change of line, the substitution of the straight backstay for the



FIG. 9. ENTRANCE TO WILLIAMSBURG BRIDGE.

Palmer & Hornbostel, Architects.

half catenary as the connection of the cables with their anchorages. Scientifically accurate and competent it may be, but it is architecturally most injurious. An eminent engineer to whom I was deploring it observed that I probably did not understand the real motive of the substitution—"It saves a heap of computations." Which is all very well; but a man who is not willing to take trouble about the appearance of his work must not call himself an artist. These three unnecessary and unexplained solutions of continuity would of themselves be fatal to the artistic success of the work which they disfigured. But there is still another drawback almost equally injurious, and in this case injurious to the aspect of the suspensory structure itself, of the bridge between the towers which in almost all suspension bridges cannot help being attractive. That is the enormous depth and the insistent conspicuousness of the stiffening truss of the roadway. In the old bridge this member simply suffices to give needed emphasis to the line of the roadway, while yet it is obviously subordinate and accessory to the suspensory structure, which is "the thing." In the Williamsburg it becomes so insistent that it

almost seems a question which of the constructions is auxiliary to the other, whether a huge trussed girder is only assisting a suspension bridge or is only assisted by it to the extent of a suspensory arrangement to relieve the strain at the centre. No accessories, it is evident, could make an admirable or even a presentable work of art out of a project so bedevilled in the primary conception. To invoke an architect to improve its appearance after it is done were a futile and ungrateful requisition. As Polonius has it—"Beautified is a vile phrase." It is particularly a vile phrase in bridge-designing. Doubtless it were impossible that the approaches in metal to this bridge could have the impressiveness of the approaches in masonry which we have been admiring. But it may be noted that, though a plate-girder offers a less interesting surface than a bonded stone wall, the projection of the roadway beyond the structure of the approaches themselves is far better managed here (Fig. 7), where the projections of the roadway are carried on brackets, than in the East River Bridge, where they are supported by vertical posts from the ground. More "evidences of design" in the brackets would make



FIG. 10. QUEENSBOROUGH BRIDGE FROM MANHATTAN.

Bridge Department, Engineers.

Palmer & Hornbostel, Architects.

the arrangement not only presentable, but attractive. One must also praise the arrangement by which the structures of the terminal are sunk so far out of sight as to preserve the endwise view which in the old bridge is effaced, and which would be so much more valuable there than here, if one could only see it. (Fig. 8.) Moreover, these unobtrusive structures are in themselves admirably designed and appropriately detailed. (Fig. 9.)

As monuments, the two latest bridges show as distinct an advance upon the earliest as the second shows a retrogression. And the credit for this advance cannot be withheld from Mr. Lindenthal, under whose administration of the Bridge Department the Queensborough Bridge was redesigned and virtually begun, though some progress had already been made in building the supporting piers, and Manhattan Bridge re-designed also, though the engineering changes of the revised design have again been discarded in the actual structure. Mr. Lindenthal had the conviction that the common method of bridge-building, whereby the structure is designed by an engineer, and afterward, if at all, an architect invoked to give it such form and comeliness as may still be practicable, was a radically wrong method; that the "beautification" of a great structure originally designed

without reference to beauty or expression was an impossible operation, too often a hopeless attempt to retrieve the irretrievable. He held that in order to secure an artistic result in these great works, of which the general form must remain the chief element of their impressiveness, and of which the general form proceeding from new applications and in new materials of mechanical principles, they must from the first be the subject of æsthetic as well as of scientific investigation. In a word, the artistic constructor must be associated with the scientific constructor at every step from the very outset of the design. Messrs. Palmer and Hornbostel were accordingly associated with the design of the Queensborough while Messrs. Carrère and Hastings stood in the same relation to the design of the Manhattan, with the results for which we have so much reason to be grateful.

The intervention of Blackwell's Island at the point indicated as the most suitable for the Queensborough Bridge made the construction much more economically feasible than it would have been had the whole width of the river, here some 3,700 feet from shore, been unbroken by land. From the architectural point of view, the facility involved an awkwardness, since the western water-

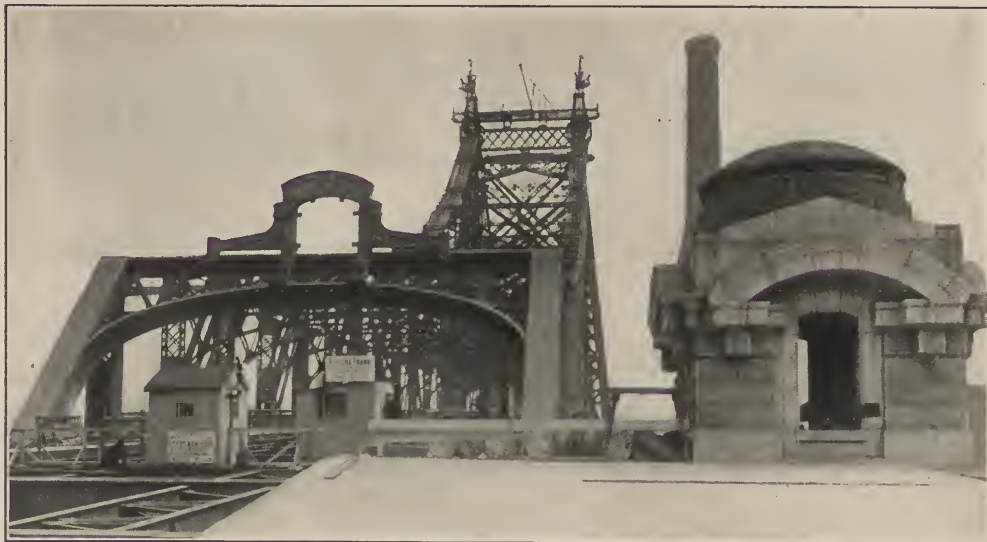


FIG. 11. MANHATTAN ENTRANCE, QUEENSBOROUGH BRIDGE.

Palmer & Hornbostel, Architects.

span is some 200 feet longer than the eastern. But the cantilever construction has here been so applied that even this marked failure of symmetry does not afflict the observer, and most observers, one imagines, would not be conscious of it, from any point of view they would be likely to take, unless it were pointed out to them. The curve of the river spans approximates that of the Mirabeau Bridge at Neuilly on the Seine, only here reversed from a "deck span" supported by the cantilevers to a "through span."

depending from them; and the Pont Mirabeau has imposed itself as the most artistic of metallic bridges, both in its general form and in the rational and exquisite treatment of constructional detail in metal. In this latter respect it is far superior to the later, more conspicuous and more familiar Pont Alexandre III. by the same authors. For, while the Alexander Bridge is very impressive by its stately and decorated roadway as one passes over it, and by the boldness and grace of its arch, of a length of radius



FIG. 12. MANHATTAN APPROACH, QUEENSBOROUGH BRIDGE.

Palmer & Hornbostel, Architects.

and slightness of curvature almost or quite unprecedented, one's admiration is much diminished when he walks under it and notes such solecisms of detail as the application, at intervals which must have been determined simply by the accepted proportions of a classic column, of capitals and bases in carved marble to posts of flanged and riveted metal, which are evidently continuous below the bases and above the capitals, and with the function of which the applied ornamentation in stone has evidently and even ostentatiously nothing whatever to do. Though the lines of the Queensborough are, in fact, broken instead of curved, the effect of the bridge is that of four towers with three suspended spans, and is doubtless the best example of a cantilever of anything like equal extent, for the Mirabeau is, as a piece of construction, child's play compared with this gigantic work, of which the shortest of the three spans is probably equal to the whole extent of the French example. (Fig. 10.) Surely there is no great example of the cantilever construction on this side of the ocean which equals this in effectiveness, while the most famous example on the other, Sir Benjamin Baker's Forth Bridge, is commonly adduced as an awful example of ugliness. Considering the Queensborough, one wonders if it would not have been better, in view of the conspicuousness and the artistic success of the towers, if the arches of the masonic substructure had been omitted altogether



Fig. 13. Manhattan Bridge—Manhattan Tower.
Bridge Department, Engineers.
Carrère & Hastings, Architects.



Fig. 14. Side View of Manhattan Tower.
Bridge Department, Engineers.
Carrère & Hastings, Architects.

and only their stark and massive abutting piers retained to carry downward the lines of the so-called towers and prolong and emphasize the impression made by these, so that they should in effect be continuous from base to finial, instead of being interrupted, as here in effect they are, by the turning of the arches between the masonry supports. Be that as it may, one cannot help seeing and feeling that "every joint and member" of the superstructure has been considered with reference to the expression as well as to the performance of its mechanical function, while those "features" of the construction which by their dimensions are entitled to an effect of grandeur without question convey that effect. Consider, for example, that westernmost of the four metallic towers, even from the point of view of the photograph, which is by no means the most favorable point of view. What an expression of power it conveys, of power and grace, and grace, you will remember, is analyzed by Herbert Spencer into simply the expression of ease. Certainly that is an apt enough definition when, as here, it pertains to the doing of mechanical work, such as is imposed upon these erections, of which the height from base to summit nearly equals that of the towers of the suspension bridges, and would of itself make them very notable in any but the city of skyscrapers. And consider also the simplicity and effectiveness, even in its

actual and uncompleted condition, of the entrance (Fig. 11) at the extremity of the Manhattan "shore arm" of the cantilever, how much the effectiveness depends upon the simplicity, and how the simplicity enables and indeed demands a massiveness in the treatment of metal akin to the massiveness of the adjoining masonry. It were to "beat the bones of the buried," to point out how this simplicity is the summary and result of a process of simplification, and what a complicated and ineffectual network of bars it was which the associated engineer and architect of the restudy have reduced to this simple expression. Observe also that the "grade" of some three and a half per cent. is here carried in a gradual and unbroken slope, from the level of the land on either side to the central span. For architecture in the academic and conventional sense, from which the idiomatic treatment of metal is excluded, we must resort to the approaches. Even there we fail to find the academic and the conventional prevailing in the most conspicuous of the features, the arcade in masonry, interrupted only by the wider arches of the street crossing. (Fig. 12.) Instead of the conventional "Florentine arches" of the earliest East River Bridge, deepest at the crown and shallowest at the impost, the form "the reverse of that dictated by mechanical considerations alone," we find that reversed form, dictated by mechanical considerations, in which the arches are deepest at the impost and shallowest at the crown. So far as I know, this is a novelty on this scale and "in this connection." But it is by no means on that account a caprice. It would in any case give, even to the spectator who did not stop to analyze it, that grateful sense of reality which a work of architecture must at least not contradict. In the present case it has the obvious practical advantage of giving the greatest amount of "head room" to a segment-headed arcade in a situation in which the maximum of height is a practical and an æsthetic desideratum. The filling of the spandrils of the stone arches with an incrustation of particolored tiling in relief is an effective novelty, and even more effective is the ceiling of the in-

teriors of the bays made by the piers and arches with tile-vaulting of low pitch and shallow curves, a mode of interior finish which, if not quite a novelty with us, is by no means as trite as it deserves to become, and which is here carried out in a particularly interesting way. One can foresee an even more useful future function for these sheltered spaces than the warehouses of the East River Bridge fulfil, or than is fulfilled in the public market, only partially sheltered from the weather, which has accrued under the projecting roadways of the approaches to the Williamsburg. In the meantime a visit to these spaces, as yet unoccupied and hardly as yet "swept and garnished" must be of the greatest interest to any

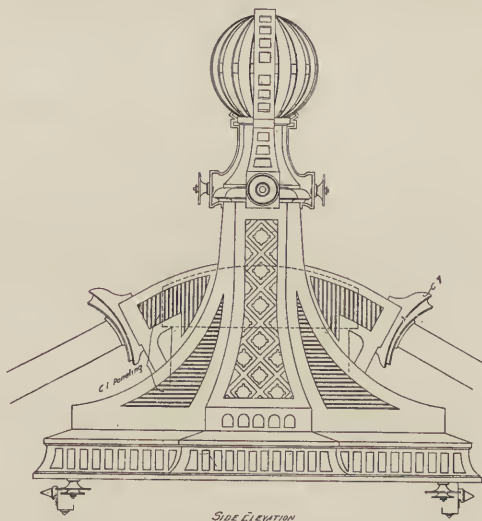


Fig. 15. Cable Holder, Manhattan Bridge.
Carrère & Hastings, Architects.

mind which is open to scientific convictions or to artistic impressions.

Least of all the four bridges in a condition to be judged is, of course, the fourth: (Fig. 13.)

*Pendent opera interrupta minaeque
Murorum ingentes, aequataque machina coelo.*
The Manhattan is absurdly and meaninglessly miscalled; it has no more to do with this island than any one of the other three. "The Wallabout" is a designation that would have local and historical significance. Most Manhattanese, one may assume, who have no occasion to cross the East River, recall the design

of the Manhattan mainly in connection with the contention among the engineers to which the redesigning of it under Commissioner Lindenthal gave rise. Far be it from an incompetent layman to revive that old controversy. But it is germane to the present purpose to point out that, whether scientifically preferable or not to the discarded and now readopted design, that of Mr. Lindenthal embodied a most impressive architectural conception. That was the conception of abolishing the "stiffening truss," which, as we have seen, is apt to become an un-



Fig. 16. Flank of Anchorage, Manhattan Bridge.
Carrère & Hastings, Architects.

sightly appendage to a chain bridge, by incorporating its functions with that of the suspensory structure and leaving the roadway as a great street floor unencumbered at either side from end to end. And it is only just to acknowledge the magnanimity of the subsequent administrations of the department in recognizing the enormous architectural improvements which had been evolved, together with what they regarded as an ineligible engineering design, and in retaining these improvements, so far as the changed design admitted. This magnanimity extends to the succeeding architects who have re-studied and refined the first de-

sign for the towers instead of discarding it. It is an article of architectural faith that any construction mechanically sound is susceptible of artistic expression. It is true that even the general form and outline of the Manhattan are not yet developed. As one sees it now from the river, it does not appear, even of the great catenary curve, what it shall be, much less what the effect of it will be when its line is supplemented by that of the unbegun roadway beneath, and of the filaments which are to connect these two essential members of a suspension bridge. It is the metal work of the towers alone and the masonry of the anchorages alone that are sufficiently advanced to be judged. In these there is already abundant evidence of a more skilful and expressive and successful treatment than is to be found in any other suspension bridge anywhere. Mr. Hornbostel's design for the towers, as exhibited some years ago in a model, was universally admired. But it is clear that this has been vastly improved in the executed work. Instead of a trellis of metal panels in each of the three compartments into which the tower is divided above the roadway, this trellis is now confined to the lateral compartments, the central being opened to the top, where it is closed by an arch, with a great gain in expression, the uprights which support each its respective cable being unmistakably specialized for that function. And there is an equal increase both in power and in refinement over the original design in the spreading substructure of the tower (Fig. 14), in which the function of every part speaks with forcible and eloquent expression, and the unity in variety of the whole is so impressive that it is impossible to regret that in these masonry was discarded for metal. It is instructive to compare the section of the summit of the towers of the East River Bridge, in which such blundering and mistaken pains were taken to ignore the actual purpose of their erection, to conceal what they were, in fact, all about, with the successful pains which have been taken in the exposition and the emphasis of the offices of the cable holders and the cable saddles shown in the outline of the tops

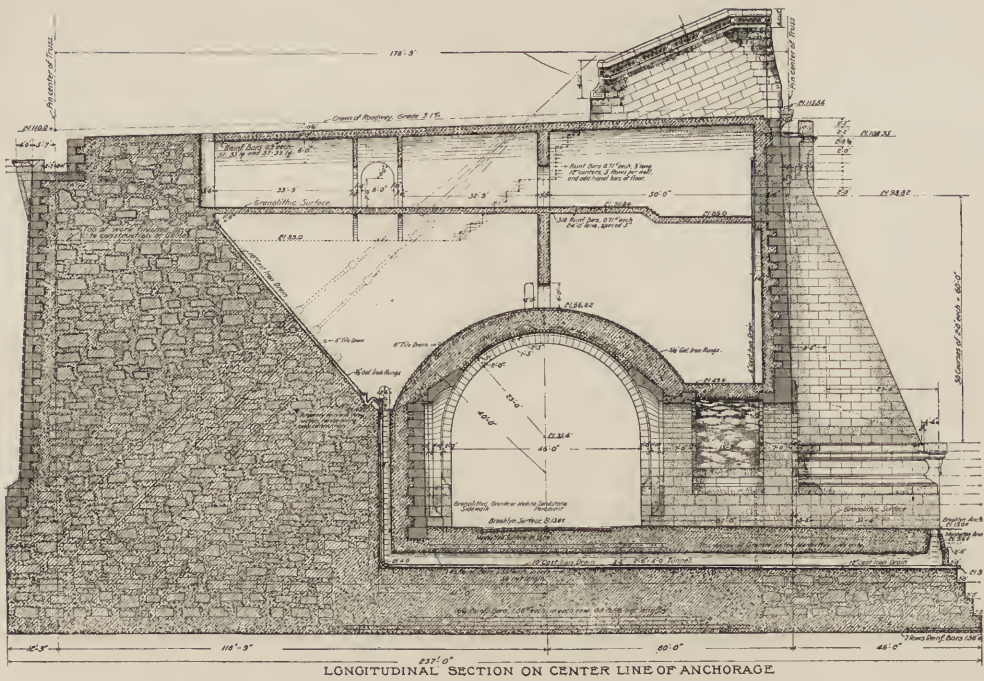


FIG. 18. SECTION OF ANCHORAGE, MANHATTAN BRIDGE.



FIG. 17. FRONT OF ANCHORAGE, MANHATTAN BRIDGE.
Carrère & Hastings, Architects.

of the towers of the Manhattan (Fig. 15).

But the masonry of the anchorages is at least equally admirable with the metal of the towers, and equally expressive (Figs. 16 and 17). The effect of massiveness in these anchorages is almost more than Roman. They wear, indeed, an aspect of Egyptian immobility, and immobility is the very purport of their erection. Where in the world can one see a more impressive effect of sheer power than in the ordered masses of this Manhattan anchorage, which so few of us have thus far taken the trouble to

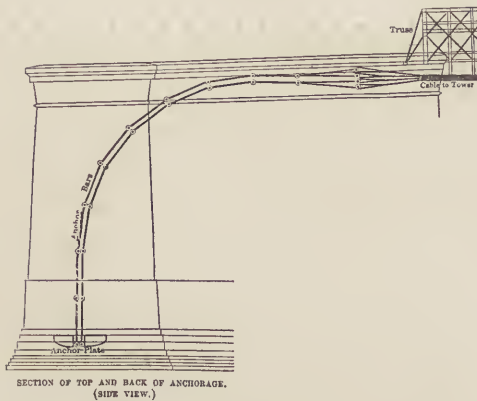


Fig. 19. Section of Anchorage, Old East River Bridge.

see at all? It is hard to say which is the more impressive view, that of the front, with its four great backward-raking buttresses, each corresponding to the great cable to restrain which is its office, or of the flank, in which the aperture destined for the passage of Cherry Street serves but to emphasize the solidity of its abutting masses. The four-foot torus which is the impost-moulding of the arch—and one wishes that it had been of a single instead of a double course of masonry—will give the scale of the monumental work which is given

also by the human figure alongside. And what a scale!

Why man it doth bestride the narrow street,
Like a Colossus, and we, petty men,
Walk under its huge legs and peep about—

Egyptian mass! Egyptian immobility! "Pylons" is the only name for these huge erections, that so recall how the Egyptians "planting lasting bases, defied the crumbling touches of time and the misty vaporousness of oblivion." These anchorages give visible promise of a duration equal to that of the great temple of Ramses, or the great pyramid of Cheops. And it is as gratifying as it is exemplary to note that all this is so impressive because it is so expressive, because it is in detail, as well as in mass, a faithful and skillful following of the facts of the case. Each of the buttresses is modeled to express its special function of seizing and holding its allotted cable, which, as the section shows, it is reaching up to grasp. Even our old friend, the curved pediment, finds a meaning as the offset and dripstone of a buttress. The contrast is as vivid and as overwhelmingly in favor of the modern instance between the section of this anchorage (Fig. 18) and that of the crude and amorphous lump of the anchorage of the old East River Bridge (Fig. 19), as between the summits of their respective towers, though the process has been in one case that of attenuation and in the other that of accumulation. There seem to have been generations of earnest and artistic workers between the crudity of the earlier and the refinement of the later of two works which, in fact, less than a single generation divides. It is a great advance. The Queensborough and the Manhattan Bridges give promise of a final and triumphant refutation of the official European criticism that "public works in America are executed without reference to art."

Montgomery Schuyler.

A Renaissance Château of Eastern France

The Château de Pailly

No traveller who has visited Eastern France in search of fine old chateaux can have failed to notice how very few specimens of the architecture of the Middle Ages or the Renaissance there are in that part of the country. If he were to set out from Paris in almost any other direction he would be embarrassed as regards choice, but in the Departments of the Aube and the Haute-Marne he has to be content with a castle or country house here and there and not be disappointed should it fail to come up to his expectations. The reason for this scarcity of buildings of architectural importance is not hard to find; it is a matter of French history. During the wars with the English and those of the League and the Fronde, the East of France, and especially the country around Langres, was devastated time after time. Many fine châteaux existed there in the Middle Ages, but most, if not all, were destroyed. So complete, indeed, was the destruction that the owners, in all but a few rare cases, abandoned the idea of rebuilding.

Among the mediaeval castles which were only partly destroyed during that stormy period, and which were rebuilt in the style of the Renaissance, the most remarkable is the Château de Pailly. It is situated in the commune of Longeau, near Chalindrey, at the base of the Cognelot, one of the mountains which form the range on which the fortified town of Langres is built. The hamlet and chateau of Pailly belonged in the thirteenth century to certain nobles who bore that name, and they were still in possession at the close of the fourteenth century. Whether they continued to hold them during the following century is unknown. In 1491 a Jean de Dommarien was Lord of Pailly, but as he died without issue the Bishop of Langres, whom he had recognized as his souzerain, entered into possession of the property. The new owner did not, however, hold it long, for it shortly afterwards passed into the hands of

the illustrious house of Saulx. In 1530 Jean de Saulx, Lord of Orrain, was the possessor, and from him it passed to his son Gaspard, who afterwards adopted his mother's name, Tavannes. He later became Marshal de Tavannes, and one of the most famous men of his day. The present Château de Pailly was in great part built by him. Remaining in the Tavannes family until 1764, the château and estate were sold to Arnoult Rene Toussaint Heudelot de Letancourt, who in 1777 left it to his son, Abraham Pierre de Letancourt. He in turn bequeathed the property to a relative, Francois Heudelot de Presigny, the wife of Jean Etienne Desmiers de Saint-Simon, Vicomte d'Archiac. His son, Jean Etienne Arnoulphe, Vicomte d'Archiac de Saint-Simon, became the owner in 1790, but as he fled the country at the time of the Revolution the State seized the château and sold it, in August, 1799, to M. Charles Felice, of Paris. It was again sold on May 7, 1802, to M. Francois Roulet, of Neuchatel, and once more in 1821, this time to M. Jean Francois Moreau du Breuil, who, in company with his son, M. Thomas Moreau du Breuil, began its restoration—a work which has been continued in a very intelligent manner by the present owners, M. and Madame du Breuil de Saint-Germain.

In its main lines the Château de Pailly is much as it was in the days of Marshal de Tavannes, and for that reason it is regarded by architects as one of the most remarkable of the sixteenth century châteaux of France. It formerly consisted of four wings surrounding a square courtyard. Three round towers and a pavilion were at the corners and defended the curtains, whilst a square donjon on the north side commanded the entire block of buildings. At the top of this keep were stone turrets for the sentinels who guarded the castle, which, in addition to other defences, was surrounded by a moat. The entrances, all of which were

provided with drawbridges, were three in number: By way of the pavilion on the southwest, by two doors, one in the northern and the other near the southern curtain, and, finally, by an open postern in the northwest tower.

"At the period at which the Château de Pailly was built," says an eminent French archaeologist of the middle of the last century, "the influence of feudalism had much diminished. The

tained, they were there more as a souvenir than as fortifications; and thus the castles of the end of the sixteenth century, whilst leaving a good deal of their military character, already began to have the appearance of dwelling houses. The Italian campaigns of Charles VIII, Louis XII and Francis I, during which French nobles visited the Renaissance palaces and villas of Italy, had also largely contributed to the re-



CHATEAU DE PAILLY—GENERAL VIEW OF COURTYARD.

nobles were no longer sufficiently independent to raise strongholds in opposition to the royal authority, which had gained what feudalism had lost. Moreover, the invention of artillery made the defence of castles more and more difficult, and the nobles, as a rule, were not sufficiently wealthy to build fortifications of sufficient strength to resist cannon, or, if they built them, to provide them with artillery. Consequently they had almost given up constructing fortresses. If towers were still re-

placement of feudal castles by less severe châteaux."

In this respect it is interesting to compare two other châteaux of the Langres district with the Château de Pailly, Ancy-le-Franc, which was built in 1555, is very regular in its architecture, but it is without either towers or a donjon. Its moat is the only defence. The Chateau of Tanley, dating from 1559, has both moat and towers, but, with its regular façades it bears only a slight resemblance to a stronghold. Con-



VIEWS OF THE CHATEAU DE PAILLY.

Southwest pavilion dating from the Renaissance.
Staircase tower in the courtyard.

Doorway in the courtyard.
One of the towers and the moat.

structed about the same time as these two castles, Pailly has a more military aspect. Thus, three towers and a pavilion flank its exterior walls and the keep still occupies the place it ordinarily had in French strongholds. The windows—numerous on the façade facing the courtyard—are not so common at the exterior, especially on the ground floor, and, with the exception of the southwest pavilion, which is richly ornamented with columns and carving, the exterior walls are almost plain. A cornice, resembling the machicolations of older castles, is the only ornamentation.

It must be remembered that Marshal de Tavannes was a military man. It was not natural that he should build his castle with the regularity of an Italian palace, deprived of all means of defence. He foresaw that he might find a use for stout crenelated walls, hence the embrasures in the towers, which he likewise roofed in. But what constituted the principal means of defence was a terrace with which the castle was surmounted—a terrace capable of being armed with cannon. Now, these means of defence certainly saved the château from complete ruin, for on Prince Casimir's army passing through Pailly in 1576 the village was pillaged and burnt. Twice did the Comtois and the Croations come marauding in August, 1842, and had the castle been less defended than it was they would undoubtedly have pillaged it.

But if the Castle of Pailly, taken as a whole and especially as regards its exterior, retains the air of a feudal habitation, the architecture of its courtyard and that of the beautiful southwestern pavilion belongs to the Renaissance in its richest and most delightful form. This southwest pavilion, in which, as I have said, there was the principal entrance, is built on a basis of rusticated stones, which support two floors, each ornamented with eight fluted columns. On the first floor, these are Ionic; on the second, Corinthian, and, arranged in pairs, they are separated by mouldings enframing marble panels. On the frieze of the first floor can be seen a

curious leaf-like ornamentation, rather resembling a bunch of plumes, and this the architect has employed on many parts of the château. The frieze of the second floor is ornamented with modillions. This graceful façade was formerly surmounted by an attic on which stood an equestrian statue of Marshal de Tavannes.

The pavilion in the courtyard is equally remarkable. The entrance is surmounted by a marble plaque bearing a defaced inscription, and on each side are two fluted and sculptured pilasters, separated by panels of rusticated stone. Leaf ornaments appear on the frieze. The arrangement of the first floor is similar to that of the ground floor, but the pilasters are replaced by fluted columns, above the capitals of which is a finely sculptured frieze. These columns are separated by empty niches, and under the window is a partly broken bas-relief, representing a famous jump which Marshal de Tavannes once made on horseback in the Forest of Fontainebleau. The rocks of the forest are, however, replaced by what look like towers, and the Marshal is mounted on a Pegasus, which he had adopted as an emblem. Finally, a dormer-window with a pilaster and a fluted column on each side rises from an attic decorated with a medallion and sculpture. This window is surmounted by a shield encircled by the Cordon of the Order of the Saint-Esprit and bearing a lion on an azure field—the arms of the Saulz de Tavannes family. On each side of the coat of arms there were formerly three statues representing three of the seasons, whilst two vases, resting on the attic, flanked the dormer-window.

The donjon, built of rough-hewn stone, stands to the right of this pavilion, with the elegant architecture of which its imposing mass contrasts most strikingly. It has been said that this keep dates from the tenth century, but as buildings with bossages were not constructed before the introduction of artillery there is no doubt that it was raised in the fifteenth century; that is, at the time the castle was rebuilt, after an attack by the inhabitants of Langres. It



CHATEAU DE PAILLY.
The Drawing Room.
The salle dorée or ancient salle de gardes.

is the only remaining portion of the older château. Two floors of windows were made in its sides during the sixteenth century, and its walls were surmounted by a sort of attic supported by medallions resembling machicolations. Finally, four turrets, open to the air, were placed at its corners, three for sentinels and the fourth to contain a staircase leading to the donjon's platform.

Along all the western façade facing the courtyard is a balcony supported by consoles, fluted and ornamented with animals' heads. The windows of the first floor, resting on this balcony, are separated by pairs of pilasters with ionic capitals. Above runs an attic. The building facing the pavilion and the keep formerly contained prisons in the basement. On the ground floor is an open gallery formed of arcades separated by pilasters of the Doric order. Ionic pilasters separate the windows of the first floor, which is reached by means of a charming turret with openings. The building which closed the courtyard, in the center of which there formerly stood a stone lion, is said to have been built in the same style as this last named façade.

Like all old châteaux, the interior of Pailly contains exceedingly large rooms, extending in some cases the entire length of the wings. With one exception all the rooms are vaulted, and the huge fire-places which were built to warm them are veritable monuments. All the ancient mantelpieces, save two, still exist.

In the room looking on to the balcony, and which is now used as a salon, the windows are separated by fluted columns, supporting the roof. At one end is a mantelpiece surmounted by a very fine bas-relief, on which, to the right, can be seen the Marshal de Tavannes on his knees, in armor, and behind him his horse, held by a woman. Minerva is presenting him with arms, whilst near her are seated two women, one preparing laurel wreaths, the other a crown. To the left two cupids are busy inscribing the soldier's exploits upon tablets. Finally, in the left hand top corner is Tavanne's emblem, "A Pegasus."

The interior of the keep consists of a large room formerly called the Salle-

Dorée. Instead of being vaulted, it has a wooden ceiling supported by beams, which are ornamented with paintings. The window recesses were also covered with paintings, enframing medallions, on which were mythological subjects, one of which, representing Daphne, can still be distinguished. A similar decoration ornaments the ceilings of the windows; but there all the medallions enclose the coat of arms of the Saulx de Tavannes family, a coat of arms which is united in the case of one of the windows to that of the Tresmes family. This leads one to believe that these paintings were executed in the seventeenth century, at which time the castle belonged to Jacques de Tavannes, who married Louise Henriette, daughter of the Duc de Tresmes, Captain of the King's Guard and Lieutenant General of Champagne.

In this room should also be noted a fine mantelpiece supported by consoles, fluted and ornamented with acanthus leaves. The mantel consists of fluted pilasters on either side of the arms of Saulx de Tavannes, supported by griffins and surmounted by a helmet and a lion's head. These arms are surrounded by an ornamentation of fruit, etc., in the midst of which are two mere escutcheons, the arms of which are, however, defaced. This mantelpiece is in white stone. At the other end of the same room is another mantelpiece, which, though badly damaged, is pleasing in design. The only console it possesses was found in the park.

Between the Salle-Dorée and the drawing-room is a pretty corridor, leading to the dining-room and bedrooms of the chateau. But these are not particularly noteworthy, except from the point of view of certain pieces of furniture. In one of the bedrooms is a beautifully carved Portuguese bedstead and a seventeenth century wardrobe, Alsatian work.

In spite of many changes which were made at Pailly during the seventeenth century, the château was almost, at the end of the eighteenth century, in the same state as when Marshal de Tavannes left it. But when the Revo-

lution came things changed. About 1792 the inhabitants of the village of Heully-Coton, headed by a Langres notary, invaded the castle, the owner of which was absent, and as there was nobody to guard the property, as in days of old, the band of marauders wrecked everything they could lay their hands on. The furniture and hangings in the rooms were shattered and torn, the ceiling in the Salon-Dorée was much damaged, some of the columns in the salon were overthrown, the bas-relief above the door in the courtyard was defaced, the charming turret was attacked

for the oxen of a Swiss cattle breeder. Fortunate for the still beautiful building his enterprise failed, and it passed into the hands of those who could appreciate its architecture. Following the advice of M. Pistellet de Saint-Ferjeux, an eminent archaeologist of Langres, the new owner, M. Thomas du Breuil, decided to restore the castle in the most thorough and intelligent manner possible.

Let me say a few concluding words on the subject of the architect employed by Marshal de Tavannes. His name was Nicolas Ribonnier, a native of Lan-



CHATEAU DE PAILLY—THE CORRIDOR.

and broken, and the equestrian statue of Marshal de Tavannes was shattered to atoms. The doors and even the flooring were not spared.

Strange is the fate which overcomes some of these ancient castles of France. After being the home of a Marshal of France, of Francois de la Baume-Montreval, of the daughter of Comte Chabot de Charny, Grand-Ecuyer of France, of Francois Brulart, daughter of the First President of the Bourgoyne Parliament, and of Marie Athenai d'Aguesseau, sister of the celebrated Chancellor of the same name, the Château de Pailly was used for several years as a stable

for the oxen of a Swiss cattle breeder. Fortunate for the still beautiful building his enterprise failed, and it passed into the hands of those who could appreciate its architecture. Following the advice of M. Pistellet de Saint-Ferjeux, an eminent archaeologist of Langres, the new owner, M. Thomas du Breuil, decided to restore the castle in the most thorough and intelligent manner possible. Let me say a few concluding words on the subject of the architect employed by Marshal de Tavannes. His name was Nicolas Ribonnier, a native of Lan-

Frederic Lees.



THE HUN MOUNDS AND THE OLD CHURCH AT UPSALA.

Contemporary Swedish Architecture*

The massive Hun mounds on the Upsala plains existed centuries before King Olaf Stotkonung of Sweden was baptised at Husaby well, a thousand years ago, and who thereafter ceased to lead the pagan festivals in Upsala's temple.

Upsala's Hungraves, those tremendous earth mounds which enclose the resting places of our ancestors, are proof of the paganish power of erection and might. They rise like mighty mountain crests burrowing the plains and like dull heavy sounds breaking through the surface from another world, they appear to us in extraordinary wave lines. Not far away there stood, as late as the 12th century, our grand pagan temple, uninjured and still in use, with massive walls of coarse blocks of felspar, covered within with plates of gold. There, surrounded by the holy graves, were worshipped the old gods and deities, Odin, Thor and Frey, until Eric the Holy put an end to the pagan practices and demolished the walls of the temple. On the site of the ancient edifice he erected the Christian church which is still standing between the graves of the Huns. As in those early days, so do still the monuments of the pagans and those of mediæval Christianity, commingle and present us with the greatest monument of ancient times. The early civilization of the peasantry which existed many cen-

turies before the introduction of Christianity gave way slowly before the advance of the Latin race, which forced its way with Catholicism during the Middle Ages. Long after Christian churches existed in West Gutland, Sigtuna and in Gotland they were making sacrifices to their pagan gods in the temple on the plains of Upsala.

These early churches and the Upsala temple were built of stone, a material which was then not much used for building purposes. The immense forests of our land permitted the most extensive timber construction, and house and hut were generally built of rough wood. Even churches were often built of wood and the ordinary granite, limestone and sandstone, though plentiful, were rarely used.

In Gothland, however, there arose early in the Middle Ages a further developed church architecture, which is still seen in hundreds of small country churches, exhibiting peculiar Roman and Gothic forms with a curious northern tinge. This was due in part to the foreign trade of the island, to its isolation from the rest of the country and to its deposits of limestone and sandstone. Thanks to these rich deposits of easily hewn stone, the edifices exhibit a richness in detail and a variety in form rarely found in the rough structures on the Swedish mainland. There are still found peasant homes showing an ancient archi-

*Auswahl Von Schwedischer Architektur Der Gegenwart, 1908 Aktiebolaget Ljus, Stockholm; Bruno Hessling Co., New York.

texture of stone with straw roof. Their low, wide masses, lying close to the ground like the Hun's graves, are especially interesting when compared with the forms of the grave mounds. Both

churches, with their simple designs, Gothic arch roofs, granite walls often two meters thick, and fortified towers, served the double purpose of worship and defense.



FIG. 1. POST OFFICE IN STOCKHOLM.

Ferdinand Boberg, Architect.

are round, low, and seem to be part of the ground, the same being seen in some of our old round churches built of granite. The Romanesque church buildings erected in bare, outlying situations, as well as the later-erected country

These edifices, of which the Varnheimer church is an example, erected by the inhabitants under the leadership of the local monks, exhibit a more original and more rational architectural character than the Gothic cathedrals of Upsala,



Fig. 2. Detail of Figure 1.

Skara, Linköping, etc., which were constructed under the direction of foreign architects. At the same time brick came into more general use as building material, and during the Swedish Renaissance of the 16th century brick, granite and other hewn stone were used in the construction of residence houses of the gentry and the castles of the kings.

Under the rule of Gustavus Vasa, who consolidated the land as a kingdom, our greatest progress in architecture was made. Endowed with a perception of clearness and strength, and with a royal appreciation of the dignity of architecture, he personally conducted many building enterprises in the kingdom. The most beautiful of these is the palace at Vadstena. The original plan was like the early French castles, and of the early building the centre portion, the side towers and the moat are still extant. Its compact mass, immense proportions, curious grouping of windows, in which the demands of the Renaissance for a detailed regularity are only considered in a general way, make this a monument of true Swedish architecture. Its immense apartments, some more than ten meters

wide, with their straight, heavy timber roofs, show the characteristic force of that day. The same architectural elements of mass and beauty are observable in the brick castles in Kalmar and Gripsholm. During the 17th, and especially, the 18th, centuries southern influences are clearly seen and traceable to the active intercourse of Sweden during its most glorious period with the rest of Europe. The massive and sedate forms were still in evidence, and even the rough character as seen in the palaces at Tido and Leeko; but the sedate material and construction are not seen to the same extent as formerly. The walls are built of brick or brick and stone and the façades are covered with mortar to give a handsome effect.

This tendency toward decorative effect reached its height during the 18th century and was brought about through the Italian schooling of our great Swedish artists, Tessin the Older and Tessin the Younger. The former still betrayed some of the old tendencies of the time of Vasa, as seen in his palace for Axel Oxensterna, opposite the principal church of Stockholm. Tessin the Younger,



Fig. 3. Detail of Figure 1.



FIG. 4. THE NORDISCHE KREDITBANK IN STOCKHOLM.
Ferdinand Boberg, Architect.



Fig. 5. Detail of Figure 4.



Fig 6. Detail of Figure 4.



Fig. 7. Brick Church in Orebro Län.
Magnus Dahlander, Architect.

however, is completely under the influence of the Italian taste for decorative effects. The only germ of Swedish art shown by him is in the imposing mass. His royal palace in Stockholm, taking in an area of 30,000 square meters, with its symmetrical arrangement, its rich pilaster divisions, polished walls and fine subdivisions, was the model of Swedish architecture for over a century. His decorative tone and the Italian style which he introduced is still in use, tinged more or less by French influence. The Caroline tomb near the Riddarholms Church in Stockholm is a shining example of the art of the two Tessins, exhibiting also a trace of the Rococo, which exerted a noticeable influence at the time of the completion of the tomb about the middle of the 18th century.

The cosmopolitan character of the 19th century brought to Sweden, perhaps in a greater degree than to other

civilized nations, a mixture of historic style, from Greek to the Renaissance of the Middle Ages and the Baroc, all based rather upon academic knowledge than upon the true artistic feeling for architecture. In our country, as in many other lands, the excessive amount of foreign material has prevented the development of a uniform national type of architecture. It has been recognized during the last decade that this universal spirit in an art like architecture, which is influenced by climatic and local conditions, presents a distinct danger for the building art. For this reason the problem of the day with Swedish architecture is to develop a national architecture based upon the study of national edifices.

Ragnar Östberg.

The volume from which the foregoing is translated contains a truly remarkable and representative selection of the contemporary buildings of Sweden. To study them intelligently one should first read Mr. Östberg's review and then seek out confirmation of the influences of which



Fig. 8. Church of St. Mathew in Stockholm.
Erik Lallerstedt, Architect.



Fig. 9. Apartments in Stockholm.
Ekman & Hagström, Architects.

he speaks. In most histories of architecture not even a word of mention is to be found on the architecture of the Scandinavian lands beyond the North Sea. From even a cursory inspection of these Swedish buildings the conclusion is inevitable that the historian of the future will be guilty of palpable injustice if he fails to give them a due share of attention.

We cannot agree with Mr. Östberg that *the universal spirit in architecture presents a distinct danger for building art*, if by that universal spirit he means eclecticism. True, architecture is strongly influenced by climate and local conditions. But are there not architectural solutions which are of universal application and which are as invaluable

to Scandinavia as to any other section of Europe, and to America, for that matter? One cannot, moreover, be blind to the fact that this is an eclectic age in many departments of mental activity, to which architecture forms no exception. No better application could be found of this proposition than the United States, which, like Sweden, is young in architectural development, though not, of course, so susceptible to the multitude of influences which are traceable in the contemporary buildings of that Scandinavian country. Yet, who can authoritatively assert that we are not already beginning to develop something in the direction of an American architecture? It cannot be expected that, at the present early stage of our architectural development, one



Fig. 11. Business Building in Stockholm.
Gustaf Lindgren, Architect.

will be able to designate any one building as typifying the national style. To get tangible evidence of such a manifestation of building which has come to be called *style* requires of him who would find it a study of many examples in widely scattered sections. As he passes along he will gradually and unconsciously pick up here and there fragmentary impressions which will finally total up into a definite conclusion showing him whither our ideas in the art of building are leading us. The expression,

the conscientious artist, who thus becomes, to outward appearances, and perhaps quite unconsciously, the creator of a new style of architecture.

In the buildings which are published with Mr. Östberg's text, and some of which we reproduce herewith, are noticeable certain peculiarities not to be found in the countries whose architectural forms they imitate. To state these peculiarities definitely it would be necessary to make an exhaustive study of Swedish buildings from every possible

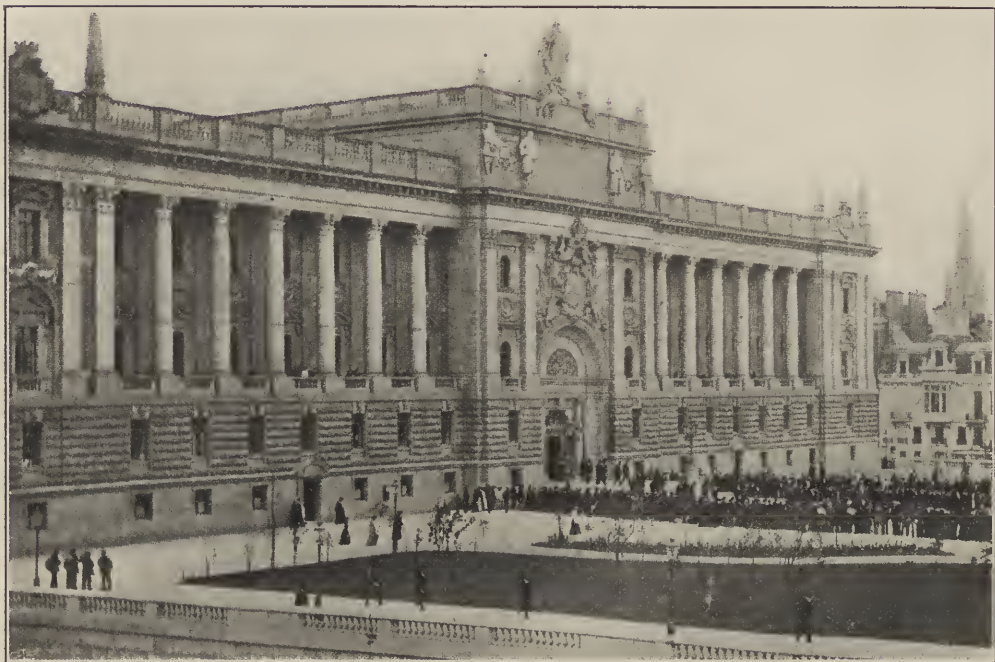


FIG. 10. PARLIAMENT BUILDINGS, STOCKHOLM.

Aron Johansson, Architect.

an epoch-making building, is so often used to denote a structure which precisely typifies a given style and which is made to appear the signal that the style has suddenly been created from apparently no basis. History is sufficient testimony that in the art of building the development of a marked change from the prevailing form is of the slowest of processes. Little by little the prevailing tendencies of the time lead the art in one direction or another, until finally the cumulative results of years of growth begin to crystallize and combine in the hands of

standpoint. It would be necessary to inform oneself precisely of the conditions under which they were built, the nature of the materials entering their construction and the character of the labor available, for which the opportunity does not offer.

Attention may, however, be called to the fact that the northern countries are rich in excellent building materials; the timber supply has been and still is so plentiful and so good that most of the buildings of the peninsula for centuries were of timber construction, as the author

points out in the foregoing, yet stone was to be had in unlimited quantities and of excellent quality. The financial condition of the country did not, however, warrant the expenditure of money to secure work and employ stone in buildings until modern times. But after the employment of the more permanent building material there followed the use of brick and tile and ironwork, and finally of all the other materials which are used elsewhere in permanent structures.

It is natural that the Swedes, with their inexperience in the use of these materials, should adapt them to their borrowed architectural forms in ways which most closely resemble those of the old wooden architecture of their churches and thatched dwelling houses. The minute scale of much of their ornament clearly reveals its origin from wood carving. In some instances a little experience in the art of stone carving has enabled them to produce some splendid pieces of ornamental design, while in other instances their genius for intricate ornament has led them to imitate, in their own way, the extravagances of the Rococo. The decorative use of brick they seem to delight in, and their expertness in the use of wood is admirably shown in their treatment of interiors, which betray the Swedish love of ornament in their richly decorated plaster ceilings.

To point out specifically the more marked characteristics as shown in our illustrations, we select as a fairly representative instance of the use of brick and stone the Post Office in Stockholm (Fig. 1), in which the heavy material is made to serve as the border of the composition, the brick filling in the field. The architecture suggests, if any direct influence, that of the Modern Rhennish, but even such a statement must seem rather far-fetched in view of the novelty of handling the materials in the façade. Figures 2 and 3, which are details of Fig. 1, will serve to illustrate the minute character of the ornament, which betrays its imitation from wooden forms. Over the arched entrance in Fig. 2 is to be seen, though the illustration is not very

clear, an instance of the Rococo extravagance, which might be done with a saving grace in wood, but hardly in stone. On the whole, the modeling of the ornament is brilliant and its distribution good.

Figure 4 shows some influence of the Early English Renaissance in its general box-like appearance, caused by shallow window reveals, and in its fenestration, though on closer inspection (Figs. 5 and 6) one fails to find anything English about it. In Fig. 5 the intricacy and beauty of the ornament is especially to be noted.

Scandinavian architecture, when not too strongly influenced by southern tradition, is essentially picturesque, as witness, for example, the little parish churches shown in Figs. 7 and 8, or the pair of apartment houses in Fig. 9. Here we have modern Swedish architecture at its best, simple and unaffected, pretending to no virtues which it does not possess. If one carried the inspection of Swedish architecture no further, how high would be our estimate of it. But the impartial reviewer is not permitted to blink the other side of the story, to which our next illustration (Fig. 10) offers a fitting introduction, the Parliament Buildings in Stockholm, in a heavy version of its already heavy prototype, the German Renaissance, for which it might be readily mistaken. In fact, there is a reminiscence, though just where it would be hard to say, in this building, which could render it liable to be mistaken for the Berlin Parliament.

An interesting composition, though not so admirable in its details, is the façade of the commercial building shown in Fig. 11. It is difficult to understand how a designer could make such a promising start at a design and complete it in so ineffectual a manner. Taken in its bare elements, the composition, one must admit, shows skill in the grouping of the windows and the placing of the horizontal moulding-bands, but in the treatment of these features there is nothing but disappointment. Note, for instance, the scale of the ornament on the balustrades of the bow-windows, and then



FIG. 12. TJOLEHOLMER CASTLE.

compare it with the minute scale of the ornamental roof balustrade which is so much further above the eye.

A typical example of a Swedish country estate is to be seen in our next illustration (Figs. 12, 13), which clearly betrays its English origin, not alone in

its architectural features, but also in its rambling plan. A characteristic interior is the dining-room of this same castle (Fig. 14), which shows the Swedish facility in the use of carved wood and the application of the forms of wood ornament to plaster decoration.—Editor.

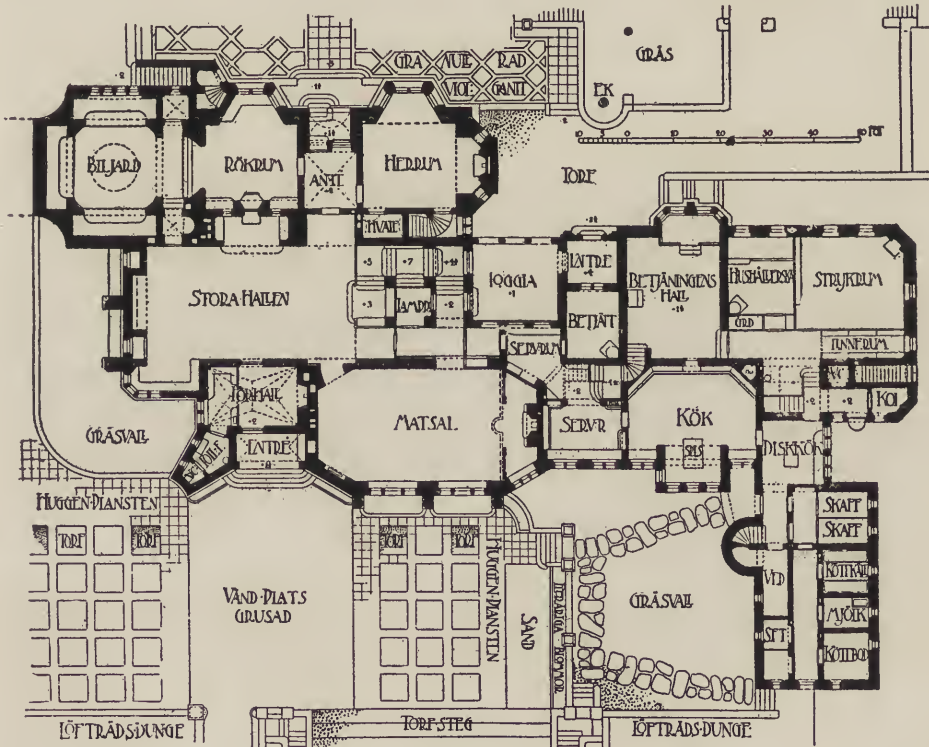


FIG. 13. TJOLEHOLMER CASTLE—PLAN.
Lars Wahlman, Architect.



FIG. 14. TJOLEHOLMER CASTLE—DINING ROOM.

The Architect in History

II.

Roman Architects—Part I.

A far more complex condition of architects and architecture prevailed under Roman rule than in Greek days, for there were now two currents and two ideals—the Italian and the Greek. In architecture, as in law and politics, Rome had a comprehensive and practical scheme to which she held most tenaciously, even forcing into its groove as far as possible the Greek talent of which she made use. She made her art subservient to her unifying programme of life and of social propaganda, without allowing free scope to the old Hellenic particularism. Creature comforts and amusements were lavished on the people to make them forget the loss of liberty; and architecture was given a leading part in the programme, which involved baths, amphitheatres, circuses, theatres, colonnades, basilicas.

The spacious interiors required in the orthodox Roman type of some of these classes of structures, especially the imperial *thermae* and basilicas, brought architects face to face with problems that had never arisen before and which they managed to solve along lines of mingled boldness and common sense, showing how plastic Greek architectural genius was even in its period of subjection to Rome. Nor was this the only important difference. The interiors were not only on a far larger scale; there was a more elaborate co-ordination of structural units. The imperial *thermae* in Rome, the villa of Hadrian at Tivoli are architectural worlds—microcosms of immense possibilities. The new cities that Rome founded throughout the world often arose mushroom like, according to a pre-ordained plan—something only seldom seen in Greek times and then mainly in the last days, after Alexander the Great.

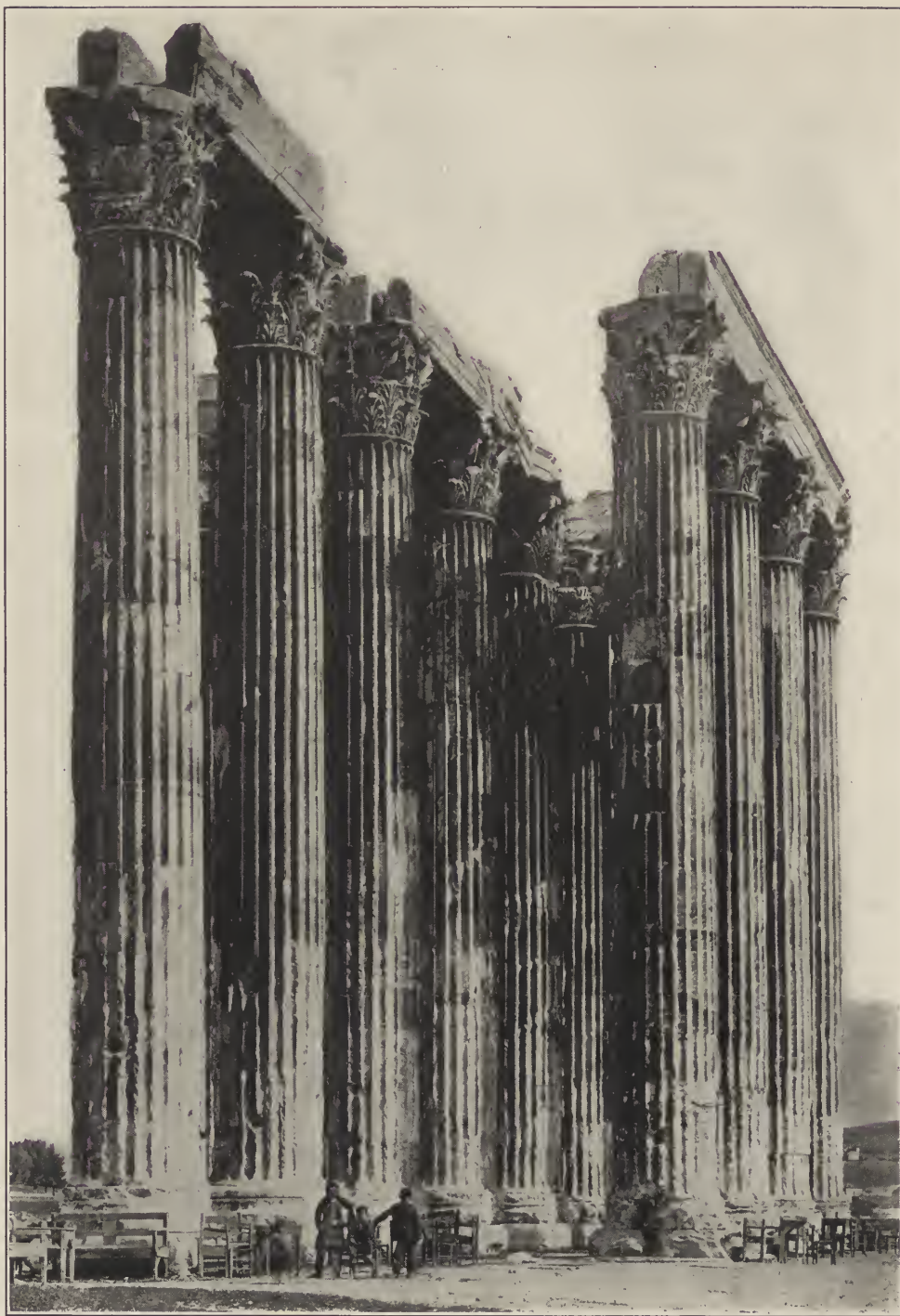
A personal difference that is at first confusing is due to the fact that among

Roman architects social distinctions did not imply what they had among the Greeks in regard to artistic ability and education. While in Greece all prominent architects were free citizens, a Roman architect who was a free citizen might be ignorant, narrow and in-artistic, compared with a slave-architect or a freedman (*libertus*) who was socially a pariah; usually the reason for the superiority of such social inferiors was that they were Greeks.

It is but too true that under the influence of the Roman practical spirit architects lost much of the love of plastic and linear refinements and the aesthetic delight in solving delicate questions of proportion. It is a matter of doubt whether this was compensated by the greater opportunity for composition on a grand scale afforded by the colossal civil structures of the empire. The effect was to wean the architect from the study of optics and perspective and from the higher and theoretical mathematics; to make him more of an engineer and builder; less of an aesthete. He lost the Greek perception for beauty of line and surface.

Perhaps the architect had as broad a culture as before but it was partly of a different sort, with a preponderance of practical elements such as mechanics and sanitation. As a useful art, Cicero classes it by the side of medicine.

The Roman architect was, consequently, not a writer or theorizer. He had no views, no aesthetic canons; gave no literary explanation of his masterpieces as the Greeks had done. It was only at the very threshold of Roman art in the early part of the reign of Augustus that Vitruvius seems to form an exception, in his classic handbook of architecture. But Vitruvius was really less representative of Roman than of Greek ideas and summed up like an



TEMPLE OF JUPITER OLYMPIUS AT ATHENS, BY ROMAN ARCHITECTS.

encyclopaedist the period just then closing rather than ushered in a new one. He knew little or nothing of the possibilities of concrete, the basis of so much Roman imperial construction, nor of the dome and vault as the basis of Roman interiors, nor of the *thermae* in which the new ideas of composition was to be most successfully embodied.

In connection with this Greco-Roman amalgamation, while it is true that the influence of Greek temple architecture on Rome during the formative period of the last two centuries of the Republic was commanding, it not only did not drive out Etruscan traditions (note the persistence of the plan *in antis*), but was in turn reacted upon. While Greek architects invaded Rome, the fresh and lively Roman genius was grasping and adapting the precepts of their masters so quickly that Roman architects were being called to Greece. While the Greek Hermodorus of Salamis built the temple of Jupiter Stator in Rome, the Roman Cossutius finished for Antiochus the Great the colossal temple of Jupiter Olympius at Athens, and the Romans C. and M. Stallius rebuilt the Odeum at Athens for Ariobarzanes.

At the close of this Republican stage Vitruvius mentions, as sources of his manual, *thirty-six* Greek writers on architecture and its kindred subjects, and contrasts this abundance with the scarcity of Roman architectural writers, of whom he can enumerate but three. He says: "From the writings of these (thirty-six Greeks) I have gathered what seemed to me useful, especially as I have observed that on this subject the Greeks have published much and our own countrymen very little." After mentioning the writings of these three Romans—Fuffitius, Varro and Publius Septimius—he adds: "Beside these I do not recollect any one who up to this time has written anything, though we have formerly produced great architects and such as were well qualified to write with elegance." Nor was later Roman literature more prolific, as not a trace has remained of any work beside that of Vitruvius.

Then follows a passage in which

Vitruvius deploras the inaccurate estimates of architects in connection, particularly, with work done for private owners, undeterred as they were by the fear of any punitive law like that of Ephesus, a law which was explained in my paper on Greek architects: "Would to God that such a law existed among the Roman people with regard to their public, but also to their private buildings, for then the blunders could not commit their depredations with impunity, and those most skillful in the intricacies of the art would follow the profession. Proprietors would not be led into ruinous expense and architects, through fear of punishment, would be more careful in their estimates."

Already in the times of Cicero and Augustus it had become the custom for wealthy Romans of taste to not only take an active part in overseeing, as Cicero did, the details of the work, but to be their own architects, and deal directly with their contractors. Vitruvius, as we see, thinks this due to the fact that there was no Roman law to make the architect financially responsible when the estimate he had given as to the cost of a house was far exceeded in the building.

Vitruvius does not spare his fellow architects, and, unlike his contemporary, Cicero, refers to the great number of "cheeky" ignoramuses who sullied the profession. He shows, perhaps, a trace of personal disappointment and disillusion when he says that it takes more than scientific knowledge to bring success, and that money, influential connections or a good address are necessary for an architect to be successful and to have the chance to show his ability. He confesses to his own lack of personal attractiveness—"nature has denied me ample stature, my face is wrinkled, and sickness has impaired my constitution." He adds that he did not enter the profession to make money and would think it undignified to run after clients as the majority do, to drum up trade. "No wonder," he says, "that I am so little known, but when this book is published I hope I shall obtain fame with posterity."

In another place he says, speaking evidently at first of the Greeks and early Romans: "The ancients entrusted their works to those architects only who were of good family and well educated, thinking it better to trust the modest than the bold and arrogant man. These artists instructed only their own children or relations, with due regard to their honorable character, so that property might be safely committed to their charge. When, therefore, I see this noble science in the hands of the unlearned and unskillful, ignorant not only of architecture but of everything relating to buildings, I cannot blame proprietors who, relying on their own intelligence, are their own architects."

It was probably the invasion of the profession in his own time by numerous freedmen and slaves that largely caused this bitterness of Vitruvius, himself a Roman citizen of good family and wide culture, and naturally scornful of men so far below him in position. Another reason may be that he belonged to the school that was then dying out, the exclusive school of the Greek architrave and the flat roof; still another, that so many persons who were not architects entered into the building business as a speculation.

So much has been here said about Vitruvius and so pronounced was his influence even in the early Middle Ages and especially during the entire Renaissance that I shall add a synopsis of his treatise. It still remains the principal basis for our scientific study of the classic styles and shows what sort of handbook was available for Roman architects. We must imagine it to have been accompanied by illustrative drawings. Vitruvius dedicated his book to an Emperor whom he does not name, but who can only be Augustus, and wrote it in his old age. The general opinion is that he was a military engineer and architect under Julius Caesar and Augustus and built under the latter a basilica at Fano. He leads the series of Roman architects known by name to have been in the employ of the State and especially of the Emperors, a class

of architects who were given ever increasing opportunities.

IMPERIAL ARCHITECTS.—The greater of these opportunities came in Rome itself mostly in consequence of its periodical great fires. It is true that Roman authors do not specify the architects who were employed by Augustus and Agrippa to turn Rome from a brick into a marble city, but we know the names of several architects who might have done this. There was Valerius of Ostia, who covered a theatre in Rome for Agrippa; Vitruvius himself, and probably also a pupil of his, Vitruvius Cerdo, who signed the Colony arch at Verona; Artorius Primus, who built the large theatre at Pompeii and Numisius, who constructed that of Herculaneum; Postumius Pollio, author of the forum and temple at Terracina, and his pupil, Cocceius Auctus, who built the "temple" at Pozzuoli. No later reign furnishes the names of so many architects.

But, after all, the aspect of the city was not affected so radically by the works of Augustus, exquisite and numerous as they were, as it was by Nero after the great fire of 64 A. D.; and we are so fortunate as to have preserved to us by Tacitus the names of the two architects and engineers, Severus and Celer, to whom Nero entrusted the spending of the hundreds of millions he must have devoted to the work of reconstruction.

The city rose again, according to a careful plan, with more regular and broader streets; long lines of porticoes and great squares forming a monumental composition in which the private architecture was so much better in quality as not to make the public structures seem like oases in a wilderness, as in old Rome, but parts of a harmonious whole. The height of the new houses was limited to sixty feet, and in front of the lines of private mansions the Emperor built porticoes at his own expense. Inner courts were required in the house-plans and wood was forbidden in walls. Division walls were to be of stone from the quarries of Gabii or Alba.

These plans of Severus and Celer, who seem to have been given carte blanche, are characterized by Tacitus as exceedingly clever and daring, and as changing the face of nature. This was certainly true of their masterpiece, the Golden House of Nero, the colossal palace with its park which occupied about a square mile in the heart of the city, covering nearly the entire Esquiline Hill.

In Lanciani's opinion there still remains part of the marble mausoleum of one of these architects, Celer. It stands in the garden of S. Agnese outside the walls, and its epitaph reads:

CELERI. NERONIS. AVGVSTI.

L(iberto).A(rchitect)O.

The next great fire in Rome was only sixteen years later, in 80 A. D., under Titus, and it was Domitian by whom the work of reconstruction was planned though not completed.

From Martial, the poet-satyrst, we learn that Domitian's chief architect was Rabirius, who probably not only built Domitian's palace on the Palatine but had general charge of the work throughout the city. Trajan completed a number of Domitian's undertakings, such as the Circus Maximus and the Thermae of Trajan. Early in his reign he placed the architect and engineer Apollodorus of Damascus in charge of his public works. He probably completed the extinction of that pet antipathy of the Romans, the Golden House of Nero, which had usurped so much of the city, by adding above its ruins imperial Baths of Trajan next to those of Titus, facing the Colosseum.

It is to Apollodorus, therefore, that we owe the crowning glory of reconstructed Rome, and one of the architectural wonders of the world, the Forum of Trajan, with its group of colossal structures, and apparently also other works of this time in Rome and Italy, such as the ports and arches and palaces at Ostia, Civitavecchia, Ancona, Beneventum and many more. Even during the early part of the reign of Hadrian, Trajan's successor, Apollodorus seems

to have been supreme, but he fell into imperial disfavor by criticising the drawings Hadrian himself had made, for his new temple of Venus and Rome, and was superseded by other men, such as Decrianus, who, if we may judge from the historian Spartian, was Hadrian's favorite.

Such stray notices in Roman writers, desultory as they are, show that there was no hesitation in the public mind about giving leading architects due credit. Certainly no architects in history had greater opportunities to show their genius than those who were backed by the unlimited imperial treasury, for they seem to have been given a freer hand than in Greece. Cities were remodeled or built anew throughout the world, even the great capitals, such as Antioch. The late Greek or Alexandrian scheme was married to the Roman in these works, and imperial architects were usually recruited in Hellenic lands, as Trajan himself later testified. There were also architects of lesser degree who were regular officials of the imperial household, freedmen and slaves, who had charge of the ever-increasing mass of imperial buildings.

After severe earthquakes, such as those which ruined some of the largest Eastern cities—Antioch, Nicomedia, Nicaea and many more, especially in the time of Trajan and Hadrian, the imperial treasury was opened wide for the work of reconstruction. Provincial governors, such as Pliny the Younger under Trajan, were given authority to call in imperial engineers and architects who were placed in charge of the public works.

CITY ARCHITECTS.—Next in importance to the imperial architects were the official city architects. The custom that had prevailed, especially in late Greek times, among the cities of Asia Minor, such as Rhodes, Cyzicus and Ephesus, of electing a city architect, responsible for all city buildings, old and new, appears to have survived there under the Empire. For example, in the time of Marcus Aurelius, Zeno, son of Theodorus, was not only the architect of the theatre of Aspendos, but had charge

of the other public works of the city. Fortunately, this theatre is one of the best preserved in the world, and it requires but little imagination to refurbish and repeople it. In the illustrations given here there is nothing fantastic.

A little later, between 220 and 240 A.D., the architect, Aurelius Antoninus, held a similar position at Tanaïs, on the Bosphorus, where he rebuilt the walls, gates, forum and other public buildings, and was recorded publicly as their author in several monumental inscriptions.

ARCHITECTS' SIGNATURES.—It was natural that architects should hardly have been allowed to sign their works. Pliny says that they were expressly prohibited from doing so. This was a prohibition that may have been an inheritance from the Greeks, who attached their names only to the buildings of which they were the donors as well as the architects. But with the Romans, the prohibition was neither absolute nor universal, and gradually died out.

Pliny cites as an instance of the tricks to which architects had recourse to evade the prohibition, the case of Batrachus and Saurus, who, disappointed at not being allowed to inscribe their names even on a part of the Portico of Octavia, in Rome, which they had built at their own expense, did so practically by carving a frog and a lizard on the capitals, animals that were emblematic of their names.

Roman law is certainly very clear on this point. In Justinian's Digest is a statement of the famous early jurist-consult Macer: "It is not permissible to inscribe on a public building the names of any other person except that of the Emperor or of the person at whose expense the building is erected."

Sometimes the architect succeeded in inscribing his name by copying this Greek subterfuge and devoting some of his honorarium to building part of the structure at his own expense so as to have a place where he could legally place his signature. We may imagine this to have been the case with C. Julius Lacer, who built the superb high bridge viaduct of Alcantara, over the Tagus in Spain with funds contributed by several

towns of Lusitania. The little temple on the bridge, dedicated to Trajan, was built, as the inscription informs us, at the expense of the architect, who was able, therefore, to have himself praised in flowing verse as author of the entire structure and in the time-worn rôle of overcoming nature by art.

But signatures of architects are not uncommon even on works to which they contributed nothing but their genius. This was especially the case at the beginning, under Augustus, before Roman law had become so thoroughly organized and consistent. Some of these works are particularly interesting. For example, one of the most charming groups of buildings of the Augustan age in a provincial town is that of the forum of Terracina, not far south of Rome. The temple of Jupiter, now the cathedral, was its "Capitolium," and still preserves a considerable part of the rich marble facing of its cella—a most unusual good fortune. Where the Via Appia skirted this forum it was spanned by a memorial arch, and the open square was surrounded by porticoes and an imperial shrine. Part of the pavement of the square still remains, and in this original place the architect of the whole scheme set his name in large letters:

C. POSTVMIUS, C. F.
POLLIO
ARCHITECTVS.

This architect was, of course, not a freedman or slave, but a citizen. But among his pupils was his freedman, L. Cocceius Auctus, whom I have mentioned as a practising architect at Puteoli (Pozzuoli), where he left his signature. In fact, in the time of Augustus it was not unusual for freedmen to be allowed to sign their works. The L. Vitruvius Cerdo, whose signature was extremely prominent under the arcade of the colonial arch of the Gavii at Verona, was probably a freedman of the famous architectural writer Vitruvius. Another freedman, Artorius Primus, was, at about this time, the author of the larger theatre at Pompeii, where his signature reads:

M. ARTORIVS M. L. PRIMUS
ARCHITECTUS.

ARCHITECTS AND CLIENTS. DRAWINGS.—The relations of architects to their private clients must have been both pleasanter and more lucrative than they had been among the Greeks, owing to the far greater luxury prevalent among the wealthy Romans.

Aulus Gellius, who flourished under the early Antonine emperors, has an illuminating anecdote in his *Attic Eveningings*: "I remember going once," he says, "with Julius Celsinus to visit Cornelius Fronto, who was laid up from trouble with his feet. When we entered we found him holding a sort of Greek symposium, surrounded by many men noted for learning, family or fortune. A number of architects were present, who were called in with a view to the erection of some new baths, and they were showing drawings of various kinds of baths depicted on parchment. He selected from among these one that seemed the best in plan and appearance, and asked what it would cost to build, everything included. And when the architect replied that he thought a good three hundred thousand sestercea would be necessary, one of Fronto's friends remarked, "And fifty thousand to boot' (c. \$15,000)."

Among the few letters addressed by a Roman gentleman to his architect is one by the younger Pliny, which goes to show the confidence he felt in this freedman, for he attaches no conditions to the commission he gives him. "I intend," he writes to this Mustius, "to enlarge and beautify the temple of Ceres, which stands on my estate. It is indeed a very ancient structure, and though extremely small, is much frequented on a certain anniversary. On September 13 great numbers of people from all the countryside assemble here, at which time many affairs are transacted and many vows paid and offered; but there is no shelter at hand for them, either from sun or rain. * * * I shall perform an act both of piety and munificence if, at the same time that I build a beautiful temple, I add to it a spacious portico * * * for the use of the people.

I beg, therefore, that you should purchase for me four marble columns of whatever kind you think proper, as well as a quantity of marble for laying the floor and encrusting the walls. You must also either buy a statue of the goddess or get one made, for age has maimed in some parts the ancient one of wood which stands there at present.

"With respect to the portico, I do not think of anything you can send me that will be serviceable, unless you will sketch me out a plan suitable to the situation of the place. It is not practicable to build it around the temple [like a four-sided court], because the latter is closely flanked on one side by the river * * * and on the other by the highway. But beyond this road lies a very large meadow, in which the portico may be conveniently enough placed, opposite the temple; unless you, who know so well how to conquer the inconveniences of nature by art, can hit upon some better plan."

NATIONALITY AND ORGANIZATION.—The majority of architects under the Empire were men of Greek blood. This is not a mere inference from the fact that the private architects of men like Cicero bear Greek names, but because even much later we find the Emperor Trajan not only placing a Greek from the Orient, Apollodorus of Damascus, in charge of his building enterprises, but plainly writing to Pliny the younger, then imperial governor in Asia Minor, that he had better get a Greek architect for his work in Bithynia because he himself got most of his architects from Greece.

This ubiquity of the Greeks partly explains the similarity of so much Roman work in countries so far apart; it also explains the rapidity with which architecture decayed in Italy when imperial patronage was once transferred eastward, as there was so little local Italian talent. It was Antioch, Constantinople and other cities of the East and of Asia Minor that drew the floating crowds of Greeks, because the greatest building operations were carried on in this part of the Roman world after the beginning of the third century.

THE ARMY ARCHITECTS.—Another of the unusual and unifying features of the situation was the relation of the Roman army to architecture. In the outlying provinces, which possessed large permanent garrisons, requiring regular employment in times of peace, such as north Africa, inland Syria, and the regions of the Rhine and the Danube, the new cities as well as the permanent camps and the works of engineering, were built by the army. Architects, as well as engineers, were attached to each legion, which always comprised a certain number of stonecutters, bricklayers, painters, masons and carpenters, so that every legion possessed the elements of a complete corps of builders and decorators and needed no outside help. The military colonies and camps which sprang up in these provinces might not, therefore, be in the least influenced by local art; the legions were, like the mediæval monks, international art agents. Such work was anonymous, and from its very nature lacked the finish and ornamentation of secular work.

The activity of the army in building operations was by no means confined to the actual construction of works controlled by the military authorities. Not only were the soldiers used in quarrying operations, in the manufacture of bricks and other preliminaries, but the proconsuls, legates and other military authorities were authorized to place the soldiery at the service of the curators of public works. In such cases the province for whose benefit the military worked was expected to provide for them at its own cost. The only limit to this use of the legions was the prohibition to use them for private undertakings. Some of the best preserved Roman cities, like Aosta, in the Alps, and Thimgad (Thamugadi); in north Africa, were the work of the army.

More than this, a semi-civil, semi-military scheme was initiated by Hadrian, which explains the wonderful mushroom growth of newly built and renovated cities under him and the succeeding Antonines. He organized a train of architects, engineers, decorators,

sculptors, stonecutters and carpenters, belonging to all branches of the building trades. The men were grouped and managed in military fashion, divided into squads under regular bosses. Of course, this mode of organization applied to the mass of workmen, not to the chief architects and engineers. The object was to have a large body of men always in the Emperor's train as he traveled through the provinces, ready to carry out any of his numerous building schemes. They were, of course, far more highly trained than the common military staff described above; were, in fact, the cream of their professions, as their work shows, from the Hellespont to the Nile. The bulk of them were probably Greek, as Hadrian's predilection for Greek art is well known, and they were doubtless great agents for spreading the best neo-Hellenic taste, for Hadrian spent the larger part of his long reign in travel, and his building operations were constant and universal. In his villa at Tivoli he made an architectural compendium of the ancient world, a *multum in parvo*, where the various most famous types of buildings were reproduced, not only those of Greece and Rome, but those of Egypt.

SALARY.—Theoretically, an architect had as high a position among the Romans as among the Greeks. Roman law and society also made the strictest distinction between a craftsman who worked with his hands for wages and a follower of the liberal arts who practised his profession for its own sake. The former was a menial, the latter a gentleman. The gulf between the architect and the workman was even more enormous than in Greece, because, while the greater part of the finer work seems to have been done in Greece by citizens and foreigners (metics), free labor was almost completely superseded by slave labor in Rome before the close of the republic.

The word *honorarium* was used to express the remuneration of men who followed the liberal arts and did not render personal service under *contract*. Labor by contract was regarded as vitiating their character as freedmen and

citizens by those who, according to the early traditions of prehistoric Greece and Rome, looked upon the liberal professions as priestly offices, whose knowledge was a heavenly endowment. The lawyer, for example, was not supposed to contract for the amount of his remuneration before rendering service.

It was not until Septimius Severus, it is true, that Roman law appears actually to have classified both the architect and the contractor, as well as the surveyor, among members of the liberal arts, but this had previously been commonly understood. Quintilian, for instance, in his famous treatise on rhetoric, includes architecture in all its branches among the liberal arts. Even as late as Justinian, Roman law (Digest) describes as an "honorarium" the payment made to the architect.

SOCIAL POSITION.—In fact, the Romans held even more strongly than the Greeks, until the time of decadence, to the fundamental difference between architecture as a liberal art, practised by gentlemen, and sculpture and painting as degrading occupations, suited to slaves and freedmen. It is Plutarch who uttered the famous *dictum*: "No well-born young man, even after seeing the statue of Jupiter at Pisa, or that of Juno at Argos, will wish to be a Pheidias or a Polycleitos; the work may charm us with its grace, but we are not forced to esteem its author." Lucian elaborated the same idea when he addresses young men: "Even if thou wert a Pheidias or a Polycleitos, and should execute a thousand masterpieces, the praises would be only for thine art, and among the applauders there would not be one who, had he common sense, would wish to be in thy place. * * * If thou become a sculptor, thou wilt be but a day laborer, using up thy body for a paltry wage; thy mind will shrivel; thou wilt be cut off from all, powerless to defend thy friends, intimidate thine enemies, or excite envy in thy fellow citizens. However talented, thou wilt always pass for an artisan, a low workman, a man living from the labor of his hands."

This social ostracism was evidently

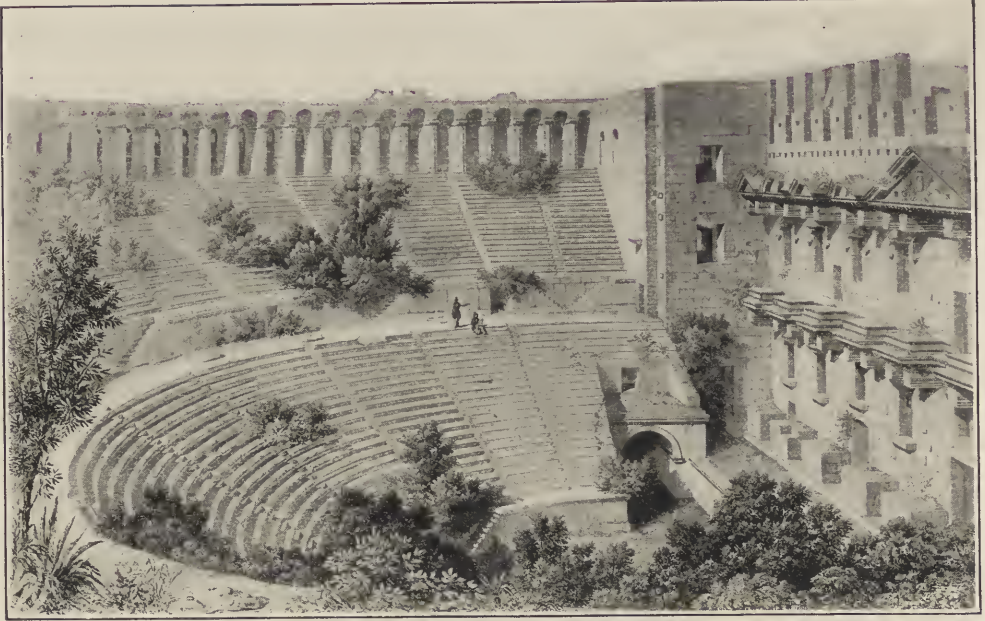
not pronounced against architects *ipso facto*, but their social standing was determined by the usual canons applied to all. We have already seen that as in so many other professions, some architects were slaves, some freedmen, some Roman citizens. The very full list of architects given by Ruggiero in his Roman Epigraphical Dictionary contains names belonging to all three of these branches of the Roman population in almost equal proportions.

It would therefore be absurd to draw any conclusions as to the education and standing of architects as a class that should apply to all. Still it is evident that even the architects who were slaves—Greeks, for the most part—stood in the very front ranks of slavery, were given a position of confidence, responsibility, and were often more learned and able than their colleagues of free condition.

These slave architects were, of course, in private employ and worked exclusively for their owners, except when loaned to a friend or hired out. But we must imagine that most of the Roman aristocracy and *nouveaux riches*, after the age of the Gracchi, had one or more architects among their slaves, as Cicero, Sextus Pompey, Crassus and others are known to have had. The letters of Cicero will give us, later, a glimpse of these private architects, both slaves and freedmen. In such enormous establishments as those of great landowners like Crassus, which were as self-sufficient as small towns, there were a number of architects of the different social classes.

CONTRACTORS.—The presence of these numerous slaves and freedmen in the profession probably affected the relation of architects to the contracting business, with which they seem to have been but little concerned. There are a few cases, certainly, in which a Roman contractor was also the architect. Lucius Cocceius Auctus, of Puteoli, already referred to, was an instance. But such cases were far rarer than among the Greeks.

In fact, the contracting business seems to have been largely a mere matter of



THEATRE OF ASPENDOS (ASIA MINOR), BY ARCHITECT ZENO.



THEATRE OF ASPENDOS, RESTORED.

unprofessional speculation, in which only the sub-contractors were professional builders. Speculators were in the habit of making bids and furnishing capital, for the method of payment was not as favorable to the builders as it had been with the Greeks, so that the professional man of small means was at a disadvantage and needed the aid of capitalists. In Greece the contractor worked with the capital of the state or the owner, by means of the prepayment system; whereas, among the Romans, the usual custom, under the Empire at least, was to begin payment only when a certain proportion of the work had been done. Still, the Puteoli contract, which I shall soon quote, shows that in republican times the Greek method was also followed.

Contracts by measurement or for a lump sum were both in use, and will be described in connection with both public and private architecture. So enamored were the Romans with speculative contracting that practically all repairing and running of public buildings was let out on contract, subject merely to the supervision of the proper city officials. In all this the architect took but an infinitesimal share of responsibility.

ENGINEERS AND THE STATE.—The remarkable preponderance of engineers in the field of architecture, which is becoming so characteristic of modern times, especially in the United States, was a trait also of Roman building: this is only one of the many ways in which we are now reproducing Roman conditions and characteristics. This was especially true in the earlier times of the republic, when drains, bridges, aqueducts, viaducts and such works of public utility exceeded in number and importance the structures of a more æsthetic character.

In the opinion of Promis, architecture among the Romans was at first not strictly an art, but a useful function of the state, and when, in the time of the Scipios, an architectural art arose under Greek influence, then, in about 200 B. C., the distinction was made for the first time between engineers and architects. The functions of the engineer

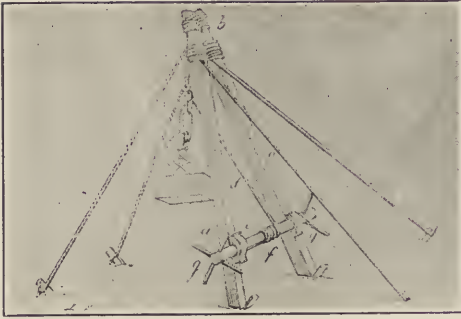
continued after this to be exercised by State officials; bridges, roads, aqueducts, fortifications were still built by the army under official direction, while the Greek *art nouveau*, with its houses, for the first time artistic, its temples, basilicas and porticoes, came largely into the hands of Greeks and their pupils, of whom the majority were slaves or freedmen, though some were free citizens.

As we moderns understand the terms, then, engineers were public, architects private, in their work. But the term architect had with the Romans a more general meaning, including both classes. The military engineers attached to the legions were called architects, though they were also called "masters" and "machine-makers." A decree of the Senate under Augustus orders that each of the Curators of Aqueducts should be accompanied by an architect in his inspection of the aqueducts outside the city.

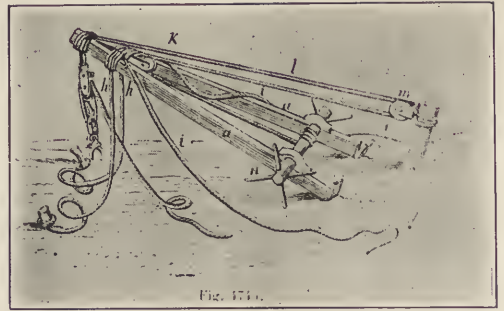
Architects were also attached by law to the commissioners charged with founding and regulating Roman colonies. They were among the regular attendants or *apparitores* of the magistrates. The magnificent network of colonies established as centers of Roman life throughout the world required a regular staff of architects and engineers; and the official building activity of this sort continued unceasingly up to the close of the third century A. D.

We can see, by reading the building regulations preserved in the constitutions of some of these colonies (*e. g.*, *Lex Ursonensis*, in Spain), that there was plenty of work for an official group or *familia* of such architects under the direction of the local magistrates.

TEACHING.—While the value of architects to the state was fully recognized, it seems doubtful whether the state ever officially encouraged independent instruction in the profession until the period of decadence had set in. Until then private initiative had been sufficient; private schools and ateliers, with practical work in the *chantiers*, seem to have formed the total of a young aspirant's possibilities. Vitruvius has been already quoted on the subject of architects as



Type I.



Type II.

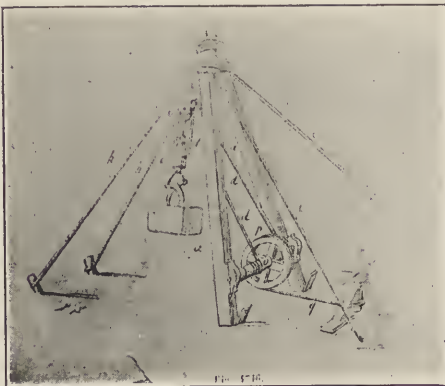
teaching their profession to their sons and relatives, or as opening up their schools more generally to students.

But at a later period, when the labor guilds were being organized in government service, during the third century A. D., the emperors turned their attention to the encouragement of the higher branches. The advantages granted to architects in the legislation of Septimius Severus, who confirmed the liberal character of their profession, were closely followed by those of Alexander Severus. They were freed from taxation and municipal duties, together with teachers of rhetoric, grammar, medicine and mathematics. Diocletian even established, at the close of the century, a rate for the remuneration of teachers of practical and theoretical architecture; and Constantine initiated, or perhaps only re-

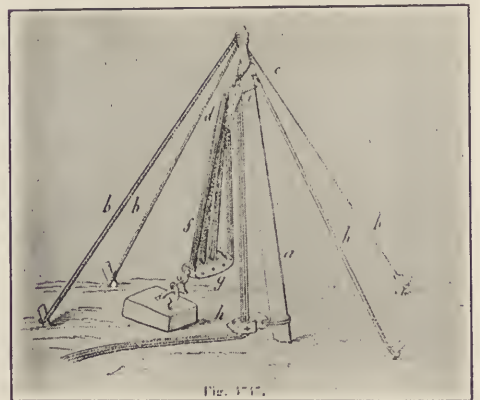
newed, the plan of giving teachers of architecture a regular salary out of the imperial treasury.

The famous Edict of Diocletian, of 301 A. D., to which I allude elsewhere as giving standard prices for every conceivable object or subject, contains a list of the proper *honoraria* for different classes of teachers. It is reckoned somewhat after the German fashion, for outside of any state salary each professor is allowed to charge a certain sum each month for each pupil. We find the following rates:

- Pedagogues and teachers of reading, \$0.60 per month, each pupil.
- Teachers of arithmetic and stenography, \$0.90 per month, each pupil.
- Master architects, \$1.20 per month, each pupil.



Type III.



Type IV.

TYPES OF CRANES OF THE AUGUSTAN AGE—RECONSTRUCTED FROM DESCRIPTIONS IN VITRUVIUS.

(From Daremberg & Saglio.)



Construction of the Port of Terracina—The Architect and His Workmen.

Greek and Latin teachers, \$2.40 per month, each pupil.
 Geometricians, \$2.40 per month, each pupil.
 Orators, sophists, lawyers, \$2.40 per month, each pupil.

It is an interesting scale of rates. One thing seems clear. The teacher of practical architecture, the master architect, *architectus magister*, receives only half as much as the expounder of the theory of the subject, the so-called geometrician; for though the latter might otherwise be regarded as simply a teacher of higher mathematics, we know from other sources that at this time the scientific architect was distinguished from the mere builder by the names *mechanician* and *geometrician*, and that the theory of architectural construction must have formed a part, if not the whole, of the instruction classified by Diocletian under this head.

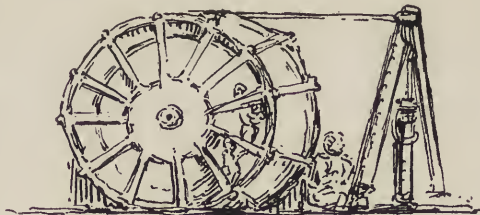
MODELS AND DRAWINGS.—There is not much indication that models of buildings were made by Roman architects; yet they cannot have been unknown. An interesting passage in Frontinus' monograph on the aqueducts of Rome explains how he found it necessary, in order to properly superintend their management and repairs, "to have models made of the aqueducts that show where the valleys are and how deep, where the rivers are passed, where the necessity most occurs of protecting the

conduits where they run along mountain slopes. The usefulness of these [models] is that we can see everything before us at once, and can make our arrangements as if we were on the spot." These raised maps of the district between Rome and the hills where the water supplies were drawn covered a length of some fifty miles, and to be as accurate as Frontinus says must have required great technical skill in modeling, as well as minute accuracy in reproducing surveys. It is strange that we have even less knowledge of Roman than of Greek architectural models.

As for drawings, we may well suppose that the three classes mentioned by Vitruvius were all in use—sketches, plans and elevations. They were mentioned in more detail in my article on Greek architects.

MACHINES.—The dimensions of Roman buildings far exceeded those of the Greeks, and they required different and more powerful mechanical means. The substitution of immense masses of concrete and brick for Hellenic stonework, the use of vault and dome, and the development of vast interiors entirely revolutionized building processes.

Under Greek architects, I omitted the question of machinery because there was so little to say. It seems practically certain that during the first two centuries of temple building in Greece almost up



Work on the Amphitheatre of Capua.

to the time of the Parthenon, Greek architects had recourse to the primitive Egyptian method of burying the columns of a temple in sand when they wanted to put the architrave blocks in place; that they rolled the blocks up by hand and then excavated the columns!

*The Architectural Record, Feb., 1908, Nov., 1908.

Although the Greeks of the Golden Age appear to have known something of hoisting machinery, we cannot say how much, and it was not until Greek architecture was tottering to its grave that the great practical mathematicians of the late Alexandrian age applied geometry to mechanics for the purpose of inventing hoisting machines of tremendous force. The great inventors were Hero, of Alexandria, and Philo, of Byzantium. The Romans, beginning with Vitruvius, simply utilized their inventions.

In Book X. of the Roman architects' manual, these machines are so carefully described that we could easily reconstruct them. Only one of these cranes or derricks, the least powerful, has a single beam, and though easily set up, is not so easy to handle as the others. The most powerful consists of two heavy beams, planted in the ground, bolted and roped at the top, and held by four ropes. The double tackle-block has four pulleys and a heavy tong to hold the blocks of stone. The hoisting cable was passed around a wheel fastened to the center of an axle across the lower part of the timbers and then passed on to a windlass set up a little forward. Still, with the development of the colossal in architecture under the Antonine Emperors, there came undoubtedly into use larger and more elaborate machines than those of Vitruvius.

One of these machines is reproduced on a relief from Terracina, which represents the building of the port in the time of Antoninus Pius. The architect is standing, wand in hand, directing. Two stonecutters are preparing the stone roughly with hammers. On the top of the wall a man is leaning forward, bringing into place a stone that has been raised by the machine which stands in the background.

Less strictly accurate seems an interesting relief from Capua, which represents the building of the proscenium of the amphitheatre by the contractor, Lucceius Peculiaris. He is seated, overseeing the work. An enormous wheel, attached to a derrick, is being turned by a treadmill worked by two men, who walk

inside the wheel. The cable is hoisting the shaft of a column, while a marble-cutter is carving its capital on the ground. We must believe that in reality the wheel was not as large in proportion to the height of the derrick.

The most important artistic representation of a machine is that of one more elaborate than any described by Vitru-



Lifting Crane on Relief of the Tomb of the Haterii—Lateran Museum.

vius, and probably invented after his time. It is on a relief in the Lateran Museum, which represents the construction, perhaps, of the Mausoleum of the Haterii. Several workmen are in the treadmill wheel that winds up the fall, while two more workmen are perched on the top of the derrick, attending to the working of the cable and ropes.

Neither in Vitruvius nor in the reliefs have I found any trace of swinging cranes used in construction, and one might doubt their existence were it not for the description of certain swinging grappling machines used in defending city walls, which prove that they were in use in military engineering, at least, even in the republican age.

A. L. Frothingham.



THE PIAZZA OF ST. PETER'S, ROME.

The Significance of Architectural Form

The expressive power of architecture is worthy of greater consideration and more thorough study than it usually receives. We have been for so long reproducing and setting one beside the other, scattered *motifs* of the styles from Egypt to Louis Seize, that we have to a great extent lost sight of what varied ideals and racial character they originally symbolized and how perfectly they mirrored the times out of which they grew.

Everyone, to be sure, distinguishes Greek forms as severe and chaste, the acme of symmetry, Roman as grandiose, Gothic as picturesque and suitable for ecclesiastical purposes, and the Renaissance as useful upon any ordinary occasion. Upon these lines there is usually an appropriate selection, since drawn from the past we must in this age, according to the varied requirements and character of our many kinds of buildings. The Greek style is seldom used, except in fragments and in small buildings devoted to learning. Banks and railroad stations show a leaning to Roman forms. The Church naturally holds its own with Gothic. The French "epochs" are mostly devoted to drawing-rooms and other apartments devoted to formality and luxury. But the significance of the classic order, the Gothic arcade, the Moslem dome, is a deeper one than associations of this kind,

though propriety is our guide in the selection of a style best suited to express or harmonize with particular phases of a kaleidoscopic civilization. There was nothing, however, haphazard in the birth of the styles, and their growth has been governed by the great laws of evolution. There is no need to prove, since it has been a subject dwelt upon by many brilliant writers, that, through use of line and surface, mass and proportion, architecture may give expression to many attributes of mind, as power, grandeur, beauty, refinement; and that climate and the temperament of different nations, as well as utility and available materials, have been important factors in the development of architectural styles.

While even reiteration of this truth may not be amiss in this time of inappropriate borrowing from the past, what has usually been lost sight of is the extent to which every "style" has been a reflection of the life of the particular time and place which gave it birth; or, putting it reversely, with what completeness the arts, and, particularly, architecture, receive the impress of humanity in those variations of character and aspirations which produce racial and national distinctions, and in the homogeneity of thought and action which individualize one epoch from another and the local fragments of epochs from each other.

It would require a lengthy work of exhaustive analysis of the buildings and of the civilization of all ages to prove in detail the amount of truth in this statement; but its basis, in fact, and its inevitableness need no very lengthy demonstration, and to many, no doubt, it is a truth not requiring establishment.

The perception of a significance of this kind cannot, it is true, be weighed or measured with any more actual scale than can the perception of any artistic verity; but the relation is not a fanciful, but an actual, one.

Besides receiving impressions of such broad character, every design necessitates some individual expression, no



The Parthenon, Athens.

matter how old the language in which it is conveyed. So it is that old phrases, whether coined in the Forum or Versailles, may voice the thoughts which germinate in the breezy prairies or in frenzied Wall Street. However correctly do we reproduce details and keep each feature pure in style, the modernity of a whole design speaks loudly. But it is, of course, from the older styles, the times when only one language was spoken at a time, and that one in the course of making, that we can derive the clearest knowledge of how closely the form is the outcome of the spirit of its day.

Architecture is, first of all, expressive of necessity; thus it is always in touch with every-day life. Domestic architecture forms by far the largest, though not the most permanent, class of build-

ing; and in our more ambitious and monumental efforts even, practical and utilitarian requirements are always of foremost necessity. Then enters design. Walls, columns, roofs and other features of structure are not to remain merely useful; we want them pleasingly disposed and proportioned, even made beautiful, if may be. Now, the mentality of the designer must, inevitably, be expressed to some degree in his design, and, the limitations of architecture being such that the individuality of each designer can never be very prominent, it is chiefly the collective individuality of the day, the place, the nation which will stamp itself upon the work. Comparative study of the architecture of different times and people will show that it is always an embodiment of human character and national traits, more veiled and unconscious than in other arts, but none the less exact and also more comprehensible perhaps than any other. The emotional range is less, but it is the most complete record in art, outside of literature, of racial character and development.

The preferences of particular nations or epochs for certain lines and characteristic form, as the Greeks for the column and the horizontal line, evidenced in their faithfulness to the systems of the entablature, or the mediævalist, on the other hand, for perpendicular lines and arch construction, which is shown in the development of the lofty buttressed vault, tower and spire; such preferences are indices of character and ideals. We will first compare and contrast some of the most marked generalities and then attempt a more detailed analysis to account for these variations of type. Greek design is pre-eminent for symmetry, unity and simplicity. These characteristics are also to be found in Egyptian architecture, but monotony and massiveness rule in place of delicacy and fineness of rhythm. In the Middle Ages the fundamental ideals of classicism were reversed. Precision of detail and orderly refinement of a limited number of forms were rejected in favor of a multitude of forms massed and harmonized together, but with

symmetry a very minor quantity. The arch and vault systems in the Gothic development lent themselves readily to the expression of ideas of variety, balance and complexity of harmony. Here, then, we have two great types of design and construction radically opposite to each other, just as the creators of each were diametrically the opposite in temperament, ideals and customs and their manner of looking upon life.

It is true that all original styles took form very gradually through centuries

the matter if we say that inevitable development of an engineering problem fully accounts for the really characteristic features of the style, and that the artist had little to do with its significance beyond clothing the form with harmonious ornament. The question still remains: Why did this particular development take place in the northern countries and not in Italy? Also, Why should it have taken place at all, along such lines, that, when harmoniously proportioned and adorned, it is in its entirety such



GRAECO-ROMAN SCULPTURE.

A Sarcophagus in the Vatican.

of growth, and that the way of progress and change was always shown by structural invention or experiment. However, we have not sounded the depths of meaning or entirely "explained" Gothic architecture, let us say, when we have carefully followed the logical evolution of the vault construction which took place, as is well known, in step-by-step modifications from the Latin barrel vault and Byzantine dome until it culminated in the thirteenth-century cathedrals of France. We miss the whole kernel of

a vital and consistent expression of the dominant notes of thought of its day? Only because of the intimate and constant relation which exists between man's constructive works, and not only his ideas of utility, which are directly expressed, but, at the same time, and seldom in conflict with utility, his æsthetic preferences and his every marked trait of character or mentality, in a limited way as an individual, but more particularly as a nation, a race or an epoch.

That is the basic principle which accounts for the evolution of architectural form, and is the ultimate meaning of all style.*

In its application, this law cannot be reduced to the precision of a formula, but its bearing is universal and constant. As the clay, under the hands of the sculptor, takes form, there goes with every impression of his fingers something of his personality. When the mu-



Sainte Chapelle, Paris—Gothic Idealism.

sician composes and the painter lays on his colors, though thinking of nothing beyond the tonal or color harmonies they are creating or recording, yet the work conveys, in greater or less degree, impressions of much further truth. Just

*Santayana says concerning the fine arts, in his "Reason In Art":

"There is no conceiving or creating them except as they spring out of social exigencies. Their types are imposed by utility; their ornamentation betrays the tradition that happens to envelop and diversify them; their expression and dignity are borrowed from the company they keep in the world. . . .

"Structure by itself is no more beautiful than existence by itself is good. These are only potentialities or conditions of excellence."

so, beautiful form has its inevitable accompaniment of idealistic or emotional suggestion. Not that it needs symbolism to explain it, nor labored expression of idea or purpose to justify it; in a way it is sufficient unto itself and for its own sake. Yet the distinction between the fine and the commonplace is precisely in the acquisition of an expression of things beyond the range of superficial imitation. So it is that, into the geometry of design, into the organism of construction and the rationale of material, just as in the mathematics of music, does there creep at times emotional expression. Forms, in which appear to be concerned only questions of proportion of masses of material in light and shade and of the virtue of line, imprison in their rigid substance the poetry of life, the genius that distinguishes its day from all the yesterdays.

As architecture is so closely bound to every-day life, so is its expression particularly intimate. It is very observable that strong personalities leave their individual mark in designs, creating, too, an influence for particular proportions or quality of line, color or ornament. Nor is it hard to read certain attributes of the temperament of the individual therefrom. Still truer is this influence and this reflex expression in the aggregate work of a century. Then does the harmony we speak of stand out boldly. It may be of interest to glance at some of the great periods of architecture's history with this idea in mind.

The Greeks expressed in their art a moral simplicity, a sensuous gladness and a mind clear, concise and logical. Architecture and sculpture were mutually dependent, and each had a part in the perfect embodiment of these ideals. They share in revealing an unequaled sense of beauty, beauty which was rhythmic, pure, serene.

Sculpture spoke more of man's nearness to nature, and architecture of his superiority, not so much from his possession of a soul or an imagination as from his power to reason. Though all Greek art is rational, her architecture is exclusively so. It is amazingly beautiful, but it is such beauty as arrives

through calm study of the accurate adjustment of parts and the minute refinements of line. It is unswerving in its obedience to the laws of symmetry, harmony and fitness. So also was the Greek's conception of life and the manner of his ordering it. The foundation of his æsthetic creed was to give rhythmic expression to form. He was both poet and philosopher, but mostly man and pagan, very alive and very beautiful. Form, rather than emotional expression, is the tendency of his art, though it has always life. The visual effect of smooth surface and delightful contour to be perfected, even at the risk of coldness. Every work, however, is spontaneous and instinct with life, in which the original differs from its attempted revivals.

In the Greek order there is nothing vague, nothing crude; every moulding is studied for its exact effect upon the whole design. Every ornament is cut with finished, though scarcely mechanical, precision. The long, horizontal lines of the stylobate and entablature are given subtle curves, and similar refinements are carried through all details. Simplicity in masses and in detail: in everything the mark of restraint and refinement. In all this we see the same predominating features of character that we may gather from Hellenic literature and history. We may find tragedy there, it is true, which we will not in her architecture; the latter has much poetry, but it is lyric, not tragic. The disposition of the Greek is, however, normally lyric, as may be expected from the healthful life of the man fond of sunlight and the blessings of the earth. Aiming at physical perfection, he was not bothered with the emotional possibilities of his soul, but possessed a wonderful sense of that harmony which translates the beauty of life and nature, and which we call *art*. His art was himself at his best.

Breadth of surface and delicacy of detail are characteristic not only of Greek, but of all good architecture, as are also repose, proportion, the essential element, at least, of symmetry, and, above all, life. Incidentally, it may be said that good

art, whether classic or mediæval, present-day or future, goes back, or will go back, to these same rudimentary principles. To conform to the usual dogma as to the common root of these first

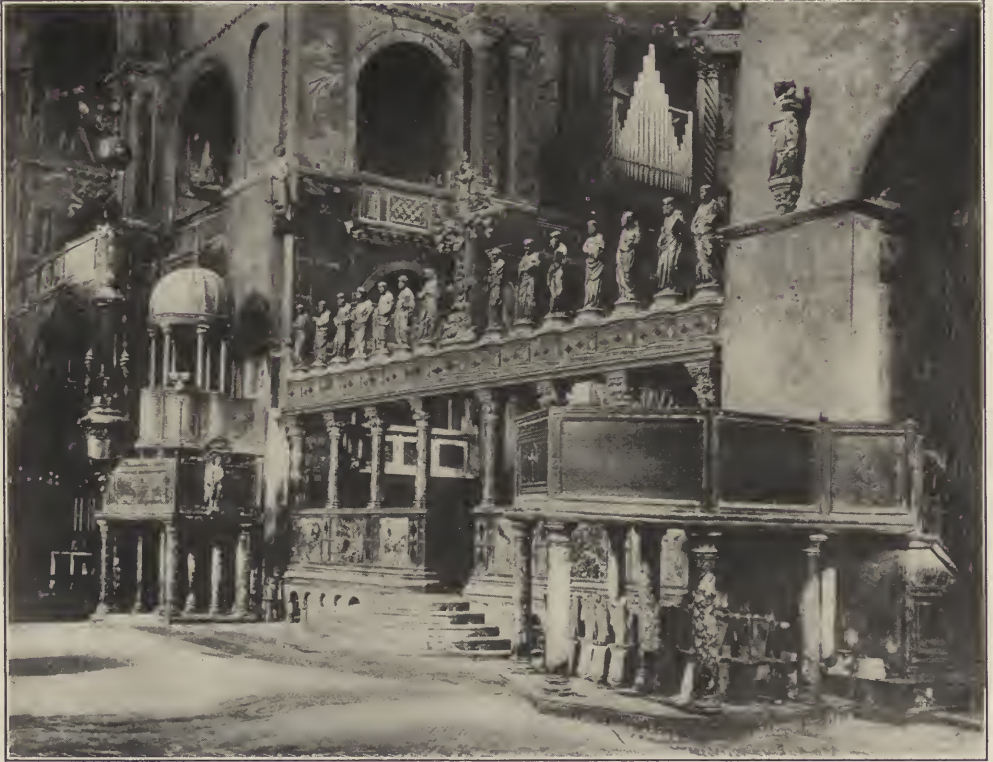


Entrance to Sacristy, Bourges Cathedral—
Gothic Light's and Shadows.

principles, it would be proper to speak in this connection of "getting back to nature," "expressing natural law," etc. But this is merely a formula which elucidates nothing. And it cannot explain

anything, because, as a matter of fact, it is inaccurately vague. It is not to nature, but to humanity, to *human* nature, or nature in man, if you will, that we must look for the source of inspiration of architecture and also of music. It is in the mental faculties of man, in his imagination and emotions, and the harmony which these bear to nature, that her laws and her meanings are

Assimilating Greek art and learning, the Romans missed its finer shades of meaning, but developed its art language to express their own coarser, but vigorous, ideals. Their two most typical motives, the arcade with attached columns, with a ponderous high and flat "attic," usually superimposed, and the flat dome lent themselves as perfectly as anything the mind can conceive to the complete and



ST. MARK'S, VENICE—WHERE THE ORIENTAL AND THE ROMANIZED BARBARIAN WERE FUSED.

hidden. It is to these that we must look for the key to her progress.

Roman architecture is interestingly significant. The Greek orders were borrowed, but enriched with greater profusion of ornament and moulding—losing in refinement and in delicacy of line and surface, and becoming grandiose and superlative. The massive and grandly conceived structures of Rome bear the seal of imperialism: the triumph of ambition, the dignity of fame, the luxury and also the arrogance of power.

exact expression of imperial Rome. The Coliseum, the Pantheon, the baths, the triumphal arches; no works could be more indelibly stamped as the creation of the world-conquering power—Rome, the Eternal. *Urbis et Orbis*. Witness this spirit reincarnated in St. Peter's.

If we turn now to a glimpse of mediæval architecture, we find the direct opposite of the classic idea of symmetry and severity of line precisely as the mediæval mind is the opposite of the Greek in all its leading attributes, its philosophy

and idealism. The means used to carry into effect so radical a departure may be summarized as the discarding of the horizontal line in favor of the perpendicular and of the entablature for the arch. Gothic construction is extremely rational, but the logical spirit is not supreme in the moulding of the structure into architecture as it is with the Greeks. The hand of the poet is evident in the massing, the dividing and proportioning of the whole, and in the carving of its

cruel. He had an imagination which carried him where reason never would have. So is his architecture intense and fanciful. Complex, fond of light and color, at times fair and lightsome, at others gloomy.

And so we may turn the pages of history and always observe the reflection of man's life in his buildings. We may pause with interest at the works of Louis XIV. and the succeeding "periods." Here is the style of the court, sensuous



THE CAPITOL, ROME—THE DIGNITY OF THE RENAISSANCE MOTIVES THAT ARE STILL SIGNIFICANT.

members. No written book could reveal more thoroughly the spirit of the Middle Ages than do her cathedrals and her feudal buildings. Into them her loftiness and narrowness, sensitiveness and barbarism have been breathed. The soaring lines of the Gothic church, its rich complexity of composition, down to the least of its carvings, reveal the active imagination, strong individuality and ardent spirituality of the northerner and the Christian, and also his warlike impulses and his comparative savagery of taste. The man of this age was intense and full of extremes, both tender and

softness of form, as of life; the refinements of luxury and ceremonial, the apogee of the monarchial regime, and, at the same time, of the courtier and the courtisan. Refined to an extreme degree, admirable in the largeness of its conceptions, the completeness of its effects, and perfect in the delicacy and consistency of its detail, it is fatally artificial, because the product of artificial conditions.

England, during the same period, was making its own use of the imported Italian forms. A dignified, if somewhat sombre, style was created in keeping

with national traditions and ideas. Inferior to the French both in splendor and refinement, it excelled in one type of building—the country home. From cottage to manor house, it displays a wonderful harmony with surroundings and an expression of the most fitting and lasting meanings of country life and home.

Germany, too, interpreted the Renaissance in an individual way and infused its fanciful conceptions, half mystic, half materialistic. The low coun-

reproduction; then the spread of commerce and the rapid development of means of communication destroyed the exclusiveness of nations which had been an essential factor in creating their individuality and in maintaining the character of their art. The commercial idea became dominant in affairs, and architecture had to conform as best it could, with much resultant compromise. Also, the mechanical complexity which distinguishes modern building has forced many inconsistencies upon design.

The typical constructive motive of today—the steel frame—has scarcely a vestige of suggestion of anything worth while to art; it is necessary to do more than ornament or model this skeleton, since it is too rigid, too elementary to allow anything of the kind. What appears to be the building is a mask, a make-believe, in which an imaginary construction has to be more or less resorted to in order to convey even the rudimentary necessities of proportion and the composing of elements, without which there can be no design or architecture whatever, nor any beauty in constructed form, since the latter is not an accidental, not a necessary, thing. In these times, to be sure, we have come to an end of the direct relations that had existed between form and expression; a matter not without a simple explanation.

This is an age in which everything has become specialized. The field of knowledge has become so large that no one mind can command more than a limited range in detail, and must be satisfied with a superficial inkling of the rest. So we are separated in groups, mentally, each group knowing little of the labors of the others, but having full power in its own sphere and buying as it needs of the works of the others. Scientists of many kinds, the great mercantile and financial body, artists in their several branches, and so on. So we may naturally expect much less consistency and less breadth of expression in an art where utility and the æsthetic sense are joined.

Our modern buildings have their significance, but it is one full of contradiction, pretense and irrelevant use of



The Gardens at Tivoli—The Poetry of the Renaissance.

tries found still another rendering, fitting easily to local variations of thought. The sensitiveness of architecture and its facility of expression are forcibly illustrated by this wide divergence, as to the product in various parts of Europe, growing out of the same Italian Renaissance heritage.

A period of artistic barrenness set in throughout Europe during the last century. Political reconstruction and the progress of science and mechanical invention engrossed men's thoughts. Architecture fell back on imitation and



HOTEL KNICKERBOCKER, NEW YORK—MODERN COMMERCIALISM.

form. However, the dominant passions of the time are just as much as ever to the front, though expressed between the lines, so to speak, and often in the very limitations and inconsistencies imposed by commercialism and engineering. But in spite of all the confusion of styles and lack of consistent development, if we look beneath the borrowed language to the very different purposes it serves, to the revolutionary construction and planning it is forced to conform to, we may see great changes in the matter expressed, though each individual form may be so little modified. Though we have no modern style, in the complete sense of the word, we give abundance of present-day character to the old styles of which we make use. This is especially true of the French school, withal that the Beaux Arts is usually supposed to stand for the academic, in form and formula, rather than for a grasp upon new thought of radical innovation. The most important lesson taught by the French, however, though not the most readily learned, is precisely to apply the rudimentary principles of design in a rational manner to the solution of each problem. Of comparatively secondary importance, are the grammar and convention of form.

As a matter of fact, for many classes of building, more especially the commercial, it is a matter of small importance whether the ornamental detail is Italian or French Renaissance, or is Roman in flavor or some other. So long as the selected forms maintain correctness, decorum and scale, one style is often as well as another. What counts more in distinguishing such a design is whether it has secured good proportion and composition, harmony and scale in primary features, and, lastly, whether detail has been managed with the not-easily defined intuition of fitness. It conveys little meaning to say that a certain skyscraper is early French Gothic or pseudo Roman, or this or that in style. It is nothing of the kind, except as to some of its detail. Essentially, it is just skyscraper or steel-framed architecture. This is the extreme type, of course, of the new order.

Smaller buildings in which the proportions and construction are not so radically different from the old, permit of a closer adherence to the real manner of the style which is copied. In domestic architecture, of course, commercial necessities are less in evidence, and work in this field, particularly in America, has not only produced some of the most admirable examples of artistic expression, but also affirms the irresistible influence of contemporaneous life.

In one new material, or rather in the original use of an old one, there is much inherent possibility of consistent expression. We refer to reinforced monolithic concrete construction. Ready-made convention need control the designer little, for here is a material and constructive system, in fact, in which the gamut of suggestive expression has not already been run through by more masterful, or, at any rate, more fortunately environed minds than ours. And it has this advantage that its apparent form is an essential expression of its real form; whereas in the steel skeleton there is no organic relation between the real and the apparent construction, with the result for the latter that it can never create new detail or distinctive treatment (except in an abortional manner) beyond that given by its novel lines and plan system. Yet, as we have pointed out, even familiar, hackneyed forms brought into new combinations, modified to fit new conditions, require the power of expressive design, and, where the latter is present, they become inevitably significant of new thought.

Limited and full of inconsistencies as is architecture's present power of expression, it is even yet a plastic and impressionable medium for the subtle recording of character.

The arts are, among other things, the pictured and poetic history of man. In this living book the pages written by architecture are marked less by personalities than those of painting, literature or music; yet they have pictured faithfully creeds and philosophies, the souls of nations, the essence of civilizations.

H. Toler Booraem.



THE INTERLACING SWASTIKA.

Old Chinese Rugs

A novelty among fine old rugs is almost incredible to connoisseurs who have studied and perhaps collected Persian and Indian marvels of the hand loom all their lives. But if old masters of oil paintings are "discovered" from time to time, that is to say, if the superior merit of certain old masters of painting hitherto neglected is all at once appreciated, why should there not be similar finds in woven works of art?

Of course Chinese rugs have always been known to exist and in the bales of rugs coming from Smyrna they were not infrequent. But not long ago such intruders were regarded askance as lowering the average value of the bale—now they are picked out and carefully cleansed, repaired and put in shape. Why is this? Simply because it has been recognized tardily enough that China has once more shown her superiority over other nations in a subordinate but none the less important branch of art, just as she has shown it in porcelain and pottery, in brocades and silk shawls, in jade and ivory.

The rugs of China are now eagerly sought all over the world. That eag-

erness shows in the way in which good examples are snapped up at sales when a collection proves to have some.

One curious psychological effect, however, may be observed in such changes of estimate on the part of collectors. For example: in ceramics the connoisseur who has made Japanese porcelains and potteries a special study and then turns to Chinese, is almost certain to go over to the older nation with so much zest that he does his former love injustice. It is very much like one who admires a pupil's work hugely until he finds that of the master and then proceeds to scorn the disciple's pictures.

Yet in the matter of Chinese rugs this analogy of master and pupil may seem strained, for it is extremely doubtful if China will ever be proved to be the earliest home of beautiful and artistic rugs. Of course, mats of rushes and colored rugs and carpets of wool and hair and cotton must have existed practically from prehistoric days; but the high plateaus of Central Asia seem to be the original homes of the rug as a thing of beauty, an object connected

with the most intimate home life, with all public functions like law giving and justice, with ceremonies of all kinds not excluding religion. So far as we can gather from the Chinese annals the making of beautiful rugs is comparatively recent, not going back far beyond the middle ages.

A lot of Chinese rugs thrown together on a floor near a lot of Persian or Indian or Anatolian is instantly recognized as Chinese by a kind of warm, dull tone pervading them, a predominance of browns and gray-browns, of blues dark and light, of dull reds. As one turns them over the Chinese appear less vivid in colors, or at any rate less broken up into small details. They have large restful spaces and are prone to offer big simple structural designs that give them great significance and allow them to be used to good effect in



The Sacred Deer.



The Swallow Myth.

rooms or galleries of a certain size. There are many Persian rugs for which it is difficult to provide a suitable interior, so pronounced are the colors, so brilliant the scheme, so lively the design. Chinese rugs on the other hand are very commonly, though of course not always, grave and unobtrusive, forming a warm but not noisy ground for furniture and pictures, decorative walls and ceilings, or masses of gaily clad women and men. In fact, the character of the Chinese may be felt in the superior classes of their rugs which reflect their seriousness, respect for tradition and thoroughness as artisans.

What strikes one after the color effects is their feeling for composition and decorative design, not merely as they treat the middle parts of the rug, but as they treat the borders—their number, width and colors.

When the new taste for old Chinese rugs first asserted itself it seemed comparatively an easy task to separate them into rugs of different provinces and of different reigns. But the huge empire soon proved so great a reservoir to

draw from that the number and variety of old and antique rugs bewildered the stoutest. It is like the scientists with the ancient bones of the Bad Lands. Marsh and Cope gaily sallied forth to reduce these extinct lizards and fish to nomenclature, each being their Adam, each giving his own set of names. But the wealth of material has overwhelmed the tabulator. It is only by comparison and long pondering that one can make up one's mind whether a rug belongs to the fifteenth or the nineteenth century.

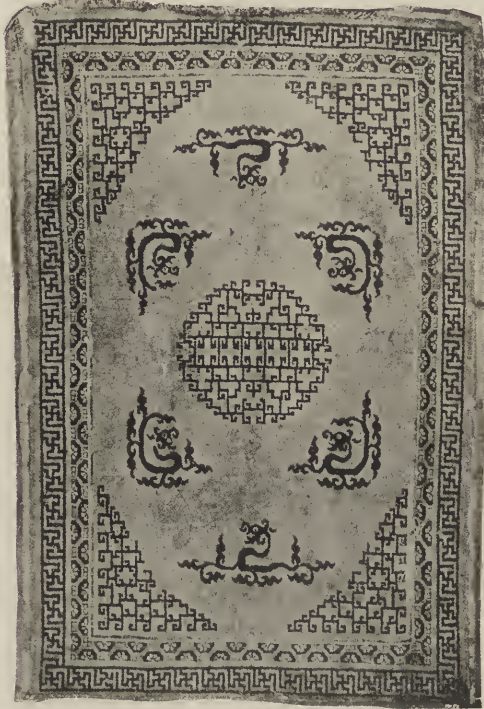
Now though in rugs the color stands first and is followed by design, the art of the rug does not exclude figures of men, birds and beasts, or fabulous animals and of stars. Some Chinese rugs are prominently marked with objects that give them a class value, such as sceptres and books and incense burners and ink-wells. Such pieces are for the literary class, others, little different, for mandarins. We find the Happiness rug marked with the character which means happiness, and bats which in their forms spell happiness, because in Chinese the sound for bat and happiness is the same. The Longevity rug has symbols that are believed to act as talismans prove to avert sickness and death. Some rugs show in an extremely conventional way the Sacred Mountain in especial, as distinguished from many sacred mountains in different parts of the country. This mountain may be a reflection from the mountain plateau of Thibet, over which came from India many legends and tales; but its significance is larger than that, for in many cases it seems to represent the whole world, or its three peaks the triple world.

Another class which can be made fairly definite, owing to symbols interwoven in the borders or the general field, consists of Buddhist pieces, while a seventh may be formed to take in the mythological rugs, that is to say, those which have more than conventional dragons, we will say, as a decorative motif solely, but go so far as to tell a story.

There is among our illustrations a very unusual specimen for the Chinese, a landscape with temple and platforms

for buildings and flowers, both tree and bush. The Stag, a symbol of longevity, has ascended the stairway and is nibbling at some Peach blossoms, emblems of generative life, while above are swallows disporting themselves in the air or comfortably resting on the roof tree.

The Greeks loved the swallow, and ancient as well as modern Greeks hail its advent with the swallow song. Like most peoples of Europe the Chinese believe that luck attends the nesting of



Six-Dragon Geometric Rug.

the swallow, particularly so if it builds in a newly erected house.

But this kind of a rug is rare. Usually the weavers are less concerned than the bronze casters and decorators of porcelain to insist on mythological figures save by implication, as lace-makers will include figures of human beings or animals for decorative purposes.

Among the favorite figures are Lung the dragon, playing with the mystic Chin, a pearl or egg which reminds one so keenly of what Caesar and others tell us regarding the Druids—how they sought the mystic Serpent Egg and

strove to take it from a coil of snakes, in order to gain from it wisdom of all kinds, including a knowledge of the speech of birds and beasts. The dragon of the Emperor has five claws—the symbolic five of Asia—while that of other mortals including the Japanese Mikado has three.

Another creature fitted for decorative use is the Ki-Lin, the four-footed creature of both sexes and one horn which appears in mediaeval European literature as the unicorn and still holds a responsible place beside the shield of

of men and animals, like the "hunting" rugs of Persia.

A good example of rug with figures is that called "The Hundred Antiques", which holds a place of honor in this interesting branch of Chinese art. The ground is a warm apricot color on which the designs are expressed in a light and a dark tone of blue. It was evidently made for some Chinese collector who liked to be reminded of the objects which appealed most to his heart—for your Oriental collector ends by holding such objects dearer than wife



RUG FOR A CONNOISSEUR.

Great Britain and Ireland. The unicorn loved virgins and could be caught and ridden only by virgins. Like the angels it had both sexes in one—or no sex at all. As late as 1840 Father Huc reports that there is an actual one-horned deer of the chamois kind in the eastern mountains of Central Asia.

Sometimes we find the animals of the zodiac disposed about the border, not always in correct sequence, but fitted to their places in the spirit of decoration. The Chinese, however, seem chary of devoting the chief breadths of carpets to trees and figures

and children. The border contains running bands which cross each other regularly to form the Swastika, as the East Indians call it, a cross with ends bent so as to signify revolution like that of a wheel, a symbol of various import in different places of the world, but in India more particularly specialised for the wheel of Indra's chariot, the wheel of the sun. From space to space this swastika repetition is interrupted by oval spaces to receive the sign called Shou, a sign that signifies good luck, prosperity. There are six of these medallions to each long side and three to

each short side of the rug. The character Shou assumes a singular likeness to the scarab of the Egyptians, though such a resemblance must be considered accidental.

In this example the objects of the main field are placed without much art so far as composition is concerned, the weaver feeling more desire to be exact than to compose them round a centre or various centres, as we find to be the case with later work more purely decorative.

brush. There are musical instruments and cases for books, dwarf trees growing from ornamental pots on teakwood stands—in fact we have by means of this rug a glimpse of the objects surrounding a man of literary and artistic tastes many centuries ago.

Much more carefully considered as a composition is the five-medallion rug, which has in its central medallion the phoenix flying above the horse of the clouds. Two large butterflies are above and below the centerpiece. The medal-



THE PHOENIX AND CELESTIAL HORSE.

This arrangement is quite naive. Here is the chess or chequer board with a piece beside it; yonder a fine blue vase of porcelain; to the left a screen to place before one's writing, and to the right a three-pronged rest for pencils or brushes of a shape which is still used in China. Incense burners are not lacking, nor flower-holders, nor a specimen of the rhinoceros horn or rather the conventional carving that is so called. There are scrolls with designs on them, books and ink-stones on which to rub India ink for writing with the

lions in the corners have a geometrical cast while the inner border has a running decoration of "hollow Ts" and the broader outer border a floral decoration broken by flower forms in profile.

Among our illustrations are many examples of the dragon, ranging from realistic forms with fierce eyes and carefully defined talons to others which are so resolved into pure decoration that one could scarcely guess their origin if it were not for intermediate shapes that show the progressive changes.

Here is a "Six Dragon Geometric" rug as it may be termed, quite formal, with an outer border of running swastikas and the severe corner decorations repeated in the four designs about the central medallion. As a relief to the square modeling of these geometric designs the six dragons are fanciful creatures with fairly well defined heads, but with legs and tails flowering into fantastic foliage.

Again on a light toned ground against which the objects are clearly defined we have suggestions for a literary mandarin in the books and scrolls bound with fillets, in the tripods bearing conspicuously the swastika cross, in the precious porcelain vases on teakwood stands holding flowers, in the sprays of tree-blossoms and stalks of growing flowers. But in this case there is a grouping about a central medallion, in which the ground between two rings of blossom forms, the petals separated and drawn in profile, is sown with little swastikas. The weaver of this rug could not get enough of this lucky emblem. Not content with putting it on the book-box and six of the vases, he must use it in its running form for the outer border. Observe also the two examples of Nine-Swastika rugs.

The Nine Lion rug is a beautiful bit of tone upon which the lions are at play like exotic dogs with bushy tails and are more humorous than terrible. Their manes and tails of a different color from the rest of their bodies supply a charming decorative note. The rest of the field is strewn with branches. The central "lion" sits peaceful and graceful as a squirrel, or say a pet spaniel; the four about him are seen from above, their heads only in profile, while the four in the corners are adapted to their places in a frankly decorative spirit.

Another Nine Lion piece has five of the beasts crowded into the central medallion.

As a rule we do not make clear to ourselves what it is that gives us pleasure in old rugs and brocades. We can understand it better if we take the analogy of music, which does not tell a definite story, but interprets moods and suggests trains of thought that are

more akin to sensation than reasoning. That harmony is agreeable to the ear is proved by the effect of music, not upon man alone, but upon birds and beasts and insects; that harmony is delightful to the eye is also certain regarding a large part of animate creation. The effect produced by the soft colors and their clever combination in Oriental rugs is fairly analogous to that of musical harmonies which have no clearly defined message to deliver, but are none the less valued on that account.

Rugs are indeed scarcely less important to a household than paintings. Indeed, nowadays, that modern architecture in cities leaves comparatively few interior walls proper to the hanging of pictures, it may be that for town folk the rugs are of more avail. It is necessary to try them where it is proposed they are to remain, whether they hold their usual place on the floor or for some special reason are to cover a door, a wall or a piece of furniture. So that it needs taste and knowledge to so much as arrange a fine rug in a room, as much taste, for example, as to hang a picture. Indeed the picture may be said to be easier to place, owing to its frame, which sometimes is reinforced by a shadow box; this in some sort puts it apart from the rest of the wall; whereas the rug is in immediate contact with its environment, not fenced off like the picture in a little domain of its own. Then the daylight and artificial light have to be considered in order that, if possible, the light shall fall so as to go against the lay of the pile on the rug, that angle being the best for a display of colors.

Among Chinese rugs not included in these illustrations is one that shows the spotted Ki-Lin or unicorn with spray of fungus in its mouth, the same fungus that is used for the curving ends of sceptres, commonly carved in jade. This fungus is sometimes found with blades of grass piercing it and the fact seems to have impressed the Chinese imagination, for it is not infrequently represented. Then there are: the sceptre or wand itself, a sword of authority, castanets, or, as we should call them "bones", the red-tufted crane of north-

ern China, etc. Another has emblems of the Eight Immortals who are specially favored as saints by the followers of Taotse.

Another scorns to call attention by folk lore or mythic animals and rests its case on the taste the weaver has shown in distributing eight rings formed of conventional blossoms, each enclosing a Shou sign, and decorating the spaces between these eight rings with graceful floral sprays.

In regard to rugs one should never forget the origin of the art rug among

have been simple folk for the most part who generally followed ancient precedent and only slowly took ideas religious or artistic from those about them. In their designs, it is true, they show less scruple, for we find ancient carved jades and bronzes, old pots of pottery, porcelain and even of iron which have lent weavers ideas of form and sometimes of color. Yet we cannot withhold the name of artist from some of these unnamed craftsmen who made the designs and fixed the color schemes for certain rugs. They must have been men who



A NINE-LION PATTERN.

dwellers in tents. It is to make up for the ugly black canvas or the coarse hides of the nomad tent, for its floor of loose grass or unprotected earth that the weavers of Central Asia have put forth their craft and those of China have followed suit. The rug is a saddle covering and a prayer-mat; it is part of the bedding at night and is a brilliant covering of the sitting-place by day. It makes portières to tents of chiefs and clothes the walls of elaborate hunting tents and movable headquarters for magnates.

The rug weavers of China seem to

viewed with poetical emotions the green-sward pied with white and gold and purple flowers, the hedges gay with blossoms, gardens crowded with tulips and hyacinth, hedges of the tree-pæony, brown arable lands and black stretches of mud and water of the rice plantations, to have reached such inarticulate harmony as their works evince. They must have enjoyed the landscape set with towns and lakes, the sunset gilding snowclad ranges. Vague impressions of such sights must have sunk into the consciousness of generations of artisans before

they blossomed in one of the great rugs that connoisseurs cherish now.

They are painters who make color-symphonies with the same impulse that guides the country-woman who sews a "crazy-quilt"—but to more fortunate results. Rather should they be compared with the old fashioned rugs of a hundred years ago, made on hand looms which are now hauled out of garrets and put to similar work again.

The study of rugs and their effect on the art sense will go far to explain cer-

tain eccentric painters of modern times who in their horror of "telling a story," and in their love for color as such, have hurt the feelings of a good many worthy persons, including curators of museums and professors of art at college, by making paintings which appeal almost exclusively to one's feeling for decoration and have nothing to say to the intellect. Let us mention a Diaz and a Monticelli, a Whistler, a Brangwyn and a Sorolla. These men regard a picture more from the point of a beautiful hanging or rug

than from that of a human message. Nature in some of her myriad manifestations is caught on the canvas, just as she is in the rug, that is to say remotely, allusively, poetically. The good curators and professors help to swell the crowd that scoffs, or sniffs, or stands in amaze. They are like the literary critics who find Poe's verses merely jingle—because at bottom of their minds there is no room in the world for several—not to speak of many—aspects of art.

The Chinese have some very definite



A NINE-LION PATTERN, IN WHICH FIVE OF THE BEASTS ARE IN THE CENTRAL MEDALLION.

connecting ideas between certain colors and certain metals, planets, points of the compass and seasons of the year. So have some of our American Indians. Fortunately for art the artists do not take the connection too rigidly, so that while there is often a guiding thread there is not prescription, there is not compulsion enough to do any harm. Thus they take five colors, because there are five fingers and five toes, four points of the compass and one center, etc., and they range them thus: black, green, red,

connecting ideas between certain colors and certain metals, planets, points of the compass and seasons of the year. So have some of our American Indians. Fortunately for art the artists do not take the connection too rigidly, so that while there is often a guiding thread there is not prescription, there is not compulsion enough to do any harm. Thus they take five colors, because there are five fingers and five toes, four points of the compass and one center, etc., and they range them thus: black, green, red,

white, yellow—and make a parallel of these five metals in this order: iron, lead or tin, copper, silver and gold—all obvious enough, except that green does not seem to suit exactly lead or tin. Then we have black for the North, green for the East, red for the South, white for the West and yellow for the center. You see that they reserve the gold color for their own Central Flowery Kingdom, since they are naturally the center of the universe, and effect one yellow for the Emperor, other yellows for high persons, and yellow for the national flag. And speaking astrologically one might say of their arrangement of colors and planets, which is thus:

Black	Mercury
Green	Jupiter
Red	Mars
White	Venus
Yellow	Saturn

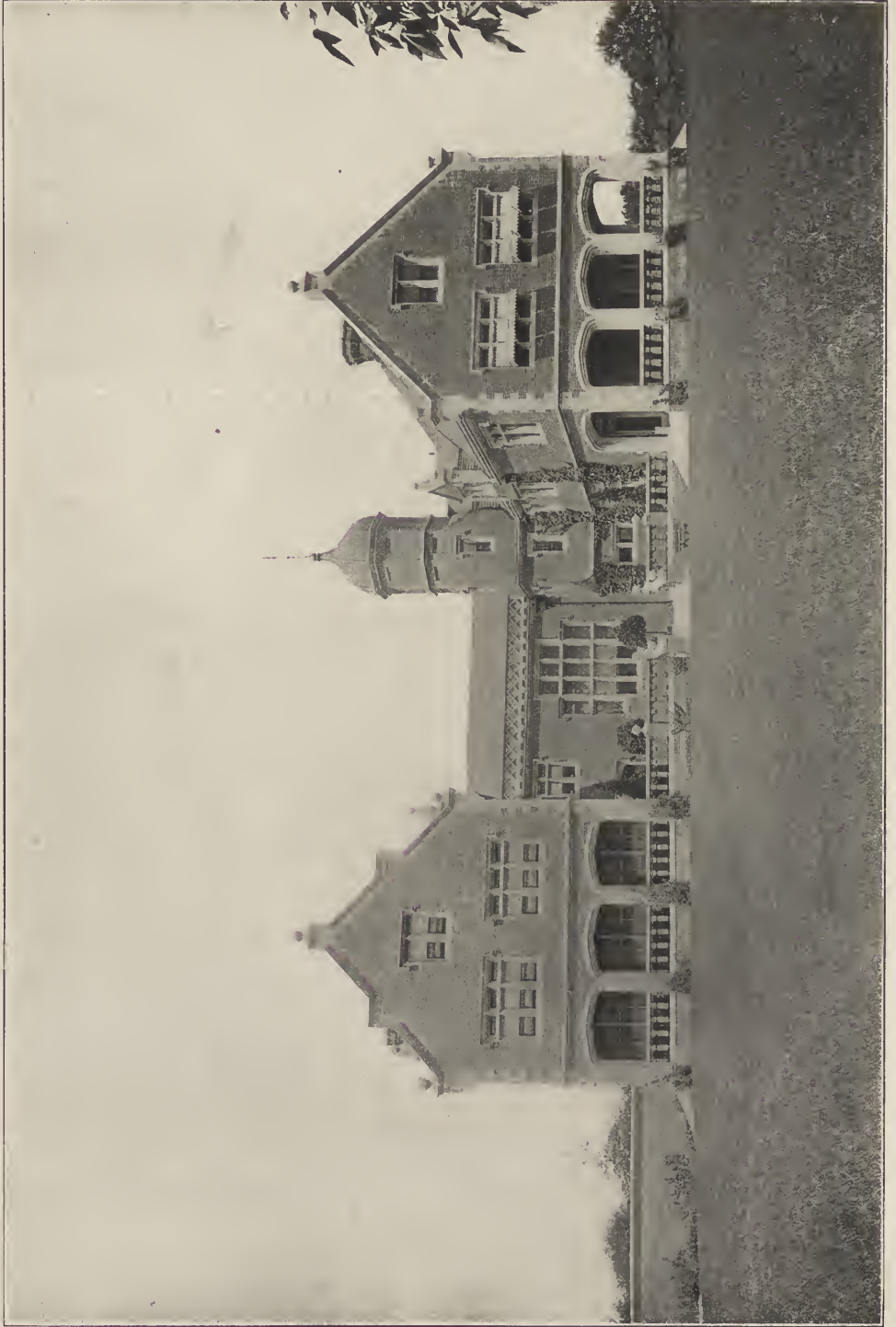
that Saturn as he is supposed to influence character is by no means inappropriate to that of the Chinese as a race.

Color being so marked a characteristic of rugs, followed after some interval by design or form, and after a longer interval by content or meaning, it may be curious to note that while imperial

yellow and mandarin yellow and brown-reds are common, on the other hand we rarely, if ever, get a primary or a blood-red. In place of the strong crying reds we get fine peach colors, apricot, pomegranate, or whatever other name of fruit or flower is chosen to define a hue. Strong direct greens are very rare, except in rugs under the Mohammedan tradition, which is still strong in western China. Orange is not so often seen as hues of yellow, nor is there much of cherry or of rose. These tones are oftener seen in Japan. A robin's egg-blue and blues of dark and light shade are not uncommon. Dull browns, liver colors, mixed yellows, are perhaps the commonest of all and tend to give Chinese rugs that architectural, impassive, massive look which separates them from Persian rugs on the one side and Japanese on the other. The duller reds and blues used with cream-white to lighten these grave grounds result in a tone very difficult to describe, but one that gives æsthetic satisfaction to those who lend themselves to contemplation. For just as good music cannot be comprehended by the casual comer, and demands a long apprenticeship of the ears; so the eyes must have time to absorb the beauties of rugs before one can hope to appreciate their charm.

Charles de Kay.





Ipswich, Mass.

THE PROCTOR HOUSE.

E. M. A. Machardo, Architect.

NOTES & COMMENTS

THE FINE ARTS COUNCIL

The agitation on behalf of the granting of some substantial recognition to the fine arts by the national government has made, in a few months, encouraging progress. A bill has been introduced into the Senate by Mr. Newlands, providing for a Fine Arts Council of thirty members, consisting mostly of architects, but also of one landscape architect and several painters and sculptors, and providing, also, that this council shall supervise the business of designing and locating new government buildings, and shall be consulted about all important matters of government policy, in which any question of the fine arts is involved. At the same time, the first step is taken looking in the direction of the formation of a Fine Arts Department of the central government by an enlargement of the functions of the Supervising Architect of the Treasury. The fate of this bill during the short session of Congress is at this writing extremely doubtful; and it is probable that the agitation will have to be pursued for some years before any legislative action is taken; but in the meantime it is encouraging that the executive branch of the government has done all that it can to effect the same object. President Roosevelt has actually appointed a Fine Arts Council, and has ordered that all subordinate administration officials shall seek and follow its advice. The action has been denounced as illegal by Mr. Roosevelt's opponents, but manifestly it is nothing of the sort. Mr. Roosevelt's order merely means that administrative officials, subject to the President's authority, shall take the expert advice of the council before acting on any matter involving a question of aesthetic propriety. If in any particular case those officials are acting by virtue of a law which leaves them no discretion, they must, of course, merely do what Congress directs; but wherever they have discretion they will be obliged to seek expert advice, and this executive order is in itself a great gain, because in the past executive officials have been responsible for some of the grossest aesthetic improprieties perpetrated in the name of the national government.

THE IMPORTANCE OF THE NEWLANDS BILL

The work will not be made complete, however, until the Newlands bill is passed; and its passage will undoubtedly be a difficult and perhaps a tedious business. The only arguments which can be used on behalf of the bill are ones which make no great appeal to the ordinary Congressman. The measure would have the support of substantially every inhabitant of the United States, possessing any intelligent interest in the fine arts; but there are not many such people, and no opponent of the bill would suffer because of his opposition either in reputation or in popularity. Moreover, the bill implies a violation of the traditional American way of dealing with such matters, and as Senator Newlands pointed out in his speech at the Washington meeting of the Institute, the average American Congressman is a more conservative person than an English peer. There is little or no popular recognition in this country of the necessity or authority of expert supervision of all action involving questions of aesthetic values. A body of legislators, which would be willing to pay thousands of dollars for the very best engineering advice about the construction of a bridge or a dam, complacently ignores the best expert advice in respect to the design or the location of a building, even when it can be had for nothing. The average American believes that his own opinion about such matters is by way of being as good as that of any other person; and usually this belief is strengthened by the fact that in relation to every public improvement there are private interests with special reasons for wishing a certain building shall be erected in a certain place, irrespective of all merely architectural considerations. It will take a good deal of agitation to make Congressmen recognize that expert advice in relation to all matters involving aesthetic values deserves consideration similar to that which is accorded to the advice of engineers; and in the meantime the small company of Americans who believe in this Fine Arts Council, and want its authority combined and extended, must place their reliance chiefly in the President. The President cannot, of

course, give the Fine Arts Council the unimpeachable legal standing it needs, but he can do more than any other single man to make Congress see the desirability of seeking the advice of such a body in relation to all matters within its province. He can supplement the executive order recently promulgated, constituting the council as the aesthetic adviser of the aesthetic branch of the government by vetoing all bills for public improvements which made no provision for seeking and accepting such advice; and if Mr. Taft shows as much interest in this matter as Mr. Roosevelt has done, he can, in all probability, be persuaded to put such a policy into practice.

CONGRESS AND THE ARTIST

The inability of the average Congressman to attach very much authority to expert advice in aesthetic matters seems barbarous to men whose aesthetic intelligence and sense have been highly trained; but it should always be remembered that this lack of aesthetic intelligence is the result not merely of provincial prejudice, but of tradition founded deep in social and economic conditions. American architects and artists have very little aesthetic authority with the mass of their fellow countrymen, because for a long period they did not deserve to have any authority at all; and if they do deserve some such authority at the present time, they can hardly expect to get it on easy terms or merely for the asking. During the whole of that Middle Period, beginning in 1825, and not terminated, in relation to architecture and art, until about 1880, public art was practically dead in this country; and any public improvements undertaken during that half a century were untainted by the slightest alloy of disinterested artistic purpose or knowledge. Congress and the executive drifted into the habit of ignoring expert aesthetic advice, not only because it placed no value upon it, but because there was little or no expert aesthetic advice to be had. By saying that there was little or no aesthetic advice to be had, we do not mean, of course, that in these awful years succeeding the Civil War there were not architects in the country who could not have designed better buildings than the Pension Office in Washington or the Post Office in New York. What we mean is that, considering the composition of Congress and the character of our national government, it could hardly be ex-

pected that the improvement then taking place in American architectural practice would be immediately recognized. It could hardly be expected that because a dozen or more competent architects had come into practice in a few of the larger cities, their ability to give authoritative and indispensable advice about the design and location of public buildings, monuments and parks, should be obvious to the average Congressman. A limited company of architectural enthusiasts in New York, Boston and Chicago might know that a half a dozen men really deserved to be consulted in relation to such matters; but Congressmen are, of course, fundamentally merely local representatives, and the localities which they represented were no more able to make intelligent discriminations of aesthetic values than were New Yorkers a generation before. When claims began to be made that a New York architect, such as Mr. Richard Morris Hunt or Robert Cook Willard had, because of their ability and achievements, earned the right to be consulted about technical aesthetic questions, the average Congressman—to whom their names were unknown, and in whose eyes an architecturally impressive building was one with plenty of columns—regarded such claims as an unfair discrimination on behalf of a crowd of New Yorkers. His motion of a "fair" government policy, in the matter of public improvements, was that of distributing the contracts both for designing and constructing these improvements over the largest possible area, so that the citizens of his own and other districts could all get their chance; and the systematic preference of any one group of men for the supervision and erection of such work would have seemed to him mere "graft." He had been educated and trained to believe that common sense was a very good substitute for special knowledge and skill, and the application of common sense to the matter of planning and designing a particular government building meant that the local Congressman was to get all that he could out of it for his own constituents.

Such was the general point of view of our national legislators in respect to all public improvements involving questions of aesthetic propriety. It absolutely prevailed until a few years ago, when a law was passed revolutionizing the methods employed in the office of the Supervising Architect, and when the attempt was made to give renewed life to the original plan for the layout of Washington. The constitution of a Fine Arts Council merely carries a step

further the work of securing some recognition by the national government of the value of expert architectural and artistic knowledge and advice. The whole campaign is based upon the need that only good art deserves government recognition, and that discrimination in favor of the best prevailing professional and technical standards is merely discrimination in favor of excellence. A generally national policy in relation to the arts means, not a policy of a widely distributing governmental artistic and architectural patronage and opportunities, but a policy of preferring and selecting the very best professional practitioners. Such a policy will still seem to the majority of Congressmen a policy of unfair discrimination against local artists and of undue favoritism on behalf of a small professional clique, and this inheritance from the Dark Ages of American art can only gradually be won away. In spite of its continued vitality, it is gradually disappearing, because as a matter of fact the best professional and technical standards in relation to architectural and the other arts are constantly gaining in authority. They are constantly creating for their own benefit a body of public opinion which is capable of intelligently discriminating between good and bad art, and good and bad artists. A National Fine Arts Council would merely be the official representative of such a body of public opinion. It will increase in authority and in function just in so far as the body of public opinion it represents becomes larger, more coherent, better informed and more discriminating.

ART
AND THE
ARTIST

American art and architecture has reached a stage in its development which justifies the demand for official recognition, and precisely and only because it has reached an excellence of performance which deserves recognition. In the future, if it wants more emphatic and remunerative recognition, there is but one way to obtain it, and that is the same old way of continuing to deserve it. The situation of the arts in this country is such that they cannot count upon any preference which they do not clearly and substantially earn; and this situation, instead of being one on which architects and artists should commiserate one another, should be a matter for mutual congratulation. As long as this condition lasts it will

at least keep them on their mettle, and when it is on the wane—when the tradition of official encouragement of the arts becomes firmly established in this country, as it will be some day—then will be the time to beware of degeneration. Just at present, however, American architecture and art is not in any danger of being pampered either by government or by public opinion. It still has enormous strides to make before it can conquer really encouraging recognition, both from official and unofficial sources; and there is, we repeat, only one way to bring about this result. American architecture and art must become constantly worthy of more emphatic, general and remunerative recognition. The education of American public opinion to take more interest in the arts, and to bring to bear upon them a more intelligent standard of discrimination rests at bottom entirely with the American artist. The public will take more interest in his work, in proportion as that work becomes more really interesting. It will grant the artist more authority in proportion as his work and the prevailing standard of professional judgment becomes more authoritative. At the present time these standards are more authoritative than they used to be, and consequently deserve more recognition; but they are by no means as authoritative as they should be. They do not discriminate as severely as they should against inferior work, however popular or unpopular it may be, and they do not discriminate sufficiently in favor of the really superior work. Only by uncompromising and incorruptible discrimination of this kind can American artistic performance be steadily improved and American popular taste be educated. Education in the arts like charity must begin at home. No architect, who has ever sacrificed in some essential matter the integrity of his own work for the sake of getting or keeping a job, has any license to talk disparagingly of American popular taste. It is he and his like who are keeping American popular taste at its existing level, and every really good architect knows that there are plenty of architects of unimpeachable standard in this country, who make a business of doing work, which is just good enough for their clients. The real enemy to the increasing and accelerating national recognition of the fine arts in this country is not the average benighted Congressman, but the average instructed architect—the architect who wishes recognition which he and his like have not earned by the sacrifices they have made or by the disinterestedly excellent work they have achieved.

**FOR
A PALACE
OF THE
STATES**

Our national capital has never in its history been the scene of a more concerted agitation for the advancement of architectural and art interests. Steps are being taken to have the duty on works of art removed, or made so nominal as to be inappreciable. The architectural societies, with apparently excellent backing are clamoring for the independence of artistic and constructional work from the bondage of the Treasury and other departments which are not in position to handle the work to the best advantage of the government. And now comes into action again the plea of a decade ago for a structure to house those national functions in which the states are collectively interested, to provide social and educational headquarters and auditorium facilities of sufficient extent for the many conventions for which the capital at present affords such inadequate accommodations.

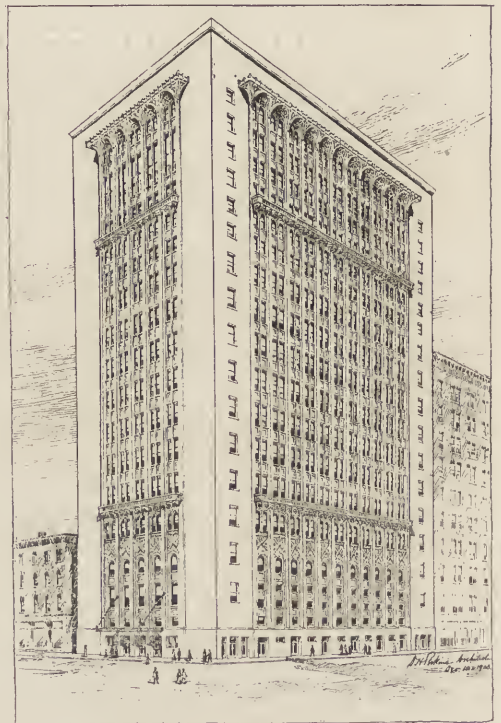
No doubt, each state could derive substantial benefits from a building of this character in Washington, making it exceedingly worth its while to contribute its proportional share of the fund required. The contact to be had in its halls with the vast store of state intelligence would make it a sort of perpetual national exposition for visitors from widely scattered districts and thus would be founded a popular educational institution of undeniable value.

**A NOVEL
USE
FOR THE
SKYSCRAPER**

If the designs of Dwight H. Perkins, the architect to the Board of Education, of Chicago, are accepted by that body, the Windy City will be the first municipality to possess a "skyscraper school." To picture, in the mind's eye, just how such a school would or should look, is not easy, but the accompanying perspective shows how the architect has conceived it exteriorly in a seventeen-story structure of not unobtrusive appearance. It is planned to accommodate the various departments of administration of the department of education, the supply department, a spacious auditorium and several school museums, besides a large commercial high school.

The idea of housing a large number of school children in a skyscraper is, on first thought, a bit revolutionary, but when it is called to mind that this plan proposes a

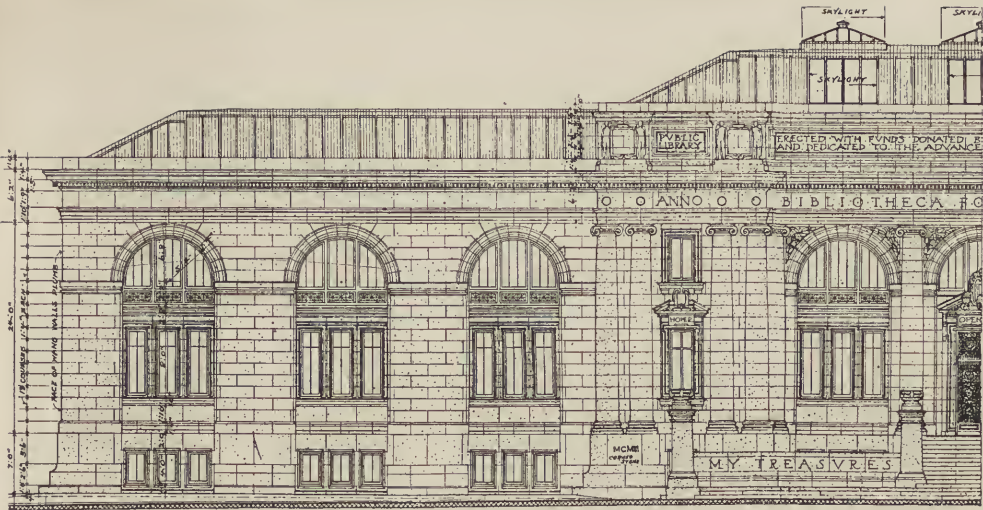
school in which the pupils are no longer children, and, moreover, are in search of a commercial education, the case is somewhat altered, and the natural rejoinder is, "Why not a skyscraper for this purpose?" The pupils are preparing for a business career, which in the majority of cases will be pursued in surroundings not very dissimilar to those to which they would thus become accustomed. Their quarters could be made to exercise upon their minds a valuable influence in their training for their life-work, and there is no good reason why the essential features of a school building for this purpose should not be equally well attainable in a building such as Mr. Perkins



Proposed Skyscraper High School for Chicago.
Dwight H. Perkins, Architect.

proposes as in the accepted type. The surroundings would naturally not be as free as those of a lower structure, with exposure and view round about, but these disadvantages had as well be impressed upon those preparing for the exacting life of confinement which is inevitable in present-day business.

The fate of the idea will doubtless be awaited with interest by other large cities, who have similar school problems to solve.



HALF ELEVATION OF FRONT—COLUMBUS PUBLIC LIBRARY.

Columbus, Ohio.

**DRAUGHTS-
MANSHIP
AND
ARCHITECTURE**

In the Architectural Review (Boston) of last November is to be found a good illustration of the proposition that brilliant draughtsmanship does not necessarily result in good architecture. The reference intended is to the Columbus Public Library, which is shown in this journal in photographs and in working drawings, those clever and widely admired handiworks for which their author has become justly popular with the younger element in the profession. A comparison of these drawings with the photographic views

which accompany them cannot but lead to the conclusion that the designer in this case did not have clearly in mind how his design was going to look, especially in that dimension which the elevational drawing does not depict. After a designer has entered the second stage in designing, which usually consists in setting more or less definite limits for the large parts of his composition, he has got to a point where he is no longer in position to see the entire building as he did when recording its initial conception. He has established certain masses and proportions, and it is to refining these that his efforts are concentrated. To all intents and purposes the design of a



VIEW OF FRONT—COLUMBUS PUBLIC LIBRARY.

Columbus, Ohio.

building is determined after this first stage, which apparently produces only the roughest of sketches; the elaborate and careful drawings which are subsequently made are powerless to materially make or mar a design. In the Columbus Library, apparently

impost caps of the piers, whereas in the executed building one is amazed and disappointed to note that what seemed the projecting, emphatic horizontal member in the drawing has withdrawn to a discreet retirement to afford the great arches an ade-



NO. 7 STATE STREET, NEW YORK CITY (ABOUT 1800).

excessive zeal in draughtsmanship was the cause of the unfortunate result which is so apparent in the executed building, and may be readily detected by comparing the two accompanying illustrations. In the drawing it will be noticed that the treatment of the filling for the great window arches appears most emphatic at the level of the

quate depth and give them the appearance of great massiveness. The emphatic horizontal member, which is a string course, has slipped to an uncomfortably low level, which a closer examination shows to be the second-floor beams. The result speaks for itself, and the profession will not be ready to believe that the author of this design

knowingly produced the infelicity shown in this building, but the outcome should serve as a reminder to architects not to allow themselves to be carried away by mere draughtsmanship.

**A RELIC
OF OLD
NEW YORK**

It seems a pious scheme, and eke an interesting "proposition" to rescue from oblivion, so far as the camera can do it, the last remaining of the mansions which fronted the Battery, when the Battery was the social center of New York. In fact, it never quite was, but being big enough, for one thing.



"Government House" (Which Stood Opposite Bowling Green, 1791-1815).

The first "social center" of New York, and, for that matter, of New Amsterdam, was undoubtedly here, or hereabouts, in proximity to the "Fort," of which some bricks were turned up in the excavations for the present Custom House. Under the walls of the fort, and in view of "The Battery," the earliest inhabitants clustered or huddled. But commerce established itself on the East River, not on the North. The "slips" looking towards Brooklyn were busy when there were as yet no preparations for traffic on the Hudson. Colonial New York grew northward and eastward. Of course the lookout from the Battery was in colonial days, as in these days, the finest that Manhattan Island afforded. Only it could not be had for residences, the forts and government buildings cutting it off from inland. Whitehall Street was a mere lane under the landward wall of the fort.

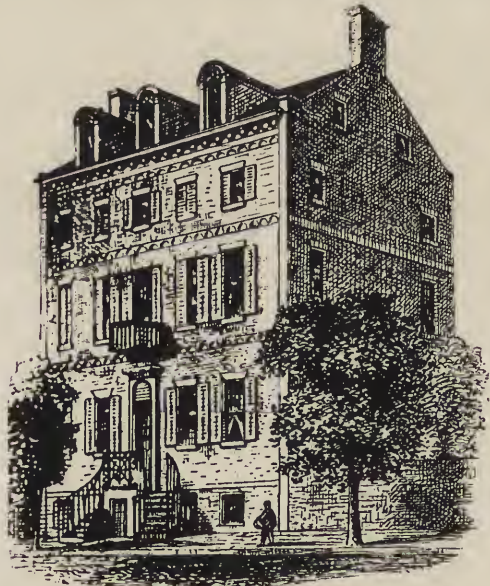
The British evacuation, November 25, 1783, followed on the same day by the occupation of

The Old Continentals
In their ragged regimentals

was really the first signal for the opening

of Battery Park to settlement. That famous farewell luncheon at Fraunces' Tavern occurred ten days afterwards, December 4, just around the corner. It was some years afterwards before the question of the "final disposition" of the Battery really came up. When Washington came on in 1789 to be inaugurated President, Wall Street was the site of the most "elegant" residences, and the swellest house that could be found for the President-elect was at the corner of Franklin Square and Cherry Street. Think of that! Franklin Square, by the way, was not named after Benjamin, but after one Walter, the owner of the house which Washington took over, and so the statue of Ben, on the front of the Harper Building, "has nothing to do with the case." It is true that, a little later, Washington found his residence too far away, and migrated to lower Broadway, which continued to be the seat of fashion for another generation. South William Street was at the same time "the shopping district. So late as 1835, when the Astor House was building, the New York Mirror complained that Broadway was being invaded not only by "boarding houses," but actually by "stores."

That the Battery was the most eligible place of residence in Manhattan was presently recognized, and in the most striking way. One of the baits that New York offered to be made the "Federal City" was the building, in 1790, of "Government



No. 9 State Street (about 1795), the Scene of the Grand Ball in Honor of Lafayette, 1824.

House," opposite the Bowling Green, and on the very site of the demolished fort. There it stood for twenty-five years. The Federal government had in the meantime migrated to Philadelphia and thence to Washington, and of course the house was never occupied for the purpose of a "White House," for which it was intended. Note, also, that the British title reverted not to the government of the United States, which did not really yet exist in a condition to "take title," but to the Province, now become the State of New York. This change of status is recognized in the name of "State" Street. Government House was appropriated to the official uses of the Governor of New York, and was successively inhabited by Governors Clinton and Jay. John McComb, the putative architect of the City Hall and of St. John's Chapel, is also the putative architect of this building. But it may be questioned whether the ascription be not a confusion. The John McComb to whom the other buildings were ascribed, was only 27 when "Government House" was built. He continued to be "junior" until about 1810. Most likely it was his father who was the builder of "Government House," and hired a draughtsman of the plans. Not that it matters much who drew them. It was demolished in 1815, and its place taken by the row of seven houses which was in turn torn down only the other year to make room for the new Custom House, remaining familiar to the contemporaneous New Yorker as, in its latest estate, the abode of steamship companies and foreign consulates. In its earlier estate it was a very fashionable row of houses. In one of them lived, and continued to live until within the sixties of the last century, Stephen Whitney, one of the richest New Yorkers of his time; in another, John Hone, brother and partner of the Mayor and diarist Philip; in a third, Samuel Ward, the banker, brother-in-law of Dr. Francis, the local antiquary and historian. So you will observe that the actual occupant of the Bowling Green site, the new Custom House, is the fourth occupant, having been preceded by the row of dwellings, the "Government House" and the Dutch fort. In spite of which, some remains of the earliest occupant were exhumed in the excavations for the latest, the "Holland bricks" of the old Dutch fort, as already hereinbefore set forth.

Curiously, no information can be had about the history of this house, probably the most important and pretentious of the whole row. I say so, because we have

abundant information about its next-door neighbor but one, No. 9. There was a New Yorker in New York at the outbreak of the Revolution, John Morton, who was so active and bitter a Whig that the officers of the British garrison called him "the rebel banker." He found it convenient and agreeable to retire to Morristown during the British occupation of New York. His son Jacob married the daughter of Carey Ludlow, who, in the closing years of the eighteenth century or the opening year of the nineteenth, had built upon his land, from which the demolition of the fort had opened the view down the bay, a mansion very famous in its day, the wonder of New York; in fact, containing, as it did, twenty-six apartments, exclusive of servants' quarters. The house now survives only in an old print, from which it is evident that there was then no house adjoining it to the east, that is, no No. 8. But Jacob went to live with his father-in-law at No. 7, and made it a "social center" for many years. No. 7 is noteworthy as the scene of the grand ball given to Lafayette in 1824, and it is an entirely safe "postdiction" that the eyes of the aged Marquis rested upon this very front that we see. Nay, a lady of an old New York family recalls a family legend that for the purpose of the Lafayette ball, a bridge was thrown across the garden at the side to the next house, that is, to No. 7, which was also employed for the festal purpose. But even though No. 7 had no recorded or traditional history, it were quite safe to join the poet in saying:

Here there was laughing of old, there was weeping,
Haply, of lovers none ever will know,
Whose eyes went seaward a hundred sleeping
Years ago.

It must, in truth, have been a hospitable house and a merry one in its time, being evidently designed and built for an owner of social tastes and aspirations. The architectural motive of the front is striking. One wishes the good man had had a better architect to carry it out. The curve of State Street is specially sharpened just here, and is recognized in the design of the house. One wishes it had been recognized in a continuous curve instead of the rather awkward and abrupt jog. That would have cost some money, doubtless, but would have been worth it. One doubts whether the good man had an architect at all. The very unclassical attenuation of the columns, including two stories, would have made a regular practitioner of the period "stare and gasp." It took a carpenter, who was no respecter of "orders," to design the actual

loggia (not that they probably called it that). Moreover, there is not much practical reason for the attenuation. Another platform over the second story, like that over the first, would have made an additional and eligible veranda, which would have enabled the columns to be reduced to the classical proportions of those of the basement. And this interpolation would not have darkened the upper rooms unduly, for you see the successful pains which the builder has taken to secure direct and uninterrupted light for them from the sides, in addition to the interrupted light from the front. It is a nice old house, all the same, and gives us the impression of having been inhabited by nice people. How immensely more civilized it looks than its either of its two tin-corniced neighbors! The chances are that the plainly impending skyscraper of the first decade of the twentieth century, which is to wipe them all out, will not be so grateful an object to contemplate as this relic of the first decade of the nineteenth.

M. S.

**SWEET'S
INDEXED
CATALOGUE
OF BUILDING
CONSTRUCTION OUT
FOR 1909**

"SWEET'S." This volume of catalogues and other trade literature, organically arranged and thoroughly indexed and cross-indexed, is bigger and more complete than ever. More than seven hundred of the biggest building material manufacturers are represented in the book, which has now assumed formidable proportions, proportions that perhaps tend very closely to the unwieldy. The publishers, however, have a book of reference to deal with, and books of reference are governed by rules that do not pertain to books of literature. It is certainly extremely annoying in, say, the case of a many volume dictionary, to turn to a word in one volume and then find it necessary to turn to another volume, and perhaps still another, before the final definition afforded by the work is elicited. "SWEET'S," of course, is a book for the specification table and once there, it is complete and ready to answer practically any question that the architect or draughtsman may ask. The book is well printed on handsome paper, is finely bound and is, in its way, monumental. The profession is gradually eliminating its trade literature lumber, al-

To-day the architectural profession finds itself in better shape than ever in regard to trade catalogues, due to the publication of the third annual edition of

most entirely due to the service which "SWEET'S" offers as a substitute.

The volume is very thoroughly indexed. Indeed, the index covers some ninety-two pages of three-column type. A careful search through the book shows it has been improved very materially, but in nothing more than by the addition at the end of the volume of a "Checking List." This Checking List is invaluable to architects and to others. Here we find every element of building construction and equipment enumerated in the order called for by the specification writer. "General Conditions, Preliminary Work, Foundation Work, Excavation, Cement, Portland, Concrete, Concrete Reinforcement, Dampproofing and Waterproofing, Concrete Block Work, Lime, Sand, Cement, Mortar, Lime Mortar, Cement and Lime Mortar, Structural Steel" and so on to "Furniture and Fixtures, Organs," etc., are covered, detail within detail. Architects have been looking for a work of this kind for some time and here it is, logically and scientifically done. The work of making this index has been entrusted to Mr. Duncan M. Robertson, the well-known specification expert, one of the few men to-day who has a scientific grasp of the complexities of modern specification work in all its bearings.

**PROGRESS
IN
GRANT PARK,
CHICAGO**

To general readers the most interesting portion of the Report of the South Park Commissioners in Chicago, for the period ending February, 29, 1908—though the work of this Commission has long been unusually interesting and broad—will be that which deals with Grant Park, the big lake front park opposite the centre of the city. The reclamation of all the submerged area was completed, the final grading was begun, driveways and walks were being graded, sewage and water supply pipes installed, and planting was well under way. The trustees of the Field Museum formally entered into contract for the erection in the park of a museum building to cost \$4,000,000, the preliminaries were arranged for the construction there of the million dollar Crerar Library, and the site selected for the new St. Gaudens statue of Lincoln. Yet, as the park covers an area of 205 acres, it will be much more than simply a building site even for two buildings so large as contemplated, and one is inclined to look with kindness on the statement of the Report, that it "will be the most beauti-

ful and most serviceable park contiguous to the business district of any city in the world."

Included in the Report is an interesting statement prepared by the Olmsted Brothers, who are the landscape architects of the park, concerning the difficulty of the problem of design which it presented. The railroad is to be electrified, and in making the plans it was assumed that it would be decked over, the space above it being treated partly as a great paved plaza and partly in terraces clothed with turf, flower beds and trees. It was then required so to locate the Museum that it would be seen effectively from Michigan Avenue. This meant that as it would be far eastward of the railroad it would have to set at such height over the cover of the tracks that when seen from Michigan Avenue its base would not seem to be cut off. Further, it stands so far beyond the western edge of the tracks that it would not be possible to treat the space between Michigan Avenue and the tracks at the avenue level and then step up by a terrace treatment to the level of the ground about the Museum, for that would have precisely the effect which it was desired to avoid. Again, it was found that if the terrace were just high enough to cover the railroad and the Museum were stilted up above the terrace level so high as to be seen over the edge of it from Michigan Avenue, there would result an ungainly proportioning of space, and that the terrace being wider than the space that it overlooked would have the effect of converting that into a mere depression. It was a most interesting problem. The device adopted to solve it is a continuous sloping surface, rising from Michigan Avenue across

the tracks to a point comparatively near the building. It is necessary to make the slope of this plaza almost exactly three per cent., which is steeper than is aesthetically desirable. However, this is not enough seriously to detract from the design, and the Olmsteds point out that the grade of the great plaza rising to the Museum and palace of Versailles is slightly more than three per cent. For the rest, the park design shows the Crerar Library as balancing the Art Museum, at about the Congress Street axis. Jackson Boulevard and Harrison Street are carried straight through to the water as park drives. Beyond the tracks, to either side of the Field Museum, and separated from it by space and planting, are large meadows and ample provision for athletics. Along the water front extends a mall shaded by six rows of trees and overlooking the quay, or strand, which forms the actual water margin. At its north and south ends the mall, rising, terminates in great quadrangles surrounded by colonnades serving as shelters and places of refreshment—to be "great public verandas for the people of the city."

The Architectural Record regrets an error in its February issue in the name of Mr. George C. Boldt, whose Heart Island estate is described in that issue. The name appears there erroneously under the illustrations as "Charles C."

In the leading article of this issue the title to illustration Fig. 5 should read "L. L. Buck, Engineer," instead of "Department of Bridges, Engineers."

RUSSELL STURGIS

(Continued from frontispiece.)

in his case, knowledge was power. But knowledge combined with geniality, with a desire to find out the good rather than the bad in the work he set himself to judge. Combined also with perfect and unsuspectible disinterestedness. Never among the leaders of the architectural profession, he was never among its militant members. From the time when he became conspicuous in the councils of our art world, and received all the honors it had to pay, in the shape of presidencies and the like distinctions, he was already "hors concours." Everybody knew that he had no "axes to grind," that whatever he did or said was done or said simply in obedience to the dictates of an unselfish

and impersonal interest in art, and from a desire for its advancement. In no age can there have been any more uncommercial interest in matters which are "matters of business" to so many than the interest of Russell Sturgis in art, in this very commercial generation. It was this disinterested interest which gave him his unique position, and enabled him to exert a unique influence. Not only will the readers of the Architectural Record miss him sorely. He will be missed on many and many an occasion when the question is of public art, and the realized public need is of a counsellor in regard to whom there is no question either of his knowledge or of his unselfishness.

MONTGOMERY SCHUYLER.

THE ARCHITECTURAL RECORD

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The Fireproof-House Number

of the

Architectural Record

May, 1909



THE ENTIRE ISSUE of the Architectural Record will be devoted to the subject of country and suburban houses built of incombustible materials.

A combination of conditions which have for the past five years been taking on yearly a more serious aspect are fast coming to an issue.

Present indications point to an innovation in the art of home building which promises to be more far-reaching and revolutionary in its effect than was the introduction into business buildings of the metal skeleton construction.

The permanent, imperishable home is no longer a subject for conjecture; it is an established fact, the advantages of which are only beginning to be realized. Its artistic future will depend on the close cooperation, in solving its problems, of architect and engineer. Whatever difficulties of construction are presented will, it is to be hoped, gradually remove the planning and designing of the homes of our great middle class by partly or wholly uninstructed parties. If such proves to be the case, a long stride in the direction of better architecture and building will have been taken.

The subject will be thoroughly presented, both descriptively and pictorially, in the next issue of this journal.

The Architectural Record

Vol. XXV.

APRIL, 1909

No. 4

How to Get a Well-Designed House

(Photos by Floyd E. Baker)

In estimating the value of current architectural work, it is of far more importance to discriminate between houses that are really good in design and houses that are only pretending to be good than it is between those which are really good and those which are obviously bad. The standard of popular taste in relation to domestic architecture has so improved in this country that egregious and perverse architectural aberrations are far less common than they were ten or fifteen years ago; and when they happen to occur they more often serve as warnings than as examples. The well-to-do American who builds a house costing from \$30,000 upwards usually wants a house of some architectural merit. He may not be prepared to make the sacrifices either in money or in arbitrary personal preferences, which are required by the successful attempt to design a really meritorious residence for the particular site he has chosen; but his intentions are good, and he usually selects an architect, who, he has some reason to believe, will give him an architecturally interesting building. Under such circumstances any architect possessed of real ability and of the personal authority which accompanies real ability, can usually obtain from his employer a sufficiently free hand; and if the result is inferior it is more likely

to be the fault of the architect than of the client. The client has acted throughout in good faith. He has intended to build a meritorious and attractive residence, and for that purpose he has called in the assistance of a supposed expert. When, consequently, he fails to get for a residence an interesting and meritorious piece of architectural design, it usually means that he has happened to make a mistake in selecting his architect.

Assuredly the most important act bearing upon his future residence, which an intending builder performs, is that of selecting his architect. The making of such a selection seems to be a comparatively simple matter; but every one who is acquainted with the special and varying abilities of the leading American architectural designers, knows that such is not the case. American architects usually have their special gifts and merits. There are some who have been very successful with office buildings, but whose residences have been comparatively inferior. There are others to whom one would gladly confide the design of a monumental bank-building, but who are unable to do justice to structures, whose merits are necessarily more realistic. Many architects, who could make a brilliant success of city residences, would make a comparative fail-

ure of a house, whose location involved some difficult problems of landscape design, and finally there are wide variations among good architects, all of whom must be pronounced to be successful makers of country residences. Some of them do well with a small and comparatively modest house, but fall down completely when they attempt to design a more pretentious mansion,

tect who is supposed to have some merit or standing as a designer; and whether or not that particular architect is a really good selection for that particular job is, of course, not a matter which receives any consideration. Yet upon this question depends the real success of the house. The building and habitation of a really successful house does more to improve the taste and give meaning



RESIDENCE OF MR. NICHOLAS F. PALMER.

Portchester, N. Y.

while others seem to need a big building and a large appropriation in order to bring out their best qualities. Obviously the ordinary house-builder can hardly be expected to discriminate with any real knowledge and intelligence among such a variety of special qualifications. His selection is usually dictated by some accident of personal acquaintanceship. Either he or some friend of his happens to know an archi-

to the aesthetic standards of its owner than does any single influence of that kind, which can come into his life; and it should be an equally and differently illuminative experience to its architect. On the other hand a house that merely has the appearances of being successful, but which does not represent the best disinterested efforts of its designer is not only comparatively sterilizing to its maker, but it also necessarily limits and

injures the taste of its inhabitants. Such a house may not be aesthetically demoralizing to those, who have a peculiar personal interest in it, but it is usually barren of any edifying results. A family's standard of taste can never be much better than the one which is embodied in the house it inhabits, and when that house lacks any final distinction and propriety of effect, its inhabitants can in other respects rarely rise above the aesthetically commonplace.

mitting the most dangerous mistakes. The success of the failure of a house-builder to obtain an appropriate dwelling depends more than anything else upon the influence and ideas, which have prompted him to select a particular architect, and which subsequently determined his relation to his professional assistant. If those ideas are sound, it may be possible to get a comparatively good house out of a comparatively inferior designer, whereas if



RESIDENCE OF MR. NICHOLAS F. PALMER.

Portchester, N. Y.

Errors in the selection of architects are of course unavoidable because the ordinary house-builder cannot be expected to have any wide knowledge of the peculiar qualifications of different American architects; but there are several ways in which the liability to error can be diminished and the more important of these ways consists of the inculcation among Americans of certain general ideas in respect to house building, which will prevent them from com-

mitting the most dangerous mistakes. they are unsound the work of the best architect may partially be spoiled. The owner has every right to make certain demands upon the architect. He has the right to demand, for instance, that his money be laid out with scrupulous economy, that he gets a dollar in value for every dollar that is spent, and that every practical requirement in the way of comfort and convenience, upon which he has insisted, shall be met. On the other hand the architect has the right



Dining Room.



Living Hall.

Portchester, N. Y.

RESIDENCE OF MR. NICHOLAS F. PALMER.

on his side to make corresponding demands upon his client. He has a right to ask in the first place for complete confidence in his judgment in respect to all matters of architectural design. If the client is not prepared to grant such confidence, if he has definite and uncompromising ideas of his own as to how he wants his house to look, he should not call in a supposed expert to his assistance. All that he needs is a draftsman and a builder, who are capable and willing to carry out his ideas, but who have no ideas and standards of their own. Unless a man fully intends to place confidence in expert advice, it should not be solicited. Of course, we do not mean that a man by placing confidence in his architect surrenders all right to criticize the design of his house and to suggest changes and emendations. Every architect in his senses is perfectly willing to consult constantly with his client about all matters of detail, aesthetic or otherwise, and to accept emendations which do not interfere with the integrity of his design. But if he is a thoroughly sincere and capable practitioner, he cannot accept any similar modifications in respect to certain essential characteristics of his work. He is not simply an agent, whose duty it is to carry out the ideas of his client. He is a professional expert, whose opinions should have authority in relation to all matters considered by him of fundamental importance. If the house-owner is not prepared to grant him such confidence, he should never have been employed. Before giving any unknown architect a commission, a house-builder should familiarize himself thoroughly with the methods and work of his professional assistant, so that he can be tolerably sure that he is going to get in general a building suitable to his own ideas and tastes, if he has any.

The proper relation between the architect and his client demands, consequently, loyalty on the part of the latter, and, on the part of the former, disinterested and capable service. The whole relation is absolutely falsified in

case the designer has any motive in making and carrying out his design except the motive of placing at the disposal of his client his best expert knowledge and ability, because only on that basis can the confidence of his client be justified. And this consideration brings us to our leading contention. The house-builder, should never employ any one, no matter how great his ability, to design his house, who has any interest in doing anything but his best work. He should not, for instance go to a builder, or a decorator and ask the latter to have the designs of his house prepared because the interest of the builder and the decorator would be, not to give his best professional advice, but in part to make a good profit on the job. Of course, this rule would not apply, as we have already admitted, in case the owner had certain very definite ideas of his own, and merely wished an agent to carry them out. Under such circumstances, he would not require disinterested expert advice. The responsibility for getting what he wanted would rest on his own shoulders; and it would be up to him to see that his agent gave him the value of his money and an architectural embodiment of his ideas. But in all other cases the rule does apply. Wherever the owner is obliged or prefers to delegate the responsibility for getting a suitable house to an expert, it is absolutely essential that the expert in question should have the disinterested motives and the special training of a professional expert. The expert he selects may, no doubt, fall below the proper professional standard, but he should guard against such a possibility by choosing his architect with sufficient care. If his designer is not both disinterested and competent, he loses the great advantage which he may be expected to get from employing expert advice. The object of a designer who is not disinterested is that of making money for himself by pleasing his employer at any cost. He will, consequently, satisfy almost any whim of his employer, no matter how deplorable the effect of the whim upon the



Entrance Drive.



Garden Side.

RESIDENCE OF MR. FRANCIS F. PALMER.

Portchester, N. Y.

general appearance of the building; and if he is a decorator as well as a builder, he will usually spend as much as possible of his employer's money upon the stock, which he himself is in a position to supply. Out of a total appropriation, say of \$50,000, he will inevitably save as much as he can upon construction, in order to spend as much as he can upon the furniture and embellishments, because it is that part

of the responsibility which is rightfully his, and is obliged to subordinate the integrity and the propriety of the whole design, for the benefit of only one part of it—viz, the lavish decoration of certain rooms. The decorator, has, of course, his appropriate function, which is that of carrying out, like any other contractor, the designs of the architects, but in case he is granted any responsibility, except for the conscientious per-



RESIDENCE OF MR. FRANCIS F. PALMER—LIBRARY.
Portchester, N. Y.

of the job, which brings him in his largest profits.

No good, consequently, can come either to individual house-owners or to American domestic architecture from the employment of a decorator to design buildings. The architect must either be master of the whole design and its carrying out, or else, his services should be dispensed with entirely. If the decorator employs the architect, the architect is placed in a situation, which forbids his best work. He is deprived

of the responsibility which is rightfully his, and is obliged to subordinate the integrity and the propriety of the whole design, for the benefit of only one part of it—viz, the lavish decoration of certain rooms. The decorator, has, of course, his appropriate function, which is that of carrying out, like any other contractor, the designs of the architects, but in case he is granted any responsibility, except for the conscientious per-

formance of a specific contract, it becomes a case of the tail wagging the dog. The house-builder, who is not capable of originating his own design—and how many are?—falls into a trap, in case he adopts any other course save that of employing some competent architect, whose work and methods suit him. By employing a decorator he may get a building, which looks to his inexperienced eyes like the real thing but which would be none the less almost necessarily a fraud and a sham.



Dining Room.



Living Hall.

RESIDENCE OF MR. FRANCIS F. PALMER.

Portchester, N. Y.

The practice of entrusting the design of residences to decorating companies is very popular in England, but fortunately it has gained comparatively little headway in this country. Certain conspicuous cases could be named, in which the architectural design of prominent houses has been subordinated to the ideas and interests of some company of decorators; but the practice is, we imagine, on the wane rather than on the increase. As a rule in case decorators are allowed a larger responsibility for the design of the interior of a house than they ought to have, it is the fault of the architect rather than the owner. Nevertheless cases frequently occur, in which house-builders commit the error of entrusting specifically architectural responsibilities to decorative companies which are necessarily devoid of disinterested professional or artistic standards, and whose chief object usually is that of unloading on their employer a large amount of wood-work, furniture, rugs and hangings; and when such cases do occur, they are worth some attention particularly, when, as frequently happens, their work might be confused by inexperienced people with much more architecturally meritorious houses.

The three houses, illustrations of which accompany this article, may be taken as fair illustrations of the sort of thing, which an unsuspecting builder will get when he places himself in the hands of a decorator rather than an architect. These houses all belong to different members of the same family, and are all situated near one another on the same piece of property. They were all designed in the office of the same decorating company, whose employers have obviously placed most liberal appropriations at its service. The designer had, consequently, almost a unique opportunity for a complete and effective scheme of landscape design. He had an opportunity, not merely of connecting the houses one with another, but of tying them together by a suitable layout of the whole place; and this opportunity has been almost entirely neglected. It is natural that an interior

decorating company would fail most completely in arranging for an appropriate landscape treatment, because the out-door part of the work would be least interesting and profitable to the designer; and the company would not save itself from such a failure, even if it called to its assistance a professional landscape architect, because the decorator would have no interest in spending any sufficient fraction of the total appropriation in out-door work. In the instance of the three houses illustrated herewith, the landscape architectural scheme, which should have been most carefully planned and carried out with a considerable expenditure of money has been comparatively neglected. The devices, used by the designer in order to tie the several houses together and make them look well in their natural surroundings are commonplace, trivial and cheap; and the same adjectives apply to the devices, whereby the landscape, in itself very beautiful, is supposed to be made more effective from the entrances of the several houses. The only garden shown in the photographs lacks all propriety of location, or any sufficient definition of treatment, and is almost absurd in its wholly episodic relation to any general landscape scheme.

The designer has sought to obtain unity of architectural effect by giving the three houses the same general character. They are all of them adaptations of the Spanish mission style to the needs of a modern American suburban house in a cold climate. The use of this style is extremely popular in California, where it is supposed to have some local propriety, and it is no wonder that such is the case, because the old Missions combined certain solid architectural merits with an attractive and popular picturesqueness of aspect. But the style cannot be recommended for contemporary suburban houses in a cold climate, because in adapting it to its conditions its merits are mostly lost and its faults emphasized. Its merits consisted in the masses and stretches of solid wall, broken with only a few openings, surmounted by a red tiled roof, and varied by a picturesque



Entrance Drive.



Garden Side.

Portchester, N. Y.

RESIDENCE OF MR. GEORGE Q. PALMER.

bell-tower and the deep shadows of the arcade. They were essentially conventional buildings, which were intended both as a protection and as a retreat from the outer world, and in which simplicity and economy of effect was the result of primitive economical, social and technical conditions. It was inevitable that when the attempt to reproduce this style was made under social and economic conditions, which had

imitations of the Mission style are of this character; and so are the houses reproduced herewith. The latter are indeed, a distinct improvement on the majority of their Californian prototypes. It would be going too far to say that they are examples of sheer architectural frivolity, because the designer has used a good deal of intelligence in adapting the forms of mission architecture to the needs of a contemporary American



RESIDENCE OF MR. GEORGE Q. PALMER—DETAIL OF GARDEN.
Portchester, N. Y.

ceased to be primitive, the style itself tended to become sophisticated. The imitation fastened merely on the details and picturesque features of the old Mission buildings and neglected or repudiated the more substantial qualities, which gave those details dignity and propriety. In the place of the solid almost unbroken walls of primitive concrete, there was substituted flimsy plaster constructions, broken necessarily by many windows, and essentially frivolous and restless in architectural feeling. Nearly all the modern Californian im-

suburban residence, and he was shown some originality and taste in decorating his structure with vines and trailing plants. But he was hampered by an essentially false and vicious point of departure. In order to meet the legitimate needs of the inhabitants of the houses, he was obliged to break the wall spaces by openings so numerous and so conspicuous that nothing is left of the solid walls, which gave the mission style its dignity, and with the solid walls should also have disappeared the heavy arches and gables, which were

their natural supplement. Every concession the designer was obliged to make to modern methods and needs—the brick chimneys, the little wooden balconies and porches, the complicated plan, the verandas and the awnings—all these incidents and details violate in their effect the integrity of the original idea; and the best one can say is that the violations have been made, not with perversity and unintelligence, but with some discretion and taste. The

In the design of the interiors, no attempt has been made to stick to the Mission forms. The bare simple wood-work and furniture of that style has been used with some success in many western dwellings, but in the present instance the designer, as soon as he passed the threshold, lost all interest in Mission detail and economy, and indulged in a riot of ostentatious Colonialism. All the rooms in all the houses are finished in white wood, and furn-



RESIDENCE OF MR. GEORGE Q. PALMER—THE FORMAL GARDEN.
Portchester, N. Y.

effect would, however, have been infinitely better, in case the design, while keeping the general aspect of an old Spanish house, had dispensed entirely with the peculiar characteristics of the Mission style. He could have designed a series of white walled red-roofed villas, with details derived from Spanish and Italian Renaissance buildings, which would have avoided entirely the incongruity of effect characteristic of these three houses.

ished in heavy mahogany; and the design of these interiors has the same pretence of adhering to a style as has the design of the exteriors. On the outside an affectation is displayed of Mission simplicity. On the inside there is a similar affectation of Colonial simplicity. But in both cases the pretence cannot disguise the absence of any desire for genuine simplicity and economy of effect. The wood-work is not, indeed, over-wrought with classic detail,

and in some instances the scale of the mouldings and of the panelling is rather too low than too high. But the detail if not over-wrought, is commonplace in appearance and in design. It may well have been designed and made particularly for these rooms; but it looks as if it were supplied out of stock and it has the lack of distinction, which is the usual mark of manufactured wood-work. A Colonial room is nothing at

excessively obtruded or appear to appropriate the room. In every one of these apartments one loses all sense of the whole by a forced preoccupation with the details. The only general effect they give is that of a miscellaneous collection of things. It looks as if the rooms had been designed for the furniture and the hangings, rather than the furniture and the hangings designed or selected for the rooms. The mere



RESIDENCE OF MR. GEORGE Q. PALMER—LIVING HALL.
Portchester, N. Y.

all unless it is expressive of a certain refined simplicity of taste; and refinement and simplicity, cannot be achieved merely by the use of white panelling, classic mouldings and columns. It demands primarily the subordination of everything in and around a room to a total effect derived from an appropriate treatment of the walls, the ceiling, and the more important structural incidents, such as the mantelpiece, the doors and the windows. All the particular pieces of furniture and decoration must find a natural and inevitable place in the total effect and none of them must be

details of the picture absolutely appropriate one's attention—which has been pretty well exhausted by the time it passes from the contents of the room to the room itself, and we do not exaggerate in saying that apartments designed by decorators are usually vitiated by precisely this fault.

Before closing this article, however, the reader must thoroughly understand the spirit in which, and the purposes for which the foregoing criticisms have been made. The houses illustrated herewith have been characterized in plain but carefully discriminated

language. They are not architecturally vicious in the sense that certain Newport and Fifth Avenue houses are vicious. They are not the issue of socially vulgar outlook, or of mere architectural ignorance, perversity or ostentation. Not so many years ago they might have been accepted as decidedly superior to the average dwelling of the same grade. But the standards of dwelling-house design have been rapidly improving, and at the present time these houses, illustrate, not an absence of aesthetic standards, but a dangerous falsification thereof. They illustrate the kind of faults, which every owner is in danger of committing, when a really wholesome relation does not subsist between the client and the architect. These residences are characterized throughout by a total lack of architectural integrity. Professional training has had a hand in their design, but not professional conscience; and this element of conscience will always be lacking, so long as the architect is not an independent expert, who has the recognized authority to impose his ideas in all essential matters upon his clients. When such authority is lacking the result is sure to be more or less of a

hodge-podge; and it is necessarily lacking in the relation between a decorator and his client. The decorator may have as much training and taste as the architect, and on the average he is doubtless just as honest a man; but he is only an agent, without any final authority, and with his profits depending upon his ability to please his employer. He has no professional tradition and standard behind him; and in case he should wish to assert his own personal ideas, he really goes beyond his rights. Thus he inevitably falls into the habit merely of dangling architectural baits before his clients—designed to tickle the latter's palate. Of course many architects are no better: but the point is that an ever larger proportion of architects are attaining the personal and professional independence necessary for personal self-assertion. It is these designers who insist upon building for their clients, houses, which will not merely tickle their aesthetic palates, but will educate and clarify their whole aesthetic outlook. The improvement which is taking place in American architectural design is traceable to these architects and to them only.

William Herbert.



RESIDENCE OF MR. NICHOLAS F. PALMER—ENTRANCE.
Portchester, N. Y.



FIG. 1. TYPICAL RESIDENCE BLOCK.

New Rochelle, N. Y.

Charles A. Lupprian, Architect.

Study of a New York Suburb, New Rochelle

(Photos by J. H. Symmons)

A writer in the "Point of View" of Scribner's Magazine, in a recent number of that periodical, made a remark which may perhaps be profitable for reproof and "re" edification. He said that the efforts of the private owners of realty in the suburbs of our great cities, and equally or more in our summer or winter resorts, towards beauty and comity in the aspect of their respective places of abode or sojourn were apt to be nullified by the selfish insistence upon mere conspicuousness and difference of the owners and projectors of the commercial building. Nothing, he went on in effect, is commoner than to come upon a suburb of which the residences express and attest a high degree of refinement and the business buildings a low degree of vulgarity. And thus, quite curiously, it is the local tradesmen, the very class which is most immediately interested in

the prosperity of a place of which the prosperity depends on its picturesque attractiveness, which goes about, in its own erections, to destroy that attractiveness, and to kill the goose which lays the golden eggs.

These reflections might have been suggested by the aspect of New Rochelle. Whether they were or not, they are vividly illustrated by that aspect. Without any striking features of landscape, for an "aequor" of water can no more be called such a feature than a gently undulating surface of land, New Rochelle shares with the other suburbs, its neighbors on the Westchester shore of Long Island Sound, the quiet beauty of the low alluvial coast, and the historic interest which during the Revolution made the Debatable Land one of the most interesting regions of all the thirteen revolted colonies. Cooper's "Spy" was the pre-



Fig. 2. Typical Business Block.
New Rochelle, N. Y.

cursor of a long line of romances, extending down to to-day, which deal with the conditions of this Westchester shore. During the Revolution and even before the Revolution, since this was one of the chief scenes of the irrepressible conflict between strenuous Puritan Yankee and ruminant Arminian Dutchman. And New Rochelle has a special historical interest for having been the goal of the Huguenot migration, which



Fig. 3. A Spoiled Piece of Architecture—The
New Rochelle Trust Co.
New Rochelle, N. Y.
F. C. Merry, Architect of Lower Stories.

introduced a special element into the strife, that element, Gallic, however Protestantized, under which Calvinism itself lost half its evil by losing all its cantankerousness.

There is thus every natural and hereditary reason why New Rochelle should be a thoroughly charming suburb, a place to which the commuter should repair with particular alacrity after his day's work was done and spend his evenings with particular delight in what poor Homer Martin used to describe as "the pursuit of his family," and to which he



Fig. 4. A Bit of the Beaux Arts—The National
City Bank.
New Rochelle, N. Y.

should hie for his week-end with glad relief. So indeed, it is a charming suburb, as suburbs go. But it might be so much more charming:—

every prospect pleases
And only man is vile

not even man in all his operations, as we shall presently see more at large. Only business man, and he is so only in some of his operations. In so far as the suburb is residential it is attractive. In so far as it is commercial, it is largely repulsive. Take this typical residence block, on the one hand (Fig. 1) which has been chosen for illustration, not because it is the most artistic or attractive of the residence blocks, but only as an average, and also, to tell

the truth, because the trees have not yet grown big enough to hide the houses, and the foliage and ampelopsis which, at the time of the picture taking, obscured even more attractive residence blocks did not obscure this. Then take this typical business block (Fig. 2) and note the absence of all the qualities which go to make the residence block attractive. Instead of comity, we have disputatiousness, instead of sociability, rampant individualism, in a word, the height of unneighborliness substituted for the state of brethren dwelling in unity. Imprimis, there is no skyline, but instead thereof a jagged sierra, and a high degree of inconsideration for the



Fig. 5. The Post Office.
New Rochelle, N. Y.
Franklin D. Pagan, Architect.



Fig. 6. The Masonic Temple.
New Rochelle, N. Y.
Geo. K. Thompson, Architect.

neighbors in material as well as in height, to say nothing about "style." First, buildings of four stories, now in brick, now in stone, secondly a Jacobean edifice in three stories in brick, succeeded by a ditto in Victorian Gothic, then a single story, then three stories in brick, then two in clapboards, then two in yellow brick, surmounting two in brownstone, and so forth. Open contempt for the neighbors is what they all exhibit, and shed new light on Ruskin's saying that "the chief object of commercial art is conspicuousness." To be conspicuous the easiest way is to be different, to build higher and bigger

than your neighbor and possible competitor, and to emphasize your aloofness from him. Not, of course, that the builders of new shop fronts should conform to the humble clapboard edifices which they supplant, and which exist merely provisionally, as relics of an humble past. But that there must be some common height, which in a place of the actual size of New Rochelle, or its size in the near future, would commend or even impose itself, is a proposition which has failed to impose itself on the builders of the commercial part of the New Rochelle that we see. And yet it is a kind of primary precept of that social civilization to which the appearance of the commercial part of New Rochelle is a disgrace and a defiance. In some countries, for example, in France, this pri-



Fig. 7. St. Gabriel's School.
New Rochelle, N. Y.
J. C. Cadý & Co., Architects.



Fig. 8. Trinity Church.
New Rochelle, N. Y. R. M. Upjohn, Architect.

mary requirement of civilization would be officially imposed. In other countries, in which individualism is as rampant, in many ways, as it is in our own, the same result is attained by the feeling of neighborliness. A tradesman would be as much ashamed to annoy his neighbors by the overweening pretentiousness of his store as of his house. In this latter respect our tradesman seldom errs as he habitually does in the former. But he has a notion that his right to advertise takes precedence of social decency. This feeling is one of the most awful results of our commercialism.

It ascends to regions where you would not suspect its existence. It extends to what you may call "institutions." A village bank is, or clearly ought to be, a village institution. It has the right, and one may say the duty, of building for itself a modest and suitable home, which shall be exempt from the more vulgar manifestations of the dollar hunt. Surely a bank should have more dignity and self-respect in these matters than can be exacted of a hustling Yiddish storekeeper, for example. Wherefore the "new" building of the New Rochelle Trust Company is about the most depressing erection on the main street of New Rochelle (Fig. 3). For it happens

that this institution did possess a perfectly appropriate and even charming little banking house of its own, which was one of the chief attractions of the main street. It was originally built from the designs of the late Mr. F. C. Merry some sixteen years ago. Only a door and a big window, wide and two stories high, afterwards extended laterally, but not vertically. In its original state, or after the first administration, it did equal credit to the architect and owner. With its modest two stories in brownstone, its studied and effective fenestration, and its artistic carved work, even though wavering in "style" between Renaissance and Byzantine, it was a most grateful object, almost the beau ideal of a village bank, one would have said, before the erection of that sparkling little work of Mr. Sullivan's in distant Minnesota. But the bank officers were apparently the least appreciative of the New Rochellers of the value of their habitation. It is true that it may be a case of "the laurels of Miltiades." For the other and younger of the "local" financial institutions, the City Bank had just "come from" erecting a building for its own use which was bigger and more conspicuous than the brownstone



Fig. 9. Trinity Tower and Church.
R. M. Upjohn, Architect.

front of the elder, and which might be suspected of a disposition to domineer over the main street to its elder's detriment. But, really, there is no radical fault to be found with this latter edifice (Fig. 4). It is a monochrome of red brick, in the prevailing mode of the Beaux Arts, successfully simplified and owing its impressiveness to simplicity and "scale." It is part of the simplicity which makes the success that it evidently exists solely for the accommodation of the institution, its owner, and makes no provision whatever for "the pig that pays the rent." Moreover, its altitude does not exceed the three-story limit which is the normal cornice-line of a place of the size of New Rochelle. It is also, like the building which it may have overtopped and may have tended to efface, a dignified fulfilment of a respectable requirement. But, in fact, respectable as it is, it did not, to the judicious and sensitive observer, succeed in effacing or eclipsing the older two-story bank. On the contrary, to such an observer, the elder remained the better, in spite of the superior smartness and modishness of the newer. If such an observer had had no other means of judging the comparative solvency and magnitude of the institutions than the fronts they respectively put up, he would have



Fig. 11. St. Gabriel's Church.
New Rochelle, N. Y.
William Schickel, Architect.

been quite as apt to put his money in the two-story brownstone edifice as in the colossal single story of the red brick repository. In either case it was manifest that the institution was enough of an institution to build quarters for itself and to occupy them exclusively. But, in an evil hour, the Trust Company was inspired to proclaim that it could no longer afford this isolation, and to build two additional stories, which is to say, as superfluous and irrelevant to the banking business as to the architecture, obviously to reduce expenses by making them pay rental. Add that the additional stories necessitated the destruction of the cornice of the original building, which was an integral part of its architecture, that they themselves do not conform to the substructure even in material, and that they have not in themselves the slightest architectural interest, and you come near spelling vandalism. In truth, the superstructure so suggests a cornice of sheet metal that you have to go about to the side to assure yourself that this iniquity at least has been foregone and that the cornice is, in fact, of honest brownstone, honestly bonded into the buff brick wall. The superstructure is, all the same, a depressing performance, the more depressing, paradoxically, the higher it goes.



Fig. 10. Methodist Church.
New Rochelle, N. Y.
Weary & Kramer, Architects.

The general aspect of the business quarter of New Rochelle, like the general aspect of any other suburban town, like the general aspect of the tenement house quarter of any great city, strongly suggests that this same sheet-metal cornice is the fount and origin of architectural vulgarity. It is by its nature a piece of cheap finery, and cheap finery is the very symptom of vulgarity. Imagine, in any of the suburbs or any of the tenement house quarters aforesaid, an effective prohibition against the erection of any sheet-metal cornices or projections whatever made to imitate masonry, and that the builder had to construct his cornice, such as it was, of honest brickwork or masonry. Can you imagine a more wholesome and beneficent regulation, from the architectural point of view, any other one restriction which would do as much to banish vulgarity from the street architecture and render it impossible? Try it, and you will be likely to give it up. Wherefore it is a pleasure to say that from this particular form of vulgarity and vandalization the business quarter of New Rochelle is comparatively free. Not absolutely, of course. That were much, too much, to hope. But, a good many years ago, it occurred to some architect, possibly only to some builder of sound and honest instincts, that the tin cornice was an ugly fraud and sham, and that he would make his cornices out of the ma-



Fig. 12. Presbyterian Church, North Ave.
New Rochelle, N. Y.
Frank E. Wallis, Architect of Church.
Frank Rosh, Architect of Tower and Additions.

terial of his walls. He thus put it out of his power to be vulgar and repulsive beyond a certain point. And, in every one of the principal streets, you may see business buildings which have no other claim to admiration than this negative one that they do not flaunt a sheet-metal cornice, and which by that mere omission become at least comparatively respectable. The building in Huguenot Street, occupied as a post office, and, indeed, I believe, designed with a view to that occupancy, though not a government building, becomes, largely in virtue of this omission, almost exemplary (Fig. 5). It has other points in its favor, to be sure. While it seems to be amply lighted, the proportion of voids to solids is large enough to assure the eye and the mind of stability; the fenestration is throughout well managed, and the problem of a shop or show window which shall fulfill its commercial purpose without destroying the apparent stability of the walls is particularly well studied in outline and in detail. The architect was rather puzzled on being complimented on so simple, hum-drum and unpretentious a front. But, one was tempted to answer, that is "just it." A suburban commercial front which can justly be accused of unpretentiousness, even hum-drum and monotony, and of nothing worse, has vindicated itself. Imagine a whole village street lined with buildings like this for stores and offices, against the background of which the buildings



Fig. 13. Methodist Church.
New Rochelle, N. Y.
W. H. W. Young, Architect.



Fig. 14. "Tuscan Villa," 1851.
New Rochelle, N. Y.
Alexander J. Davis, Architect.

properly more costly and pretentious, the public buildings and such quasi-public buildings as the banks, might be effectively relieved and set off, and would you not rejoice in the sight and be grateful for it if of a sensitive and thankful constitution? Nay, compare it with the new building adjoining it, which is much more "the regular thing" in suburban commercial architecture. The author of this has at least had grace enough given to him to conform to the cornice-line of his neighbor, and, in general, to the division of its stories. For this relief, much thanks. But you cannot help seeing that his building is, in the first place, impossible. If it were what it purports to be, it could not stand up for an hour, the whole superstructure being without visible means of support. The absence of anything to be called design, either in composition or in detail, is complete; the contrast between the marble and the brickwork of a violence aggravated by the spottiness with which the latter is introduced against the former, and, to crown the edifice, there is a cornice of unmistakable sheet-metal, the pretentiousness of which is effectively exposed by the solid and unpretentious projection of the brick cornice next door. Yet, of course, the newer is more characteristic of the street architecture of the suburb than the elder. Can any civilized man hesitate as to which he would choose as the prevailing architecture of a village street?

New Rochelle is rather exceptionally fortunate, as has been said, in the preference which so many of its business buildings show for honest masonry over fraudulent sheet-metal as the material for cornices. It is also rather favored among suburbs in its public buildings. The contributions of the municipality itself to the decoration of the main street are not important, are, in fact, negligible. There is a fire-house on one of the side streets, in white stone and buff brick, which one might, if hard pressed, designate as French Gothic, and which has pretensions that might become performance if it were not so painfully thin and shallow. The "City Hall," at the center of the main street, meant to be the cynosure of neighboring eyes, is a crude and ridiculous edifice, which no human being could think of admiring. It must much antedate the municipality and belong to the "village," bearing, in fact, the marks of the untutored mechanic of the late sixties or early seventies. Nobody could think of admiring it, and yet one wonders whether it had not better stay where it is than to be superseded by the smart Beaux Arts edifice which would probably supersede it if the supercession were to take place just now. Untutored carpenter for irrelevant artist, it is a more congruous object than, for example, the City Hall of Paterson, N. J. True, the municipality would not be shut up to a choice



Fig. 15. "Tudor Villa."
New Rochelle, N. Y.
Alexander J. Davis, Architect



Fig. 16. Gothic Cottage, 1858—Residence of Mr. Frederic Remington. New Rochelle, N. Y. Alexander J. Davis, Architect.

between these types. In fact, at one end of the main street there is a classic building, the Masonic Temple (Fig. 6), rather more familiar to New Rochellers as the Public Library, and at the other end a Gothic building, built and presented to the town as a gymnasium and intended by the generous donor as a general social center, which two offer a much more eligible choice of types. The latter quite missed its destination, owing to the impossibility of securing the social mixture of which the fond donor dreamed. What is it the village magnate says, in Mr. Howell's novel, of



Fig. 17. Pointed Villa. (The front has been modernized.) New Rochelle, N. Y. Alexander J. Davis, Architect.

such a proposition? "I am perfectly willing to meet these people at the polls or the communion table or in any proper way; but a man's home is sacred." At any rate, the classes would not mix, and the building consecrated to their coalescence is now St. Gabriel's School (Fig. 7). But one cannot regret the delusion which at least produced the building, with its soft red monochrome of brick wall and tile roof, and its careful and studious adjustment. As little can one suggest regrets at the "tetrastyle in antis" over a plain brick basement of the Masonic Temple. This is a piece of classic of the kind rather better handled by the mechanic of 1820 or thereabouts than by the contemporary "artist," in which, that is to say, the order is successfully incorporated with the structure, so as to seem a part of it, instead of being plainly exotic or irrelevant. This latter effect is produced by a schoolhouse out on North Avenue, which consists of a mere factory, with a Greek portico casually adjoined to it, which has plainly nothing whatever to do with it, and this latter effect is a much commoner product of the present "classical revival" than is the former. Of course, the classic building at one end of the main street is entirely incompatible with the Gothic building at the other. Which represents the more eligible type for a village suburb like New Rochelle is a question there is no use in arguing. As to this, one has to say—*De gustibus non disputandum*. But, in any case, one would have to be a bigoted partisan not to admit that the place is fortunate in having so well done an example of each of the two opposing styles. As to the other secular public buildings, they are schoolhouses, and none of them is of more architectural interest than the one we have mentioned. It is a pity, indeed, that so much money should be spent, no doubt to so much practical and educational effect, but to so little architectural effect.

As to the sacred public edifices, New Rochelle is rather exceptionally fortunate in its churches. Trinity alone, one of the best works of the younger Upjohn, if not his masterpiece, would lend distinction to any suburb fortunate

enough to rejoice in its possession (Fig. 8). The Gothic revival did no better piece of ecclesiastical work of its kind. Nothing could be more considerate or more successful than the disposition of the parts and their relation to one another and to the whole, than the adjustment, the design and the scale of the detail. The dwindling aspiration of the spire, the treatment of the transition from the square tower to the octagon, the design of the middle stage of belfry light and clock face and dormer, the relation of the whole mass to the polygonal and buttressed apse alongside (Fig. 9)—what could possibly be better? Add that the emphasis of structure is enhanced by the stress of color, the combination of material, a mellow yellowish gray rubble with wrought work of brownstone, being, in effect, that which Richardson afterwards employed with so much success. Add, also, that the church distinctly "belongs," and that it would be as much out of place in a much more urban or a much more rural parish, as it is delightfully in place in this suburb, and you have a beautiful and impeccable success. It is unpleasant to have to add that the custodians of the church have not shown themselves very appreciative of their treasure. And we shall also have to blame the memory of the same Mr. Merry who cast the original design for the New Rochelle Trust Company before the directors of that institution. For, when the parish house came to be added, it unfortunately happened that the Anglican Gothic had been superseded by the Richardsonian Romanesque, and a rather barnlike structure in that style was the result. It was the more a pity because what the addition should have been was so plainly indicated by what existed. An English Gothic parish house, and possibly a rectory thereto, of the same material and the same architecture as the church, with, by all means, a low but open arcade of covered cloister or ambulatory connecting it with the main edifice—one sees that that was imperative. If that had been provided, the "parochial plant" of Trinity would have rivalled that of St. John's, Yonkers, by all means



Fig. 18. An Average House.
New Rochelle, N. Y.
J. N. S. Quoi, Architect.

the most successful example of such a plant in Westchester County. Whereas, now not only do the church and the parish house dwell together in disunity, but the vested choir has to scuttle across the open from the robing rooms to the church—even under umbrellas in rainy weather—and dignity has to take care of itself. Too bad!

There are other churches worthy of note. The Methodist Church in Chester, serpentine and brownstone, confronts at the east end of Main Street the Salem Baptist Church, in white marble, with a red tile roof. To each may be applied the irrefragable criticism of the Vicar of Wakefield that the picture



Fig. 19. Built for Comfort.
New Rochelle, N. Y.
Franklin D. Pagan, Architect

would have been better if the painter had taken more pains. The latter has a good motive, the pyramiding and convergence in an "auditorium" church, of all the parts to the apex of the steep roof. But the spire, instead of emphasizing this effect, confuses and obscures it, and, as to detail, there cannot be said to be any at all. Of course, decorative or even expressive detail costs money. But one would very much rather see spaces and pieces left frankly blank for future enrichment than to see a provi-



Fig. 20. A Shell Porch.
New Rochelle, N. Y.
N. J. Burchell, Architect.

sional "finish" which looks as unfinished as blankness, and imparts to the design itself a "half-baked" aspect. On the other hand, the Methodist Church gains an undeniable success in its effect of color (Fig. 10). The Chester serpentine, albeit of a vivid and almost of a grass green, looks quiet in such large expanses, and its quietness is even enhanced by the brownstone of the wrought work. But the composition does not seem to have been studied at all in perspective, for the front, very good in itself, with its triple window, does not



Fig. 21. A Happy Afterthought.
New Rochelle, N. Y.
Franklin D. Pagan, Architect.

come together with the side, with its great wheel window. And, in fact, the side elevation has not been studied even by itself. No artist could possibly have drawn out this elevation and remained of the opinion that it was good, or even that it would do, with its two equal gables and its entire lack of any central point of interest. All the same, thanks to its success in color, and, in truth, to the success of the front in design, it is a very popular edifice. For that matter, either one of these churches is immensely preferable to an unfortunate Catholic church in Centre Avenue, called "Of the Blessed Sacrament." This is of white marble, carefully enough wrought,



Fig. 22. Homely Picturesqueness.
New Rochelle, N. Y.
Franklin D. Pagan, Architect.



Fig. 23. Dwelling Apart in Unity.
New Rochelle, N. Y.
Franklin D. Pagan, Architect.

and evidently has cost money. One wonders why it should, nevertheless, be so distressingly, so infuriatingly ugly, and is inclined to attribute the result not only to the painful thinness and shallowness throughout, but very particularly to the insensibility shown in the shape, arrangement and modeling, or, rather, no modeling of the openings in the tower. Common charity forbids the illustration of it. Another Catholic church, St. Gabriel's, is by no means so bad, though far indeed from exquisite (Fig. 11). It is very solid and rather massive, with its granite walls and its tiled roof. But it loses much of the effect its solidity and honesty would entitle it to by the lack of contrast. It has, one may say, no detail at all; but, as executed and finished, is merely a thing "roughed out." A little more money spent in stonecutting, under the



Fig. 25. A Glorified Farm House.
New Rochelle, N. Y.
N. C. Burchell, Architect.

direction of an architect who knew what he was about, in furnishing capitals for the rough pillars, let us say, dressed offsets for the rough buttresses, mouldings for the rough arches, would have far more than paid for itself in architectural effect, even assuming the actual rather awkward and uncouth composition. The Presbyterian church in North Avenue is immensely better (Fig. 12). One may criticise it as being rather too rural for its suburban place and surroundings, though it is not on the main street, and goes very well with the dwellings in its neighborhood, being, as one might say, a "cottage church,"



Fig. 24. Twilight in Rochelle Park.
New Rochelle, N. Y.

and owing a good deal to the half-timbered and plastered adjuncts to the rough masonry of the nave, with its heavy projecting bargeboards. But, a mile or more beyond this, and well out in the open country, there is a charming little Methodist chapel, a gem, in fact, of rural church architecture, of which the appreciation by its possessors may be judged by the fact that the pastor being inquired of in that behalf, though he quite knew the builder, could not say "who drew the plans." One's hearty congratulations, all the same, to the draughtsman of the plans. What could be more seemly and fitting than the little edifice, with its basement of rough stone

and its superstructure of shingles, left to weather into harmony with the stonework, with its well-studied relation of gable and porch and steeple and apsidal transept; above all, with the perfect congruity of the whole with its surroundings: Next to Trinity, than which it is so much less costly and pretentious, distinctly the best piece of charca architecture in New Rochelle (Fig. 13).

But, of course, the most interesting of the buildings of any suburb are its dwellings. It is in domestic work that contemporary American architecture chiefly shines, especially in rural and suburban domestic work, and in houses of modest pretensions and moderate cost. "The House Dignified," as it has lately been described, meaning largely the "House Regardless of Expense," is apt to leave the picturesque tourist rather cold. It has been said that the American people, and it might be said that all modern peoples, build their houses in the vernacular and their public buildings in an unknown tongue; which is perhaps only another way of saying that architecture is a dead art; whereas, housebuilding will continue to be practiced as long as men need habitations. In the great majority of cases, it will, of course, be, in the Baconian phrase, of houses built "to live in and not to look on," and, in this country, in particular, of houses within the pecuniary reach of the average man, not beyond the reach of any reasonably industrious and ordinarily competent citizen. When one of these houses is pleasing "to look on," without ignoring any of the conditions on which it is based, it is especially welcome as a social not less than as an architectural exhibit. And the enormous improvement within a generation of the housing of the average man, artistically as well as practically, the escape from vulgarity and pretension and the attainment of a homely and homelike picturesqueness, is a piece of national progress on which we are entitled to congratulate ourselves almost unreservedly. So, although New Rochelle has quite its share of "swell places," it seems best, in a study of this kind, to ignore them and confine our-

selves to such of the houses of moderate size and cost which show some touch of art.

But first one has to congratulate this suburb upon a group of comparatively early dwellings, touching or even surpassing their half-century of duration, such as few suburbs can show. Colonel Richard Lathers was the public benefactor to whom New Rochelle is indebted for these things. As his published "Reminiscences" relate, it was in 1848, after a brief but successful business career in New York, that, attracted by the accessibility and the natural and historical interest of New Rochelle, he bought a farm on what is now known as "Lather's Hill." And it was only three years afterwards, in 1851, namely, that he employed an architect to design him a more seemly and dignified abode than the old farmhouse which he had occupied thus far. This is the "Tuscan Villa," which still stands and constitutes an attractive object to all pilgrims to that quarter of the suburb (Fig. 14). He was lucky in his architect, Alexander J. Davis, memorable to the younger generation as the author of the old University Building in Washington Square, the "Chrysalis College" of Theodore Winthrop's "Cecil Dreeme," which stood to ornament the east side of the Square until it was pulled down, some fifteen years ago, to make room for a modern tall building, memorable for other preceding and subsequent works, and affectionately remembered by architects of the generation next following his own as "Papa Davis." Mr. Davis had, some fifteen years before, written a book, or, rather, "issued a work," for the volume consisted almost exclusively of plates, to commend Gothic as the suitable style for country houses. The only copy I ever saw of it is in the Yale Library. And all New Rochellers have reason to be thankful that it was put into the heart of Colonel Lathers to employ its author during the closing years of the fifties to design certain "investment houses" on Lather's Hill. These are four in number, three of them designed in 1858, and all, in 1909, still eligible residences, particularly well planned for spaciousness

and dignity of interior effect, considering their not extravagant dimensions, the "Tudor Villa" (Fig. 15), two Gothic cottages (Fig. 16), still extant and intact. In 1859 followed the "Pointed Villa" (Fig. 17), which has since, in the course of modernization, been considerably shorn of its fair proportions and bereaved of its decorative bargeboards, and had a porte cochère added to it. But, all the same, what examples they all were, and, for that matter, are to the untutored builder! How much they have restrained his excesses who can tell? They do form a benefaction to their neighborhood.

For, in truth, the average building of New Rochelle is not marked by vulgarity and pretension (if the repetition be not tautological), any more than they are by artistry. The average house of New Rochelle is not distinctly attractive. But, then, no more is it distinctly repulsive, and that is again something to be thankful for (Fig. 18). The average building is not of single dwellings, but of rows. When houses come, they come not single spies, but in battalions. That is one of the conditions of suburban "realty development." The developer acquires a tract of farmland or an old "estate." Then he proceeds to "pave, gutter and curb." Then he puts two large gateposts, formerly of stone, now more likely of the cheaper concrete, at each end of his holding in token of something or other, which he might call privacy or exclusiveness. This he occasionally accentuates by wooden paling and swing-gate between his posts. Then he sits down at the receipt of "offers" from homeseekers. It is the familiar suburban experience, but it seems that the proportion of gatepost at the end of the "Park," "Place," or what not, is especially large in New Rochelle. You need only go to one end of any of these reservations which is built up and populated and look at the baby-wagons and listen to the squalling to dismiss as idle the fears of "race suicide" in New Rochelle:

*Continuo auditas voces, vagitus et ingens
Infantumque animae flentes in limine primo*

You would not expect to find many architectural gems in these rows of reser-

ervations of building lots, 50x100. Perhaps, with these dimensions and conditions, the most attractive of the spaces are those in which individuality is waived and conformity attained, in which, in fact, the developer seeks a building profit as well as a land profit, and employs one architect to do the whole, as was the case with our illustration of a typical residence block (Fig. 1). It is apt to be outside the "parks" and "terraces" or inside such of them as afford rather more amplitude of dimensions, and where some irregularity of terrain invites some individuality of treatment that the little "places" are apt to be most interesting. Sometimes it is only a straightforward aspiration for comfort, as in Fig. 19. Sometimes a single feature as the shell porch in Fig. 20, or, on a rather larger scale, the loggia which some owner has had the happy thought of adjoining to one of those houses, with two extremely acute gables which so abound as to be characterizing, and has had the luck to fall in with the right architect to execute for him (Fig. 21). Sometimes it is what may be the mere unexpectedness of a bit of homely picturesqueness in a commonplace street (Fig. 22). Sometime a quaint and tocklesome conceit, like those trim cottages, which so irresistibly and whimsically suggest that they must be inhabited Dickensiansly, by two old maiden sisters or two old bachelor brothers, who find that they can live neither together nor apart, but who have so clearly found their notion artistically carried out for them (Fig. 23). Sometimes one may suspect a merely factitious effect of twilight and shrubbery upon a design which, strictly speaking, is not much (Fig. 24). But, on the other hand, there is no question that it is to the force of design that a dwelling like this glorified farmhouse (Fig. 25) owes its effectiveness, even though one may quarrel with the combination of brickwork and stonework, and the unbased pretence of rusticity in the treatment of the chimney, or may practically wonder what happens when the snow lodges at the bases of those dormers, scooped out of the roof and without "eyebrows,"

which he yet finds artistically so attractive. Still less question when he comes, at the corner of a suburban street, upon so prettily and effectively pyramided a composition as that shown in Fig. 26, where everything so evidently "belongs," and the aggregation of congruities attains such a charming unity that he has to recognize the work of an artist, and to pity, not without some shade of contempt, the wayfarer who recognizes nothing in it beyond what is to be found in its neighbors. Done in slight materials and at moderate cost, as this house is, there is no manner of question about its being a work of architecture.

A study of almost any suburb leads to the conclusion that there is more in it that is worth seeing than the casual observer would imagine. It is submitted that the illustrations show this to be eminently the case with New Rochelle. But, to recur to our starting-point, why should not more intelligent pains be taken, on the part of those whose interest it particularly is to take them, to impress the casual observer, the stranger on his first visit, with the advantages for residence or resort which he finds only after some sojourn? Why should not the best artistic intelligence of the place be exerted to put some constraint upon the builders of the business quarter, so that they should not initially repel the visitor whom the residence quarters are subsequently to attract. This is eminently a "business question." It is also a question of practical "civics." Corpo-

rate New Rochelle, for example, does injustice to the individuals who compose the corporation. Why should the chief avenue to the town, the direct road from the station to the business center, be also the Ghetto? It is too absurd, about the only parallel to it being the arrangement in San Francisco, before the earthquake and fire, whereby every visitor to the swell residential quarter had to climb through the noisome "Chinatown" to get there. And why should not the traction companies be constrained to add to the attractiveness and convenience of the municipality from which they receive their license to do business? It is rather hard to call upon the receiver into whose hands a traction company has fallen, by reason of its trustfulness that the public would not abuse its facilities of transit and transfer, to go about to make large expenditures. But, when it comes to four different "routes" being shut up to a single track, so that any delay at any point clogs movement by all four, it seems that the municipality might find means to enforce "a more central way." And when the main ganglion of the whole system, the central point of distribution and transfer, is up a side street, where passengers are simply dumped out, regardless of weather, to find their respective conveyances, then, clearly, "something is rotten in the state" of the community which permits such things to be. There is ample room and verge enough in New Rochelle for "municipal reform" of things that "come home to men's business and bosoms."



Fig. 26. A Work of Architecture.
New Rochelle, N. Y.

N. C. Burchell, Architect.

A Contemporary Westover

The Residence of Mr. Geo. T. Palmer, New London, Conn.

(Photos by Floyd E. Baker)

It is always clarifying, in considering the architectural value of a contemporary adaptation of an historical style, to be able to refer the house to some particular model; and in the case of Mr. Palmer's house, illustrated herewith, there can be no doubt either of the identity of the model or of the frankness of the debt. The owner of the house, who has a peculiar personal interest in Colonial architecture and furniture, specifically commissioned his architect, Mr. Charles A. Platt, to build a residence for him with "Westover" as the basis of the design. Mr. Platt followed his instructions loyally. "Westover" is one of the half-dozen Colonial houses distinguished by certain marked characteristics from its brothers (or shall we say its sisters?) in colonialism. Nobody in the least familiar with both houses could fail to recognize the model on which the modern house was based. Not only has the general mass of the Colonial model been accepted, but there is much similarity even in the detail. It should be remarked, however, in the same breath, that although the imitation is frank and faithful, it is very far from being mechanical and slavish. Certain modifications have been introduced into the modern "Westover," which, without making it any less specifically Colonial, give it the appearance and the character of a thoroughly contemporaneous house. Some of these modifications are evidently the result of the domestic needs of a contemporary American family. Others have been introduced by the architect with the evident intention of improving somewhat upon the original design. But these occasional variations in detail do not in the least violate either the spirit or the effect of the model. The modern "Westover" is as far removed from personal self-assertion on the part of the architect as it is upon mere archaism. Mr. Palmer's "Westover" is as frankly a house of a contemporary American gentleman as it is frankly an adaptation of a well-

known historical residence, and its value, both as a type and as a lesson, is due partly to the candid and competent intelligence with which the architect has not been afraid either of acknowledging his debt, or of making the borrowed capital pay a higher interest than the original loan.

The plot on which Mr. Palmer's house is situated consists of a long, narrow strip of land, bounded on the two ends by avenues. At one end it affords a view of the open water, and as this view was very interesting and attractive, its existence was of dominant importance in the location of the house. The building was placed near the end of the plot, in a situation overlooking the water view. The land falls away from the site of the house to the end of the plot, so that with the assistance of a certain amount of foliage and planting, the street is for the most part concealed from the vision of the inhabitants of the house. The proximity of the street and the presence of the view made it necessary to keep both the garden and the entrance away from this side of the dwelling. The intervening space between the building and the street is devoid of architectural treatment. It remains a plain lawn, planted with shrubs and trees, and with nothing in the nature of a porch except a simple platform, similar in character to that of "Westover" itself, but larger in size. It may be added that such a treatment was dictated not merely by the nature of the site and the direction of the view, but by fidelity to the architectural model. A modern "Westover" with a terrace would have been altered, not beyond recognition, but beyond any decently familiar relation with its original.

The entrance, not being situated on the water side of the house, has to be situated on the other side; and the same is true of the garden. The necessity of putting the public entrance and the private garden both on the same side was



THE ORIGINAL "WESTOVER."



RESIDENCE OF MR. GEORGE T. PALMER—GARDEN FRONT.

New London, Conn.

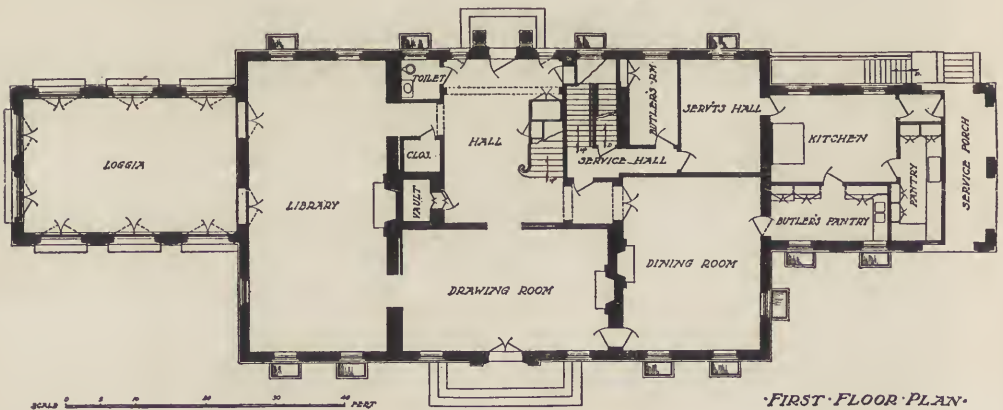
Charles A. Platt, Architect.

attended with certain inconveniences; but they have been clearly neutralized by the details of the arrangement. The entrance drive sticks closely to the north-

lead from it—one for service purposes, which goes directly to the kitchen, situated in the north wing, and one which goes into a round court immediately in



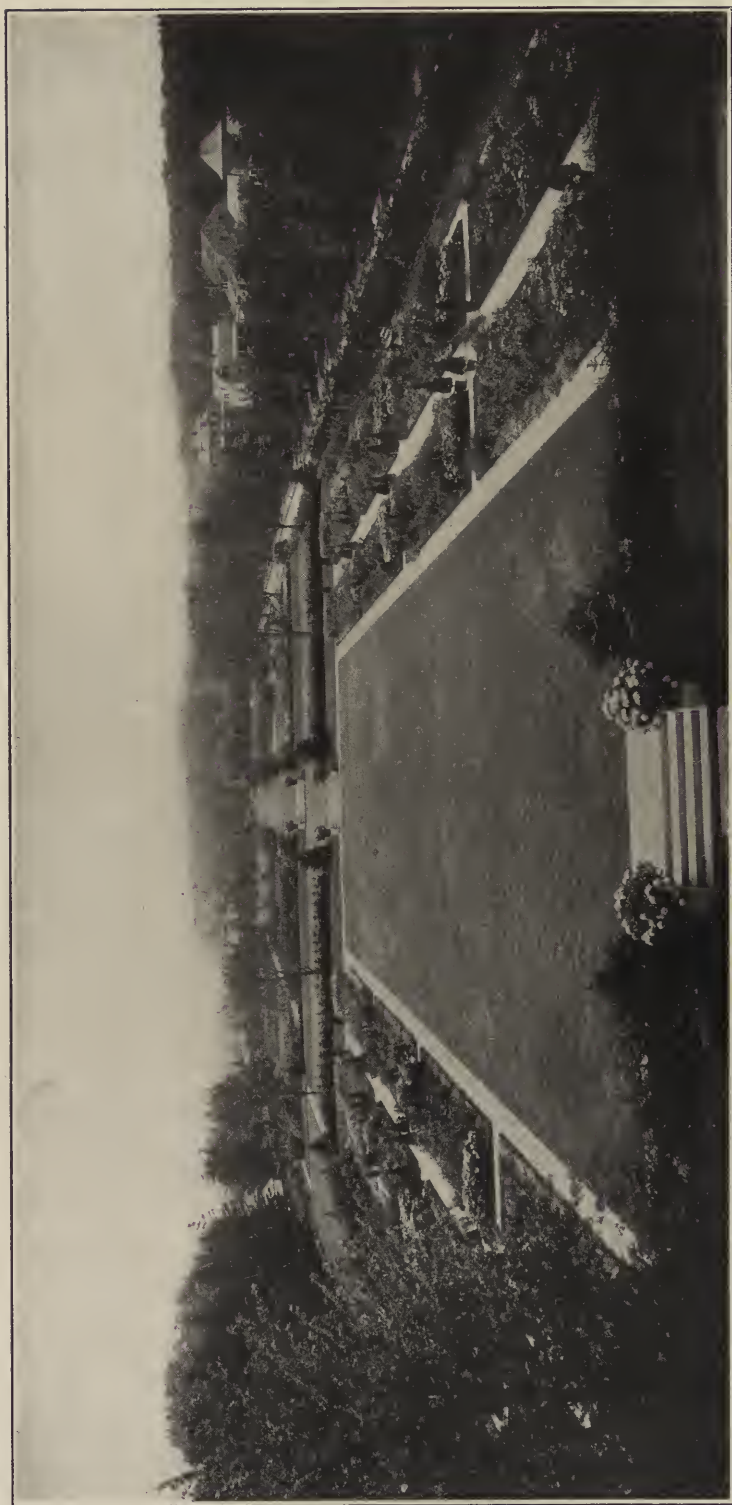
RESIDENCE OF MR. GEORGE T. PALMER—VIEW FROM GARDEN.
New London, Conn. Charles A. Platt, Architect.



RESIDENCE OF MR. GEORGE T. PALMER—FIRST FLOOR PLAN.
New London, Conn. Charles A. Platt, Architect.

ern boundary of the property, and as long as it runs close to the garden it is screened therefrom by dense planting. As it reaches the house, two entrances

front of the house. The proximity of the garden on this side makes it essential that the entrance court should be inconspicuously treated, and should be



RESIDENCE OF MR. GEORGE T. PALMER—GARDEN.

Charles A. Platt, Architect.

New London, Conn.



Residence of Mr. George T. Palmer—Layout of
the Grounds.
New London, Conn.

Charles A. Platt, Architect.

devoid of architectural emphasis. As one looks at the house from the wall in the midst of the garden, the court is scarcely distinguishable; and the garden is planned so that the inhabitants of the house can reach it without interference. The whole center of the garden is occupied by a spacious mall, the axis of which coincides with that of the house, and this mall affords the open vista from which a house after the manner of "Westover" ought to be seen. The flower-beds are situated on the two sides of the mall. The inhabitants of the house can, consequently, reach the garden from the enclosed porch on the south side without crossing the entrance court; and in this way they are effectively protected against intruders. The garden itself is on a higher level than the court, and is separated from it by an evergreen screen. Once in the garden, the inhabitants of the house are able to wander where they please without any more than the usual fear of molestation.

It will be remarked that the plan of the house fits in with that of the lay-out of the grounds remarkably well, and that at the same time it is wholly unlike the plan of the typical Colonial house. A visitor enters into a spacious hall occupying the center of the ground floor. The hall is, however, nothing but a hall, and contains the usual closets and a stairway leading to the second floor. The architectural detail of this room deserves careful attention, for it is entirely Colonial or Georgian in effect, without any of the affectations which were not infrequently characteristic even of good Colonial interiors. On the right, as the visitor enters, is the library, situated almost full south and connected with an enclosed loggia, which in winter gets all the sunshine there is, and in summer serves admirably the purpose of a piazza. It is this loggia which provides the most convenient entrance to the garden. To the left of the hall is the kitchen and offices, while immediately in front is the drawing-room, which affords access to the platform on the side of the water view. A door leading from the hall also gives entrance to the dining-room, situated in the northeast end of the house. The kitchen is, of course, housed in an

extension, which balances, in the composition of the whole design, the loggia on the south side of the house.

Such being the lay-out and the plan of the contemporary "Westover," it will be interesting to trace with some care just where the appearance of the modern building agrees and disagrees with that of its Colonial ancestor. Compare, for instance, the eastern façade of Mr. Palmer's house with the photograph of the prototype reproduced herewith. One remarks in the two buildings the same white base, the same platform surmounted by the same treatment of the entrance door, the same division of the first from the second floor by a white band of stone, precisely the

One of the most noticeable of the differences consists, of course, in the character of the brickwork. The brick of the original "Westover" has gradually attained a solid dark surface. It looks as if its exterior walls had been painted red and that the paint had worn off in certain places, the joints in the brickwork showing only where the paint is disappearing. The modern "Westover," with its sharply penciled joints and its different color and surface, presents in this respect a very different appearance—which is due partly to its newness, partly to the different quality of the brick, and partly to different methods of laying. Another fundamental variation consists in the proportion of the façade.



RESIDENCE OF MR. GEORGE T. PALMER—VIEW FROM GARDEN.

New London, Conn.

Charles A. Platt, Architect.

same number of windows on all three floors, the same number of chimneys, the same dominating and high-pitched roof; and a cornice with much the same details and projection. The result of all these similarities is that anybody who particularly admired and liked the general appearance of the older building could not well avoid admiring and liking its modern offspring. On the other hand, it does not take any very close inspection to detect between the two buildings a great many differences, both in proportion and detail; and these differences are in the aggregate so important that they deserve careful enumeration.

The modern building is longer than the old building in proportion to its height, and, consequently, rises less abruptly from its site. The white stone base is decidedly lower than the painted brick base of its ancestor, the windows are situated farther apart, the white stone band is wider, and the roof is not so high. All these changes tend to emphasize the horizontal dimensions of the modern "Westover" and make it fit more snugly to its site. Quite apart from the fact that changes of this kind were dictated by the increased floor area of Mr. Palmer's house, the relation of the wings of his dwelling to the main structure,



RESIDENCE OF MR. GEORGE T. PALMER—HALL.

New London, Conn.

Charles A. Platt, Architect.



RESIDENCE OF MR. GEORGE T. PALMER—DINING ROOM.

New London, Conn.

Charles A. Platt, Architect.

compared to a similar relation in the older structure, dictated some such rearrangement. In "Westover" itself, the one wing is detached and connected with the house by an open porch, which spreads out the two buildings as a group over a much longer line. But there was no room for such a disposition of the wings of the modern house, and the arrangement would also have been incon-

ings break the line of their respective roofs. This change was obviously necessitated by the plan; but it has, if anything, rather improved than injured the design. Again, in the "Westover," the upper line of the windows, and the sustaining brickwork above, was slightly rounded; whereas, in the modern building they are straight, and are surmounted by a white keystone, which supplies an



RESIDENCE OF MR. GEORGE T. PALMER—LOGGIA.

New London, Conn.

Charles A. Platt, Architect.

venient. These wings being what they necessarily were, the main building had to be lower in proportion to its height, quite apart from the fact that these proportions and the continuous line of the white string courses with the top of the additions tie the different parts of the building more tightly together.

A number of alterations in detail must also be remarked. The most conspicuous of these is the different places in which the tall chimneys of the two build-

ings break the line of their respective roofs. Finally, it will be noticed that although the projections of the cornices of the two buildings are practically the same, the details of the cornice of the modern "Westover" are decidedly stronger and more emphatic; and there can be no doubt that the scale of this newer detail is better than that of the original "Westover."

The interesting question in respect to the changes made by Mr. Platt in

adapting the old design to its modern uses is not whether he has improved upon his model, but whether he has succeeded in designing a convenient and a beautiful contemporary residence, which at the same time really embodies the essential spirit and effect of his original; and from this point of view there can be no doubt about Mr. Platt's success. The contemporary "Westover" can be proud of his ancestry. The real "Westover" is renewed in its offspring. If it is advisable to attempt the adaptation of the design of some particular time-honored building to modern needs, Mr. Platt has given an excellent illustration of the best way of doing it. He has imparted to the new "Westover" some of the individual charm and distinction which is more than ever becoming the characteristic of his work, while at the same time proclaiming in the most definite way the source of his design. Imitation of this kind is more edifying and fruitful than the most strenuous flight of intentional originality.

It looks like a very easy matter to study some authentic historical building and then to adapt it to a particular location and to a particular group of contemporary conditions; and much architectural criticism tacitly assumes that the designer of such a house lacks ingenuity to conceive and the patient skill to work up a design of his own, which will constitute a unique expression both of his own personal power and of the conditions of that particular problem. No doubt in many instances this assumption is justified. No doubt many architects who rely for their models on special examples of an authentic historic style are prompted to do so by laziness, economy, or sheer lack of imagination. But it is equally true that an architect who is doing his best to give a local and contemporary expression to such a house as "Westover," as compared to an architect who has no particular model before him, has merely increased and emphasized the difficulties of his task. He is in the same position as the poet who has adopted as the best temporary vehicle for his vision an

elaborate and complicated form like the sonnet instead of some simpler lyric form. In order to make his building successful, he is obliged to make his design conform to a much more elaborate group of antecedent conditions. He is obliged to make it, not merely the embodiment of a special architectural problem, but one which, in embodying a special set of conditions, does not do violence to an authentic original, embodying another group of conditions. Any single modification of the model, such, in the present instance, as the altered value of the wings in the whole composition, brings with it modifications in the whole design; and to make these modifications without proving false to the essential effect and spirit of the model requires not merely laborious ingenuity, but an historically disciplined imagination of a high order. The architect must know what changes he can and cannot make without losing the distinctive beauty of his model. He must have made himself the master of the original design, and have repeated in his own mind, with complete understanding, the architectural language and ideas of his predecessor. Anyone who believes that this is an easy task has only to make the attempt in order to receive his instruction. It is, as I have said, more arduous and exacting than the task of designing a building, for which there is no specific precedent. But the task is worth accomplishing just because it is so arduous and exacting. It is by such imitation that beautiful architectural forms and architectural styles are really renewed and perpetuated. What American architecture needs is not less of it, but more of it—more that is of the right kind. An architecture can never be consummate without style; and architects can never create style either by the force of personal imagination or by a merely realistic treatment of particular problems. They can create it only by the personal mastery of a fully formed style appropriate for their purpose, and its modification in the spirit of the original to suit their immediate needs.

Recent English Domestic Architecture*

If there is one fundamental difference which is especially to be remarked between the contemporary architecture of England and the United States, it is a lack of rational development in the former. That the contemporary English country and suburban house do not display the variety to be found in establishments of similar purpose in this country is not to be wondered at or even expected, for our requirements and general conditions are so much broader and more far-reaching. American climatic conditions alone are so varied as to create an endless variety of problems for the architect not to be found in any other country. Couple with the range of climate our great choice of materials and the vast extent of our territory, and the sum is the strongest array of causes imaginable to bring forth the utmost variety and interest in an architecture for so cosmopolitan a people as the American nation.

When an architect may be called upon to design, in the same year, for instance, a hunting lodge in the Maine woods, a Fifth Avenue residence in New York, an estate in the suburbs of Philadelphia, besides a country house on the prairies of the Middle West, and a Californian bungalow at the foothills of the Rockies, it can readily be appreciated that the work of such a man, even though it be entirely in the field of domestic architecture, may be the result of a vast amount of study under the most varying conditions. He can approach his task with little provincial prejudice, for life is too short to acquire so many and such diverse prejudices; nor, on the other hand, is he hampered by generations of tradition, which does not yet exist among us. He is forced, therefore, to meet his problems strictly according to the conditions which obtain in them, solve them according to his capacity as a student

and render them according to his talents as an artist. All this he is required to do in a space of time which would stagger a designer pursuing the less rapid and more conservative European methods which are so largely based on tradition and precedent.

The work which results from the feverish American method of design, consequently, presents, besides its inherent variety, a healthy state of growth, a development which one fails to find in Europe and especially in England. This development is, of course, entirely independent of the quality of the performance which must ultimately depend on the capabilities of the designer. It must not, for a moment, be understood that a claim of superior excellence is maintained for the average American domestic work as against the English. No American architect would pretend to deny that the average quality of English domestic work is far superior to our own, as the training and experience of the average practitioner in England are superior to those of the American. An impartial judgment of the best English and American domestic work cannot, however, fail to result favorably for us, as our cousins would, without doubt, be perfectly willing to admit. It is in our domestic work, and more particularly our suburban and country houses that the development of our architecture is most noticeable. The chief reason for this is probably to be found in the fact that in problems of this sort the American architect enjoys not only the greatest natural freedom, but his relation to his clients is a more independent one than when he is working for more mercenary interests.

The greatest drawback which confronts the American architect has been and still is, to a large extent, his want of professional standing with his clients. In proportion as we possess, as a nation, little general traditional culture, so also

*The Architectural Review (London), special issue, 1908.

do we suffer from an astounding lack of architectural appreciation. The culture which Americans of means have obtained is still so largely the result of desultory methods, based largely upon a perverted and bewildering taste and aimless foreign travel. It is not to be understood that foreign travel is in itself aimless, but the benefits which the great majority of American travelers obtain from their undirected attempts to acquire knowledge and understanding of art and architecture in traveling are in the main negative, so far as substantial culture is concerned. Whatever knowledge of architecture is thus acquired often operates for the architect rather as a handicap than otherwise. Instead of being free to approach his task with an unfettered hand, he is put to the necessity of overcoming opinions on matters which, if they could be analyzed, can really have little or no meaning for the people who entertain them. In proportion, therefore, as the architect is able to impose his own opinions and standards upon his client, to the solution of the latter's legitimate requirements will his efforts be crowned with success. A client has, of course, legitimate requirements and desires, but if he dabbles too much in what lies strictly in the province of the architect, and refuses to give way before the architect's superior knowledge, both the design and the client's satisfaction with it must necessarily suffer. It requires not only a capable designer to produce a good design, but a good client as well. Very often it is to be observed that a merely passably good designer is able to produce an extraordinarily good design because of the proper assistance of his client; whereas, a more capable designer fails utterly because of the handicap of a stubborn client. One of the most difficult lessons that a client has to learn is that there are some things in the designing of his house that he had better leave to his architect.

The English architect, on the other hand, enjoys an enviable professional position towards the public and his clients. As in France, his advice is as eagerly sought in matters of artistic and

æsthetic moment as is that of the engineer in matters of strength and stability. He, therefore, starts his task with public opinion in his favor instead of against him, as in the United States. If he has any prejudices to overcome they are more often his own than those of his client's. And to an American it would appear that he has prejudices which tend materially to interfere with his architectural progress. His natural tendencies are, of course, towards conservatism, robbing his work of much of that freshness of conception which characterizes the better class of American work, though that same conservative tendency prevents him from perpetrating some of the anomalies to be found in such large numbers among our own work. While the Englishman is content to be a careful and intelligent follower of approved things and methods in all branches of mental activity, not excepting architecture, the American wants more and more to be a leader. It is that American striving after leadership which in our architecture has chiefly taken the form of a bizarreness, popularity come to be known as originality, but which is in the overwhelming majority of cases nothing more than a venting of the untutored mind.

The occasion for these remarks is a collection of recent English houses published in a special issue of the *Architectural Review* (London). It is unavoidable that prejudice should creep into a review of English planning and designing, as viewed by a foreigner who is not in position to appreciate accurately the conditions under which the work has been done, or, in many cases, the reasons for certain elements in its composition with which he has had no intimate connection. The native will always make due allowances for and pity the shortcomings of the alien critic, who cannot be expected to know better; but while he is thus compassionate, if he be open-minded he may, perchance, distinguish here and there glimpses of logic suggesting to him the reasonableness of the viewpoint, even though it be different from his own. And if there is

one thing which conduces more than another to architectural interest and rational development, it is variety in the point of view. The variation of planning and designing, due merely to the different individualities of a number of competent designers pursuing very similar traditions, is not sufficient to develop a country's architecture.

On the contrary, it is the constant interchange of ideas between widely separated parts that produces progress in civilization, and art is no exception to the rule. There is, after all, not so much difference in the mental standards of different lands (since even those which are separated by oceans are to-day brought into the closest communication), as one is apt to imagine. It is this community of thought which one would expect to produce very similar tendencies in the art of building as in other fields of endeavor, modified, of course, by local conditions, but scarcely altered in its essential principles.

A lack of breadth in contemporary English architecture, and, most of all, in plan conception, is, therefore, rather in the nature of a surprise, though not as a controvertent of the theory of parallel mental development in different lands. In the plans of its domestic structures, one strangely fails to find any very marked departure from the type which was established in England with the early development of the modern home as we know it. The rambling country-house plan, without apparent regard for economy of material, maintenance or convenience, survives in England to-day with incredibly slight modifications. Whatever conveniences and modern devices have been introduced, and these are many, have, it seems, been introduced bodily into the antiquated type of plan without being, in any adequate measure, assimilated into the fabric of the design. From the American standpoint, the English plans, with their many small dependencies of service, are extremely impractical, and considering the condition of the servant question in America, quite impossible. Most notable, perhaps, among the peculiarities of English planning is, in the majority of

cases, the lack of easy communication between the kitchen and the dining-room. These two rooms, which the contemporary American architect tries so hard to bring into the closest connection consistent with comfort, one finds in the English houses, as often as not, not only far removed from each other, but separated by a long, tortuous passage. The numerous small compartments of the kitchen, such as larders, sculleries and cupboards, indicate the necessity of a larger number of servants than we would think it either economical or desirable to keep, for servants always increase the space which must be given over to recreation and sleeping quarters, thus affecting considerably the requisite cubical contents and the first cost of building, as well as the maintenance and convenience of the household.

In scanning the plans which are shown in the journal before us, our estimate of their worth is very apt to be too strongly influenced against them by an absence of that formality which we have so largely adopted from the modern French school of design. It should not be overlooked that of all structures in which formal planning should be permitted to play an important part, domestic work is the last, so that, while the picturesqueness and rambling nature of the English plans may seem to us very strange, we, in our design, are perhaps guilty of erring on the side of excessive formality and bareness. When we perceive that this very irregularity of the English plans in the building up of the designs is made the chief factor in producing their charm, our estimate of the whole performance takes on a more friendly spirit. In the manner of roofing their houses the English architects are especially apt, and one must often wonder whether, after all, the designer did not first design his general roof composition and then vary his plan to fit its picturesque contours. That a designer should regard his roofs as one of the important elements of his design is not at all an unreasonable attitude. For outside of the fenestration, what is more conspicuous in the appearance, or more potent to make or mar the effect

of a country house than its roofs, especially in those instances in which wall ornamentation is out of the question? Is not much of the excellence of our early attempts at cottage design, the so-called Queen Anne style, due largely to the skillful handling of the roofs?

Another feature in which these English designs especially excel is in their integral conception, with their sites and surroundings. Whether or not one likes a particular house, there is always the impression of its fitness with its environment. It seems to belong where it has been placed, and the work of the architect has not stopped with the porches, but has been allowed free play about gardens and grounds, producing that unity of effect which our architects are so seldom in the position to impose upon their clients, who too often prefer to do their own landscape architecture, prompted by the interested nurseryman and gardener. There is, perhaps, no important art in the making of coherent and rational country place which is oftener neglected or more unintelligibly performed than the careful designing of the grounds and roads about the house. Why, an owner who is wise enough to co-operate properly with his architect in stating his requirements within his house should refuse to perform a similar function when the question becomes those portions of his home which lie outside of the actual structure, is not easily understood. Yet such a spectacle not infrequently confronts the American

architect of standing, to the detriment of his work and the ultimate dissatisfaction of his client. It is difficult to make a client admit to himself that he requires expert advice in laying out roads, planting trees, bushes and shrubs and the like, and that these features really have any material effect upon the utility and integrity of his house.

The prestige of the American architect has not yet reached that stage at which he is able to insist upon this matter wherein his English brother has decidedly the advantage of him. Before our architects will be able to claim such prestige they will have to state the reasons why they should possess it, in terms which strike closer to the heart of the client rather than appeal principally to his sense of propriety and his imagination, in the latter of which he is sadly deficient.

Of the examples which have been selected to illustrate the foregoing remarks, the majority, it will be noted, are of small houses. This choice has been made not so much to give weight to the points that have been made either for or against recent domestic architecture in England, but rather to present that type of English country and suburban house which at present appeals most to the large class of individuals who are building up our suburbs with the modest five to eight thousand dollar homes which one could wish were more conscientiously planned and more skillfully designed.

H. W. Frohne.

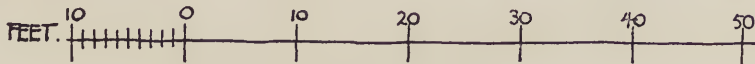
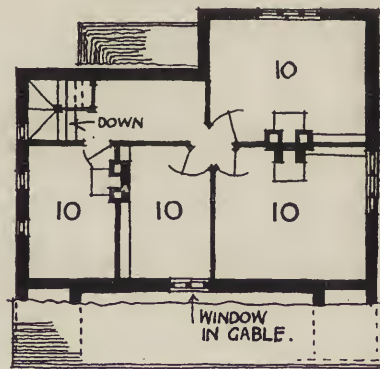
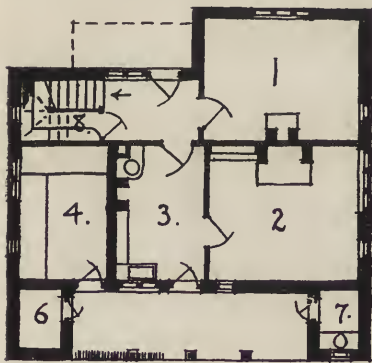




SEVEN BARROWS FARM.

Wareham, Dorset.

Forsythe & Maul, Architects.

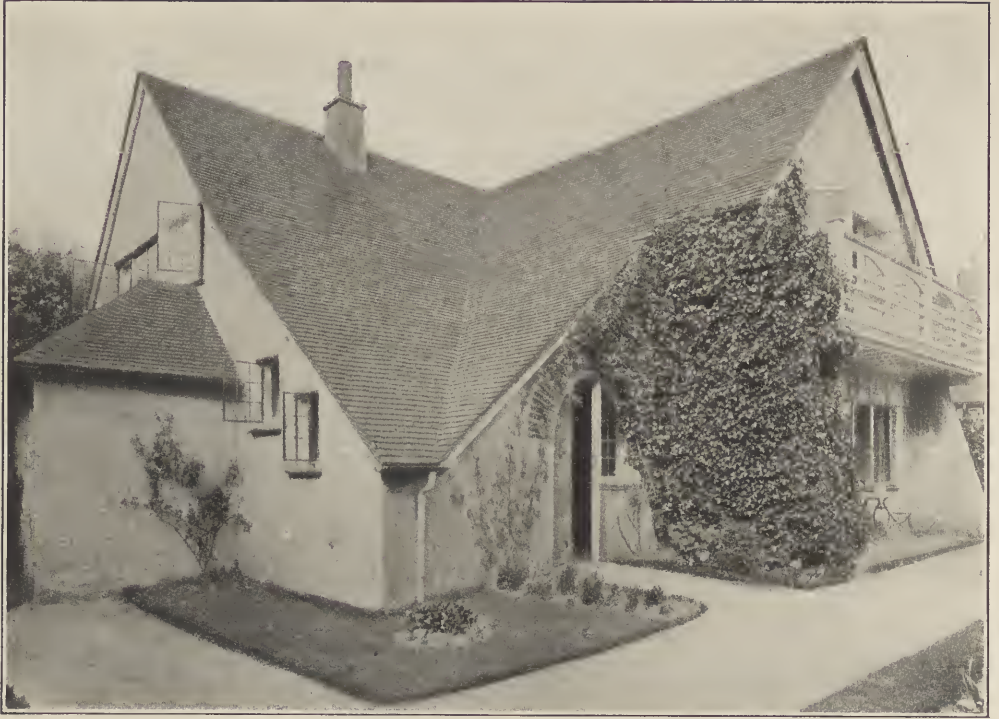


SEVEN BARROWS FARM—PLANS.

- | | |
|--------------|-------------|
| 1. Parlor | 6. Coal. |
| 2. Kitchen. | 7. W. C. |
| 3. Scullery. | 8. Larder. |
| 4. Dairy. | 10. Bedroom |

Ground Floor Plan.

First Floor Plan.



COBBINS.

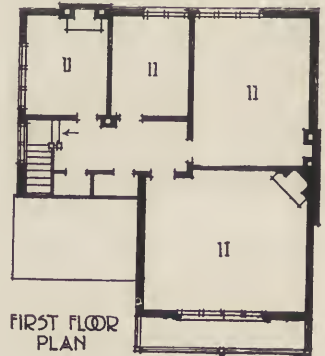
Blackheath, near Chilworth, Surrey.

C. Harrison Townsend, Architect.



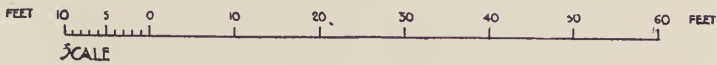
- 1. Drawing-room.
- 2. Dining-room.
- 3. Hall.
- 4. Kitchen.
- 5. Scullery.

- 6. Larder.
- 7. W. C.
- 8. Coal.
- 10. Yard.
- 11. Bedroom.



GROVND FLOOR PLAN

FIRST FLOOR PLAN



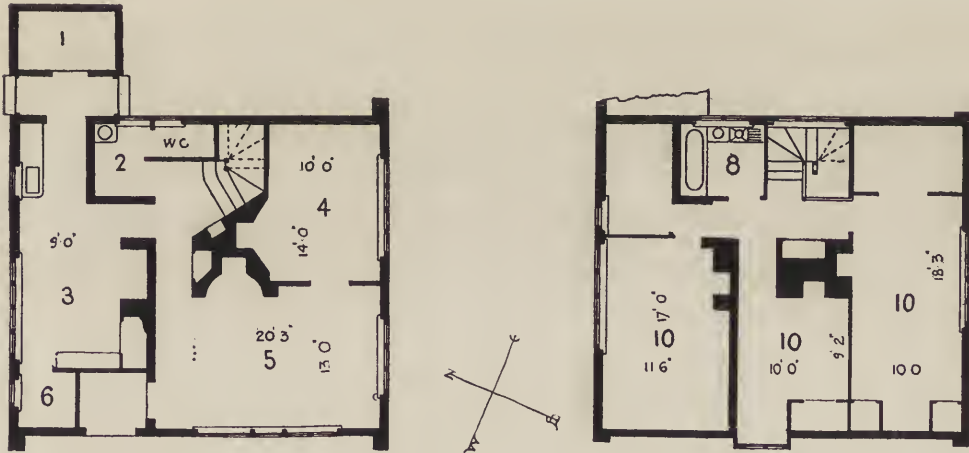
COBBINS—PLANS.



TILEHURST.

Bushey, Hertfordshire.

C. F. A. Voysey, Architect.



TILEHURST—PLANS.

- | | |
|--------------|--------------|
| 1. Coal. | 5. Hall. |
| 2. Lavatory. | 6. Larder. |
| 3. Kitchen. | 8. Bathroom. |
| 4. Parlor. | 10. Bedroom. |

Ground Floor Plan.

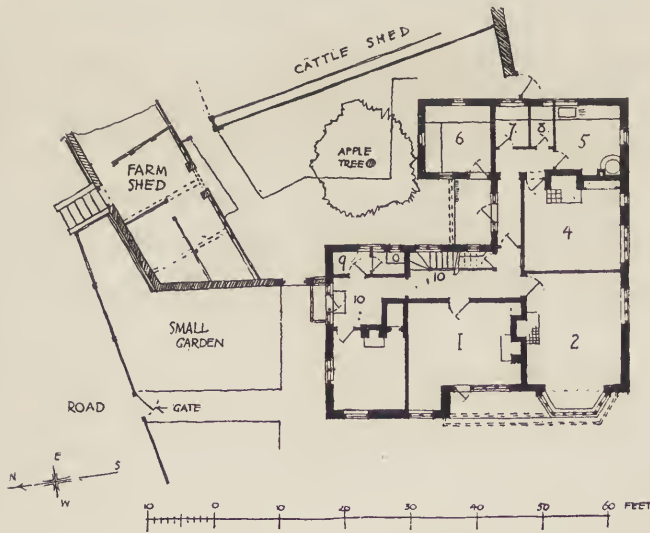
First Floor Plan.



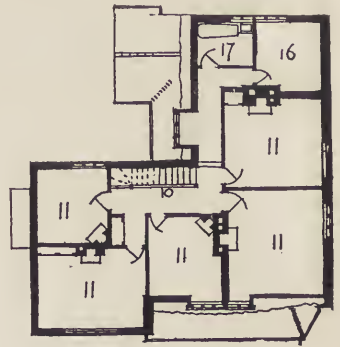
DODDINGS FARM.

Bere Regis, Dorset.

Forsythe & Maul, Architects.



- | | |
|-----------------|---------------------|
| 1. Parlor. | 8. Store. |
| 2. Dining-room. | 9. Lavatory. |
| 4. Kitchen. | 10. Entrance. |
| 5. Scullery. | 11. Bedroom. |
| 6. Dairy. | 16. Maid's Bedroom. |
| 7. Larder. | 17. Bathroom. |



DODDINGS FARM—PLANS.
Ground Floor Plan.

First Floor Plan.



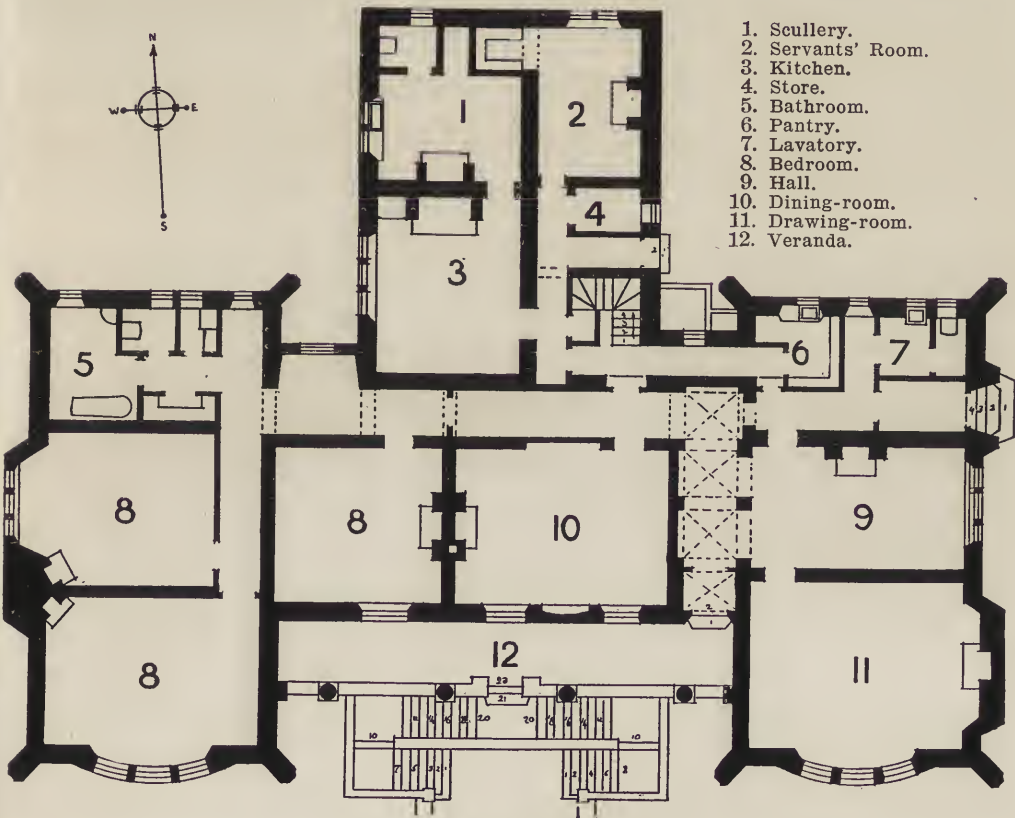
ST. HELLEN'S HOUSE.

Dartmoor, Islington, Devon.

T. H. Lyon, Architect.



1. Scullery.
2. Servants' Room.
3. Kitchen.
4. Store.
5. Bathroom.
6. Pantry.
7. Lavatory.
8. Bedroom.
9. Hall.
10. Dining-room.
11. Drawing-room.
12. Veranda.



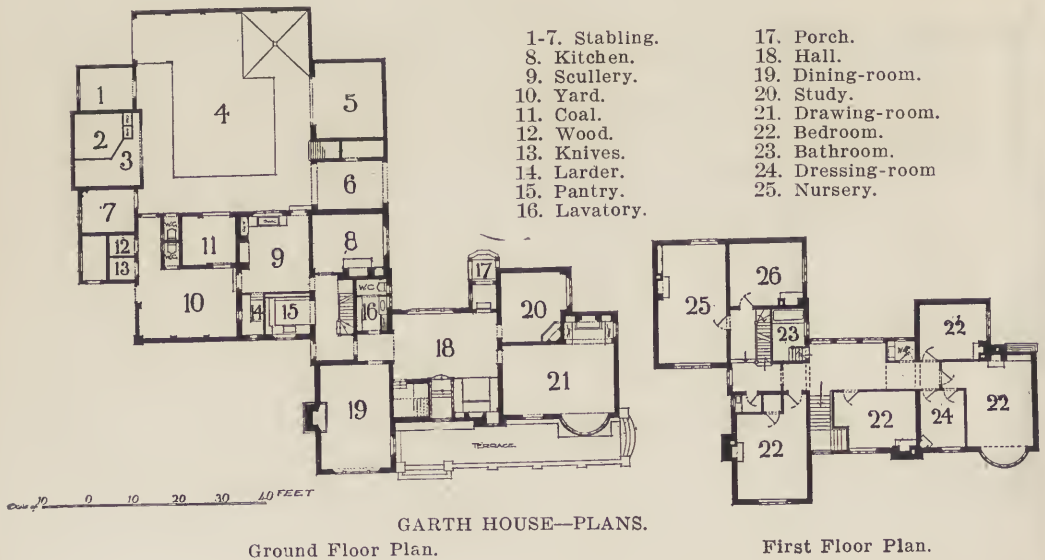
ST. HELLEN'S HOUSE—PLAN.



GARTH HOUSE—GARDEN FRONT.

Edgbaston, Birmingham.

W. H. Bidlake, Architect.





BARTON ST. MARY.

East Grinstead, Sussex.

Edwin L. Luytens, Architect.



BARTON ST. MARY—PLANS.

- 1. Billiard-room.
- 2. Drawing-room.
- 3. Hall.
- 4. Court.
- 5. Dining-room.

- 6. Entrance.
- 7. Lavatory.
- 8. Servants' hall.
- 10. Kitchen.

- 11. Scullery.
- 12. Larder.
- 13. Boots.
- 14. Coal.

- 15. Bedroom.
- 16. Dressing-room.
- 17. Bath.
- 19. Linen.

Ground Floor Plan.

First Floor Plan.



Clappersgate, Westmorland.

ASHLEY GREEN.

Percy S. Worthington, Architect.



Ground Floor Plan.

ASHLEY GREEN—PLANS.

First Floor Plan.



SAN JUAN FROM THE EAST.

"The general topography of San Juan resembles that of New York."

The New Capitol of Porto Rico

Prevailing Building Conditions on the Island

Since the American occupation of 1898, Porto Rico has progressed rapidly, especially under the wise direction of the last few years. In particular, the Department of the Interior and the Department of Education have produced results apparent to any observer now visiting the island. Not only is the good Spanish road and bridge work industriously continued, but new improvements and new buildings, both public and private, are appearing as never before, showing a rapid advance in almost every direction. Public school buildings are going up, not by the score, as formerly, for recently several hundred of the smaller schoolhouses have been provided for by a single appropriation.

With this rapid advancement of educational and business interests, both the Federal government of the United States and the Insular government of Porto Rico have felt the need not only of larger governmental accommodations for their employees, but of larger hospitals, prisons, court houses and internal revenue accommodations. The Federal government has, therefore, made appropriations for a building to contain all its chief offices, and it is expected that this

work will be rapidly carried on by the United States Treasury Department.

To satisfy the urgent needs for accommodating both branches of the Legislative Assembly and the Supreme Court of Porto Rico, a new building will be erected at once, by legislative act of March 14, 1907, to be known as "The Capitol of Porto Rico." It is expected that actual work will be commenced upon this edifice during the present winter, as three hundred thousand dollars have already been allowed by the Legislature for the purpose.

This capitol is to be erected by the Insular government of Porto Rico upon the crest of the hill at the center of the city of San Juan, a few hundred yards east of the ancient Spanish fortress, San Cristobal. This site is one of the most prominent on the small island upon which San Juan is situated. It faces the harbor at the south and overlooks the open ocean at the north, while to the east the distant mountains of Porto Rico are seen piling up in sharp silhouette against the sky. The site divides the present business portion of San Juan at the west from the residential section at the east. The general topography of



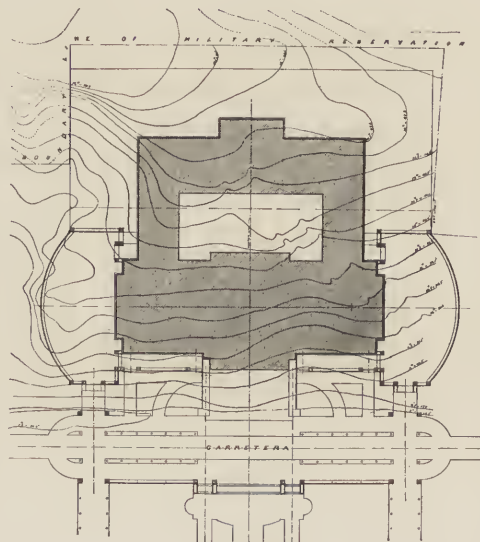
THE CAPITOL FROM THE SOUTHEAST.

San Juan, Porto Rico.

Frank E. Perkins, Architect.

the city resembles that of the Island of Manhattan, upon which New York is situated. In fact, if one is placed at the eastern end of San Juan and looks in a westerly direction, a miniature of Manhattan Island is spread to view, the ocean at the north replacing the Hudson River and the bay at the south resembling the East River and the harbor of New York.

The general arrangement of the capitol building provides for the threefold purpose of insular government. From a central domed vestibule the Executive Council (or Senate) radiates to the right, and the House of Delegates (or Representatives) to the left. The Supreme Court is in the rear, overlooking the sea, where a considerable open space will separate its sessions from the more public vestibules and visitors' galleries of the two houses at the front entrance to the edifice. The entire system surrounds a partially covered *patio*, or



Block Plan.

courtyard, where verdure and fountains may give a touch of nature to a secluded corner. The central domed vestibule will be partially open at the top, similar to the Pantheon at Rome, in order that a free circulation of air may cool the interior and a small amount of direct sunshine may prevent the collection of dampness so generally found in a moist climate. This domed rotunda, with its encircling

corridors, will serve as a Hall of Fame, in which will be installed monuments to those who have served their country.

The architectural style is southern, being an adaptation of the architecture of Greece, tempered by a knowledge of the Roman arch. This style is here applied to the needs of an insular people, living in a warm climate, but in a country liable to cyclones as well as to earthquakes which the Greek architecture has resisted for thousands of years. To-day we can constructively aid this style by

reinforcement with hidden steel sinews, but, from an æsthetic standpoint, it was considered that the style should have all the appearance of the solidity required in a climate of such variable moods. The Greeks were the first great architects of a refined style. Their architecture formed the basis of the best building in the semi-tropical climes, and it seems but proper that the style of the

seasons, usually in the fall, this wind may increase to a cyclonic velocity, and, with all the peculiar tendencies of that phenomenon, may twist structures out of all resemblance to the works of man. During a recent cyclone entire villages of wooden houses were destroyed, and, in some cases, brick walls more than a foot in thickness were carried away by the strain brought upon them.



THE PATIO OF THE CAPITOL.

"The system surrounds a patio—where verdure may give a touch of nature to a secluded corner."
San Juan, Porto Rico.

Frank E. Perkins, Architect.

Parthenon should be renewed in the entrance to the Capitol of Porto Rico, that edifice from which wise legislation will emanate for the benefit of the people of a new colony.

As has been intimated, the natural and climatic conditions of Porto Rico are peculiar. It is only after a visit to the Windward Islands that one can appreciate that name. A constant breeze blows from the northeast, seldom variable except during the months of May and November. Such is its strength, even in the warmest portion of the day, that a kite may usually be flown from the hand without running. In certain

The temperature of Porto Rico seldom exceeds a maximum of about 90 degrees and a minimum in the vicinity of 65 degrees Fahrenheit. The climatic conditions, therefore, call for open windows during the entire year, and the problem is easily solved by shading all openings with blinds, and by preventing the entrance of a driving rain by the use of wooden shutters. Very little glass is used in that country.

For some reason the climate is very moist. This may be due to the action of a warm sun upon the water surrounding an island of but one hundred miles in length. It is a fact, however, that

the night dews are very heavy, and especially so in the mountains. Everything is slightly damp if not in the direct sunshine. Silk, rubber and paper quickly rot and fall to pieces. Iron rusts so easily that even galvanizing is not a protection, and it should be often painted. Bronze becomes a pure emerald green color in a short time. Considerable zinc should be used in all paint for exterior work, and, of course, varnish is worthless out of doors.

The old Spanish constructions are either of rough masonry or are built of a large flat brick, made by hand and poorly baked. Wood is very scarce and expensive, and about one-third the cost of manufacturing the average brick is expense for the wood used in its burning. Most building materials, including wood, cement, iron and almost all electrical equipment and plumbing fixtures now come from the United States. The stone of Porto Rico is chiefly limestone and is not quarried in large pieces.

A search for proper building material for the capitol resulted in the belief that reinforced concrete was the form of construction best adapted to the prevailing conditions. The eruptions at Martinique and the earthquakes of neighboring islands indicate that the tremblings at Porto Rico may become severe at any time. In addition, a dome erected in an exposed position in a cyclone country should be well anchored, and no other fireproof construction so well protects its iron from corrosion. These conditions, while suggesting a choice of a Græco-Roman style of architecture, at the same time required the use of such forms as would be readily adaptable to

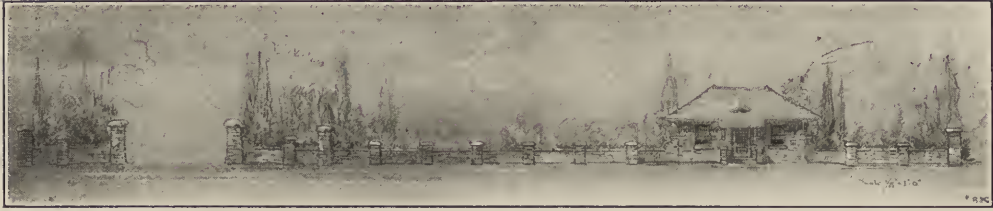
reinforced concrete work. While the capitol dome supports itself naturally upon heavy masonry, well calculated to resist any natural thrust, a reinforced concrete construction can be used as an extra precaution to suit the peculiar and unavoidable local conditions. Surely a wire basket, cast into a block of stone, should resist earthquake and cyclone as well as any non-corrosive construction obtainable.

The labor conditions in Porto Rico are good. The laborer works well, although not as well as the laborer of a cooler climate. The eight-hour law prevails generally, and labor is cheap. Masons earn \$2.00 per day, and carpenters \$1.75, while either a mason's or carpenter's laborer—*peon*—is paid 75 cents per day for his work.

Barter has much to do with the price of everything, and there are many gold bricks for sale in Porto Rico, as elsewhere. Even the native Porto Rican farmer—the *gibaro*, as he is called—is so noted at a bargain that there is an old Spanish saying, "*Para un gibaro, otro; para dos, el diablo*," the meaning of which is that, at a bargain, "It takes one farmer to beat another, and two will beat the devil."

The laws of Porto Rico provide that the Department of the Interior shall make all building contracts for the people. This department is now under the able direction of the Hon. Lawrence H. Grahame, Commissioner of the Interior, and, judging from the energetic manner in which the work has been started, it is expected that the Legislature and Supreme Court of Porto Rico will soon be housed in the new capitol.

Frank E. Perkins.



DETAIL OF ENTRANCE TO "TOKENEKE PARK," DARIEN, CONN.

The Economic Development of Building-Estates

There are few kinds of out-door works which offer such opportunities for business acumen, in combination with artistic talent, as the economic development of building-estates. Not only sound mechanical work, but artistic work, must to-day be the maxim of the company wishing to create a desirable clientele. Yet even rough workmanship, if counter-balanced by good taste, will pay better in hard cash, than will the old-fashioned type of rectilinear layout, even though framed by finely macadamized roads and well-curbed side-walks.

Realizing the growing demand of the country-loving public for beautiful or picturesque homes, realty speculators are rapidly buying up the most desirable areas for intermural homes. The majority of these properties are wholly undeveloped, are in most cases thickly wooded, and often of a highly attractive nature. Such do, in fact, supply the majority of our second and third class country homes.

To retain the intrinsic beauty of these properties, and at the same time to open them up in a practical and economic manner, offers many and interesting problems to both management and purchaser. And it may be pointed out here that unless there is an honest desire on the part of the management to please as well as to sell, and a willingness on the part of the purchaser to co-operate with the management, there will be endless conflicts and discomfortures for both parties. For no matter how the "communitistic" idea may be scouted, in rela-

tion to a purely business proposition, success can only be obtained in enterprises of this kind, where there exists a cordial spirit of reciprocity. All has not been said when dollars have been given for deed.

The following are a few of the points of interest which are common to all such enterprises.

The first problem presented in dealing with properties densely enveloped by mature woods is the thinning out of the trees. This is a partly utilitarian and partly artistic problem. The advantages obtained by this process are first, to secure to each house-holder a fair share of the best views, and second, to increase the beauty of the landscape. Viewed as a unit in a landscape, thick-growing woods have little artistic value. In order to break the monotony of such dense masses, the woods must be broken up into irregularly disposed units, varying from single isolated specimens to large masses consisting of one hundred or more trees. The disposition of the masses should largely be determined by the existing topography and suggestive features of the land. Thus rugged heaps of large boulders with cedars, pines, or other local plant growth interspersed among them; splendid specimens of single trees, attractive for their age and size; or steep and rough hillocks, unsuitable for sights, but attractive if properly supplied with plant growth, will supply the minor units. Larger masses will be provided by leaving untouched such spots as will not be improved by



The plant-spacing here shown gives an accurate idea of the effect to be aimed at in the "thinning" of thickly grown woods. The same effect should be striven for if original planting has to be undertaken.

cutting. The average wooded landscape will offer enough of such characteristic features to amply clothe the property. In order to secure a satisfactory distribution of views, it will occasionally happen that more thinning will be required than is demanded by a strictly artistic judgment. In that event, artistic preference must give way to sound common sense. The operation of wood-thinning along these lines is a fascinating one, similar in principle to the cutting of a rough block of marble to the finished conception of the sculptor, while it is also of no small economic importance. Building lots, in themselves highly attractive, but which are shut off from all views, owing to the contiguous tree growth, are practically unsalable at remunerative figures. Hence the obvious importance of thinning the woods before the sale of the lots. Every lot or estate sold later blocks the operation, and, according to its situation, size and the tree growth upon it, lowers the value of the back lots; and it will be found that every private owner is super-jealous of trees on his own property, and serenely indifferent as to their effect upon his neighbor's view. The cost of cutting is more than offset by the sale of the timber, and the cost of securing a topographical map is greatly reduced by opening up the woodland.

The importance of making a general plan of the whole area to be treated is not limited to securing efficiency in the

planning and execution of the work. To a large extent, the value of property depends upon its probable future environment; hence to every purchaser should be presented a general plan to become, as it were, a part of the contract of sale. Such a comprehensive scheme guarantees to each owner the character of the development predetermined in the neighborhood of his lot, and is a forceful incentive to intending purchasers and builders; while the absence of any such plans is presumptive evidence that the company has no settled policy, save to sell the property, depending upon the undirected currents of commercialism to settle its destiny. A plan of this kind should show the alignment of the road system, the approximate location of the house site, the proposed planting system, and, if any, the "reserved" areas. In respect to this latter item, it may be said that every building estate pretending to any dignity and stability reserves for the general benefit and use of the lot holders certain areas which are respectively to be used for small parks, sites for church, school house, public stables and for the future building of shops and other forms of public houses.

The endeavor to create an artificial standard of excellence in the development and maintenance of the individual properties, by including in the contract of sale a series of restrictions, is not an attractive policy. Restrictions not in line with the future development of

the property will never be enforced. And yet it is essential to fix a standard in order to inspire confidence in the minds of prospective builders and owners. As a general principle, individual owners will develop their properties in accordance with the standard of excellence maintained by the company. The basic points in the artistic development of a building estate are the alignment of roads, the subdivision of the property into building lots, the

massed plantations, is in bad taste and futile. The most satisfactory results will be attained by adhering to a simple, straightforward design, substantially composed of straight lines and suitably diversified by the use of diagonals radiating from a circular or "square" centers, and by the introduction of semi-circular or crescent terminals. Where, however, the ground to be treated is of a picturesque nature, a freer procedure should be followed.



Such a map as the above should be prepared by all building estate companies, in order that intending purchasers may be assured of the general policy of the company, the character of the property, and the proposed developments.

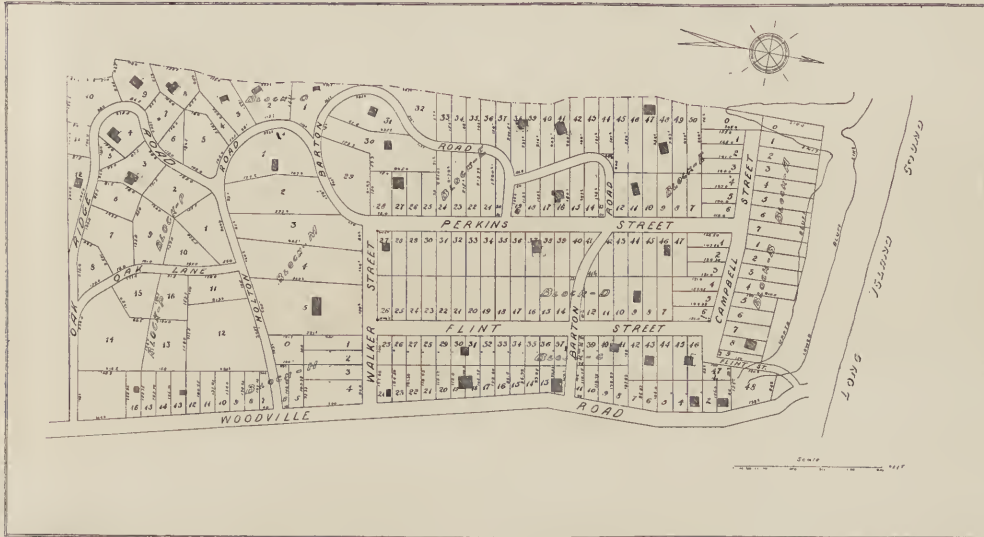
location of the house sites and the regulation of the style of architecture.

The topography of the property should determine the alignment of the roads and the boundaries of the separate lots. A fitting plan must be designed, and its attractiveness will depend entirely upon the skill and taste of the designer. For the lay-out of a level stretch of land the plans should be formal, for where there is no "natural" basis on which to build, the attempt to create picturesque effects by the forced use of curvi-linear lines and

A topographical map, no matter how complete in detail, cannot indicate the essential points which should determine the alignment of the road and subdivision of the property. Rightly conceived, the road system of a highly diversified landscape should grow out of and emphasize the dominant features of the land. Such a result can only be obtained by a personal and intimate acquaintance with the property, acquired by tramping over the land until its character and the conditions to be dealt with have been fully comprehended. Roads and boundaries

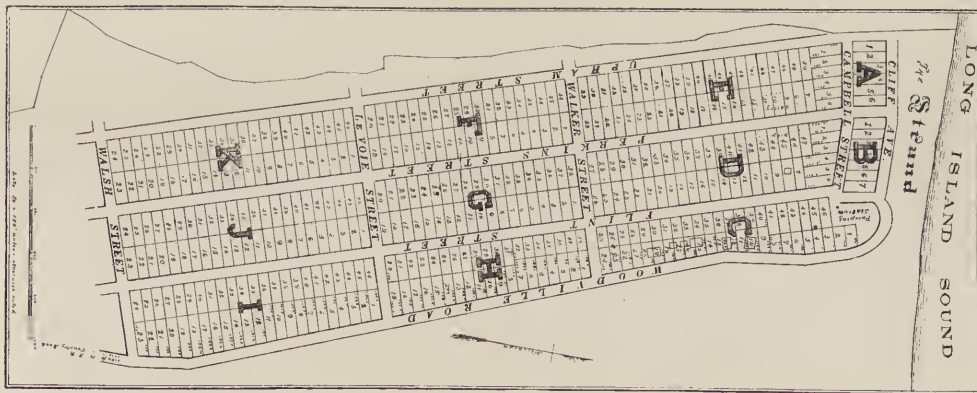
should be "staked" out by eye, in conformity with the determining features of the land, and then surveyed for the final mapping. Minor inconsistencies can then be corrected and the "natural curve" reduced to mathematical lines in

attempt to equalize the frontage or area of the lots on irregular land is not feasible. The value of the lot is determined by the house site, and the amount of ground attached thereto should be in accordance with the logic of the to-



Oak Ridge, Long Island.

Comparison between these two plates affords an excellent example of the diverse results obtained in the development of a given property by the use of different systems. The lower shows the use of the "gridiron" system without reference to the topography of the land. The upper shows the same property laid out by the method explained in the text. The property is of a highly picturesque nature, composed of irregular formations. To have forced upon it the iron-clad system as planned for below would have utterly destroyed its natural beauty and more than doubled the cost of the road construction.



order to facilitate the deeding of the lots. Only thus can the site be treated with a freedom and consistency which will preserve and develop its natural charms. (See plate V).

It is well to point out here that any

pography. For, other things being equal, a good site—that is, a lot which is good ground to build on, and which offers good views—is worth more than a lot of greater area, but lacking in these qualifications.

Having thus far subordinated the plan to the inherent characteristic of the land, it is of quite equal importance that the same spirit of adaptation be maintained in the buildings. Nothing is more objectionable than a lot of structures out of harmony with each other and at odds with their environment. In the attempt to regulate the placing and styles of the various buildings, several points should be borne in mind. Every large tract of land will have its differently characterized sections, and these differences will have been intensified by the "logical" alignment of the roads and subdivision of the lots. It is therefore advisable that the management should select one or two or more of the sites in each of the localities for the purpose of building and improving the ground thereof in styles appropriate to their several characters. Care should be taken in the selection of sites to be treated that their distribution be such as to constrain individual owners of the remaining lots to correctly locate their own structures. The two points to be kept in mind are that the houses be placed in accordance with the axis of the site and in such manner as to prevent the exclusion of the several views.

If the development of the estate is to continue for several years, which is generally the case, and along lines which tend to maintain the rugged charm of unpolished scenery, the roads should be finished in native gravel, rather than with the highly polished "screenings" of the conventional macadam road, and at first, only the central parts should be constructed, leaving grassy spaces on either side, until the estate is sufficiently inhabited to justify their full completion.

Too early developments of this kind not only increase the initial outlay, but tend to impair the natural beauty of the landscape—which is the drawing feature for the majority of buyers. Every improvement should be made with this caution in mind.

The approach and main entrance of a building estate is a point of considerable importance. It should always be attractive and clearly indicative of the character of the estate. Much can often be accomplished by slightly altering and improving the highway in the neighborhood of the entrance. If, for example, the entrance be at a turn of the highway, the latter should be so altered as seemingly to lead direct to the estate. If it be at right angles to the highway, an exceptionally wide and inviting gateway should be constructed, and, where possible, a corresponding widening of the main road opposite the entrance. Alterations, such as these, if accompanied by judicious planting, tend to attract the eye of the passerby.

A point of practical importance to both management and client is the establishment on the estate of a nursery of the most useful variety of plants. A few acres of ground devoted to this purpose will be sufficient to supply the needs of both the company and the future purchasers of lots; large quantities of young plants may be purchased at relatively low prices, and may be sold at a fair profit by the company and purchased by the lot holders at moderate figures. The mere fact of the existence of a nursery on the property is in itself an incentive to private owners to improve their holdings by decorative planting.

George F. Pentecost, Jr.

The Architect in History

II.

Roman Architects—Part II.

BUILDERS AND GUILDS.—The accompanying illustrations are of architects' instruments, masons' and carpenters' tools, found at Pompeii and preserved in the Museum of Naples. There are rules, squares and compasses of different models in excellent preservation. One of the compasses is intended to use of the curved surface of columns, others for work in relief. There are bobs of two different patterns. In less good preservation are the carpenters' and masons' tools reproduced on page 292.

The specifically architectural implements are reproduced in relief on a number of sepulchral slabs of deceased architects. The one I have selected to reproduce, though it has not as large a number as some, is especially interesting for the figure of the architect himself, in his working costume. He is holding in his left hand what seems a straight rule and a small drawing-board, probably either covered with wax or parchment, on which he is drawing with a stylus, held in his right, the sketch for some buildings (page 282).

The social status of this architect is evidently inferior to that of the architect of the column of Theodosius, given on page 282, who is holding the plan of his column. His long robes give him a senatorial aspect, and he is evidently a court official of some rank, a position often reached by the prominent architects of the later empire.

PUBLIC BUILDINGS. ERECTION AND SUPERVISION.—The method of putting up public buildings among the Romans of the republic was this: The two censors, magistrates who were selected annually, as a sort of judges of the Supreme Court to purify the Senate and the knights by expelling the unworthy, and to put down abuses, also had charge of the funds for erecting and repairing public buildings—temples, law

courts (basilicas), forums, gates, colonnades, markets, bridges, etc. Sometimes they worked in common, sometimes each of the two would manage his share of the funds.

Their jurisdiction extended not merely over the city of Rome, but over all Roman colonies and territory. In Livy's history, one can follow, year by year, the doings of these censors over a period of two centuries.

Their custom was to proclaim what building they intended to erect and publish the specifications, inviting bids and assigning the work to the lowest bidder.

The habit of letting out all public works to general speculating contractors, in contrast to the Greek method, may partly explain the lack of quality in the details of Roman architecture, as there was practically no artistic supervision in the interest of the state.

Polybius, the historian, who wrote when Rome had just had its first great building "boom" after the Punic wars, undoubtedly gives the correct view when he says: "The Senate controls also what is by far the largest and most important expenditure, that, namely, which is made by the censors every *lustrum* for the repair or construction of public buildings; this money cannot be obtained by the censors except by the grant of the Senate."

At the same time, there were two exceptions to this rule. The first was when the Senate, or a colony or municipality, appointed special officials to attend to the erection of special buildings. They were called *quinquevirs*, *triumvirs* or *duumvirs*, according as they formed a committee of five, three or two, and their functions lasted as long as the work. Duumvirs were appointed, for instance, by the Senate in 272 B. C. to build the Anio aqueduct; others, in 180 B. C., to contract for the Temple of Fortune.



Architect of the Column of Theodosius at Constantinople.



Tombstone of an Architect.

The second exception was when the *aediles*, who had charge of the maintenance and administration of public buildings, also devoted to the erection of some public structure the sums they had collected as special fines. In this way the Temple of Faunus was built in 198 B. C. from fines inflicted on the lessees of public pastures.

Finally many structures were erected as votive offerings by victorious generals out of the spoils of the enemy, and were outside of senatorial jurisdiction.

The *aediles*, mentioned above, generally notified the censors of all necessary repairs. Each of the four *aediles* had a special district in Rome, corresponding possibly to the four regions of the Servian city. Their influence on architecture was increased by the authority given them to determine the alignment of streets, the allowable projections in houses, and to order any building demolished that did not conform to the building regulations. In the colonies and municipalities dependent on Rome, they even cumulated the functions of the Roman censors.

ACCEPTANCE.—The method followed in the acceptance of public buildings under the republic was usually the one referred to by Livy under the year 586 U. C. (= 168 B. C.), when the censors petitioned the Senate that the time allowance of a year and a half allowed for enforcing the repairs of buildings and for approving the execution of works contracted for, according to custom, should be prolonged in this particular case.

The approval of public works was a matter of serious moment for the officials in charge of them on behalf of the state, because a period of twenty years was set within which they were responsible for any defect, and it was made good at their expense, for the contractor had been discharged of all responsibility as soon as his work was accepted. So we may be sure that the examination was not perfunctory! Would not this be an excellent way in which we could imitate Rome? This is also the main reason for the many inscriptions of the republican and Augustan ages on bridges, gates, walls, arches and other public works, naming explicitly the magistrates who had approved and accepted the work—*probaverunt*. This saddled the responsibility on the proper persons, their heirs and assigns. A typical inscription is that of the walls of the city of Ferentinum (page 283), of the republican age, where the two Roman censors, Hirtius and Lollius, are made responsible. It is CIL. x, 5837.

A. HIRTIVS, A. F., M. LOLLIVS, C.F., CES FVNDAMENTA COERAVERE EIDEMQVE PROBAREVERE.

Of course this made it doubly important that the state officials should have the best expert advice, as they were themselves not competent to judge. It was by these experts, employed by the state, that the specifications and contracts were drawn up which were given out by the censors. It was they who must also have inspected—though we can only surmise it—the finished work. These state architects and engineers, whether regularly attached to the government offices or independent men called in for the occasion, were supplemented by the building surveyors, *mensores aedificium*, who calculated the square feet of every structure before it was accepted.

EXPROPRIATION OF LAND.—The expropriation of land for public works is occasionally referred to. It was not always possible to overcome private refusal to sell, as the Romans were ten-

acious of their private rights. M. L. Crassus, in 180 B. C., prevented the construction of a new aqueduct, universally desired for Rome, by refusing to give it right of way over his land.

cient for the concrete and rough brick cores; ability of the state to enjoin material and labor free of cost, especially under the late Empire.

Later I shall give some of the younger



VIADUCT AT FERENTINUM—WORK OF NATIVE ROMAN ENGINEERS OF REPUBLICAN AGE.

COST OF PUBLIC BUILDINGS.—The cost of public buildings was relatively smaller than in Greece for several reasons: unskilled workmen for the details; gangs of cheap laborers, who were suffi-

Pliny's statements as to the cost of building in Asia Minor. Frontinus, in his work on the aqueducts of Rome, of which he was inspector, says that the Aqua Marcia aqueduct cost 18,000,000



TEMPLE AT TIVOLI—WORK OF HELLENIC ARCHITECTS OF REPUBLICAN AGE.

sesterces, or about \$750,000; while from Pliny, the elder, we learn that the most sumptuous of these aqueducts, the combined Anio Novus and Claudia, cost about 55,000,000 sesterces, or not quite \$2,300,000. How rapidly this sort of work was done is shown by the completion of the Marcia aqueduct in the second year over its total length of about fifty-seven miles.

EXPROPRIATION OF BUILDINGS.—Cicero wrote an interesting letter in 54 B. C. dealing largely with the restoration and enlargement of the Basilica Aemilia, in the Roman Forum. It touches on real estate expropriations and cost of building. He and Oppius were then censors. He says:

"Paulus [Aemilius] has almost brought his basilica in the Forum to the roof, using the same columns as were in the former structure. The parts for which he gave out a contract he is building on a most magnificent scale. [Oppius and I] have thought nothing of the 60,000,000 sesterces [= \$2,400,000] required for this monument. * * * The claims of private owners could not be satisfied for less."

The sums paid to private individuals for the land to be used for public monuments were often enormous. The properties expropriated for Julius Cæsar's forum were valued at 100,000,000 sesterces, or over \$4,000,000.

The method at this time was to have the valuation made by the consuls on the advice of their assessors. We shall see later that Cicero felt aggrieved at the stinginess of the appraisal of his real estate damages made by these officials when the state was obliged to indemnify him on his return from exile.

CARE OF BUILDINGS.—While the care of public buildings in general was at first in the hands of the aediles, and then, under the Empire, passed into the hands of the department of the prefect of the city, there was a very peculiar arrangement by which a private individual would undertake the contract of keeping a public structure in perfect repair for a certain specified sum, furnishing bonds and sureties to the state.

Cicero, in his attack on Verres, gives

a graphic picture of the possible abuses of this system. A certain man had contracted to take charge of the famous temple of Castor in the Roman Forum. He died suddenly, leaving a son, who was a minor. The consuls of the year were unable to examine all the public structures to see in what repair they were, so were the praetors, to whom the work had been assigned; so the Senate decreed that the praetors Verres and Cassius should be charged with the inspection of the unexamined buildings. Verres then visited this temple of Castor for the purpose of finding an excuse to sue the minor's estate for breach of contract with heavy damages. But everything was in perfect order—ceilings, walls, columns. One of his henchmen, however, suggested: "Try the columns with a plumb-line; you can easily condemn them as out of plumb!" Verres actually reported that the columns must all be removed and rebuilt, and put in a big estimate for new material and workmanship. He had the contract for the work knocked down for 560,000 sesterces, the money to come out of the estate of the poor minor, whose trustee clamored that it could have been done by anyone for one-seventh of this sum—80,000 sesterces. It is to be conjectured that Verres pocketed the greater part of the difference, for all that was actually done was to take down a few of the columns and set them right up again, unchanged, with a crane, besides giving a new coat of plaster to the rest of the columns. It sounds quite modern.

Public monuments, as a whole, must be classified under two distinct heads: those of pure utility, which belonged largely to the department of the engineer; and those of more æsthetic character, which were the province of the theoretical architect. The first class were largely the work of government officials, the latter of private architects.

As I said at the beginning, there is also this difference between the two classes that the first was invariably the product of native Romans, while the latter was usually due to Hellenic architects from Greece, Asia Minor, Sicily or Campania, some freedmen and some slaves.

The plates of Ferentinum and Tivoli on pages 283 and 284 were selected to illustrate the contrast between the superb ruggedness of the former and the symmetry and finish of the latter.

The case of Verres shows the methods in use for the care of the second class of monuments. The methods regarding the first class may be illustrated by the aqueducts. From Frontinus, himself superintendent of aqueducts under the Antonines, and author of the famous monograph on this subject, we learn that the usual custom was to arrange with contractors for the re-



Architect Supervising a Stone Building. Crane, Ladder, Staging, Wheel, Carved Capital. Stone Masons at Work Laying and Cutting Stone.

pairing of the aqueducts, these contractors being obliged to keep a certain number of slave workmen busy on the aqueducts outside the city, and a certain number within the city. They were obliged to register in the public records the names of these men who were in charge of this work in each region. They were obliged to obtain approval of their work from the censors, aediles or questors. Evidently in this and other classes of monuments the only concern of the state officials was the approval or rejection of work done.

EARLY SPECIFICATIONS.—It is curious that there should be such a scarcity in Roman inscriptions of information regarding public buildings. We do not find any of those numerous contracts, any of those elaborate accounts rendered

by officials of building operations, so characteristic of Greece. Yet we know that such contracts and accounts were made; but they must have been on perishable materials, such as waxed tablets, papyrus, parchment, or bronze, for hardly a trace has survived, and we are but poorly equipped with detailed information as to the methods employed in the great building operations of a public character and the share in them of the architect.

There is just one document useful, though extremely modest: a bronze plaque, found at Pozzuoli (Puteoli), near Naples, where so many interesting buildings of Graeco-Roman art were built. As its date is 649 U. C. (= 105 B. C.), it certainly reflects the Roman building regulations of the republican age, which were practically the same in the Roman colonies of Italy as in Rome.

It begins with the *lex* or edict of the Duumvirs and Consuls of the colony, which shall govern the construction of a doorway to be made opposite the Temple of Serapis. The document continues, giving detailed specifications, as follows:

"The square beyond the public street is separated from it by a wall. In the center of this wall let the contractor open a door 6 feet wide and 7 feet high. He shall place against the wall, on the side toward the sea, in relief, two *antae*, with a projection of 2 feet and 1 foot thick. Above the opening he shall set an oak lintel 8 feet long, $1\frac{1}{4}$ feet deep and $\frac{3}{4}$ foot high. On the lintel, directly above the *antae*, he shall project two corbels of oak, $\frac{2}{3}$ foot thick, 1 foot high, projecting 4 feet on each side; and against the ends of these corbels he shall nail painted cymas. On the corbels he shall set two small pine beams, measuring $\frac{1}{2}$ foot on each face, and shall fasten them with nails. He shall attach to them a line of joists of pieces of sawed pine $\frac{1}{3}$ foot thick each way, spacing them $\frac{3}{4}$ foot apart and setting on them pine panels made of planks 1 foot wide. He shall cover the ends of the joists with strips of pine $\frac{3}{4}$ foot wide, $1\frac{1}{2}$ inches thick, and over this he shall set a cyma, the whole being blind-nailed. He

shall cover these two pent roofs with tiles: there shall be six rows of tiles on each slant, those of the first row being fastened to the pine strip. Finally, he shall cap the door.

"The same contractor shall make, set in place, furnish with iron fixings and coat with wax, two doors of openwork, with door posts of green oak, exactly like those made for the Temple of Honor. * *

Instructions for the masonry work:

"He shall add $\frac{1}{4}$ of slaked lime to the *pozzolana* (in making the cement). He shall not use unhewn stones any larger than would weigh, when dry, 15 pounds, nor any hewn stones longer than $4\frac{1}{2}$ inches.

"The work shall be subject to the control of the *duumvirs* and of the members of the Council of Puteoli, whenever there is a quorum of 20 at the time the matter is discussed. What these twenty accept shall be satisfactory, what they reject shall be rejected.

Time for completing work: The first of the kalends of November.

Times of payment: Payment shall be made in two halves: one-half as soon as satisfactory bonds have been given, the other half as soon as the work has been completed and accepted."

Then follow the names of the bondsmen, five in all, with the amounts for which they pledged themselves, headed by the contractor himself, C. Blossius, for the amount of his contract, 1,500 sesterces (c. \$60).

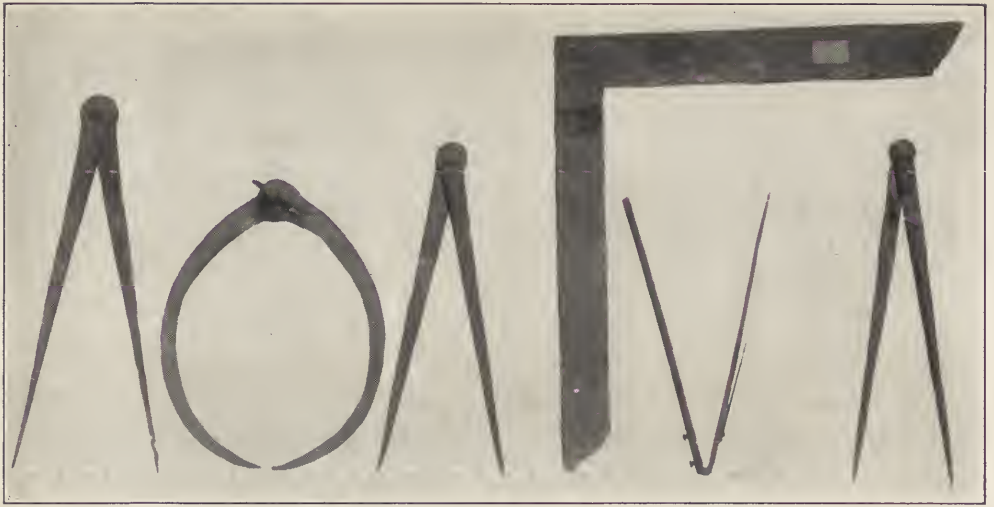
We may, then, assume that this document gives in a modest way the form of decree issued by the Roman censors for public works in the republican period. The plan of paying half the amount before the beginning of the work may be a remnant of Hellenic influence, which was soon to disappear, for while not absolutely certain, the indications are that under the Empire the rule was to make no payment until after the work had progressed.

CONTRACTS AND MANAGEMENT UNDER THE EMPIRE.—The radical changes brought into administrative methods by the Empire in Rome itself and the provinces affected the governmental re-

lations to the monuments. The old republican officials lost their power, which was transferred to the new imperial officials. After a while the imperial prefect of the city obtained the authority over public buildings, both new and old, which had previously been in the hands of the censors, aediles and praetors. Under the prefect was a corps of inspectors: an inspector of aqueducts, of public buildings, of sewers and of the Tiber banks. Various special taxes were assigned for the repair and running expenses of public buildings. Outside of Rome the taxes of each city were used for the construction and use of public buildings.

But whenever any great catastrophe, such as an earthquake or a fire, devastated a city—as in the case of Nicaea, in the time of Hadrian—it was rebuilt largely from funds contributed out of the Emperor's private treasury, and administered by officials dependent on him. Only seldom, as in the case of Laodicea, the inhabitants took pride in refusing all assistance. In some cases a public monument was built by voluntary contributions, as in the case of the great viaduct of Alcantara, in Spain, due to the associated efforts of eleven Spanish communes.

In the administration of the early Empire the distinction was clearly made between the provinces governed by the Roman Senate and those governed by the Emperor, the former a civil, the latter a military rule; and each was supreme in the provinces in the matter of public buildings. No city administration could put up a public building without the authorization of one of these two supreme powers. Even these authorities were, however, bound by certain general enactments of the Roman civil code, such as those regulating the heights of buildings, the materials, the width of streets, the restrictions in the use of balconies and other projections. Especially did the emperors of the later age find it necessary to enact against the destruction and omission to repair ancient structures and they forbade new buildings until the old ones were placed in good condition.



ARCHITECTS' IMPLEMENTS, MUSEUM OF NAPLES.

CITIES AND WORKMEN.—PAYMENTS.—The following petitions will show how magistrates of Egyptian cities under Roman rule managed public works:

The first is a letter addressed in 283 A. D. to the Chief Magistrate or *prytanis* of Oxyrhynchus in connection with work in a new street which he had built on behalf of the city. The Kasiotic joiners here mentioned were, as a class, the most skillful cabinet-makers.

"To Aurelius Apollonius, * * * councillor, prytanis in office of the * * * city of Oxyrhynchus, public magistrate, from Aurelius Menesthes and Aurelius Nemesianus, both sons of Dionysius, of Oxyrhynchus, Kasiotic joiners.

"We request that orders be given for payment to us out of the city funds on account of wages due for work done by us as Kasiotic joiners on both sides of the street built by you from the gateway of the gymnasium leading southward to the lane of Hieracius, of the total amount due for the whole works, in accordance with the vote of the High Council, namely, four talents and four thousand drachmas, I say 4 tal. 4,000 dr. And we beg you to instruct the public treasurer to pay us in full, as is usual."

PUBLIC PAYMENTS TO ARCHITECTS.—The relation of the city magistrates to architects and builders put in charge of public work is shown by a letter ad-

ressed in 201 A. D., by two of these men to the city officials who held the position of building commissioners:

"To Serapion * * * gymnasiarch in office, and Achillion exegetes in office, * * * from Diogenes, son of Serapion, and Lucius, son of Hermias, both of Oxyrhynchus, appointed by the city clerk, in accordance with the decision of the Council of Magistrates, to superintend the repairs and fixtures of the Baths of Hadrian.

"We request that we may receive out of the city treasury, in payment for material, three talents of silver on account, I say 3 tal., of which we will render due account."

QUARRIES: ARCHITECTS, WORKMEN AND TOOLS.—One of the regular duties of government architects was the supervision of the quarries. Throughout the Empire the most important sources of the immense quantities of rich marbles used in the revetments, the pavements and the colonnades of almost every class of buildings, were the quarries of Egypt and North Africa, particularly Numidia, with minor but important quarries in the Greek islands and elsewhere, such as those of the building stone of Istria.

The local district architect exercised general supervision, and he not only had an assistant but there was also a supervising architect in constant attendance at



ARCHITECTS' IMPLEMENTS, MUSEUM OF NAPLES.

each quarry as well as an administrator.

The importance of many of these quarry *chantiers* is proved by the thousands of men condemned to the quarries as convicts, to do the harder work. This corresponded to the galleys of the Middle Ages and the Renaissance, and the Siberian mines. It was the punishment meted out to many Christians when they were not executed, and was one of the principal government industries.

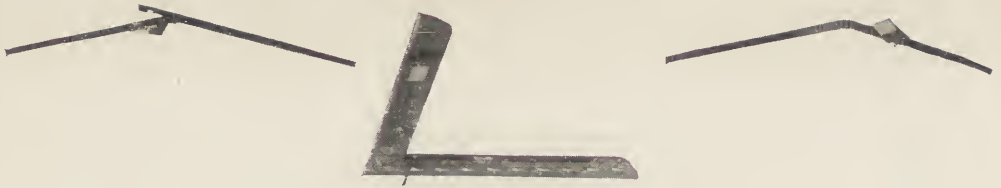
Many graffiti of workmen exist in the Egyptian quarries and show that their working was uninterrupted from the Ancient Empire to Byzantine times. The correspondence of the architects Cleon and Theodore under the Ptolemies, before the Roman conquest, shows what system was then in vogue: how the quarrymen were divided into squads of ten, headed by decurions; how the common labor was carried on by slaves, but the stonecutters themselves were free laborers; how the tools were supplied by the overseer or administrator. The workmen were given provisions from the public granaries. When their time was up they received a letter of discharge.

Through their decurions or *decatarchs* the free workmen were in frequent communication by letter, petition or verbally with the head district architect, for the purpose of securing the reform of certain abuses of the overseers, the quicker sup-

ply of tools, a change of work, or a supply of slave-laborers to shift sand that prevented access to the ledges, or similar matters.

The Ptolemaic system was continued under Roman rule, as was the case with so much of Hellenistic custom everywhere, but the work in the quarries acquired far greater and more artistic importance under the Roman Empire. With the Greeks it had been only the rough work, as a rule, that was done at the quarries, because all decorative and surface work was done after construction, *in situ*. But with the Romans a great deal of fine work was done before transportation, both in simple building materials and in entire finished pieces, such as monolithic columns and even obelisks, including the carving of capitals, friezes and other decorative work. This brought into play a much higher class of sculptors, and making of the directing architect a more important personage.

In fact it was this finished work that was personally connected with these directing architects. For example, the architect, Heraclides, had charge under Trajan and the early Antonines of the quarry of red granite at Fons Traianus, in Egypt. He signed his name to a column of red granite now in the Vatican, which is dedicated to Antoninus Pius or Marcus Aurelius. Then, the famous inscription on our New York obelisk



ARCHITECTS' SQUARES, MUSEUM OF NAPLES.

shows that it was quarried and finished under the architect Pontius, *architectante Pontio*. Pliny remarks that the architect-engineer Satirus had charge of transporting and setting up in Arsinoë the obelisk of Ptolemy Philadelphus. Finally a graffito in the quarry of Ptolemaïs, scratched probably by some quarryman, is addressed to the eternal remembrance of the architect Diothemis—probably a token of gratitude.

CONTRACT METHODS AND RESPONSIBILITY.—Although it is clear, from a number of inscriptions, that the plan to assign the construction of a building to the lowest bidder was far more common than the plan of doing it by day's work, except in the case of small structures, it is not nearly so clear as is supposed that the contract was ordinarily for a lump sum. In fact, the *payment by measurement* was very common.

When Vitruvius bewails the deceptions practised on their clients by architects who lead them into expenses they cannot afford through inexcusable underestimates, this cannot apply if lump-sum contracts had been universal.

Payment by measurement was called *per aversionem*. Late imperial legislation, with its customary policy of interference, tried even to legislate on the legal rate for such work. In Justinian's *Digest* the owner is directed, when making a private contract, to pay the contractor seven sesterces (= 28 cents) per square foot of stonework, to include both material and labor. We must believe that this official rate was in harmony with Diocletian's tariff.

This method was used even more in public buildings, judging by the importance of the guild of the *mensores aedificium*, a distinct class of architect-engineers, both in the employ of the state and professing independently, whose

sole occupation seems to have been the surveying and measuring of buildings, and whose reports were accepted as final by both contracting parties.

The entire matter can be studied in Pliny's interesting correspondence with Trajan in about 100 A. D., the best period of art. When Pliny was sent out by this emperor as special commissioner to Asia Minor to investigate abuses, he examined the accounts of several cities, especially as to the cost and condition of recent or unfinished public structures. In connection with the accounts of Prusa, he wrote to Trajan, asking him to send him a public surveyor to measure its recent buildings, to see if those who had the management of the public works had not overcharged.

In his reply, Trajan declined, adding this significant remark: "I have scarcely surveyors enough to inspect those works which I am carrying on in Rome and in its neighborhood," referring, probably, to such undertakings as the Circus Maximus, the baths of Trajan and of Sura, the Forum of Trajan—all in Rome—the ports of Ostia, Civitavecchia, Terracina.

Does this statement of Trajan not favor the supposition that in his time public works were neither let out to contractors for a lump sum, nor done by the State by day labor, but were contracted for by measurement? The masses of plain Roman construction in concrete, brick or stone, entirely separate from their decorative revetment, added afterward, and susceptible of coming under a different form of contract, make such a method most reasonable.

DEFAULT OF RESPONSIBILITY UNDER TRAJAN.—An entire absence of responsibility for defects in construction for all concerned—architect, contractor, government inspector—may also be inferred from Pliny's letters, at least for

Asia Minor. The old Roman method had been, as we have seen, to allow the government officials a year and a half before final acceptance of a work from the contractor, and to make these officials responsible for twenty years.

But nothing of the kind prevailed at this time in Asia Minor. Pliny found at Nicaea a large new theatre, partly constructed, but on which work was at a standstill. Ten million sesterces—nearly half a million dollars—had been already spent, but the walls had sunk and cracked so alarmingly as to cause the suspension of work, although private persons in the city had pledged themselves to build different sections of it at their expense; some were to erect the portico, others the gallery over the pit (*cavea*). No advantage could be taken of these generous offers, because it was impossible to complete the main structure, which had to be done first. There were also difficulties with regard to the new gymnasium, rebuilt after a fire.

Pliny's comments are interesting. He reports that the cause of the trouble was said to be that the walls, though 22 feet thick, were not strong enough to carry the superstructure, because the core was composed of quarry stones instead of concrete, and the walls were not strengthened with brickwork. But, Pliny adds, *these arguments are used by the present architect*, who is a rival of the architect first employed, who was probably dismissed when the settling and cracking occurred. There is not a word said about making contractor, city architect or city commissioners financially responsible.

We may draw the same inferences from what Pliny writes of the water supply of Nicomedia. Two unsuccessful attempts to construct aqueducts had recently been made; the first had cost the city \$125,000, the second about \$75,000. Pliny advises a third attempt.

PRIVATE ARCHITECTURE.—But it is only in dealing with private architecture that we can get close to the heart and life of the Roman architect, as our literary sources in nearly all cases deal with his relations to private clients.

Roman architects paid far more atten-

tion than their Greek confreres to the beauty, size and comfort of the private house, and it so happened, fortunately, that most of the intimate details we have of architectural affairs among the Romans are concerned with this private architecture. So the two classic civilizations supplement one another in our general study of the ancient architect.

THE HOUSE AND THE LAW.—In order to understand the arrangement, size and grouping of the different kinds of houses in Rome, we must first inquire into the influence on them of law and religion. Following the example of the sacred pomerium, which marked the city limits around the walls, each public and private building in the early city had its sacred area or precinct devoted to the gods, on which it would be a curse to build. It was the most practical and far-reaching way in which religion influenced Roman architecture, even though we distinguish in the background the very practical idea of the necessity for this free space as a defense against fire and attack.

It was a custom that certainly made for civic beauty, as it helped to give buildings a proper setting and prevented crowding. This rule, like the regulations as to width of streets, allowable projections and overhang, required depth of foundations, materials allowed and forbidden, maximum height of houses, all formed part of the legal knowledge necessary to an architect.

BALCONIES.—But legal usage was fluctuating. For example, under the republic projecting balconies had been strictly forbidden. This law had become almost obsolete in the time of Augustus. Still, not having been repealed, it could be applied at any time. Even as late as 368 A. D., at the close of the Empire, the prefect of Rome ordered all projecting balconies to be demolished. Yet other legal texts presuppose balconies and specify a minimum free space between balconies on opposite sides of the streets, which was 10 feet between private houses and 15 feet in front of public buildings. Nor were they allowed, when covered, to interfere with a neighbor's light.

PARTY WALLS.—In regard to this isolation and independence of each house in early times, Fustel de Coulange, in his masterly work, "The Antique City," says: "The same wall cannot be common to two houses; for then the sacred precincts of the domestic gods would have been obliterated. At Rome the law prescribed $2\frac{1}{2}$ feet as the width of free space that should always separate two houses and be sacred to the god of the

which each flat was occupied by a family. The early common materials, a timber frame and sun-dried bricks, formed too shoddy and insecure a structure; and to this drawback was added the increased danger of fire when the old tradition of the sacred area was weakened and adjoining houses were run up. Seneca refers to this danger, saying that it was often impossible to escape from such fire-traps.



WORKMEN'S TOOLS, MUSEUM OF NAPLES.

precinct." This was the law of the Ten Tables. This meant that the narrowest alley must have a width of five feet, aside from what belonged to the public.

Each house, then, was called an *insula* (island) and formed a miniature block. Aside from the very small number of private houses (*domus*), which were much smaller and lower, the greater part of Rome had been built up before the close of the republic in the form of large apartment or tenement houses of three, four or five stories, in

The decrease of religious reverence, as well as the increased value of land, made the law wink at the abolition of intermediate alleys and at the inordinate increase in the height of houses. Collapsing houses, cracking walls, weak foundations, became so frequent that stock companies were formed whose sole business it was to consolidate such buildings.

SKYSCRAPERS AND IMPERIAL REFORM.—Augustus had tried to remedy these abuses by insisting on a maximum height of 70 feet for new houses, and by legis-

lating on the material and thickness of the walls. Vitruvius describes the new type of Augustan tenement houses as having a framework of solid stone, and gives an interesting reason why kiln-dried bricks were not used for partitions and other house walls in the city, while they were popular in the country. He says it was because the law allowed the party walls of private houses to be only *one* foot thick, and that no high houses could be built on this basis with bricks, as they would not be firm enough.

Nero, again, in his far more extensive reconstruction, forbade party walls and insisted on the antique practice of isolated houses and blocks—*insulae*; but his reform, while affecting the work done at the time, was probably not afterward enforced on account of its excessive unpopularity with landowners and speculative builders.

A more particular description of what was done after Nero's fire is worth giving. His enormous palace, the Golden House, extended with its grounds over a large section of the burned district, from the Palatine across the end of the Forum, and occupying almost the entire Esquiline hill. The palace was framed in triple porticoes a mile long, and a lake, surrounded by groups of picturesque buildings, was created on the site of the present Colosseum. Landscape gardening was carried to great refinement, in combinations of wooden bosks, open spaces, terraces and vistas, in this large park set in the center of the great city. Tacitus says that the entire scheme was due to the architects. Severus and Celer: "The old-fashioned, and in those luxurious times, common ornaments of gold and precious stones were not so much the object of attraction as parks and lakes," filled with wild and tame animals and birds.

The palace itself was on a colossal scale and full of gorgeous and ingenious details. A statue of Nero, 120 feet high, could stand upright in its portico. Some of the halls were "overlaid with gold, set with jewels and mother-of-pearl. In the vaulted supper-rooms the ceiling compartments, inlaid with ivory, were made to revolve scattering flowers, and

through pipes diffusing perfumes among the guests. With similar ingenuity the main circular dining-hall was made to revolve on its axis."

The rest of the burned district was laid out, not as after the Gallic fire," says Tacitus, "without discrimination and regularity, but with the lines of streets measured out, broad spaces left for transit, the height of the buildings limited, open areas left, and porticoes added to protect the façades of the blocks of houses. These porticoes Nero agreed to build at his own expense," and he also agreed to clear the ground for building at his expense and to distribute rewards to the landowners who completed the reconstruction at a certain date. He had all the rubbish carted off on public ships and dumped in the marshes of Ostia. To guard against fire he forbade the use of party walls, obliged every houseowner to have fire-extinguishing apparatus in his yard and facilities for using it on the balconies above the porticoes which he had built. He improved the water supply to provide sufficient pressure. He specified that no timber should be used in the lower stories of any house, but that they should be arched with stone.

The Romans were pleased with the new city plan and new regulations, as both useful and beautiful. But some old fogies "believed the ancient form was more conducive to health, as from the narrowness of the streets and the height of the buildings the rays of the sun were more excluded; whereas, now, the spacious breadth of the streets, without any shade to protect it, was more intensely heated in warm weather."

We may acclaim Celer and Severus as the pioneers for Rome of those magnificent and broad civic plans that had been carried out at Alexandria, Antioch and other large cities of Asia Minor and Syria since the beginning of the Hellenistic age.

What most stood in the way of a thorough application of strict building laws in Rome was the fact that the building and renting of the tenement houses that formed the bulk of Roman real estate was a most profitable undertaking

and had fallen largely into the hands of rich speculators. We can understand what had then happened in the residential quarters if we know Rome's present condition: how the real estate business has fallen into the hands of the large national banks, which are now outrageously bleeding the public by keeping the supply small and the rents high by holding building sites at prohibitory prices. An unfurnished flat of average size cost \$500 to \$1,250 per annum in the time of Cicero.

One way of evading the law was to give the houses a greater height in the rear, while keeping within the legal limit on the line of the main street.

One inscription mentions a house with ten shops and six stories of apartments above. The Middle Ages, with their low houses, form, indeed, a break between Rome and modern times!

The tenement described by the poet-satyrst Martial, in which a poor man goes up some 200 steps to his room in the garret, must have been over 100 feet high; and this estimate is confirmed by Tacitus, according to whom the roofs of many houses around the base of the Capitol hill were on a level with the area of the temple of Jupiter on its summit, which would be about 100 feet. We also read that from the upper stories of some houses around the Palatine hill the people could overlook the apartments of the imperial palaces.

While these measurements were presumably uncommon, it is certain that Rome anticipated us in the field of skyscrapers on a large scale, and the average house was much higher than in any modern European city, where the limit is, as Lanciani remarks, 36 feet for Berlin, 45 feet for Vienna, and 63½ feet for Paris.

The fact was commented upon by ancient writers, showing that it was something peculiar to Rome. Strabo says that Roman houses, even in his day, were often 70 feet high. A contemporary of Antoninus Pius (c. 145 A. D.), the writer Aristides, borrowing a favorite arithmetical comparison of us modern Americans, says that the houses of Rome were so high that if they were lowered

to a single story and placed end to end they would form a continuous line across the peninsula from Mediterranean to Adriatic. And yet, before that, a law of Trajan (c. 100 A. D.) had still further reduced the maximum legal height of new houses on the street line to 60 feet, confirming Nero's enactment.

As the number of private houses and palaces in Rome, even at the close of the Empire, was less than 2,000, compared to nearly 50,000 apartment and tenement houses, the percentage of high buildings must have been great, especially as the private ones were supplemented by public structures, sometimes between 100 and 180 feet high.

Nor must it be imagined that the houses of the aristocracy were usually of as little as two stories, like Hellenic and Hellenistic houses, and like those at Pompeii; for the best preserved ancient palace in Rome, now incorporated in the Church of SS. Giovanni e Paolo, had at least four stories.

MUNICIPAL IMPROVEMENT IN ROME.—The progressive improvement in the municipal architecture of Rome, through the co-operation of enlightened emperors and architects, which, commencing just before the time of Cicero, crystallized under Nero and culminated under the Antonines, was probably due largely to the influence of the cities of Asia Minor and Syria, where many cities had become marvels of symmetry in plan and of beauty and perfection in construction. Intelligent men, like Strabo, in the time of Augustus, admired intensely such beautiful late Greek cities as Rhodes, Cyzicus and Massilia, where all structures were under the care of official city architects. More impressive still were the Antioch of the Seleucidae and the Alexandria of the Ptolemies, from which the Romans borrowed their long lines of porticoed avenues. Still, it can hardly have been from these cities that Rome obtained its scheme of high apartment houses, because, owing mainly to the fear of earthquakes, their houses seem hardly ever to have exceeded two stories in height. Perhaps the Romans copied this type from the Phoenician architecture of Sicily and Africa, for long be-

fore the time of Cicero, Diodorus mentions eight-storied houses at Motya, in Sicily, and there were houses at least six stories high at Carthage.

It is almost paradoxical, but true, that not until after Nero's fire did Rome begin even to rival in the beauty and regularity of her streets any one of a hundred among the cities of the world that she had been conquering for over two centuries. It was then that, with the help of Hellenic architects, the Romans passed from the elementary stage of erecting single public buildings, often of great individual beauty, but without relation to the city as a whole, to the more advanced stage, familiar for several centuries to Greeks and Orientals, of the city as an organic thing of beauty. It was then that the really constructive work of Roman architects commenced, and that they began to develop their remarkable talent for composition, grouping and elaborate combinations of plan. The Roman system gradually absorbed the neo-Hellenic architectural genius which, once saturated with the idea of using the Roman millions for the development of civic and private luxury on a large, practical scale, rose to its task with enthusiastic vigor throughout the Empire. The rage for building that reigned from Trajan (97 A. D.) to Alexander Severus was an extraordinary phenomenon. When it ceased with the disorders of the middle of the third century and the first barbarian invasions, the profession of architecture quickly lost its vogue and its skill. So that when Diocletian and Constantine sought to resuscitate the culture of the Empire one of their tasks was to stimulate the profession and increase its membership.

PRIVATE ARCHITECTURE: ARCHITECTS.—It is in the field of private architecture that we glean our most vivid pictures of the personal activity of the architects of the late republic and the Empire, and it is to Vitruvius again that we must refer for a picture of the Roman house and villa which would be out of place here.

In connection with this, we will merely note the care in the orientation of houses, so as to secure the best results,

both in winter and summer. Vitruvius makes himself the national mouthpiece when he says that "natural consistency (one of the necessary attributes of a good architect) requires that bedrooms should be lighted from the east; baths and winter apartments from the southwest; picture and other galleries, which require a steady light, from the north," etc. In large houses, and especially in villas, architects generally provided separate summer and winter suites, both bedrooms and sitting rooms. In all such matters Greek and Roman architects and their clients seem to have been more advanced than we are even at present.

The two other main novelties—beside the increased spaciousness made possible by the adoption of the two courts in a single line, in place of the one court of the Greeks and earlier Romans—were the private baths and the perfect system of heating and plumbing, including the warming of partitions and floors. Of the innumerable examples, one of the best is the villa at Boscoreale, near Pompeii, where the wonderful silverware was found that is now in the Louvre. Its two superb bronze bathtubs, however, are in the Field Museum at Chicago.

All the main points, including the values of city and country houses, the method and time of building, and the relations of owner to architect, are illustrated in the correspondence of Cicero, from which I shall allow myself to quote quite liberally.

CICERO AND HIS ARCHITECTS.—In 44 B. C., Cicero wrote Atticus, his great friend and artistic adviser, of his intention to build a monument to his much-lamented daughter Tullia from the designs of Cluavius, one of his customary architects. He takes occasion to speak very highly of current architectural knowledge and skill; undoubtedly his generation saw the transition from old Roman simplicity to a gorgeousness and finish that heralded Augustus. He also speaks of a freedman of Balbus, named Corumbus, as a skillful architect. If we name Chrysipus Vettius, a freedman and pupil of Cyrus, Cyrus himself, Philotimus and

Diphilus, we have four or five architects employed by Cicero on his 21 houses and villas. This made him quite a patron of architects. That his relations to Cyrus were particularly close, and that he respected his learning, is shown by a letter to Atticus, where he says: "When you find fault with the narrow windows, let me tell you that you are criticising the 'Cyropædeia.' For when I made the same remark, Cyrus used to answer that the view of the garden, through broad lights, was not so pleasant. For let α be the eye," etc. (follows an optical demonstration).

Several passages bear on the value of houses. He wrote to Atticus, in 68 B. C., that the house of Rabirius, in Naples, which Atticus had thought of buying and transforming according to drawings which he had had made, had been sold for 130,000 sesterces (= c. \$5,000). This must have been a small and modest house. In a letter to Sestius, in 65, he refers to his own purchase of quite an expensive mansion in Rome, that of Crassus, the famous friend of Cæsar and Pompey: "I have bought that very house for 3,500,000 sesterces" (= c. \$140,000). Soon after he speaks of another palatial house, in writing to Atticus: "Consul Messala has bought the house of Anthony for 3,400,000 sesterces." We are familiar with the fact that Cicero feathered his nest. Though a "new man," his lawyer's fees were so enormous as to enable him, in his early hey-day, to make extensive real estate investments, including houses and villas at Rome, Tusculum, Formiæ, Pompeii, Arpinum, Cumæ. When he went into exile, in 58 B. C., his town house was destroyed and his villas at Tusculum and Antium dismantled through the efforts of his enemies. When he was recalled from exile he, of course, put in heavy claims for damages, and complains of the result. "The buildings of my house," he says, "the consuls, by the advice of their assessors, valued at 2,000,000 sesterces (he had paid Crassus near twice this amount for it). The rest was valued very stingily. My Tusculan villa at 500,000 sesterces, my villa at Formiæ at 250,-

000 sesterces." He decided to repair the villa at Formiæ, but he advertised his Tusculum property for sale.

At this period of Cicero's life, in 56 B. C., when he was superintending the reconstruction of his own property and of that of his brother Quintus, we get a very clear picture of how building was carried on. On January 18 he writes his brother: "About your building, I do not fail to press Cyrus. I hope he will do his duty." This Cyrus was, we see, the favorite architect of Cicero (*pro Mil.* 17, 18; *ad fam.* 7, 14; *ad Q. fr.* 2, 2; *ad Att.* 2, 3), whom he quite frequently mentions. In March he reports progress: "The building of both your house and mine is being pushed on energetically. I have caused half the money to be paid to your contractor. I hope before next winter we may be under the same roof. * * * I am building in three places, and patching up my other houses. * * * If I had you with me I should give the builders full swing for awhile." A few weeks later (April 8), he writes: "After leaving your boy, I went to the site of your house; the building was going on with a large number of workmen. I urged the contractor, Longilius, to push on. The house will be splendid, for it can be better seen now than we could judge from the plans. My own house is also being built with despatch."

Early in the next year his own house in Rome was not yet completed, for he writes to Atticus in Rome from his villa at Cumæ: "I wish you would come and see my walk and bath (*laconicum*) and the buildings planned by Cyrus, and would also urge Philotimus to make haste that I may have something to match with yours." (P. was in charge of the rebuilding of Cicero's house.)

Most amusing and interesting of all is the report he sends to his brother Quintus in 54 B. C., about one of the latter's new villas: "In your Manilian property I came across Diphilus, outdoing himself in dilatoriness. Still, he had nothing left to build but the baths, a promenade and an aviary. I liked this villa very much, because the paved colonnade (around its atrium) gives it

an air of great dignity. I never appreciated this till now, when the colonnade has been opened up and the columns polished. Now all will depend on the stuccoing being properly done. * * * The pavements seem well laid. Certain ceilings I did not like, and ordered changed." He does not approve of his brother's order that a small entrance hall should be made in connection with the atrium, which is too small to allow of it. "As it stands, from the very beauty of its arched roof it will serve as an admirable summer room. * * * In the bath I have transferred the hot chamber to the other corner of the dressing room, because it was so placed that its steampipe was immediately under the bedrooms (which would have made them too hot). A fair-sized bedroom and a lofty winter room I admired very much, for they were both spacious and well situated on the side of the promenade, nearest the bath.

"Diphilus has placed the columns out of the perpendicular and not opposite each other. These he shall, of course, take down. Some day he will learn how to use the plumb line and the measuring stick. On the whole, I hope Diphilus' work will be completed in a few months; for Cæsius, who was with me at the time, keeps a very sharp watch upon him."

It is evident that Quintus did not know his own mind, and was as prolific in changes after the specifications and estimates were in as some irritating moderns are. Cicero tells how a most well-meaning steward of his had contracted to do a little building for Quintus at Laterium for 16,000 sesterces (\$640), but had to give it up because Quintus kept ordering additions to the work, but none to the price.

It was not until 54, after three years, that Quintus' house in Rome was completed, as Cicero reports in September. The part of the roof over the sitting room, which Quintus did not wish covered with several gables, was roofed so as to slope gracefully toward the lower colonnade of the court. He is loud in his praise of Quintus' place at Arcanum, fit, he says, for a man of even better

taste than Cæsar, and worthy of an architect equal to many Philotimuses, "and quite above your Diphiluses."

When, after Tullia's death, in 45, he made such elaborate plans for a memorial temple and park to her, he wrote to Atticus, "As to the design, I do not feel any doubt, for I like that of Cluattius," so that we may infer that several architects had submitted drawings to him. He asked Atticus to settle the contract for the columns with a certain Apella, of Chius. At the same time he got from another of his regular architects, Chrysippus, a report on a certain site for it, including villa and grounds. It would seem that grounds close to the city were then valued in some cases as high as \$700 and more per acre.

PRIVATE CONTRACTS.—We may conclude from these letters and others that at this time there were usually three persons interested in any construction: the architect who drew up the plans and oversaw the operations; the contractor, who did the work usually for a lump sum; the business agent of the owner. We may also conclude that sometimes the owner or architect took charge of purchasing the materials and got along without the intervention of any contractor, the architect overseeing the workmen who were engaged by the day. When a contract for building was drawn up it sometimes was made for a lump sum to include all costs for both labor and material; at other times it was for labor only, the owner making separate contracts for the materials.

In the present scarcity of documents, it is impossible to say which was the prevalent method of contract. All that can be done is to ferret out the few examples of the various methods.

A current formula is found on certain waxed wooden tablets found in Dacia, which also illustrate the perishable form of these contracts and explain their disappearance. The formula would run about as follows, in the fragmentary form that is alone preserved:

"Consulship of Laelianus & Pastor, Kalends of November. L. Ulsius Valerius affirms that he does give and has given to Socraton, son of Socrates, the

contract to carry out certain work for him from this day till the Ides of September of the coming year. The payments to be made at the times agreed upon. If the contractor decides to stop work without the consent of the owner he shall pay * * * sesterces for each day that no work is done. In case the weather should prevent work, this should be reckoned him *pro rata*. If, when the work is completed, the owner shall delay payment, he shall be held to the same penalty after the lapse of the customary three days.”*

From the *corpus* of Roman law, in regard to private contracts, we glean a few facts which seem to show that the interests of the owner were particularly—almost tyrannically—guarded, at least in the late Empire. If the work is not completed at the time specified the owner is allowed to reassign the contract. When the work is done the owner appears to be given full power to accept or reject it without control. One of the reasons that would give him the right to do so would be if the contractor used lime less than three years old, which was contrary to law.

The legal regulations governing private contracts can be summed up as follows: The private contract was derived from the earlier contract formula for public works. In early times, before so high an artistic standard was required, a large part of private work was done by mercenaries, which was afterwards given out by contract. It was not always done for money, either, but sometimes on shares, or with payment in kind, or in the form of free rent. This was still often the case in the time of Cato. When the payment is in cash it shall be made in several installments, either at the close of the work or during the course of it, as such or such parts are completed and accepted by the owner.

In assigning a contract, the owner sometimes opened a competition of bids, as the censors did for public works, and assigned it to the lowest bidder. Meas-

ures were taken to prevent fraud on the part of contractors, such as coming to an understanding with each other to raise the limit of the bids, the successful contractor taking the others into partnership afterwards. They can be required to clear themselves from this charge under oath. The work must be done within the time specified and in a faultless manner. The contractor is not obliged to actually do it himself, but he is responsible for his associates and helpers. He ordinarily uses the materials furnished by the owner. In case he furnishes the materials himself, the contract falls under quite another head—under that of *sale* instead of *lease*, though this difference was never made in the case of private houses. The acceptance, either total or partial, of the work by the owner discharges the contractor of all responsibility and risks. Until then the contractor is responsible for damage or destruction, unless he can prove it the fault of the owner.

FORMULA OF CONTRACT.—It is from Egyptian sources that we are beginning to glean information in this field of Roman antiquities, through the papyri. Here is a private contract for supplying quarried stones for a house, made in the time of the Antonines between two stonemasons and the owners at the city of Oxyrhynchus:

“To Antonia Asclepias * * * through her guardian, Apollonius, from Asclas, son of Alexander and Apollonius, son of Amois, both of Oxyrhynchus. We undertake to cut the squared building stones of one camelweight from the northern quarry required for the house of you, Antonia in the quarter of Pam-mene’s Gardens, the rate of payment for the stonemasonry being: (1) for the outside camel-stones at 4 drachmas per 16; (2) for the inside do. at 4 drachmas per 30; (3) for *anti blêmata* at 3 drachmas per 100 squared camel stones; for oblong corner stones; (4) for outside squared camel-stones at 8 drachmas for 16 and (5) for inside squared camel-stones 8 drachmas for 30; for stones worked only with the axe [for foundations?]; (6) for squared camel-stones at 4 drachmas

*In the lost parts there must be some penalty for the contractor who does not complete the work on time.

for 50 and (7) for oblong corner camel-stones at 8 drachmas for 50.

"All the aforesaid kinds of stone we will cut, but no ornamentation shall be required of us. Each of us shall receive for each day that he works both a loaf and a relish.

"If the builders have need of our services in stone-cutting we shall be called in, either one or both of us, and shall receive as daily wages 4 drachmas and also each day a loaf and relish.

"Up to the 22d day of the present month Epeiph you have the right to transfer to others this contract for cutting the aforesaid squared camel-stones from the northern quarry."

WORKMEN AND GUILDS. — During these centuries of the development of Roman architecture what was the condition and organization of the men belonging to the building trades employed by the architects and contractors or engaged directly by the State or private individuals or working as slaves?

The answer is bound up in the totally different way in which the Roman mind and Roman law regarded the organization of society from what had been the case in Greece. The Greeks left everything to individual effort; in Rome everything was done by collective organization.

An ancient tradition relates that the populace of the Roman tribes was divided by King Numa into labor corporations according to occupation; of these the men belonging to the building trades formed one, under the general title of *fabri*, or later *fabri tignarii*.

All the members of these corporations were free men, *Roman citizens*. It was not until after the Punic wars, when the population of Italy had been so decimated, and agriculture and other forms of labor so neglected for war, that *slave labor* was introduced as a necessity.

At first slave labor revolutionized life only in the country, on large private estates and those of speculating contractors; it then affected mainly the commoner forms of labor. But quite soon it invaded the cities and Rome itself, pervading the arts and trades; especially when, with the conquest of Southern

Italy, Sicily, Greece and the Orient, there came into every wealthy Roman establishment a considerable number of Greek slaves, with their knowledge of the arts and sciences, their general education and refinement.

I have already said that men like Crassus had an organized army of artists and artisans, sufficient for every branch of human activity that might be required on his immense estates; and with many owners the hiring out of skilled slave-workmen was a regular business.

RESTRICTION OF RIGHT OF ASSOCIATION.—With this changed state of affairs the old labor corporations of free citizens lost both influence and dignity. They also became, in the last days of the Republic, hotbeds of political corruption and sedition, wooed for their votes by demagogues such as Milo and Catiline.

Until then the State had allowed perfect freedom of association, but the political dangers of its abuse became evident. So Julius Caesar, in his radical reform of the State, framed a law restricting the right of association, leaving in existence only a certain specified number of associations subject to government sanction and supervision. Augustus followed, as usual, the same policy.

What we cannot understand, however, is why, long after the Empire had become consolidated and republicans and socialists as extinct as the *dodo*, the Emperors should have continued to look upon such associations with suspicion. Even the self-confident Trajan (97-117 A. D.) objected to the organization of a fire brigade in a city of Asia Minor because he considered that such societies were made the pretext for political intrigues.

GOVERNMENT CONTROL OF GUILDS.—Another century, however, had hardly elapsed when we find a radical change of policy. Perhaps the Emperors had found it impossible to undermine the corporations; perhaps the less thoughtful and firm Emperors of the early third century preferred to close their eyes to abuses in view of the usefulness of the corporations to the State. The new

Oriental policy of these Emperors favoring centralization and government control in every sphere of activity was applied here also. A scheme was adopted that not only favored the formation of associations but gave them a monopoly, each in its field, in return for services to the State.

It seems probable, from historical texts, that the large corporation of the building trades (*fabri*) was the first to receive the privileges of monopoly and of immunity from taxation in return for gratuitous work on public structures. This may have been done, as an exception, as early as the reign of Antoninus Pius. But as a proof that this was a real exception we find that, fifty years later, Alexander Severus was still collecting from other corporations a tax the proceeds of which were used to keep the public baths open earlier and later by artificial light. Soon after this, however, the scheme of exacting labor or material for public works and public service from each corporation became a settled policy.

What we would call the "books" of all the corporations were open for government inspection, and there was a great deal of special legislation to regulate them. It was not only made impossible for a man to work at any trade, art or business unless he belonged to a corporation, but once he had joined it he was bound hand and foot. By the close of the third century imperial restrictive legislation had so enmeshed and enslaved the corporations that a member was not only forced to remain in his corporation for life but forced to reside in the city where he had joined it; if he went anywhere else he could be brought back by force.

The member was not only himself bound for life but he was obliged to teach his sons this particular business and no other, and so on "unto the third and fourth generation." Hence, heredity of occupation was erected into a state dogma and law.

By the close of the fourth century the climax had been reached of this enslavement of free labor.

ORGANIZATION AND ADMINISTRATION.—The corporations were organized in imitation of the city government. Certain measures were taken and elections held by an assembly of all the members, called the "people," the "order." But these members were organized in quasi-military divisions of ten (*decuria*), with a leader called *decurion*, and every ten of these divisions formed a section of a hundred (*centuria*), under a leader called *centurion*, assisted by a lieutenant (*optio*). These special divisional officials were elected annually, as a rule, by each group of members.

The general officers were a president and a treasurer. They were elected by the assembly of the whole and served for periods varying from a month to a year; sometimes, even, for a term of five years. The treasurer's office was exceedingly important, for he received not merely the dues but the large special donations. The principal assets came, in fact, from patrons belonging to the moneyed classes, though there seem also to have been land grants from the State. As in earlier days, the crowds of the proletariat had followed demagogues and distributors of political plums and boodle, so now, in the peaceful times of dead politics, there were plenty of rich men anxious to buy cheap notoriety by becoming titular patrons, honorary protectors—we might say trustees—of these corporations; and in return for their large gifts, inscriptions, busts and even statues transmitted their names to posterity at the expense of the corporation!

WAGES.—The best index of the artisans' wages is given toward the close of the imperial period in the famous Law of the Maximum Price, issued in 301 A. D. by that great centralizing organizer, the Emperor Diocletian. Its general purpose was to counteract speculative attempts to artificially influence the market values of natural and manufactured products of labor, to prevent "corners" and "trusts."

What concerns us in this epoch-making economic document is the small section that refers to the building trades, for here we find what must be a fairly

complete list of the guilds or at least of the branches into which the arts and crafts were divided, with the salaries that each man should receive in daily wages. It is stated that he must be given his food *beside* the wage. The daily wages follow:

Common day laborer.....	\$0.30
Mason	0.60
Lime-maker	0.60
Plasterer	0.60
Carpenter	0.60
Cabinet-maker	0.60
Marble-worker	0.75
Mosaicist	0.75
House-painter	0.85
Decorative painter	1.80

This chapter of the law is entitled *Workmen's Wages* and regards only common operatives. There is no thought of regulating the remuneration of artists such as sculptors, much less the "honorarium" of architects, though, as I have already shown, when an architect became a public teacher of his art his professional charge for instruction was regulated.

One of the above classes of artisans, the *marmorarius* or marble worker, was practically unknown to the Greeks. He was a Roman creation due to the Roman plan of separating the surface decoration from the structure and applying it afterwards, usually in the form of slabs and patterns of brilliant marbles, both on the outside and inside of buildings; and the same class of artisans produced the wonderful mass of decorative work in marble furniture, such as candelabra, vases, altars, tables, tripods, which impinge so often on the field of pure art.

The marble-decorators were indispensable to the architect, and grew in importance as the Empire progressed and as new varieties of rich marbles and of ways of using them became popular. This popularity even affected the contracting business. Sometimes, as in the case of the basilica at Nimes, there was a single contractor for both the stonework (or other form of construction) and the marble decoration; but in other cases there was a special contractor for the marble decoration, as at Pozzuoli,

where an inscription names C. Avillius December as the contractor for this decorative work (*redemptor marmorarius*). Several tombs of these artists remain. On one, near Reggio, the artist has his implements: level, square and plum-line between two mallets.

The logical outcome of increasing centralization and monopoly was that finally, perhaps before the reign of Diocletian, contracts with *individual* artists and artisans were largely replaced by contracts with their *guilds* in the building business. It is impossible to say whether this was universal throughout the empire, and how far it affected private as well as public contracts. At all events, it seems to have largely characterized the business of the government, which wished to not only drive all men into the corporations but to make them part of the immense network of government machinery.

The Egyptian papyri afford several instances. In 316 A. D. at Oxyrhynchus the city administration made a payment to the Guild of Ironworkers for materials used in the public works. In the same year the Guild of Carpenters of the same city reports, through its monthly president, to the city magistrate on a detail of municipal improvement. As late as 569 the chief of the Guild of Stonemasons contracts to transport a certain quantity of stone for one Flavius Apion. This document shows that private persons also dealt with the guilds directly.

We can now sum up more intelligently the significance of the art, personality and methods of Roman architects in comparison with those of their Greek predecessors and of our own country.

In a way, they strongly resemble our architects. They were practical men. They were obliged to be versatile in their style and in their use of materials; to know how to handle brick, concrete, stone and wood; to use both arch and architrave, separately and together, to combine flat and arched coverings of every form. They found it necessary, quite often, to study past historic styles to suit the catholic taste of their traveled patrons; not only early middle and late

Greek styles, but those of Egypt and the Orient. When the architects of Hadrian built his villa at Tivoli, with its reproductions of famous historic buildings in various countries, they had just returned from accompanying him on a tour of the civilized world in which architectural construction and study had played an important part. Accustomed to concrete and brick in Rome, for instance, they were forced to use quarried stone in Syria and North Africa.

In this way they cultivated adaptability at the expense of sincerity; were less stylists than students, and their products less a natural growth than an intellectual product. This was in direct contrast to Greece, with its simple unity, and its dependence on national genius.

Another point of similarity with our conditions is that their architecture was not mainly idealistic and sacred, as that of the Greeks had been, whose civic and private structures had been so simple.

The Roman masterpieces were not temples like the Parthenon, nor oracles like Delphi, Olympia and Eleusis, but varied works of public and private utility, comfort and display, harmonizing with the more than Oriental luxury of the Roman Empire. In doing this they carried to a higher degree than any previous style the genius for a harmonizing of buildings with nature and landscape architecture. This is what we are beginning to understand, though less than the English or the Italians.

But a field in which the Romans were quite as supreme was that of the harmonious use of the plastic art and of color in connection with building, especially with interior decoration. The Greek color sense, much as it grieves one to confess it, had been crude, and the attempts to use it in connection with sculpture and architecture inartistic. Even Greek plastic decoration was less exquisitely, less unobtrusively done than



ROMAN DECORATIVE STUCCO.

it was in Roman times. Anything more charming as surface decoration than the sketchy stuccoes of which bits are known to us from Nero's Golden house, the Farnesina, and the tombs of the via Latina, it is difficult to imagine.

The same taste prevailed in the use of color, from the rich slabs of African marbles and the marble incrustations of *opus sectile* cut in patterns, to the varied wall pictures of which those at Pompeii show us only the cruder artisan forms, while the fascinating impressionistic garden scenes in Livia's villa, at Prima Porta, near Rome, are the handiwork of genuine artists. The fact is, that under Roman guidance the close union of the various arts, even though they were increasingly differentiated, was not only maintained but emphasized. We must not, however, forget to ascribe to the Hellenic element in the movement much of the taste in the execution.

It is in this unity of the arts that any comparison of Roman architects with our own breaks down. The fundamental disorganization of the arts in America for which, it is true, the men of the fifteenth and sixteenth centuries are ultimately responsible—which the clear-sighted among us are beginning to deplore, can be remedied, of course, only through broader artistic education and inspiration. As far as example can help, to study what we know of Roman work would be more useful than that of any other period in the history of art. But its fragmentary remains require editing and reproduction to be properly usable.

At the same time, there are some Roman pitfalls that we ought to avoid, though we seem to be falling into more than one of them. The first and worst was the enslavement of the workman to the union and the state, and the consequent gradual loss of artistic excellence in every kind of detail requiring an eye for line and color. A dead level of price and of work was brought about, as it is being brought about with us. The second was the irresponsibility of architects in the matter of estimates, the slackness of his supervision of the contractor's work, and the speculative tendency of contracts.

These conditions favored "ready-made," "cast-in-the-mould" effects, especially in the lines and details of pure architecture, which increased as architects got more and more out of touch with the actual work. It is strikingly illustrated in the fact that in mere constructive genius the men who designed the buildings of the third century of our era, such as the baths of Caracalla and Diocletian and the Septizonium of Septimius Severus, were, if anything, superior to their predecessors, while all the execution of details had grown careless and inartistic and got steadily worse.

In striking a balance, we must agree with Ferrero that Rome presents us in this field, as in almost every other, with the most universal forms, and that in its treasure-house we can find practically all the elements that we require if we have the talent to perceive and transform as well as the genius to conceive.

A. L. Frothingham.

MR. J. W. BROWNIE,
Care Editor "Architectural Record,"
New York City.

DEAR MR. BROWNIE:

It was with delight that I read in the "Architectural Record," of February, that we have in the architectural profession a member of the distinguished family of "Brownies." Palmer Cox is to be congratulated upon the striking pictures that he has made of you. Yours is perhaps the most irresistibly funny of them all. It is true, as you say, "everybody cannot be a genius," but it is given to but few to be so amusing.

Your pathetic appeal for assistance fills me with deep sympathy. You were doubtless, as were most of us, confused by the metaphorical but now historic *Philadelphia tulip*, and it is not surprising that you cannot see the slightest resemblance between it and the architecture of America. When you were taken "*among these almost cloistral surroundings, where the student goes to laugh, the water jet springs serenely, and Pous-sin and Puget stand calmly oblivious of*" the entrance gates, you were perhaps as much involved in the mixed metaphors and allegories as was the writer himself. You naturally ask, What has all of this to do with the "beautiful three-quarter engaged architecture which is now clinging to the fronts of our buildings, like Michael Angelo's painted architecture to the ceiling of the Sistine Chapel." Or the wonderful Alladin architecture done by the advocates of the French teaching, while the learned professor rubs his wonderful lamp, which is changing our country into a comical caricature of the Acropolis. Which, in the words of one of the most distinguished advocates of the Academic French School, "*have given to us those splendid monuments which make beautiful palaces of department stores, and noble temples of places of money exchange.*"

You will doubtless some day go to Rome, where you will see the prototypes of the forms used by the students of the Ecole des Beaux-Arts in the past fifty years.

In studying a living art, however, avoid, above, all things, "*the eminent archaeologists and undisputed authorities on everything which pertains to antiquity.*" They are but storehouses of musty bulbs, and not growers of tulips. You would naturally expect from one of these remarks as absurd as "*the last word in art was said, when, in the fifth century, before our era, the Parthenon sprang from the rocks of the Acropolis, like Athens in full panoply from the brains of Zeus.*"

It is too bad that we can find no one to answer our questions frankly, instead of trying to befuddle us with allegorical flights and quotations from learned writers, while others copy page after page of the descriptive geometry, with the avowed intention of protecting the dear public from misleading technicalities.

That Gothic phantom, which seems to haunt you, exists only in the narrow confines of slavish little brains, brains that never have, and never will think for themselves, but insist upon having someone else, preferably someone who is dead, think for them. These fellows, "Brownie," do no harm; they simply do no good. They make statements, and think that these settle the question. Substitute a negative for every positive, and a positive for every negative. Contradict every statement that they make, and you will find that you will have an argument for the other side, which has just about as much foundation of fact as the original. They accuse others "*of a want of sincerity and good faith,*" while through their whole argument runs a personal venom which suggests a small animal in a corner fighting for his own little existence.

Now, my dear "*Little Brownie Architect,*" the public will take no further interest in architectural allegories. A joke is a fatal weapon in the hands of the artist, a veritable boomerang in the hands of the amateur. You who are in the front ranks of the inhabitants of Jokeland should remember this.

Most affectionately yours,
American Architect.

NOTES & COMMENTS

PENNSYLVANIA STATE ASSOCIATION OF ARCHITECTS

Delegates from the State Chapters of the American Institute of Architects and other members from Pennsylvania came together in Harrisburg recently and formally organized the New Pennsylvania State Association of Architects, which promises to be a powerful factor in advancing the interests of the Institute and the profession and many matters concerning the welfare of the State. This is the only State organization of the American Institute of Architects. The following officers were elected:

President—D. Knickerbocker Boyd of Philadelphia, President of the Philadelphia Chapter of the Institute and Fellow of the American Institute of Architects.

Vice-President—Edward Stotz of Pittsburg, President of the Pittsburg Chapter of the Institute.

Secretary and Treasurer—Wm. L. Baily of Philadelphia, architect and a member of the Academy of Natural Sciences.

After discussion of matters relating to bills now before the state legislature and of other matters of general welfare, the association put itself on record as favoring—the report of the Fine Arts Council recommending that the proposed Lincoln Memorial be erected in the National Capitol be upon the site at the end of the Mall as originally provided for, and the passage of Senator Newlands' bill now before Congress to create a Bureau of the Fine Arts. A general discussion took place on the advisability of studying and revising the building laws of the entire State of Pennsylvania to conform to all modern conditions of construction and materials used. It was pointed out that in many of the cities of the state, particularly those of the second and third classes, the laws under which buildings are erected are not only inadequate, but antiquated. The creation of a committee to go over the matter and bring it before the attention of the next session of the legislature with a view to having a commission appointed to revise and codify the building laws of the State was authorized. Amongst other matters discussed, but upon which no definite action was taken, was the registration and licensing of architects. The

matter of the appointment of an art jury for the city of Philadelphia as authorized by act of legislature, was also taken up and referred to a committee.

EVENING COURSES IN ARCHITECTURE

The students of the Evening Courses in Architecture at Columbia University have banded themselves together for the purpose of extending the scope of their work. To further their purpose they have secured the interest of Mr. Louis E. Jallade, who has consented to give them the benefit of his instruction. The atelier is located at 218 East 42d Street in New York, where the work will consist chiefly in the solution of the problems published by the American Society of Beaux Arts Architects. The efforts of this society are to be highly commended for what it has for some years been doing to afford a measure of training to those draughtsmen who are unable, for one reason or another, to take advantage of a regular university course in architecture.

PRIZE DESIGNS FOR AN EXHIBITION

In the competition for laying out the site of the Housing Exhibition in Swansea, England, more than eighty plans were submitted. The gold medal was awarded to James Crossland, an architect, of Broughton-in-Furness. The silver medal went to Gilbert Waterhouse, an architect, of Buckhurst Hill, Essex. This, the judge declares, was because of the exceptional architectural merit of his design, for some of his side roads did not fully accord in width with the by-laws, and he provided too small a frontage for the cottages. The third prize was given to W. John Aldiss, an architect, of Newbridge, Monmouth. With regard to the premiated design, the judges commend "the consideration it displays for the contours of the site, the economical arrangement of roads, the treatment of the aspect, the possibilities of picturesque treatment in town planning, and the general practicability of the design for the purpose of the cottage exhibition."

**PORTLAND
ARCHITECTURAL CLUB
EXHIBITION**

April 10. The exhibition is to be made the occasion for entertaining and bringing together delegates from the coast towns with a view to forming a Pacific Coast League of Architecture to be affiliated either with the Architectural League of America or the American Institute of Architects.

**ARTISTIC
HOMES
FOR
GERMAN
WORKERS**

The German Art Workshops of Dresden, is given by the chairman of the association in a recent number of the English Garden City Magazine. The site includes an area of one and a quarter million square yards. "If we reckon on an average of 700 square yards for a house with a single family, together with the street frontage and garden appertaining to it, then it would be possible to erect some 2,000 houses for about 8,000 inhabitants. Hills, dales, meadows, fields and woods provide the architect with the best basis for the artistic modeling of the new settlement." While the shops have adopted the policy of leaving to the associated workmen themselves the construction of the houses, they yet exert great influence on the artistic aspects of the enterprise. "The sketches," says the writer, "for the general building plan, for the factories and first dwelling houses, have been carried out by R. Riemerschmid. The streets conform to the lie of the hills in delicate curves, and present to the architects who will be building here the best opportunity for making charming city pictures. Near the workshops stretches out the quarter occupied by small dwellings, in which the houses belonging to single families are united in groups and rows." Further out, extensive quarters for country houses are provided. "Here for the first time," he says, "an artistic and social community ought to arise, in which the beauty and fitness of the individual houses contribute to a complete unity. In order that the colony may present a united whole, every design must receive the approval of a

The second annual exhibition of the Portland Architectural Club opened in the galleries of the Museum of Fine Arts in Portland, Oregon, on March 22, and is to continue until

In Germany, as well as in America, the English example has been followed by the forming of a Garden City Association. An account of Helleran, near Dresden, supported by

committee of artists before it is carried out." It is remarked by the writer that "the inhabitants of this Garden City, which is to carry out such lofty artistic aims, will be for the most part art-workers." And the artistic culture of the community is to be helped in other ways. The workshops propose to remove to Helleran the educational institutions which they have established in Dresden, and there has been planned a very elaborate course of musical instruction. There are, too, proposed baths, places for games and sports, and a town hall with library, reading and assembly rooms and a restaurant. "Since the company is possessed of excellent organizing powers and the necessary money," says the chairman, "one is justified in cherishing great hopes for the enterprise."

**CITY PLAN
COMMISSION
OF
HARTFORD**

The first annual report of the commission on the City Plan of Hartford, Conn., is a little of a disappointment. Perhaps this is due to unreasonable expectations, and the commission may have been wise in going slowly at first. The commission, it will be remembered, is local, is largely ex-officio in its constitution, and is a unique municipal experiment. It has exceedingly broad powers; but in its first year it did nothing in a really comprehensive way for the city plan of Hartford. Yet a good many questions were brought before it, and if nothing very spectacular was accomplished there still was proof of the value of such a board in the municipal government. The report notes a trip to "Upper New York" to study the general layout of the streets; it notes action with reference to an addition to the park system, with regard to the acceptance of certain streets; the consideration of a proposed illuminated sign ordinance, action with regard to curbing on the boulevard, the preparation of an ordinance regulating the planning of subdivisions, consideration of street extensions, public baths, and the formulation of a request for a Technical High School Commission, to be appointed by the mayor. Surely all of these matters were of a character which it was well to have considered by an expert board, which had before it not the local aspects only of the question, but its relation to the city at large. But it seems a pity that such a board should not have had prepared for it a general scheme, authoritatively worked out, of municipal development for Hartford, that should be its chart and compass in coming to decisions.

**PITTSBURGH
STUDIES
IMPROVEMENT**

As one of the direct results of the recent and widely discussed Pittsburgh Survey, there was promised to Pittsburgh in November a Civil Improvement Commission, and late in January Mayor Guthrie announced his appointments. In some respects the commission is unique. It consists of fifteen members, all local men, each of whom is to act as chairman of a sub-committee which is to take up in detail a special subject. At the same time the commission as a whole would maintain, it was stated, a central office, which would be the headquarters for information on all civic matters and a focus for the various agencies already engaged in civic work. H. D. W. English, a man who made a notable record of achievement as president of the Chamber of Commerce, is chairman of the commission. Mayor Guthrie, in addressing the members of the commission the first time they were called together, stated in these words his conception of the work before them. "The commission," said he, "should acquire accurate information in regard to existing needs, and work out a sane and constructive program for relief." He added the comment. "Too often improvements are delayed and unnecessary expenditures made, because work is done which produces no practical relief and sometimes has to be undone before beneficial work which should have been foreseen and planned for can be done." The membership of the commission is representative in the highest degree of Pittsburgh enterprise. T. E. Billquist, of Billquist & Lee, is the only architect appointed.

**ARCHITECTURE
FOR
BOSTON
COMMON**

The Listener of the Boston "Transcript" has lately been speaking of the Common as "the superb Court of Honor" to the Back Bay and parks. He probably meant forecourt, but chose the other term as one which newspaper readers would be more likely to understand. At all events they did understand it, in several cases their imagination was fired, and there appeared a number of suggestions and letters regarding the Common's development, that it might serve more directly and obviously the function described. One idea was that there should be erected, near the Boylston-Tremont Street corner, as a balance to the Park Street church and

spire, a sort of Tour St. Jacques. Another, which comes also from an architect, was that if the Boston custom house were ever demolished, a possibility to be at least considered the writer thought, since congress has been contemplating for some years various phases of such a proposition, it would be well to re-erect the porticos of the demolished structure at the two main entrances to the Common. These columned porticos are nearly seventy feet high and are detached from the main body of the building. The Listener says: "More elegant ornamental entrances to the two main avenues of the Common could not be thought of. To be sure there might, perhaps, have to be some little changes made in the paths to adapt them to meeting all of the five spaces between the columns. If these grand old monoliths—the wonder of their day, half a century ago—are taken down, what possible use could be more fitting for them? It would give them something of a public character of their own, a new lease of life of public importance, far more so than if used as portions of any other new building." Incidentally, they would lend to "the Athens of America" a yet more Athenian, and very fine, character. These were the monoliths, by the way, that were drawn from Quincy by forty yoke of oxen, with all the country side along the road to watch their passage, and wonder at the greatness of the city. It would be like Boston, if the entrance suggestion were ever carried out, to add to the interest of the porticos by recording this on tablets.

**REPORT
ON
COMFORT
STATIONS**

The Civic League of St. Louis has issued an illustrated pamphlet report on public comfort stations. The League's publications are usually good, and this is not an exception. It contains the results of an extensive study by the Street Improvement Committee, and it is addressed to the city Board of Public Improvements. In making its study the committee did more than investigate the local aspects of the question. It collected all of the available information from other cities, secured the opinion of more than 200 medical men in St. Louis, arranged a competition among the members of the Architectural Club for the best design for a station, and selected the most desirable sites for the first six stations in St. Louis. It reports "a very general movement in American municipalities to provide these much needed public conveniences;" and it pertinently notes that "Bae-

decker's Guide formerly started its first sentence descriptive of the cities of the United States, by the statement that there were no public stations for the comfort of the active thousands within their limits." Even a late edition, says the committee, describes the stations that now exist in New York and other large cities as "disgracefully inadequate in number, size and equipment." But there is improvement. Manhattan, New York, is given in the Report as having nine; Boston, twelve; Brooklyn six; Washington, two, with a third about to be started; Baltimore, Cincinnati, Cleveland, Detroit, Chicago, Seattle and Cambridge, Worcester, and Holyoke as all having made a start with at least one completed station each to their credit. The stations in Washington and Manhattan are reported to have cost on an average \$25,000 each, those in Brooklyn from \$14,000 to \$25,000, and others less. The estimates for the St. Louis stations are from \$15,000 to \$18,000. In the competition of the Architectural Club there were seven entries, and three of the designs are published; but the committee says all were good.

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**COMPETITION
FOR
AUTOMOBILE
TROPHY**

Mr. Robert Guggenheim has offered a trophy valued at \$2,000 to the winner of the automobile race from New York City to the Alaska-Yukon-Pacific Exposition in Seattle, Washington, which opens on June 1. That the trophy may be the finest possible product of the silversmith's art, Mr. Guggenheim offers a prize of \$250 for the best design submitted, to compete for which he accordingly extends to artists and designers generally an unrestricted invitation. All designs are to be submitted to Welford Beaton, care of the Alaska-Yukon-Pacific Exposition, Seattle. They must be in his hands by March 31, and should be accompanied by return postage. The designs submitted will be passed upon by a committee, which will be appointed by the President of the Exposition Corporation. The committee will award the prize and assure the return of

such designs as are accompanied by the necessary postage.

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**AMERICAN
COMPETITIONS**

The Tee-Square Club of Philadelphia announces the publication of the second volume of its collection of competitive drawings comprising the most important competitions of the past year with their programs of requirements. The editor of the work, Mr. Adin Benedict Lacey, an architect of Philadelphia, very pertinently suggests that the value of the collection would be enhanced by the addition of the reports of the judge or judges of award, setting forth the precise reasons for the awards as made. There can be no doubt that architects generally would greatly welcome such an announcement which must increase the satisfaction of the competitors with the decisions and ensure the utmost care in the preparation of programs.

It might further be suggested that the publication of the more important working drawings and the completed building, if possible, would add greatly to the value of work to the profession.

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**NEW
PROBLEMS
FOR THE
AMERICAN
ARCHITECT**

As though the practice of the successful American architect were not already sufficiently varied, and complicated, new problems, not alone those which are incidental to our rapid commercial progress, but problems growing out of our recent territorial acquisition are making increased demands on his versatility and ingenuity. With the permanent occupation of our colonies there is bound to be considerable substantial building in which the American architect will be compelled to use new materials in new ways to satisfy new conditions and requirements. The new Porto Rican capitol, drawings of which are published in this issue, will illustrate some interesting facts with which the designer had to be personally acquainted, and by which he had to govern his design.

THE ARCHITECTURAL RECORD

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The Advent of the Fireproofed Dwelling

The most gratifying and prominent development in American building and architecture of the last few years has unquestionably been the increasing interest in fireproof construction and the increasing use of the best fireproof materials. For the first time in the history of the country some popular interest has been aroused in the substantial and incombustible construction of buildings. A certain number of people are beginning to prefer a well-made and non-inflammable house to one which is ill made and at the mercy of every occasional fire; and they are ready to pay the increased money which the more substantial and permanent house costs. They are coming to have a conscience about the substance of their dwellings; and if this more conscientious state of mind persists, it will have most beneficial results upon American architecture and upon the American building material trade. It will give the good architect, the good structural engineer, and the purveyor of good building materials an opportunity such as they have never had in the past, and one which will be far more remunerative both in money and in reputation.

A change in economic conditions has, of course, been instrumental in bringing about this increasing interest in fireproof construction. Americans have become habituated to inferior methods of construction and inferior materials, because such methods of construction and materials were for the time being profitable. Lumber was cheap and was easily obtained. The difference in cost between a frame building and one of substantial masonry was so considerable that very few people could afford the better class

of construction. Even those who could afford it were not without good reasons for preferring a wooden house. The time had not come for investing large sums of money in permanent buildings. The country was new. Its social and economic conditions were fluid. The ordinary business man did not want to tie up his capital in structures whose permanence seemed to promise more advantage to his descendants than to himself. It was really cheaper to erect cheap temporary buildings, which would serve his immediate purposes and which could be replaced whenever such replacement became economically desirable. Americans were forced by the pressure of constantly changing conditions to make their arrangements very much for the present and very little for the future. They never knew what a few years might bring by way of a change in economic and social conditions, and they had no assurance that their children would care to carry on their business or to live in their houses. The future, consequently, must be left to take care of itself. A temporary house would outlast its builder—unless it was burnt down; and in that case there were always the insurance companies. Of course, the insurance bills and the fire losses were enormous in the aggregate; but it was cheaper to pay them rather than to spend money upon permanent structures, which, in the course of a few years, would be likely to lose their economic value and their æsthetic interest.

The general attitude of mind towards building sketched above was, of course, the inevitable result of the economic conditions of a new and rapid growing

community. In the beginning its influence was just as dominant in the case of all classes of building undertaken for business purposes as it was for private residences. The earlier American railroad, factory and office building was of the most inferior construction, and such was necessarily the case, because the inferior instrument was in the experimental and fluctuating condition of American industry, the economical instrument. But American industry soon passed beyond the stage of cheap and inferior construction. The railroads soon found it necessary to build for the future as well as for the present—to put up permanent bridges, larger and handsomer stations, and more substantial roadbeds. Manufacturers discovered that as they enlarged their output they must necessarily improve their factories and erect less inflammable buildings. In the more populous cities, skyscrapers began to be constructed both as offices and warehouses; and it was sheer folly for a man to invest hundreds of thousands of dollars in an inflammable skyscraper. In all these, and in many similar directions, economic conditions have forced the business man to build or rebuild in the most substantial manner. An immense amount of work still remains to be done in replacing the inferior business structures of the last generation, but there need be no apprehension about the result. The substantial fireproof building is becoming for the American business man the economical form of construction; and in obedience to this economic necessity, American engineers have devised many important improvements in the methods and materials entering into fireproof construction.

The methods of constructing domestic buildings have, however, improved very much more slowly than the methods of constructing business buildings of all kinds. The fireproof residence still remains a very rare architectural product. A certain number of them have been erected in New York and other large cities, chiefly because their owners possessed a great deal of rare furniture, tapestries, pictures and the like, which had to be protected from fire consump-

tion. In some few cases, also fireproof country houses have been erected for rich men. But such cases are much less numerous than one would have supposed. The number of opulent Americans who can abundantly afford a substantial and permanent residence, but who, none the less, have been content with a frame, a brick veneer, or some other inferior kind of house is extraordinarily large. Their preference for inferior methods of construction was due partly to bad habits and partly to the fact that until recently an inflammable building was really very much cheaper than a thoroughly fireproofed building. At bottom, however, the trouble was that Americans really did not care. They had no conscience about the character of the house in which they lived. They did not attach any value to the possession and occupation of a permanent and substantial building which was sufficient to make them willingly pay for its increased cost. The consequence is that the great majority even of the very handsome dwellings erected during the past fifteen years have not only not been thoroughly fireproofed, but have not even been of slow-burning construction; and, of course, practically all the cheaper urban structures and country houses have been fire-traps of one kind or another.

During the last few years, however, a change has been undoubtedly taking place for the better, and this change has been due, primarily, to the fact that, while methods of fireproofed construction have been becoming cheaper and better, the ordinary wooden-framed structure has been becoming more expensive. The economic gap between the cost of a permanent and an impermanent building has been closing up. Lumber of all kinds has grown constantly more costly, and its higher price has been due not to temporary, but to permanent conditions. The country has consumed the better part of its vast stock of standing timber and must be content hereafter with a smaller supply. The era of cheap lumber is over. It may well be that the United States will always have cheaper lumber than the countries of western

Europe; but it will never again be so very cheap as to place a high premium on inferior methods of construction. At the same time, for reasons which will presently appear, it has become possible to erect fireproofed buildings for a smaller cost than formerly. Of course, a wooden house still remains the type of building, whose initial expense is least burdensome; but in certain cases a man could figure that a fireproofed building might be actually cheaper in the end. He could figure that in the course of a decade he would save enough in the cost of insurance, in the cost of repairs, and in the absence of deterioration more than to compensate him for the larger initial expense. The consequence was that of late years a number of small fireproofed dwellings have been erected, costing from five to fifteen thousand dollars; and this number is constantly increasing. In another part of this number the reader will find a full account of these dwellings, together with details both of their method of construction and of their actual cost.

The diminished expense of certain excellent and comparatively novel fireproofing materials and methods of fireproof construction has been due to an interesting and significant cause. The enormous demand during periods of business prosperity and expansion has resulted in the building of vast plants for the manufacture of the different kinds of fireproofing materials—in particular such materials as hollow tile and cement. These plants are employed to the limit of their productivity as long as business is active; but during a period of inactivity their owners are in very much the same situation as the owners of a steel-rail plant. They find it very hard, under such circumstances, to keep their machinery working; and they have naturally been seeking some source of consumption which might prove to be more permanent. The only possible source of a more continuous demand is that which might be developed among the builders of residences. Of course, the number of dwellings erected in a prosperous period is larger than the number erected during a period of busi-

ness depression; but the population of the country increases steadily, and the variations in the demand for the materials entering into residence construction are slighter than those entering into the construction of large business buildings. The tile and cement manufacturers have, consequently, been willing to make sacrifices and to spend money in order to increase the use of fireproofing materials in domestic building; and their efforts have been attended with a certain measure of success. All over the country hollow-tile and cement houses are being erected in larger numbers than ever before, and the movement has only begun. There can be no doubt that the small, as well as the large, fireproofed dwelling is destined to become a common type of building.

It should be remarked, however, that the employment of these materials is still only in an experimental stage. Builders, architects and mechanics will have to learn slowly how they can be used most safely and most economically.

Up to the present time, reinforced concrete has been more widely advertised as the coming fireproofed method of construction; and in certain essential respects the cement building promises to be the most perfect fireproof structure. But there are many problems about reinforced concrete construction which may have been solved, but whose solution is at present beyond the power of the average architect and builder. This type of construction remains one which for the present demands the presence on the job of a skilled engineer; and in many instances the price of a small house cannot bear the expense of such expert assistance. It is this fact which has contributed to the recent popularity of hollow-tiled houses. Hollow tile was, of course, manufactured originally for the purpose of affording a protection for the steel framework of a modern skyscraper, and only recently has any attempt been made to use it in the construction of an ordinary wall. It has the advantage, for such a purpose, of being easily and economically laid and of affording a rough surface, to which plaster will adhere without the assist-

ance of any lathing. On the other hand, it is not like cement, a material which can be used for all kinds of purposes. The larger the house, and the more elaborate its architecture, the more cement beams and piers have to be inserted as a supplement to the hollow-tiled wall; and even in small houses hollow-tile construction involves the help of a good deal of cement. It remains true, none the less, that the use of tile for the walls and to a smaller extent for the floors of dwellings, has been an immense advantage to the cause of fireproof construction. It has made possible the partial, or complete, fireproofing of many residences which for one reason or another could not have been built of concrete. It involves a simple but sound method of construction, which can easily be mastered by the ordinary builder; and while it demands a higher and more careful standard of workmanship than a frame house, it does not call for the same sort of expert knowledge as does thoroughly good cement construction. It has undoubtedly come to stay as one method of fireproofing the ordinary building; and in the course of time the method of construction it involves will become still further diversified, simplified and cheapened.

As to the several kinds of reinforced-concrete construction, they probably have a greater future than has any other method of building fireproofed residences. It may be doubted whether Mr. Thomas A. Edison has as yet really perfected a practical method of building little concrete residential boxes, which can be duplicated *ad infinitum* at a small cost for the American workingman; but it is very probable that eventually some plan similar to that of Mr. Edison's will be realized. A few generations from now the majority of American urban and suburban residents may well be living in concrete houses of one kind or another—without any fear of fire or of vermin, and without paying for these substantial living accommodations any more than they are now paying for their more or less flimsy dwellings. Concrete buildings have the peculiar advantage, for general popular use, of being capa-

ble of standardization. An indefinite number of concrete houses can be manufactured from the same mould, and such methods of manufacture are always attended with great economy. At the same time, it has the promise of being a very flexible material and method of construction—flexible, that is, in the sense of being adapted to use in a great variety of moulds. Its chief defect is the result, perhaps, of the highest quality. It is, if anything, too permanent. The owner of a concrete house cannot knock out partitions and put in new doors and windows wherever and whenever he pleases. He is possessed of a very substantial structure; and it behooves him to take every care that his house is as near right as possible when it is built.

The foregoing consideration suggests the great advantage which will result to American architecture and building from the advent of the fireproofed dwelling. The fact that people are building permanent houses will increase the sense of responsibility all along the line. The owner will feel more responsible, because he will be making a larger initial investment in his dwelling, and he will, consequently, be more careful to employ a good architect and to insist on good workmanship. The architect will feel the effect of this solicitude on the part of his client. He will try harder to turn out a thoroughly satisfactory plan and design; and if he does not succeed in doing so he will have small chance of considerable employment. His mistakes will find him out much sooner than do those which he commits in some easily alterable frame house. Similar influences will be brought to bear upon the builder and the building material dealer. The dealer will have to furnish thoroughly good materials, because the method of construction demands them; and inferior materials will, consequently, suffer from a far more effective discrimination than that which now obtains. In the same way, untrustworthy builders will be treated with small consideration. Inferior workmanship is much more likely to be discovered than it is in the case of a frame house; and when it is discovered the consequences will be so

serious that the offender will be black-listed. This discrimination against bad workmanship of all kinds will, of course, be tantamount to a discrimination in favor of good workmanship—which is practically the kind of discrimination of which American building and architecture is most in need. The general employment of inferior building materials and inferior methods of construction has been the great fundamental cause of the demoralization of American building practice. Inferior materials and methods have encouraged irresponsibility. Take, for instance, the situation of a man who proposes to erect for his own occupancy a comparatively expensive frame dwelling. If he were spending \$40,000 or \$50,000 in any other way his dominant preoccupation would be to see that he received good value for his money; and, of course, even in the case of a frame dwelling, he wants good value in the sense that the house must conform to the best recognized methods of frame construction. But the point is that the best value which an owner can get in respect to a frame house, even with brick or plaster veneer, is a poor value. He has no reason to take any particular interest in the construction of such a building; and inasmuch as he naturally feels a great deal of interest in a project upon which he is spending \$50,000, his interest is concentrated upon the plan and the design. It is perfectly right and proper that he should be interested in the plan and design of his house, but in the case of a frame house his exclusive interest in these matters is usually embarrassing to his architect. It usually takes the form of attaching great importance to some details of the plan or some one or two features of the design; and his tendency is to insist upon the subordination of the unity of the plan or the design or both to the details upon which he has happened to fasten his interest. In fighting this tendency, the architect cannot derive any assistance from the method whereby the building is constructed. A frame building is one in which the structure imposes very few conditions on the architect or owner. It does not prevent,

by the necessity of its existence, either the owner or the other from indulging in any arbitrary whim or fancy. Both the design and the plan occupy only a very casual relation to the structure, and in opposing any whimsical mutilation of his plan or design the architect has only the weapons of his own personal authority with his client. In case, however, the house he is building is fireproofed, the owner is much less likely to interfere. In that case, according to the testimony of many architects, he usually becomes interested in the construction of his house and in the excellence of the workmanship; and whenever he does have any inclination to merely whimsical interference with the design or the plan, the architect can usually find some good reason connected with the structure of the building for his own arrangements.

More important, however, than the increased sense of responsibility imposed by fireproofed construction on the client will be the increased responsibility imposed upon the architect himself. Our domestic architecture was wont to be lacking in serious purpose as long as inferior methods of construction continued to prevail. The frame building has been in the past the most potent possible cause of architectural frivolity. The American house builder and house designer have never taken the wooden structure seriously—as it has been taken seriously by the Japanese and the Swiss. Their tastes have run in the direction of duplicating on American soil the various classic domestic styles of Italy, France and England; and they have satisfied this taste regardless of the fact that they were erecting frame rather than masonry structures. They have been sedulously trying to make wooden or frame buildings look like something else; and this attempt has been at the root of the great majority of the abuses and deficiencies of American architectural practice. It has encouraged the habit of treating architectural houses chiefly as a matter of scenery, of designing both the interior and exterior of a building exclusively from the point of view of how it looked, and without regard to struc-

tural conditions and truths. The architect considered himself emancipated from any necessity of treating either the structure or the material of a house sincerely and candidly; and his freedom in this respect was a fatal bar to the development of a really serious and sound architectural tradition.

The habit of American architects of designing residences with small respect for structural and material truths has had its good aspect. It has unquestionably tended to establish a certain tradition of good form in American domestic architecture, which may in the future be productive of wholly admirable results. The better European styles have been thoroughly domesticated and popularized in this country; and a foundation has been laid of popular interest among well-to-do people in good-looking buildings, which, perhaps, could not have been established in any other way. But in the hands of inferior designers the practice has been very demoralizing, and even at the best it has had its inevitable tendency to frivolity and insincerity. It has resulted in an excessive use of ornament and of useless ornamental architectural members. It has enabled the designer to complicate and elaborate the appearance of his building, wholly irrespective of the facts of its construction; and it has, consequently, stood in the way of any thoroughgoing simplicity and integrity of architectural design. The advent of sound methods of fireproof construction will necessarily discourage the merely scenic architect. He will be confronted, as the fundamental condition of his design, by a permanent structure which cannot be wholly ignored. This structure will be relatively costly, and will absorb a larger proportion of the total appropriation. The architect will have less money to spend upon ornament;

and the increased expense of working substantial materials will also prevent him from decorative overelaboration. He will be obliged to simplify and to devise some more substantial means of obtaining interesting effects. He will be stimulated, that is, to design buildings whose appearance will be the outcome of certain fundamental structural facts, while at the same time his success as an architect will depend upon his ability to make these structural facts pleasing to the eye. The American houseowner has become, as we have said, accustomed to a certain tradition of good form and the introduction of fireproof construction will not in this respect change his habits. It will be the duty of the architect to make these comparatively more unornamented fireproofed houses attractive to their clients; and in so far as they succeed, American domestic architecture will take a long step in advance.

It is devoutly to be hoped, consequently that the newer and cheaper methods of fireproofed construction will continue to increase in popularity. The substantially and permanently built residence is the one thing which is needed to stimulate American architects and builders to a much higher standard of achievement, and when it comes to prevail it will necessarily discriminate powerfully on behalf of the trustworthy architect, builder and building material manufacturer. It takes good men to do thoroughly good work, and the owner, when he comes to want good work, will see that he gets good men to perform it.

A reputation for excellence of achievement will, consequently, be much more valuable to the manufacturer, the builder or the architect than it is at present; and such a reputation can be acquired only by actually delivering the goods.

A. C. David.

Some Structural Aspects of the Fireproofed Dwelling.

Strictly speaking, the building of the home is not a real estate operation. If we are not willing to admit this, we have no business to speak of the home; we must call the structure merely a house, built to attract the favorable notice of the intending purchaser, without regard for the consideration of special needs and preferences. Of course, there is such a thing as a good average dwelling house, embodying the average taste and requirements of that class of individuals who may reasonably be expected to inhabit a given locality, but the consideration of that problem is for the realty promoter, whose concern it is to draw from an investment as large a return as possible in the shortest period of time. In this case there can be no question of special requirements for special needs. The subject concerns the *house buyer*, and not the *home builder*. What we have to say here is for the interest of the latter, who, in the nature of the case, embarks upon an enterprise from which he expects no return beyond the pleasurable sensation of being the possessor of a real home, and the enjoyment of a certain wholesome intellectual influence which its high standard of adaptability and permanency begets.

The building of a permanent home has in the past been beset with certain economic obstacles, which, as the leading article in this issue points out, are being slowly removed by the possibility of a wider use of incombustible building materials. It is only now beginning to be possible, financially, for the man of moderate means to build himself a permanent dwelling. The sort of structure which his means have permitted him to essay, up to within a comparatively few years ago, has been one whose effective life could, under favorable conditions, hardly exceed a generation. That was the frame house, which is destined to continue to play a large part in the cheaper

country suburban development, on account of its low first cost and profitable nature to the investor. The first question which the intending builder of a fireproof home would ask about the different forms of incombustible construction is undoubtedly how they compare in cost with the prevailing frame construction. Anticipating this query, let us admit in the beginning that, under the most favorable conditions, they are more expensive for the house costing, of good frame construction, from \$4,500 to thrice that sum, by from ten to fifteen per cent. in the larger structures, to from twenty to twenty-five per cent. in the smaller ones. For example, the little fireproof house in Caldwell, New Jersey, illustrated herewith, which cost \$4,500, complete, as it stands, that is, including the plumbing, heating and lighting, would cost approximately twenty per cent. less, or about \$3,600, if built of a fair grade of frame construction. For the accommodations which it provides it would, no doubt, be as easy for an intending speculator to make as much actual profit on the cheaper house. Therefore, from a speculative standpoint, it would be folly for him to invest the larger sum and realize a proportionally smaller return. But for the home builder, this same design, built of wood, would not be the same as built of incombustible materials. In the first place, the wooden house would pay a high rate of insurance, whereas the other would hardly need to be insured at all; the life of the frame house is from twenty-five to thirty years, and depreciates at the rate of from two to three per cent. a year, while the life of the latter is practically indefinite and involves very little or no repair bills, besides carrying among its advantages increased comfort in summer and smaller coal bills in winter. It is a matter of simple computation to figure out in what period of time

the cost of the two constructions would be equal, after which the saving and increased value would be entirely in favor of the fireproof house. As the size of the house increases from the modest dimensions of the Caldwell establishment to the eight or ten thousand dollar home, the saving in maintenance charges becomes greater with a correspondingly smaller increase in first cost, until there is reached a house which would cost,

struction not involving an exclusive or very extensive use of cast reinforced concrete. For such a type of fireproof building, it seems now to be generally conceded, the cost is prohibitive, save under most favorable circumstances, and for houses costing to build not less than from fifteen to eighteen thousand dollars. The reasons for equalization in first costs between fireproof and non-fireproof constructions in the larger



This illustration shows clearly the way in which hollow tile walls are built. The work in this case was done by an Italian mason under competent direction. The use of brick as a filling for forming the arches is noticeable. The concrete lintels may be seen over the second story windows, and the ends of the concrete floor beams, some of which are supported on these lintels. This house is fireproof up to the roof, which, as will be noted, is of the ordinary wood rafter construction.

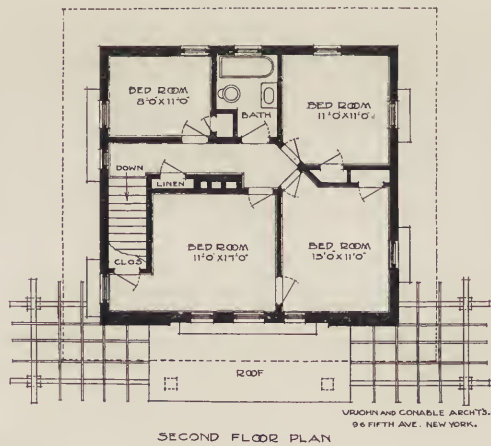
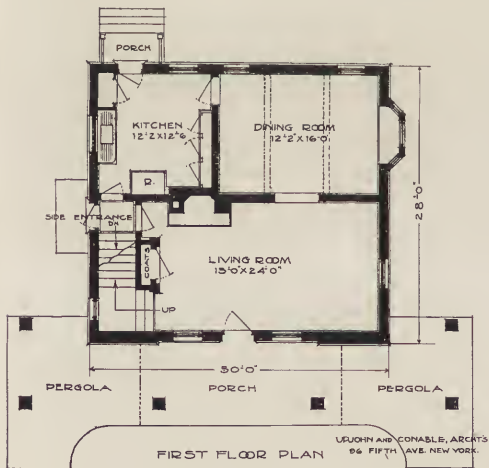
without lavish expenditure on interior embellishments, upwards of twenty thousand dollars, when there would be comparatively little difference in first cost between fireproof and non-fireproof construction.

These cost factors, it should be explained, apply only for a fireproof con-

struction not involving an exclusive or very extensive use of cast reinforced concrete. In the first place, as the dimensions of the plan increase, the structural advantages of fireproof materials only begin to come into play, while the materials employed in the small frame house become structurally inadequate and have to be assisted by stronger materials, meaning in-



An all-fireproof suburban house, which cost, including plumbing, heating and lighting, \$4,500. The walls are of 8-inch and 10-inch hollow tile, floor and roof of concrete slabs with widely spaced concrete girders. The finished floors of Georgia pine on sleepers constitute, besides the doors and window frames, all the combustible material used. Even the stairs are of concrete, the treads alone being of wood.



RESIDENCE OF MR. BURTON T. BUSH.

Caldwell, N. J.

Upjohn & Conable, Architects.

creased expense. Secondly, it is easier and, consequently, cheaper in the large house of fireproof construction to execute an elaborate scheme of interior decoration than it is in a house of the same size built of non-fireproof construction. Attention should be called to the fact that in the smaller houses in which the structural materials are hollow tile and concrete, or concrete alone, the carrying strength of the floors and walls, built as they are at the present time, is found, by actual experiment, to be considerably in excess of what is required for abundant safety. Popular faith in reinforced concrete construction has, during the past five years, been severely shaken by disasters resulting from an absence of competent structural design and conscientious workmanship. These failures have led even the most competent engineers and architects to design their constructions very conservatively, that is, with large factors of safety, to restore public confidence in the material and to guard against the pitfalls of past disasters.

The economic conditions which are making it possible and desirable to construct our country and suburban houses of unburnable materials are effecting a simplification in building construction which cannot fail to exert the most powerful influence on the popular appreciation of architecture. The simplified methods of putting together the different materials will interest the prospective builder, because they are simple enough to be appreciated by him. There will, consequently, result between him and his architect a bond of understanding which will enable the latter to approach the problems of design with a freer hand. The owner will be more in position to see for himself that, although the construction of his house is highly interesting, it lies outside of his legitimate province with questions of design and decorative treatment. To get him into such a frame of mind is one of the most important steps in raising the standard of American architecture.

It has steadily been impossible to reach this position in the past, chiefly because the designing of a frame house, or one in brick or stone is so full of mechanical

complexities and details that it has not been possible to get matters of construction clearly before the layman. Those things which are concealed in these constructions have steadily confused and disturbed him, and this is not to be wondered at when we consider how unreal is the spirit of modern construction in relation to its visible expression. Since he could not be interested in the construction of his house, the lay builder naturally turned his attention to matters of architectural design, which he wrongly assumed were so much simpler and whose acquaintance he imagined was to be so much more readily made. To have his attention directed to construction, and especially fireproof construction, its simple use of hollow tile and reinforced concrete cannot fail to be potent in convincing him of the true function of his architect.

The materials which enter fireproof construction are already fairly familiar to the layman. Hollow tile he has seen used so much in recent years as a floor material in fireproof city buildings and as a fire protection for the structural steel beams and columns, while concrete is equally well known in the same way. He may even have noticed entire buildings cast in concrete over a network of slender horizontal and vertical steel rods. In the suburban and country houses of hollow tile, of which a number are illustrated in these pages, these materials are used in a similar manner, but much more simply. Rows of hollow tile, with alternating beams of concrete, containing at the bottom one or sometimes two very slender steel rods (generally only one $\frac{3}{8}$ -inch, $\frac{1}{2}$ -inch or $\frac{5}{8}$ -inch rod in each beam is necessary), form the floors, while the hollow tile, laid, as shown in our illustration, in Portland cement, constitute the walls; thinner hollow tile blocks, similarly laid, serve as the interior dividing walls or partitions. Under ordinary conditions the floors and walls are built of the same size tiles, which are divided interiorly by intermediate integuments called webs, from $\frac{5}{8}$ -inch to 1-inch in thickness. These tiles are burned under a temperature of about 2,500°



RESIDENCE OF MR. FRANCIS C. HUNTINGTON, IN COURSE OF CONSTRUCTION.
Lawrence, Long Island. Ford, Stewart & Oliver, Architects.

A good example of the hollow tile house, with roof of the same fireproof construction. This form of construction, though expensive in first cost, makes about as fireproof and as comfortable a house to live in as we know how to build. The extensive use of concrete is to be noted, especially in the detail of the roof construction here shown.

Fahrenheit; those most commonly used in walls are about 8 inches deep, 12 inches wide and 12 inches high, and, on experimental tests, have been found to possess a crushing strength along their height of over 3,200 pounds to the square inch of material in the cross-section, which allows for a very generous factor of safety in the walls and floors where they are used. Walls and floors so built are accordingly 8 inches thick, in addition to the thickness, in the case of walls of half an inch of plaster for the inside and an inch or more of cement for outside protection from the weather. The floors are then plastered on the under side with about half an inch of plaster, as is the inside of the walls, and the upper side of the floor may be treated as preferred. Colored tile, laid in cement, may be used, a white or colored cement-finished floor alone may be adopted, or a wood floor may be laid on wood strips embedded in several inches of cinder concrete placed on the structural floor already described. The last method makes a good sound-proof construction.

So much for walls, floors and ceilings, but what about roofs? Are they built in the same way as the floors and of the same materials? They may be so built, but except in houses of more than average extent and cost, they may become very expensive if built of fireproof materials. The house of Mr. Francis C. Huntington, at Lawrence, Long Island, which is shown herewith in course of building, shows a fireproof tile roof with widely spaced concrete rafters. The detail of the roof construction at the bottom of the page shows clearly how the materials are put together, but it fails to reveal the hidden steel rods and the concrete filling in the courses of tile, the reinforcement which the spacing of the concrete rafters requires in order to give the construction rigidity. The difficulty of building such a roof and the extra steel and concrete required to unite its tile courses with its rafters is considerable, though, of course, practically indestructible when finished.

The cost of roof construction for the fireproof house is admittedly at present the stumbling-block in its progress.

There are two alternatives besides the solution just described. One of these consists in using a timber framework and covering the outside with a fireproof material, such as clay tile, or, in cheaper houses, with one of the composition tiles lately placed on the market. This form of roof, from a fireproofing standpoint, is only partially successful, as it does not preclude the possibility of destruction by a fire that might originate from a defective chimney at a point between the uppermost fireproof floor and the roof, or from other causes in the space enclosed by the roof and entails, moreover, roof repair bills from which the fireproof house desires to escape. Pitched roofs built in the same way as the concrete and tile floors already described are possible only in gable roofs where the concrete beams may rest on the inclined sides of the tile gable walls. It would be impracticable to employ this form in a roof of another design, a peaked roof, for example. In such a roof it would again be necessary to revert to the expensive and highly reinforced type with widely spaced and deep concrete rafters as in the Huntington house mentioned above, which, except in the larger houses, is prohibitive in cost. All the smaller tile houses which are illustrated in this issue, with one exception, have wooden roofs with a fireproof exterior covering and are consequently only partially successful as permanent structures. The exception is the little house in Caldwell, which has already been referred to. There we find the other alternative, the flat roof. This may be built in the same way as the tile and concrete floors, or entirely of a thin reinforced concrete slab with deep widely spaced reinforced concrete girders from which the ceiling of the uppermost floor is suspended, thus affording between girders a ventilating space for the sleeping rooms. The reinforced concrete slab form has been employed in the Caldwell house. A circulation of air is achieved through circular holes under the eaves, which may be faintly distinguished in the photograph. If the regular tile floor construction of alternating rows of tiles and reinforced concrete



The residence of Mr. A. L. Schaeffer, Engineer of the Public Service Commission, at University Heights, New York City, is here shown in two views, one taken before the application of the outside cement finish, the other after the work was entirely completed. This was the second hollow tile house to come under the jurisdiction of the New York Building Department. The side walls are of 8-inch and 10-inch hollow tile, with arches formed of common brick, floors of 8-inch hollow tile. The masonry was erected for less than \$3,000, and was not waterproofed, showing no dampness as a result. The costly interior woodwork makes a per cubic foot cost misleading, and is therefore omitted.

beams had been used instead of the solid concrete slab, it would have been necessary to carry the concrete beams below the bottom face of the tiles in order to obtain the airspace. Either form of flat roof fireproof construction is, of course, cheaper than the pitched roof types hereinbefore discussed and the flat reinforced concrete slab is the cheapest and most practical of all. Moreover, the flat roof built entirely of fire-proof materials seems the inevitable solution of the roof problem for the fireproof house. Being entirely weatherproof, if properly built, there can be no question of the need, in a northern climate, of a pitched surface to shed water and snow. Secondly, being of materials which are much more proof against extremes of temperature than a roof whose basis is wood, a small airspace with a free circulation of air is all that is necessary to protect the rooms under it from excessive temperature radiation. The flat roof also is much the easiest to build and requires, of course, less material than any form of pitched roof. There seems no practical reason, therefore, why fireproof houses in the future should not have flat roofs. True, there is no precedent in the history of architecture for the flat roof. There could be none because the conditions which are tending to produce it to-day have never before existed. Perhaps, if the reinforcing of concrete and the use of structural steel in connection with the flat arch had been sooner discovered, the fireproof country and suburban house with a flat roof would be an utterly commonplace type for us of the twentieth century. It is interesting to speculate what would have been the course of the Renaissance in architecture if these inventions had been made four or five centuries ago. The flat roof done brutally and *ad infinitum* in our suburbs would be the finishing touch to their already deplorable lack of comity. But in the hands of an artist there seems no reason why this feature should not be made architecturally interesting besides highly popular and useful. Useful it might be in summer as a cool and airy retreat, especially in localities where the

houses are close together and scantily provided with piazzas. As the fireproof roof is amply capable of bearing any ordinary live loads that might be brought to bear upon it, why not take advantage of it as an outdoor sleeping room and roof garden, as was proposed by the architect of the prize-winning design for a sanitary workingman's cottage of cast concrete, recently published in the magazines.

That the problem of roof construction and its architectural treatment for the house built entirely of fireproof materials is as yet in an undecided state, there can be no question. What the ultimate outcome will be it is still impossible to foretell with any degree of certainty. Attempts have recently been made to simplify the construction of all-concrete pitched roofs by casting the rafters in a horizontal position on the uppermost floor and when properly set hoisting them into position and in one operation casting the abutting ridge piece and the eaves below. The concrete slabs which fill the wide spaces between rafters have meanwhile been cast on the ground and are ready to be placed in position and properly cemented to the rafters and to each other. This method has thus far proved economical and entirely satisfactory structurally and practically.

Hollow tile construction cannot be entirely of tile as its name implies; it would be as impossible to build a house entirely of hollow tile as it would be to build it of newspapers. In the tile houses, concrete forms about a half of the material in the floors besides the door and window lintels. Hollow tile as used in this form, a collection of hollow prismatic blocks, is admirably adapted to resist a crushing stress, but not at all to withstand bending action as in bridging over an interval, a floor or a door or window opening. It is possible to employ in the floors and over openings a specially made flat-arched tile with skew-backs abutting the girders and rafters, as in the ordinary city fireproof floor construction. But this type of tile construction is prohibitive in cost, requiring a high grade of labor, and has

for that reason been simplified for the inexpensive country and suburban houses by the type of small reinforced concrete girders with their alternating courses of tile supported by adhesion to the concrete, as described above.

The future of hollow tile as a structural material in the dwelling house is largely dependent on the possibility of further simplifying its handling and thereby materially reducing the first cost of building, so as to enable successful competition against frame and other forms of non-fireproof construction. Experience thus far with hollow tile as a structural building material warrants the opinion that it has proved eminently successful wherever material and workmanship have been of good quality. Where either material or workmanship has not been of the best the results have been proportionately inferior.

Concrete as a material is not only admirably adapted to resist crushing, but when reinforced its steel sinews render it an equally good resistant to bending. It has recently been demonstrated, moreover, that it is entirely feasible to build a solid weatherproof wall of concrete, but concrete construction will continue to be out of the range of possibility as a popular building material for dwell-

ings, for the reason that a technical knowledge of construction and of the material is absolutely requisite to its successful employment.

The nature of fireproof construction applied to dwellings is such that its progress cannot be expected to be sudden and rapid. The advantages which it carries over the non-fireproof constructions are obtained only by exercising greater care in those matters of design and workmanship which can readily be and are slouched in country and suburban building. The fireproof house involves a greater degree of conscience on the part of all parties involved. It demands that the owner consider seriously the idea of building permanently at an increased first cost, though to an ultimate economy. It requires a higher grade of workmanship and absolute uniformity and integrity in the quality of the materials employed. Lastly, it requires the utmost thorough knowledge of materials and their structural application, besides the closest supervision during the progress of the work. It is only through the wholehearted co-operation of these factors that fireproofed construction for dwellings will play its destined part in the development of building and architecture in this country.

H. W. Frohne.



HOLLOW TILE HOUSE AT BABEL, CONN.

Squires & Wynkoop, Architects.



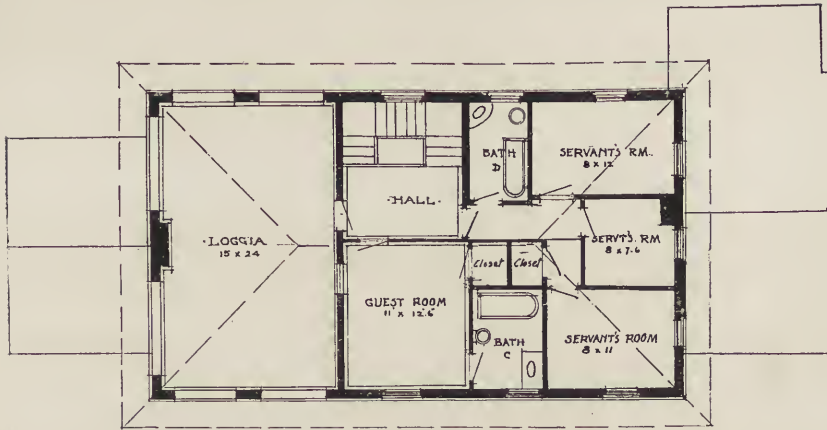
HOUSE NO. 1 AT CEDARHURST, LONG ISLAND.

Louis Boynton, Architect.

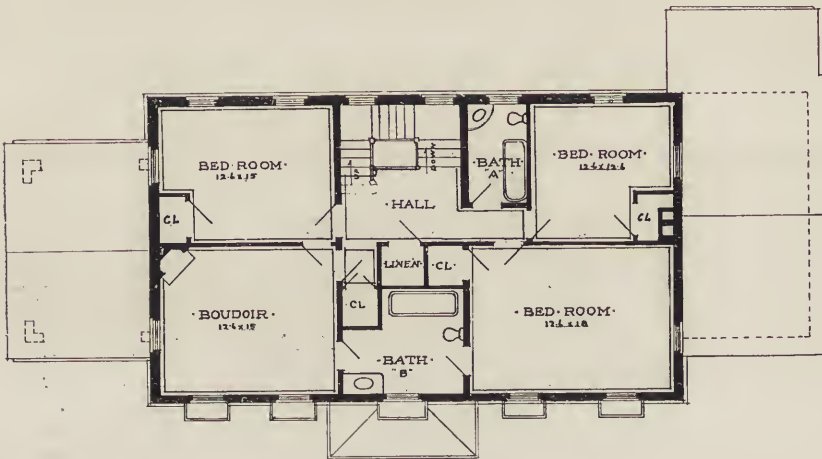
The three houses at Cedarhurst, Long Island, illustrated on this and succeeding pages, are of that class costing from \$10,000 to twice that sum. They are of semi-fireproof construction, the walls and first floors being of hollow terra cotta blocks with concrete beams. Exterior walls are finished with cement mortar. The roofs are of red Spanish tile on wood rafters. With substantial but simple interior finish their cost (about twenty-six cents per cubic foot) is little above what it would have been if frame construction had been used throughout. The structural work was done by contractors who were thoroughly reliable and familiar with the use of terra cotta blocks.

One of the most noticeable features in two of these three houses is the decoration which has been applied to the walls. The architect, after experimenting with various methods of applying color to a cement surface, finally hit upon the method which has resulted so successfully in the two houses above mentioned. The process consists in using earth colors, such as Siena, yellow ochre and Indian red, mixing them with a white cement as a medium and applying the mixture with brush and stencil. The application was made within ten days after the walls were finished and a severe test was encountered in the form of a driving rainstorm, about twelve hours after a part of the work had been executed. The result was entirely successful, the colors having set hard and firm in the cement.

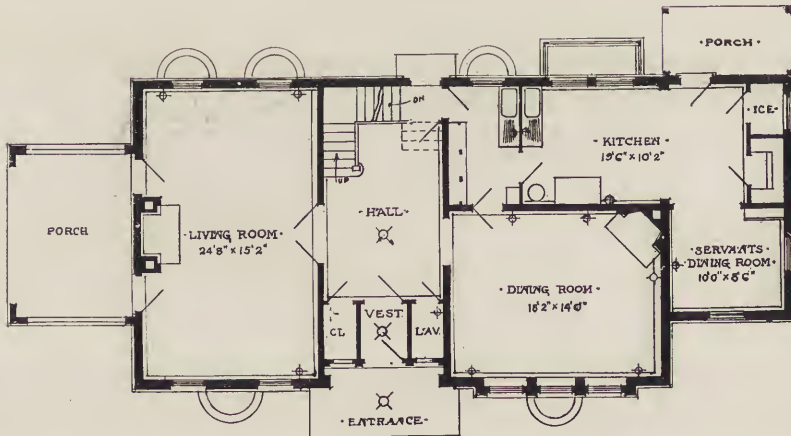
The work, which cost about \$200 for both jobs, was executed by a skilful interior decorator, and the effect is remarkably like that of old Italian fresco work. It may be faintly distinguished on the illustration above, over the second story windows and between those of the third story. The effect that has been obtained by this decoration is simply one of the numerous instances which prove that it is not the expensive house which possesses the qualities which we all admire. It is the house which is the product of intelligence and skill in using the means at command. No doubt, under uninstructed guidance many times two hundred dollars could have been spent in decorating these two houses without achieving anything but an absolutely redundant and repugnant effect.



Third Floor Plan.



Second Floor Plan.



First Floor Plan.

TILE HOUSE NO. 1 AT CEDARHURST, LONG ISLAND.

Louis Boynton, Architect.

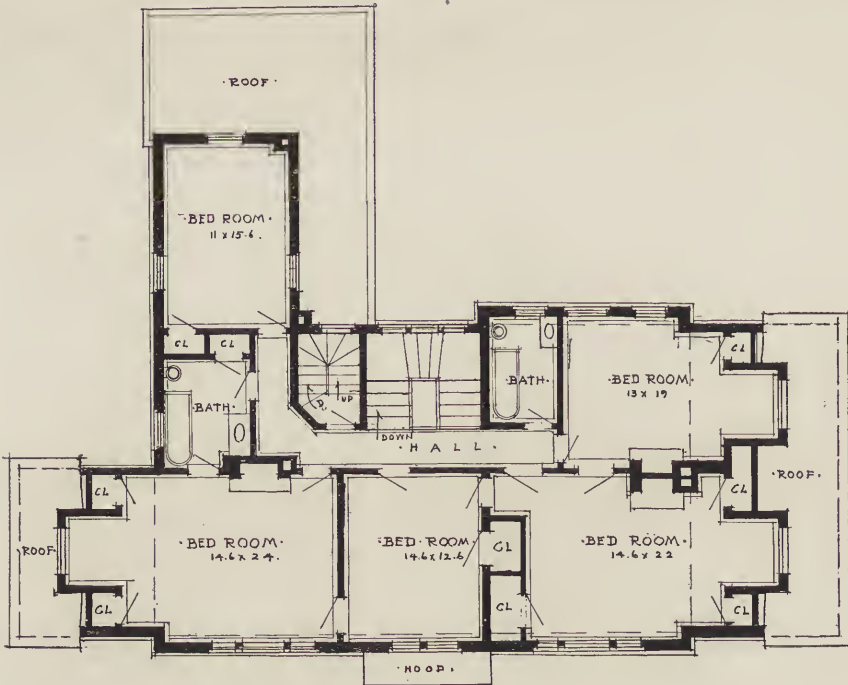
The novelty of this plan consists in the large amount of space in the third floor, which accommodates not only the servants but contains as well a guest room with bath and a spacious loggia or roof verandah, an ideal outdoor room in summer.



TILE HOUSE NO. 2 AT CEDARHURST, LONG ISLAND.

Louis Boynton, Architect.

This house has been included in our illustrations of fireproofed dwellings, not because it presents any particularly pertinent architectural rendering in incombustible materials, but rather for its generally charming aspect. In fact, its design is not well adapted for the methods of fireproof construction.



Second Floor Plan.



First Floor Plan.

TILE HOUSE NO. 2 AT CEDARHURST, LONG ISLAND.

Louis Boynton, Architect.



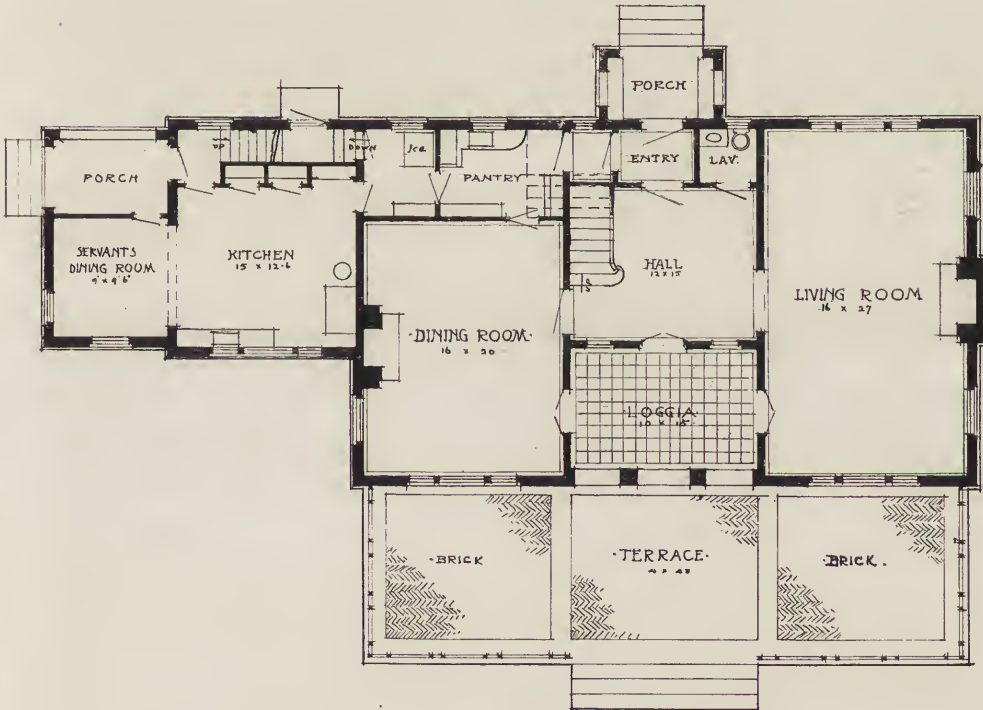
TILE HOUSE NO. 3 AT CEDARHURST, LONG ISLAND.

Note the simply decorated cement frieze under the eaves, more fully described on page 324.

Louis Boynton, Architect.



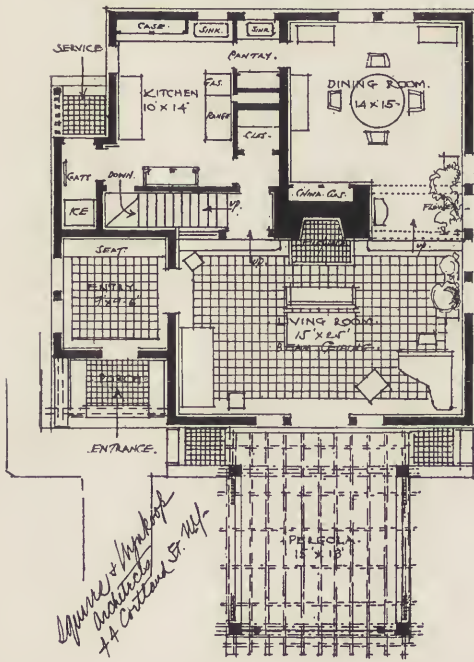
SECOND FLOOR PLAN



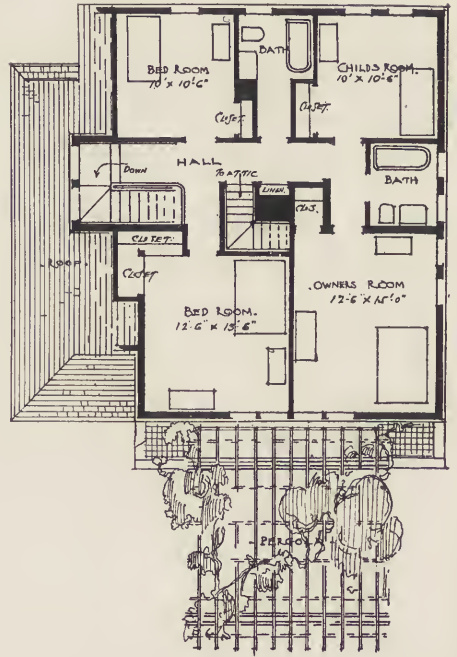
FIRST FLOOR PLAN

TILE HOUSE NO. 3 AT CEDARHURST, LONG ISLAND.

Louis Boynton, Architect.



- FIRST FLOOR PLAN -

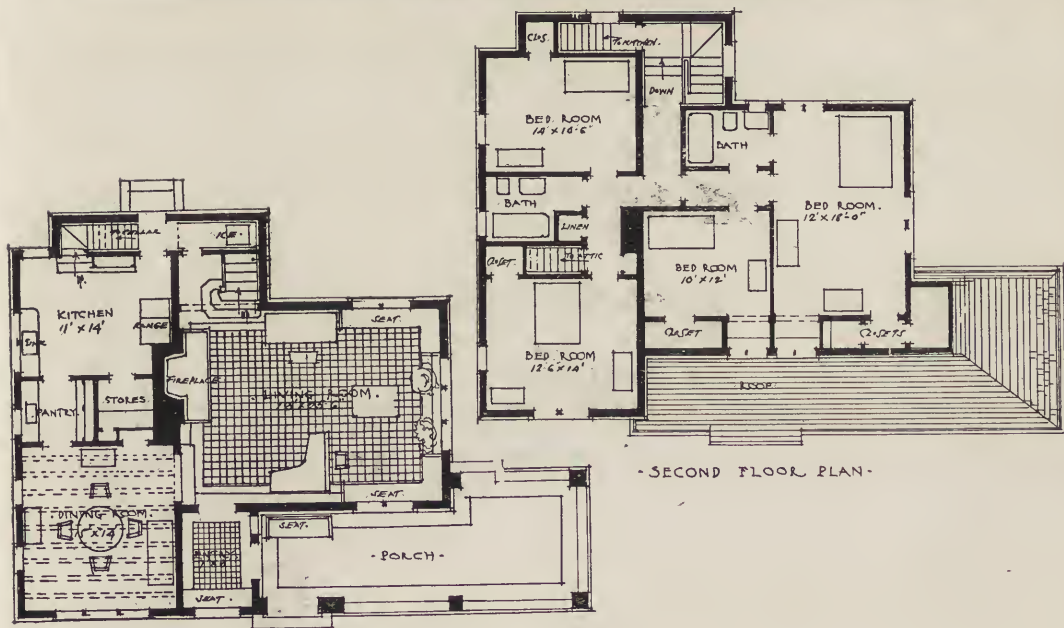


- SECOND FLOOR PLAN -

HOLLOW TILE HOUSE AT MOUNTAIN STATION, ORANGE, NEW JERSEY.

Squires & Wynkoop, Architects.

This house is one of the Fireproof Village, the largest group of this type of houses so far erected. The construction is of hollow tile for walls and floors, first floor finished in quarry tile, and frame roof covered with asbestos shingles. The cost, exclusive of plumbing, heating and lighting, is about twenty cents per cubic foot.



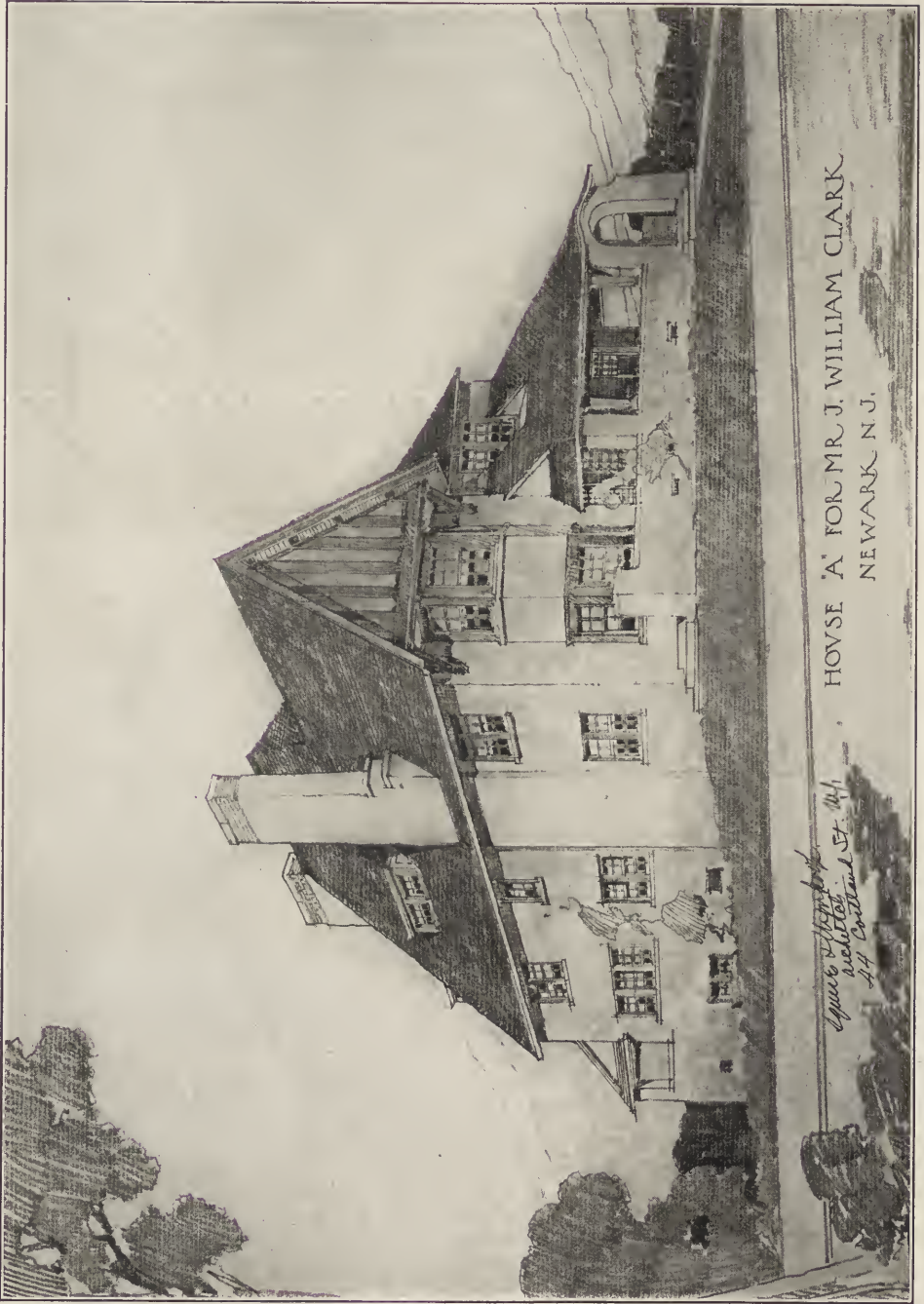
• FIRST FLOOR PLAN.

• SECOND FLOOR PLAN.

TILE HOUSE AT MOUNTAIN STATION, ORANGE, NEW JERSEY.

Squires & Wynkoop, Architects.

Another house from the Fireproof Village. The most notable feature of this house is its large living room (18 ft. by 25 ft.). The span of 18 ft. is here carried on the ordinary type of concrete beams 8 ins. deep and 4 ins. wide, with alternating courses of 8-in. hollow tile, showing the structural advantage of the materials. The cost of this house for the construction, that is, without plumbing, heating and lighting, is about twenty cents per cubic foot.

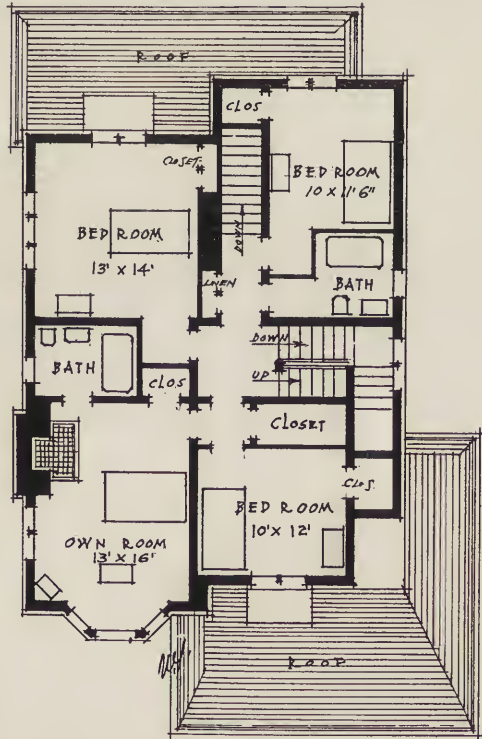
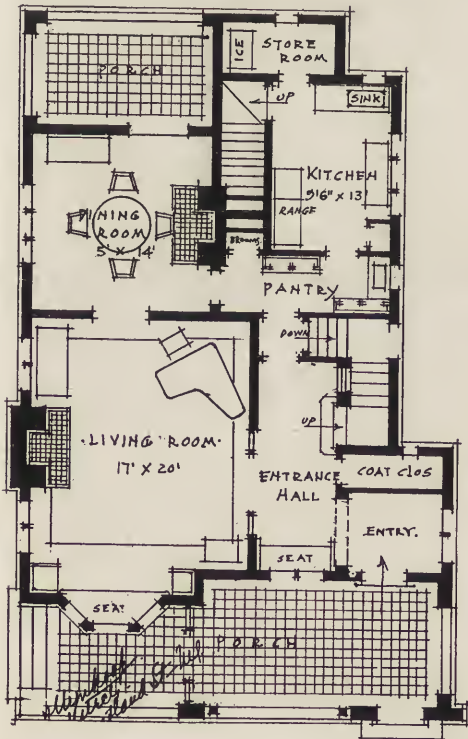


HOUSE 'A' FOR MR. J. WILLIAM CLARK
NEWARK N. J.

A GOOD EXAMPLE OF THE HOLLOW TILE HOUSE WITH ROOF AND ATTIC FLOOR OF WOOD.



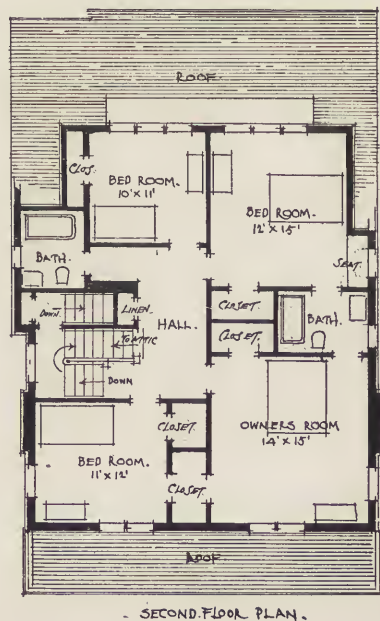
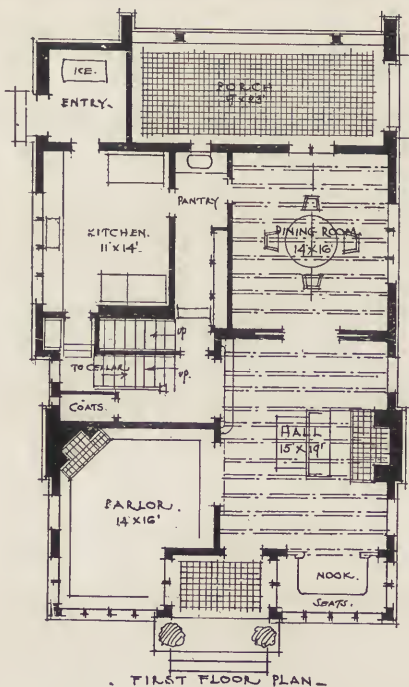
This house and the one on the opposite page are the beginnings of an extensive settlement of fireproof houses.



HOUSE FOR MR. J. WILLIAM CLARK.

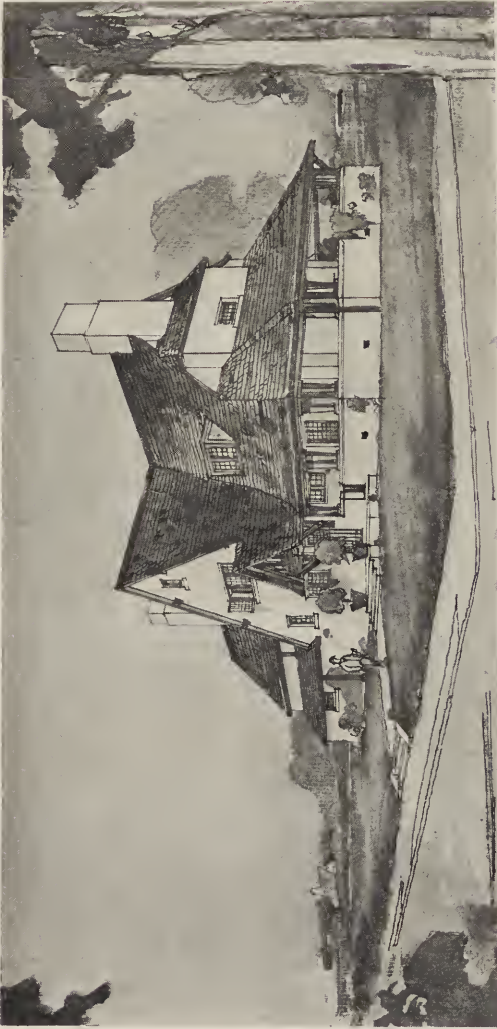
Newark, N. J.

Squires & Wynkoop, Architects.



This house is at Hedden Terrace, Newark. It has tile floors, side and bearing walls, and a tile roof on wood beams and sheathing. The concrete beams are exposed where shown in the plans. The building is expensively finished and cost twenty-six cents per cubic foot. The design is one easily constructible in tile.

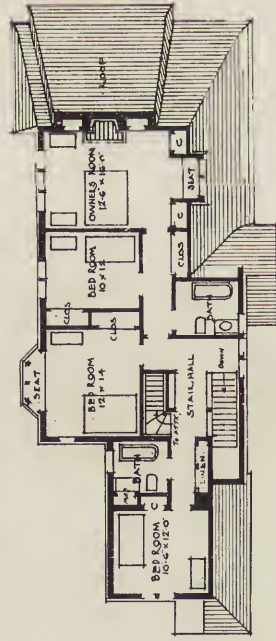
Squires & Wynkoop, Architects.



FIRST FLOOR PLAN.

TILE HOUSE FOR MR. EDWARD D. PAGE.

Orange, N. J.



SECOND FLOOR PLAN.

Squires & Wynkoop, Architects.

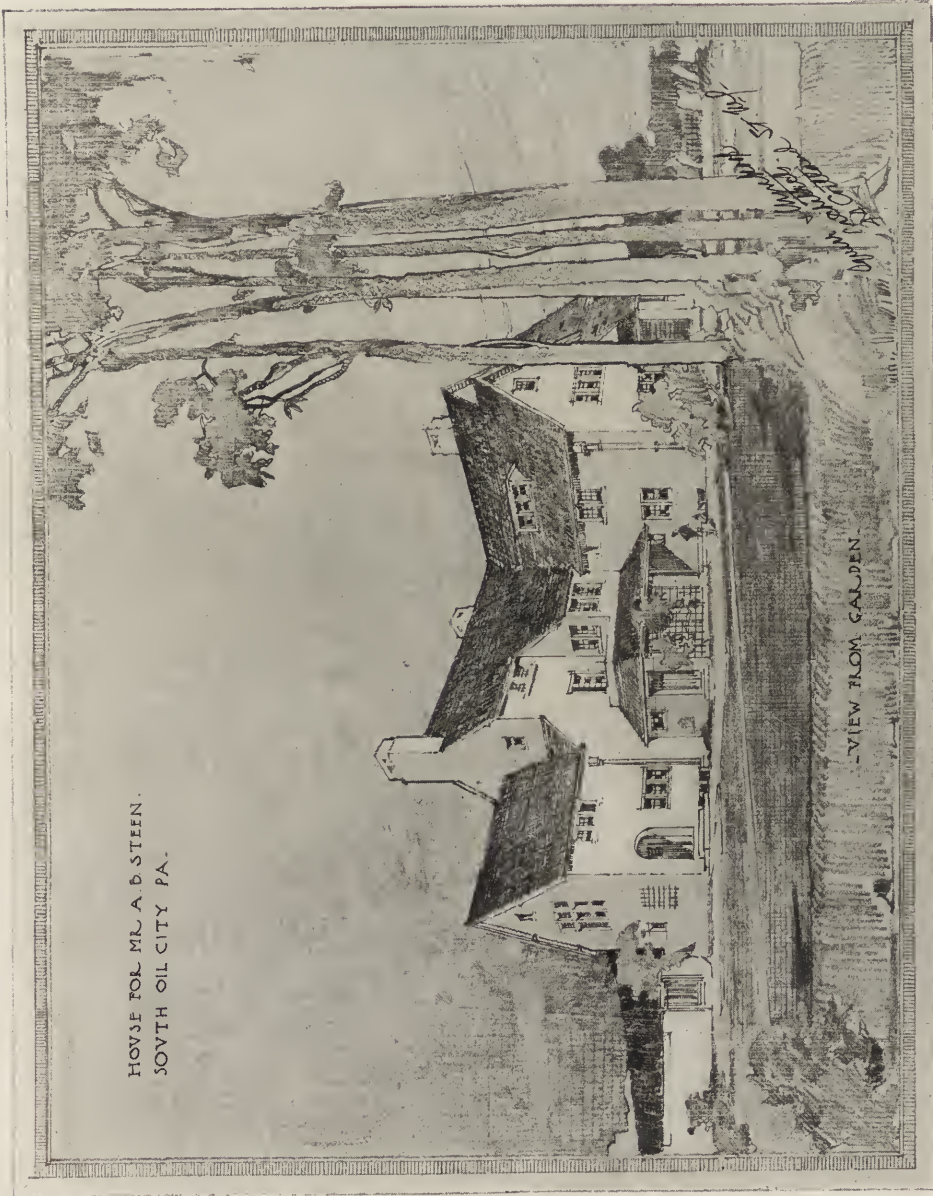
The plan shows the difficulties encountered in a house with a north entrance. Two tile floors, tile outside bearing and partition walls, asbestos shingle roof on wood sheathing and beams, and wood joists in third floor. Cost twenty-two cents for construction only.



Hollow tile floors throughout; tile roof, 8-in. hollow tile bearing and outside walls, three hollow tile non-bearing walls. The possibility of a free use of fireplaces shows an advantage of this construction.

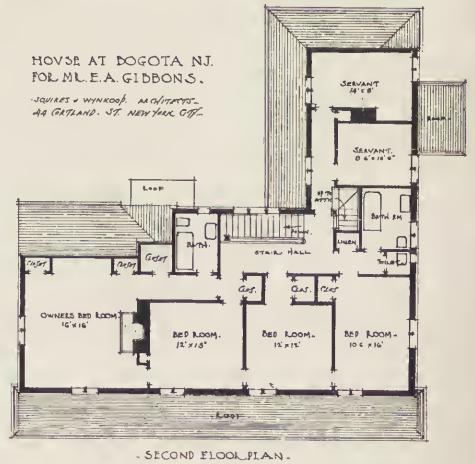
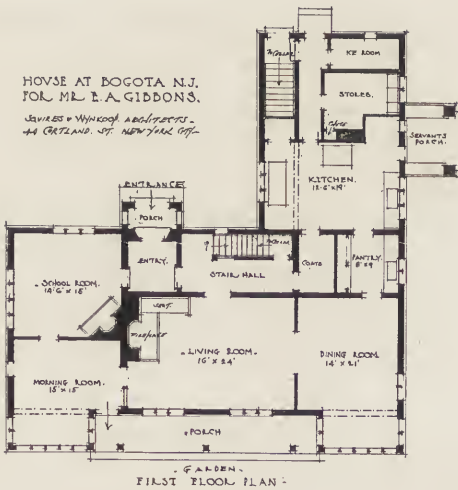
In hollow tile construction it is possible to locate fireplaces wherever it is most convenient to have them on any floor, regardless of what lies underneath on the floor below. That is, the smoke flues may start on any floor and do not have to run down into the cellar.





This is a house for a mechanical engineer who wished to have a building as nearly fireproof as possible. Flatter roofs were impossible owing to climatic conditions.

Squires & Wynkoop, Architects.



All floors are formed of 9-in. beams, which project 3 ins. below the tile filling and give the effect of a beamed ceiling. All floors are either of concrete or marbleoid. All roofs of roofing tile. The building is as nearly fireproof as is possible with this type of roof. Exterior walls are not waterproofed, and have shown no dampness. Considerable vertical steel reinforcement has been used. No cap flashing was used on window sills, but an incision was made in the cement, the copper burned in and cemented with white lead.



Squires & Wynkoop, Architects.

HOUSE FOR MR. E. A. GIBBONS.

Bogota, N. J.



RESIDENCE OF PROFESSOR LOUGH.

University Heights, New York City.

Squires & Wynkoop, Architects.

This was the first terra cotta hollow tile house built in New York City. Construction, hollow tile floors and walls, waterproofed. Attic floor of wood joists. Cost about twenty-one cents per cubic foot.



HOUSE FOR DE WITT HUBBELL.

Plainfield, N. J.

Squires & Wynkoop, Architects.

Two hollow tile floors. Designed for economy, and cost between seventeen and eighteen cents per cubic foot. Tile was erected by a local mason, who had seen only one tile house, and that only once.

Architectural Development in the Reinforced Concrete House

Reinforced concrete has been enthusiastically called a plastic building material. This is only partly true. Its initial plasticity and the widely different properties of its two component elements, steel and concrete, the one of great tensile and the other of great compressive strength, have given to the designer a far wider scope than he has ever enjoyed in any other building material. This scope has, however, very sharply defined limitations, and he who solves successfully the problem of concrete design, be his method that of the drafting board, or, better, of the modeling table, must have absolute knowledge of the engineering limitations and necessities of the material with which he is dealing, if his work is to be possessed of any real engineering character and architectural beauty.

No branch of art owes more to the past than architecture. It is only natural that the architects of to-day who are, as a class, worshippers of the marvelous beauties that their craft has left to mark the glories of by-gone times, should be slow in adopting a new building material, one that in its nature requires the breaking away from ancient precedent and design and the originating of a new architectural type.

The bolder spirits in the profession, who see the opportunity of great artistic and financial reward in the solution of the problem of artistic concrete construction, will, of course, have to stand the derisive criticism with which conservatism has always attempted to check development.

Thus, a recent writer in this magazine refers to a reinforced-concrete bridge in the New York parkway system as being "unduly thinned and unduly flattened by means of the concealed reinforcement." Unduly only—for a masonry bridge! But the beauty of concrete lies in its power to function differently from stone. Nor is its reinforcement "concealed." Unlike structural steel, the steel of reinforced con-

crete is not concealed, and is not meant to be. Reinforced concrete is a homogeneous material, either element of which is indispensable, and to the seeing eye well-designed works in concrete always show the steel, and, to a large extent, even the amount of steel used in the reinforcement. That architectural design which fully satisfies the structural demands of the material and *expresses them to the eye*, comes nearest to beauty.

The same principle of respect for the real structure would apply to another remark in the same article on some concrete walls as "mere inexpressive expensive expanses of smooth smears"! To the person who understands how full of life, in the sense of strains met and pressures sustained, a concrete wall really is—that it is never, as it has been called, a "curtain wall" between points of support—those "smooth smears," susceptible, as they also are, of immense variations in texture, carry great possibilities of beauty.

Just what style will be evolved as a proper and fitting expression of reinforced concrete only time will tell. One thing we may be certain of—it will not follow the lines of masonry in stone or brick, nor of construction in steel or wood, except in so far as its own principles of construction are identical. In my opinion, the future of concrete architecture lies where that of all other types has lain—in the logical development of the engineering possibilities of the material, modified only by conditions of labor. It is, of course, well known that the first beginning of modern architecture in the Romanesque recessed arch and the Gothic pointed vault was the need of economy in the use, for larger structures, of smaller stones than earlier builders had had. It was, so to speak, in silence and shadow, in obscure corners, in response to direct need, that these epoch-making innovations were made, and it is to me, at least, of direct and striking in-

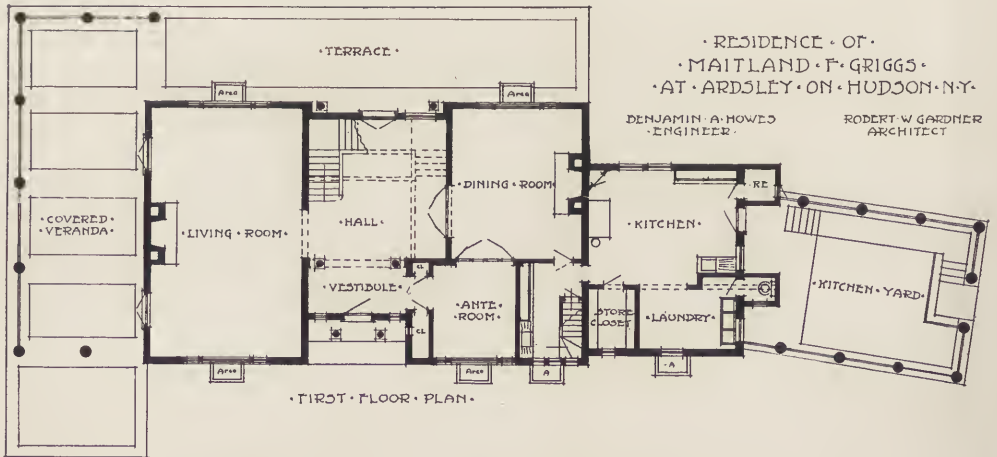
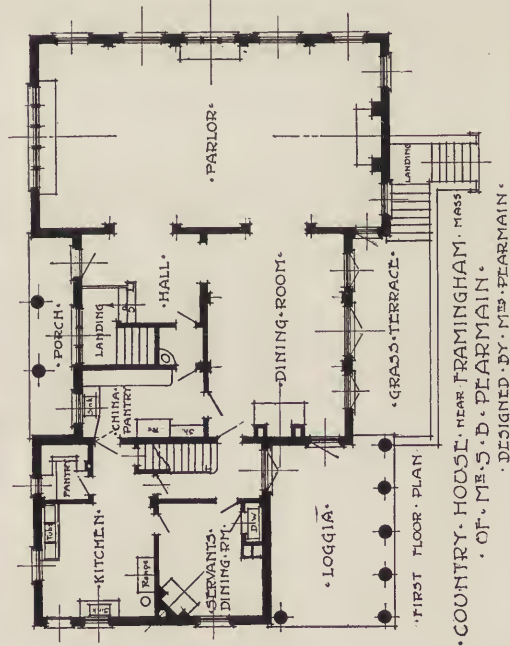
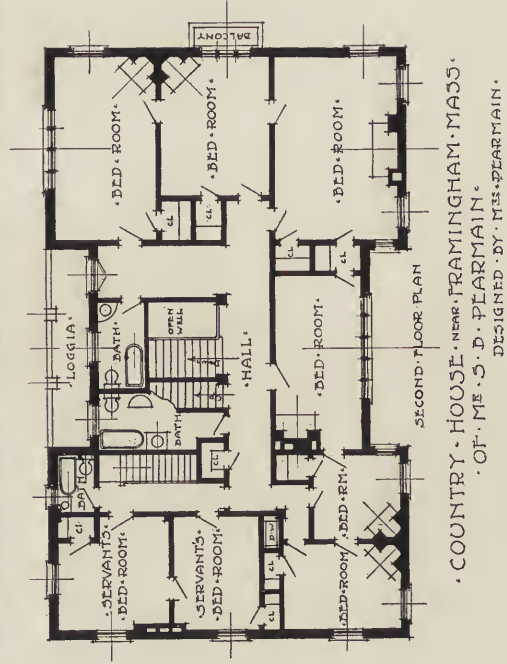


FIG. 1. RESIDENCE OF MAITLAND F. GRIGGS, ESQ.

Ardsley-on-Hudson, N. Y.
Benjamin A. Howes, Engineer.

Robt. W. Gardner, Architect.



COUNTRY HOUSE, NEAR FRAMINGHAM, MASS.,
OF MRS. S. D. PEARMAIN.
DESIGNED BY MRS. PEARMAIN.

FIG. 2. RESIDENCE OF SUMNER B. PEARMAIN, ESQ.

Framingham, Mass.
Benjamin A. Howes, Engineer.

Designed by Mrs. Pearnain.

terest, that in the same way, in direct response to necessity, that the first steps have been taken toward a real reinforced concrete architecture. It is in factory and warehouse construction, the work of those blind utilitarians, the building engineers, that you will find them.

A typical case is the transition from beam and column to the flat arch. The point of weakness in a concrete girder is not, as is generally supposed, at its center, but at the so-called shearing point, where the beam joins the column. To increase the strength of beam at this point the bracket is utilized, passing over easily into the flattened arch, which also does away with a considerable quantity of waste material at its center, that serves no other purpose than extra fire-proofing of the steel reinforcement. Thus the flat arch, which is only a curved beam, is the logical form for the concrete roof support. To-day, any building of reinforced concrete, of the least monumental importance, will be a composition of which the flat arch is a dominant motif, and of which we have an example in the noble pile of the Munich School of Anatomy.

This case of the flat arch is, however, but a single instance of the way in which engineering logic establishes an æsthetic type. I believe that it is one of many such points of departure for creative design in concrete. But as my subject is not concrete architecture in general, but concrete houses, I will pass on to the variations from the usual type which economy and engineering have demanded and will demand for the construction of dwellings.

The following is not primarily theoretical. It is based on several years' experience in the use of reinforced concrete for country houses. It has become the practice, within the last few years, to refer to houses in which cement mortar has been used in the form of blocks or exterior plaster as "concrete" houses. It need hardly be said that the following considerations do not refer to such structures, which are of ordinary frame or masonry construction, and present no new engineering or architectural problems; they refer only to reinforced con-

crete, used as such for the structural parts of the house, particular emphasis being laid on the fact that stairways, floors and roofs are of reinforced concrete, and partitions of standard fire-proof construction. Not what may be done, but what has been successfully done, is the subject of this record, with accompanying deductions as to future progress.

First and most striking of those variations which experience has shown to be desirable is the flat, or nearly flat, roof (Figs. 1, 2, 3). It is the logical concrete construction, being much cheaper than the sloping roof of concrete, or tile on concrete skeleton. In general, it is cheaper to build walls than steeply pitched roofs. The reasons which impel us to cling to the pitched roof are largely traditional. We have come from rural dwellers, whose families have needed storehouse rooms, or we have taken the fashion from northern climates, where a flat roof in local construction could not sustain a heavy fall of snow. But with the change to more highly organized conditions, less attic space is required, and a well-constructed flat roof in concrete sustains any weight without leaking. The appearance of the many gabled roof is supposed to be more attractive; but it is really necessary, from an æsthetic point of view, only to houses whose height is otherwise out of proportion to their width, to bring them down, as it were, by the suggestion of downward slanting lines, as in the high-shouldered houses of old German towns. Henry James' dictum that a house should sit down, not stand up, is perfectly met by the lines of these reposeful structures. The last (Fig. 3) is really a flat-roofed house; that is, the greater portion of the roof area is flat, while only a small part slopes.

But appearance and structural logic alone cover only half of what may be said for the flat roof. It is found to be the most refreshing and attractive spot in the house. The house in Fig. 2 is in the deep country, where it might be thought that one would prefer real out-of-doors on veranda or lawn; but the roof has proved to be the family center of en-

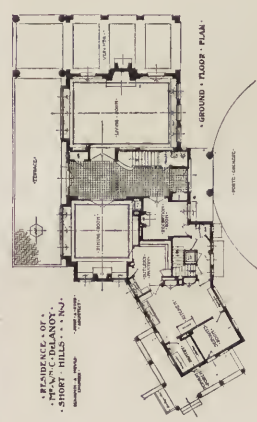


FIG. 3. RESIDENCE OF WILLIAM C. DELANOY, ESQ.

Short Hills, N. J.
Benjamin A. Howes, Engineer.

(Photo by A. Patzig.)

John A. Gurd, Architect.



FIG. 4. ROOF LOGGIA WITH FIREPLACE—PEARMAIN HOUSE.



FIG. 5. ROOF LOGGIA WITH FIREPLACE—DELANOY HOUSE.

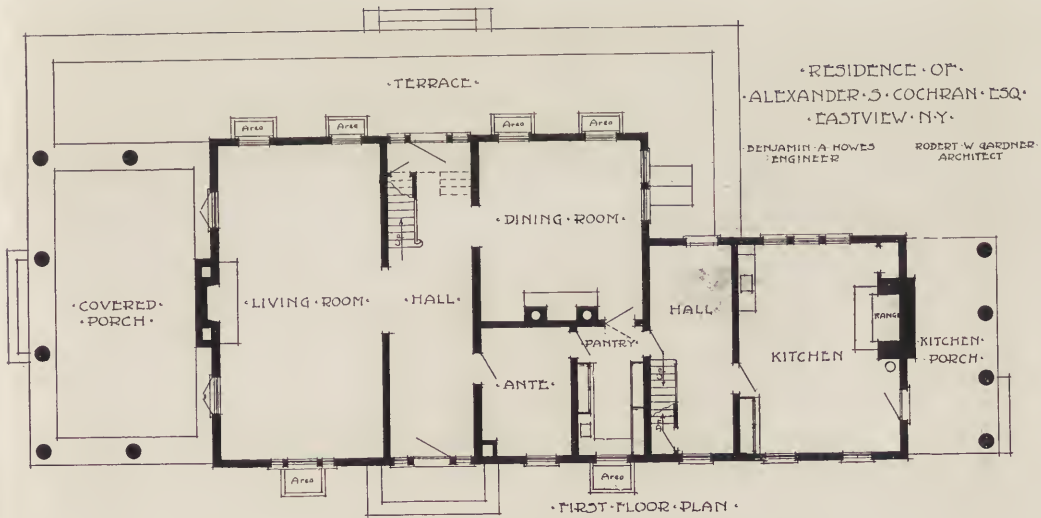


FIG. 6. RESIDENCE OF ALEXANDER S. COCHRAN, ESQ.

East View, N. Y.
Benjamin A. Howes, Engineer.

Robt. W. Gardner, Architect.

joyment. The possibility of such a roof loggia, with hammocks and open fireplace, Fig. 4 (since there is no trace of combustible building material), makes the spot ideal at all but the lowest temperatures; and that it is above the mosquito line is not the least of its charms. Even if it were not, in much infested regions a slight smudge in the convenient fireplace would soon repel the intruders.

The possibility of the roof fireplace (see Figs, 4, 5) is but one of the many opened by the unburnable properties of concrete. These "stunts" with concrete, as one appreciative owner termed them, will be briefly referred to later.

In construction, next to the flat roof, perhaps the most notable variation is the treatment of wall surface. Reinforced concrete is not ashamed of its "smooth smears"; on the contrary, it finds them expressive of the massive and monolithic construction; and the most satisfactory designs for houses have especially emphasized this. The broad expanses can be made of delightful texture: "smooth wash," "pebble dash," "sand-floated" finish and the many variations of "exposed aggregates." And each one of these can be obtained in a color suitable



Fig. 7. Balcony on Cochran House.



Fig. 8. Loggia on Griggs House.

to the neighborhood and the surroundings. A house beautifully placed in the Connecticut valley has as its aggregates and sand ingredients a pinkish gravel, largely composed of rose-colored quartz, from the neighborhood. This concrete, scrubbed down to expose the aggregates, gives the wall a delightful pinkish bloom, which will be further brought out by the contrast of the dull green of the roof. Fig. 3, which is deeply shaded by a grove of magnificent chestnuts, has a much smoother finish of pale gray, which wonderfully lights up its blue-green tile roof. Fig. 6, shaded by elms, is of the same gray, with a darker gray roof of reinforced concrete. I am not myself an advocate of exposing the aggregate completely; it is highly laborious, and, to my thinking, somewhat too vivid and unrestful in effect; yet many find it extremely pleasing. But all these methods of surface treatment are being most enthusiastically and successfully studied, and their technique is pretty well understood. My especial interest is only in pointing out that the variety of effects is so great that the thoughtful architect can always adapt his wall tex-



FIG. 9. NEARER VIEW OF PEARMAIN HOUSE.



FIG. 10. GARAGE OF COCHRAN HOUSE.

ture to the size and purpose of his building, to its background and surroundings.

Apart from the "smooth smears," the question of wall treatment is likely to settle itself for the economical builder. Mouldings, string courses, etc., a natu-

possibilities, but they, too, present difficulties in the way of sharp edges, not impossible to produce, of course, but costly. The logical source of variations for wall spaces, in the country house, at least, is in the possible contrasts of tex-



FIG. 11. GARAGE AND STABLE WITH LIVING QUARTERS—PEARMAIN HOUSE.

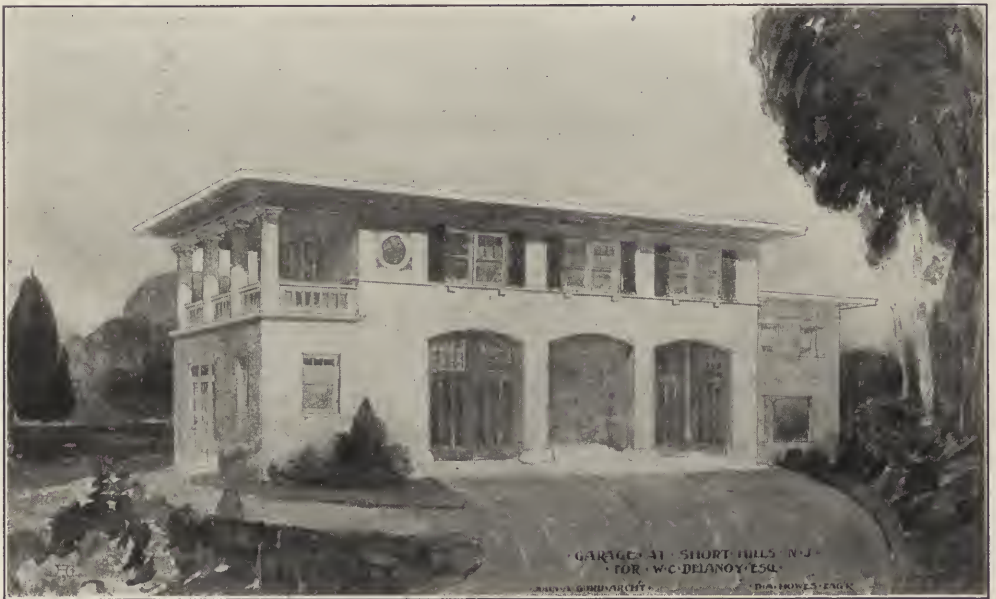


FIG. 12. DESIGN FOR GARAGE—DELANOY HOUSE.

John A. Gurd, Architect.

ral and easy method of expression for the builder in stone or brick, are, through the great cost of forms, almost prohibited in concrete. Recessed panels have their

ture, especially about the windows, as in Fig. 1.

In fact, in the fenestration itself is found the architect's greatest opportu-



Fig. 13. Garage Below Kitchen—Griggs House.

nity. The grouping of windows, in contrast to the broad wall spaces (Figs, 2, 3, 9) is seen in the examples to have a very satisfactory effect. Relieving the windows with brick casings or leaded glass is also often successful (Fig. 1).

The question of wall ornament is one that is not often raised in connection with the country house. Of course, there are unlimited possibilities in a concrete structure for insertion of mosaic of various kinds, including mosaic brickwork, or ornament in relief, but their suitability to a country house is problematic. I have been, on the whole, an opponent of the use of mosaic, preferring the use of recessed panels, offsetting columns, etc., but study has convinced me of the very great sanitary value (and especially for cities) of an ornament flush with the wall. Ornament in relief can undoubtedly be executed in concrete to a very great degree of sharpness of edge, complicated and cut-under detail; yet it remains a *tour-de-force*, recalling too vividly that which it is not—cut stone. It would seem that if relief ornament in concrete is to be employed at all, it should rather emphasize those qualities in which it differs from stone, and seek the massive, molded effects, rather than the cut-under ones.

And if this is true of applied ornament for house exteriors, how much more so of the various forms of accessory structures? These, however, deserve special discussion. So far as the walls are concerned, the most successful houses up to this time are those in which simplicity and large rounded forms prevail.

The balcony is another striking test of what can be done with concrete on a house exterior (Figs. 7, 8). These balconies are excellent examples of the cantilever in concrete, forming, in Fig. 8, an unsupported porte-cochère, while they illustrate also the previous point as to large rounded forms.

As for the accessories of the country house, the most important is the stable or garage. In many country places of traditional types of construction, the architect, while maintaining admirable sobriety in the house, has let his imagination run riot with the stable. This is regrettable, and if the utilitarian lines of the concrete garage are a step in the opposite direction, so much the better; and to-day no enlightened owner is building his garage, at least, of anything but concrete. With living quarters for chauffeur, and space for several automobiles, such a roomy, but simple, structure can be built on exactly the same lines as the house

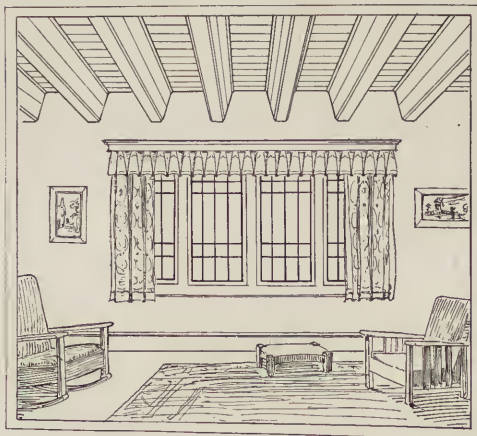


Fig. 14. Sketch of Tapering Beam Construction—Residence of Hinsdale Smith, Esq. South Hadley, Mass.

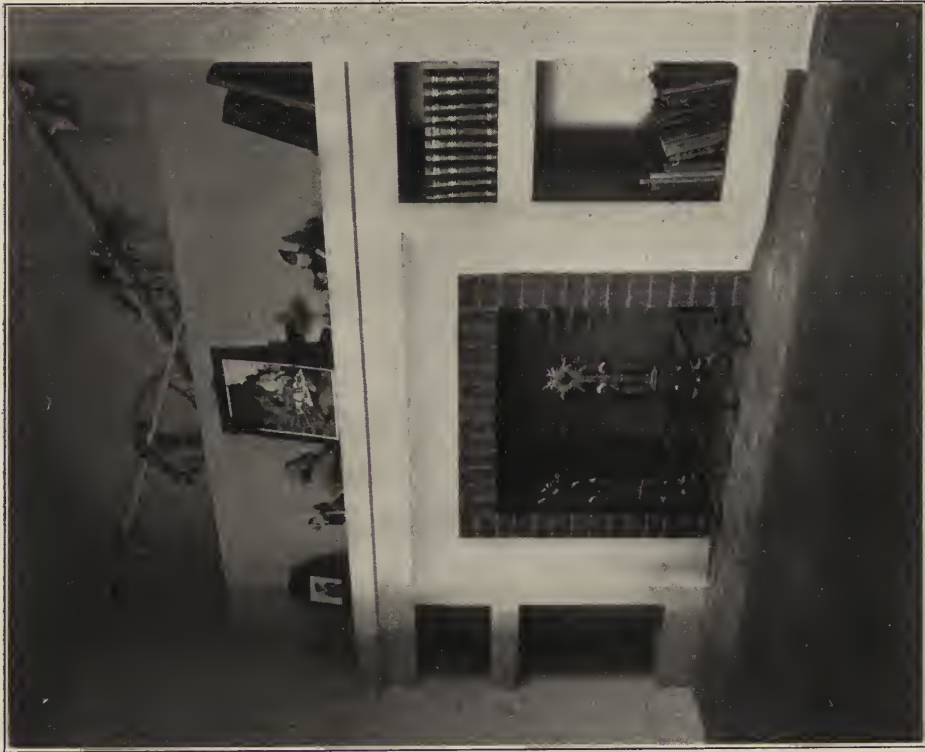
Kirkham & Parlett, Architects.



FIG. 15. VIEW OF MUSIC ROOM—PEARMAN HOUSE.
Note the deep and broad rectangular beams.



FIG. 16. DINING-ROOM—PEARMAN HOUSE.
Note the deep rectangular beams running parallel to the fireplace.



FIGS. 17, 18. BEDROOM FIREPLACES—DELANOY HOUSE.

(Figs. 10, 11, 12), or even, following an apparently daring, but perfectly safe, example, can be constructed below the house, if the house is also of concrete (Fig. 13).

The same characteristics of concrete can modify the interior construction. It is well known that the possible span of a concrete beam is considerable, and this opens immense possibilities in the way of large rooms, unobstructed by pillars. The depth of beam increases, of course, with the span, eventually encroaching on the necessary height of the room; but this difficulty can be obviated by treating the two floors above the room partitions between them as a box girder if the plan allows. Thus for a school in the engineering design of which I have been interested, a room, of dimensions 50'x60', unbroken by pillars, was desired. For such a room the concrete girders supporting the ceiling would have been 4 feet deep, but utilized as walls for the cubicles above, with the ceiling suspended instead of supported, they disappeared.

So long as all interiors were finished in wood, any effect of arches was highly meretricious and artificial; constructively, not unlike a piece bitten out of a cookie. But with the true reinforced concrete construction, as we have seen, the logical form of beam and lintel is a low arch; and there is, therefore, every reason for such interior openings in an all-concrete house. Thus, those who see a certain Oriental tendency in the development of concrete forms will not be mistaken.

Another architectural feature which took its rise in warehouse construction, and which, so far as I know, has been utilized only in this single example for dwellings, is the tapering beam. This simply does away with the unnecessary concrete at the lower edge of the beam, where its compressive value is *nil*, and is thus in its inception a purely economical device, but I was myself astounded at the effect of lightness and spaciousness in a room so planned (Fig. 14). Contrast these rectangular beam effects (Figs. 15, 16), attractive enough in

themselves, with the suggestion of the ceiling shown in Fig. 14.

But it is when we come to the interior finish that the new possibilities are most striking. The first question of the owner, in discussing concrete possibilities, is, "But isn't it terribly hard and unhome-like inside?" No, and no again. First, because, if so desired, the concrete can be concealed, the walls and ceiling plastered, or even papered; wooden trim and brick or marble fireplaces may recall the ordinary house. Secondly, because the real concrete, properly and artistically treated, or combined with cognate materials, makes a warm and delightful interior. A very interesting development of the taste for concrete effects has shown itself in what the owner, watching progress, has demanded.

In my second concrete house, the owner papered the walls and put in hardwood floors. The third was partly plastered, but the owner greatly prefers those rooms which were left in concrete and tinted, although demanding that the boardmarks be obliterated. A later one is finished inside with fine cement blocks in appropriate colors, except on the upper floors, where the concrete is not plastered. The last owner for whom I have worked is captivated by the evidence of construction in the house, as in any hand-made object. In the room where the tapering beams are shown, the forms were so made that the boardmarks on the concrete are retained as a decorative treatment, not even the ceiling being plastered. Here, too, as in the outside walls, innumerable shades and textures in the concrete itself can be obtained. I would strongly advise the prospective owner to visit the permanent exhibit of the Concrete Association of America, in New York, at 225 Fifth Avenue, where the various cement companies demonstrate these possibilities of interior finish.

The same growth of taste in favor of concrete has shown itself in regard to floors. Hardwood, at first; then terrazzo, or tiles were preferred. But concrete floors, with the proper treatment, no longer crack and can be stained any color. One most successful room, with



FIG. 19. FIREPLACE IN MUSIC ROOM—PEARMAIN HOUSE.
Sculpture executed in place by L. O. Laurie.



FIG. 20. FIREPLACE IN GRIGGS HOUSE, SHOWING LINTEL OF ROUGH CONCRETE.

a northern exposure, has rough plaster walls tinted a golden yellow, a plain cream-colored concrete fireplace, and a floor of clouded brown and yellow. It is true that this was rather good fortune than intention, since the owner expected a solid brown floor; but if the result is the most wonderful Spanish leather-brown and yellow, who shall cavil? For a drawing or reception room, terrazzo of Siena or Connemara marble chips in

quisite bas relief and somewhat less successful caryatides in cement. A fairly typical fireplace is given in Fig. 20. This was designed for smooth finish, and the workmen were preparing to cover up the slab of rough concrete when the owner found them. "Leave that just as it is," he cried; and, indeed, it has turned out the most successful, because the most expressive, fireplace in the house. For bedrooms, such simple forms, lined with



Fig. 21. Main Stairway—Delaney House.



Fig. 22. Roof Stairway, Pearmain House.

white cement, makes a good background for Oriental rugs; and so far from being cold, is almost too warm.

A whole chapter could be written on the new designs in fireplaces; they range from the simple (Figs. 17, 18) to the ornate example (Fig. 19), in which a well-known sculptor has modeled an ex-

ample, made of brick, are pleasing, while the roof fireplace (Fig. 5), in warm gray cement, is, to my mind, the best of all.

Stairways are best made of concrete. This is another "stunt" for concrete, for it can perfectly well be left entirely unsupported. In the ordinary house, however, such a *tour-de-force* would have



FIG. 23. CONCRETE SEAT AND TABLE—PEARMAIN HOUSE.

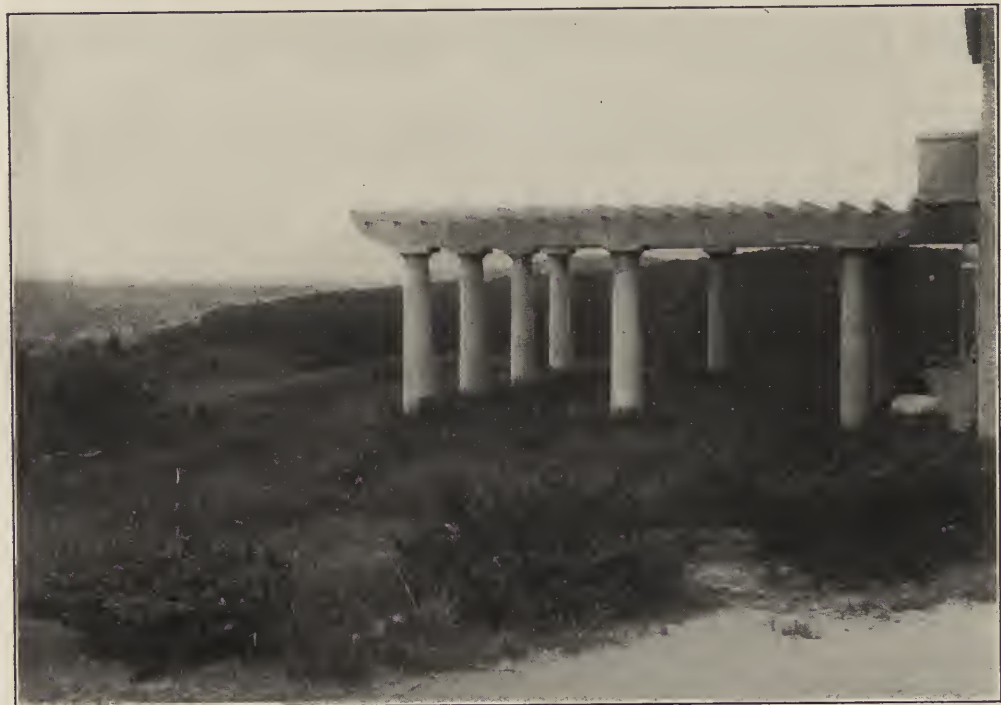


FIG. 24.—CONCRETE PERGOLA—PEARMAIN HOUSE.

little place. The rail is legitimate matter for discussion, since for a house that is not a palace the wrought iron or bronze rail seems unsuited, and the wooden one still less so. The architect of the Delanoy house has designed a successful expression of concrete (Fig. 21), which was intended to be capped by an inconspicuous wooden rail, more pleasing to the hand. The roof stairway (Fig. 22) is decidedly picturesque.

This is not the place to discuss the comparative merits of formal versus natural gardens; but a word may at least be said of the curious effect of an Italian garden, with concrete or marble benches, fountains, statues, etc., surrounding the typical American country house of wood. It suits a reinforced concrete house, however. Exquisite garden furniture may be made of concrete, but here again the most successful are those of molded or plastic, as against sharply cut forms. A charming example is the "Smiling Lion" (Fig. 23), an adaptation of a design from one of Alma Tadema's pictures. An interesting example of how the exigencies of construction can determine pleasing results is given in the columns of the pergola (Fig. 24). The round pillars on one of the first houses I built had to be made, for all that was then known, with a polygonal form, which was afterward plastered up to the round column. Having the opportunity of building a like column for the next owner, his attention was attracted by the pleasing form of the unfinished core, and on that house the

columns were left unplastered. The columns of a succeeding house had the same form, but an increased number of sides, the twenty required by the Doric type, resulting in the very pleasing forms found in Fig. 24. It is to be noted that these are not Doric columns. To the rough, creamy gray concrete, the Doric fluting would have been unsuited, and these were made in the easiest and best possible concrete construction; yet the play of light and shade on their flat sides is delightful.

What reinforced concrete means for the safety of families and the permanence of homes need not be insisted on here; but there is a real architectural bearing in the possibility of enshrining precious objects, tapestries, paintings, *objets d'art* generally, in such dwellings. An owner of such treasures who cannot to-day build a fireproof museum of his own is likely to deposit them in public museums; but the unburnable house can safeguard them, and its plan is quite likely, in the more costly examples, at least, to be influenced by the character of its contents, and in the direction typical for concrete. That is the province in which I, as an engineer, feel most keenly the need of the interest and progressive achievement of the architectural profession—characteristic design in reinforced concrete which shall embody the qualities of this noble building material: its monolithic type, its capacity for enormous spans, its economic curves.

Benjamin A. Howes.



FIG. 1. CONCRETE GATEWAY TO THE ESTATE OF THE HON. WILLIAM L. WARD.
Portchester, N. Y. Robert Mook, Architect.
(Photos by J. H. Symmons.)

The Pioneer Concrete Residence of America

As far as the writer has been able to ascertain, the first concrete building erected for a private residence is the house of Hon. William L. Ward, now Congressman from the Westchester district of New York, located about a mile from Portchester. It was the writer's privilege also to visit it when its shell had been completed and also when it was approaching completion, and to publish a description of it in the *American Architect and Building News* of April 18, 1877, which was the second year of its publication by Osgood in Boston. For want of photographic illustrations, a detailed description of the design of the house was given at the time, which it is not necessary to repeat now, in view of the fact that photographs of it are herewith reproduced for the first time in any publication.

The house was commenced in 1875 and completed in 1877. Mr. Ward was at that time the manufacturing manager of the screw factory of the Russell, Birdsall & Ward Manufacturing Company, which was located on the Byram River, within view of the house. He has lived in it ever since, and it stands today just as it was built. The architect was Robert Mook, of New York, who had been brought up in the office of the

"fashionable" architects of that day, Thomas & Son. The house is a well-preserved specimen of the Hudson River villa architecture that prevailed at that time, and as the interior views show, the details and furnishings illustrate a harmony of refined design which has evidently come down to us without change through the intervening thirty-three years. So much, however, cannot be said of the exterior. While there are no indications in these interior views (Figs. 3 and 4) that floor, ceiling and side-walls are all of solid concrete, Fig. 2 shows the monolithic character of the exterior, even with all its newness, just as it was built.

Let the reader not be deceived by supposing that anything about it looks as if it had been added to the solid walls built in position, for he is assured by an eye witness that every terrace, porch, bay window, corbelled balcony, cornice, mansard roof, chimney, dormer and match-colored tower is one solid piece of concrete to the last detail. If this house had been erected within the last few years it would be advertised by promoters as a "poured" house. But it was not built by Mr. Edison, with cast iron moulds weighing perhaps a thousand tons for a house of this size, but by Mr.

Ward himself with pine board accessories, the village carpenter and a lot of unskilled laborers, intelligently directed. To complete the surprise, if any such is suggested, let the reader refer to these interior views and be assured that the ceilings of those two rooms, with all their paneling, except the work of the ornamental plasterer, were all made of structural *reinforced concrete*, forming the support of the second floor, *thirty-four years ago*.

paneled and elaborately ornamented with plaster. The architect designed all the details of inside finish, and they were ultimately carried out with fidelity. But Mr. Ward, who had for some time been studying the uses of Portland cement in Europe and all its possibilities, became his own builder and erected the entire house with his own employees. He was acquainted with the system of Coignet, as used in France; but when it came to building his floors *he proceeded to in-*



FIG. 2. CONCRETE HOUSE OF THE HON. WILLIAM L. WARD.
(Erected 1875-1877.)

Portchester, N. Y.

Robert Mook, Architect.

As a matter of history, it may well be advisable now to tell how the house was built. Mr. Ward ordered the plans from his architect for a large, first-class, comfortable home, with walls such as would be required if they were of brick with a hollow space, and floors of the usual thickness required for construction with timber, furred off on the underside,

vent reinforced concrete, until convinced to the contrary, as the writer believes. He anticipated Thaddeus Hyatt by two years, for Hyatt's inventions were not made and published until 1877.

Before Mr. Ward had finished he had used 4,000 barrels of English Portland cement, 8,000 barrels of sharp sand found on his property, 12,000 barrels of

machine-broken North River limestone and an equal amount of white beach pebbles. For construction work, he used as an aggregate broken stone mixed with pebbles, which he found by experiment showed less voids than if either aggregate had been used alone.

But for a better understanding of how the floors were built, quotations had better be made from the account written thirty-two years ago:

"Anyone who visits this house, expecting to find a vaultlike structure,

find in the whole house is the necessary door and window finish in superb hardwood of workmanship that would put to shame some of our best mechanics. Above the basement story there is hardly anything in the interior to remind one of concrete, except the stairways and the kitchen fireplace. Yet there is not a lath or a wooden furring strip in the whole house, for every foot of plastering is laid on the solid concrete of the walls, partitions and ceilings; and the ribs of every ceiling have their construc-



FIG. 3. MUSIC ROOM—CONCRETE HOUSE OF THE HON. WILLIAM L. WARD.

Portchester, N. Y.

Robert Mook, Architect.

wherein the one idea of a house made in a solid block is predominant, will be disappointed. On the contrary, when he enters he will see hardly enough to convince him of the nature and construction of the building. He will see floors resembling single sheets of rubbed sandstone, hard-finished white walls, flat paneled ceilings, moulded and enriched with moderation, and plaster cornices of good section and very tasteful ornamentation, while all the woodwork he sees or can

tive purpose, as will presently be seen. The floor construction was thus described:

"This is a combination of light rolled I-beams, small rods and concrete; and though the materials are nearly the same as those employed for floor construction in Paris, the method of using them is different, and the strength obtained results from other principles of construction. In this building the beams are strengthened by being surrounded by a

body of concrete, and the filling between them is a homogeneous mass, extending above the tops of the beams and to all four sides of the rooms. The floors are thus stiffened not only in the direction of the beams, but in all directions. For this purpose a ledge is built out in the walls around each room to carry the outer edge of the concrete floor. The beams being stiffened by a surrounding mass of concrete, are very much smaller than those heretofore used for floors of

beams and a coat of cement put on about one inch thick. Then a course of $\frac{3}{8}$ -inch iron rods is laid on this concrete across the beams and a few inches apart, and another course of concrete, one inch thick, is laid over the rods. The next course of iron rods is then laid, crossing those in the first course. Then concrete is put on, two or more inches in thickness, and the floor is built. It is about four inches thick between the beams. A second flooring is then laid of concrete,



FIG. 4. DINING ROOM—CONCRETE HOUSE OF THE HON. WILLIAM L. WARD.
Portchester, N. Y.

Robert Mook, Architect.

equal extent. Throughout the house, 'light' five, six and seven-inch I-beams have been used, and for the largest rooms 'light' eight-inch beams. For instance, in the construction of the parlor floor, where no decorative effect is sought in the room beneath, he has used 'light' eight-inch beams, placed six feet between the centers. The span is about eighteen feet. A box is formed around each beam and filled with concrete nearly to the top of the beam. Then a flat centering of rough boards is set between the

leaving arched spaces which are to serve as heating flues, connected with the furnace and the hollow spaces in the walls. On this the finished floor of cement, mixed with sand only, is laid, troweled off smooth, and after a time, when hard and dry, is rubbed with stone and sand like polished sandstone. The rough board centering and boxes around the beams being removed, the under surface is ready for a coat of brown mortar, which is hard finished in the usual way."

It will be noted from the above that

the actual floor construction between the beams, which are six feet apart for the first floor, is only four inches thick, and that one-half of the reinforcing rods are set in the same direction as the beams. The thickness of the floor adds to the height of the beams where they are in compression, just as in the reinforced concrete T-beams that have recently been experimented upon. The concrete heating flues and the finished cement floor are in one sense part of the floor loads; but, at the same time, they may have assisted to stiffen the floors. All the floors are covered with rugs made to fit the rooms, held in place by brass pins inserted in sockets built into the cement floors.

"The ceilings of the first and second stories show deeply recessed panels, some quite elaborate in construction, as in his Elizabethan library on the second floor. In constructing these, I-beams were used, following the ribs and bolted together so as to form a complete network over each room. Yet such light sizes of iron were used that in most cases it could hardly have been more than self-supporting. In some rooms not more than two beams extended from wall to wall. Boxes were constructed around all of the parts of this framework, as in the first story, and filled with concrete, thoroughly rammed in place and given good time to set. The interstices were filled with concrete and iron rods, as in the first floor. All these ceilings are plastered and ornamented directly on the concrete. The mansard roofs are constructed of solid concrete; the ceiling over the third story the same as the other floors. The roof is constructed like the floors, the beams being very far apart, fully ten feet in some places. Over each beam and hip rafter in the roof a shrinkage joint is made, and this is covered with a moulded hip roll, made in position, but having felt between the roof and the roll. The panels of the roof, between the hip rolls, are decorated on the outside with *scraffito* work in cement of different colors. The cornice and main gutters are all made with the walls, but there are

shrinkage joints between the roof and walls. There are also shrinkage joints in the rooms following the inside lines of the exterior walls, where they cross the window recesses. Aside from these joints, the floor of each room is in a single piece; and not a crack was observed in the floors through the entire house."

The slabs forming the floors and roofs of the terraces in some places are in pieces 12 by 30 feet, without shrinkage joints, all being reinforced with $\frac{3}{8}$ -inch rods in both directions.

The smoothness and uniform color of the exterior walls is due to the fact that they are all plastered with a 1-to-2 mixture of Portland cement and sand. This plastering, after it had set and been thoroughly dried, was rubbed down with a stone, sand and water, just as sandstone is polished. The exterior mouldings were finished in the same way. The veranda columns were all reinforced with vertical rods of $\frac{3}{8}$ -inch iron, placed in a circle within a proper form, and the cement was poured from the top. But they were made with hollow spaces in the center, and served also as downspouts to carry off the water from the veranda roofs.

The roof water is carried down in cast iron pipes built in the walls, and brought together in the cellar, where they connect with the rising pipe to the rain-water tank in the square tower shown on Fig. 2, forming a syphon. Water can thus be drawn under pressure from these pipes. There are two water tanks in the tower, one over the other. The lower one is used for rain water and the upper one for water pumped from a spring. The floors of these tanks are of reinforced concrete, and the tower walls form their sides.

The exterior walls are cast with hollow spaces. These are connected with the spaces in the concrete under the floors, so that there is a circulation of warm air through all the walls and floors heated by a furnace. The air is returned to the bottom of the furnace, and does not enter the rooms. All rooms have open fireplaces.

Peter B. Wight.



Los Angeles, Cal.

FIG. 1. MR. G. E. BERGSTROM'S RESIDENCE.

Parkinson & Bergstrom, Architects.

Some Fire-Resisting Country Houses.

I.—HOUSES OF BURNED CLAY CONSTRUCTION.

It is not many years since the just claim was made by writers on contemporaneous architecture—and the same had been admitted by foreign writers—that the typical architecture of the United States was best exemplified in its country residences. At that time it was believed that we had best solved the problem of designing in wood, for the best designs were in that material. They blended so well with their natural surroundings that we looked upon them with the satisfaction that we, at least, had accomplished one success—even though it were in buildings of comparatively minor importance—in the development of a national architecture.

Meanwhile, though the same could not be said as to our success in designing urban residences, their construction had been developed to a high degree of excellence, and many of the more pretentious ones had been built in accordance with the systems of fireproof interior construction that had been so highly developed in our public buildings, banks, office buildings, hotels and structures for business purposes. The owner of the city mansion was content to erect his so-called "cottage," no matter how expensive it might be, with a wooden frame and with no regard to protection from fire. There were, of course, individual exceptions, and in some places, notably at Newport, may be seen palatial summer homes of very different materials side by side, some of the flimsiest wood construction throughout, some with brick or stone exterior walls and combustible wood interiors, and a few embodying the latest developed methods of fireproof construction throughout.

The erection of country houses with fire-resisting construction has been comparatively rare, and when these exceptions are seen they are found to be buildings of the most pretentious and elaborate sort, only possible to the very rich. It was necessary that some event

should call the attention of owners to the risk they ran in exposing their most cherished possessions, stored in country houses, to the danger of destruction from fire, before the necessity for improved construction should be felt. Many of our wealthy citizens have of late years chosen to make their principal residence on their country estates, and there they have installed their books, pictures, other works of art and household treasures most dear to their hearts, in houses replete with all that artistic finish and decoration could supply. But the destruction by fire of the country house of John Wanamaker, in Pennsylvania, and the Chi Psi house at Cornell University, with not only art treasures, but what is more important, human lives, furnished the impetus, only a few years ago, for that evolution in rural architecture of which we are now beginning to see the results. This is not only affecting the construction, but the design, of such buildings. The evidences of the latter are not yet such as to indicate what these results may be. All of the recently constructed country houses in which attempts have been made to build in a fire-resisting manner show only individual characteristics in this respect. In some little attempt has been made to produce good designs. In others there is an indication of the development of novel features, growing out of the nature of the materials used.

The illustrations here produced are mostly of buildings of moderate cost, and it cannot be said of them that the purpose was to avoid the peculiar losses incident to such a house as Mr. Wanamaker built to contain his most valued treasures. But when once attention was called to the impossibility of extinguishing fire in an isolated country residence, when the ample resources of a city fire-fighting force could not be availed of, many people realized that houses of much less pretension and value are equally exposed to total destruction unless the owner furnishes his own preventive expedients, rather than

rely upon imperfect methods of extinguishment.

As a result of this thoughtful tendency of the public mind, a few examples can now be pointed to showing that the situation has been intelligently grasped by a few people with more than ordinary foresight.

The examples to be illustrated and described show that such fire-resisting

Clinton Street, Los Angeles, California, which is essentially a suburban location, as the illustration (Fig. 1) will show. Fig. 2 shows the house just commenced, Fig. 3 constructional section drawings, and Fig. 4 the floor construction system. The exterior walls are built of doubled 6-inch and doubled 4-inch hollow tiles, the partitions with 4-inch hollow tiles, and the floors and roof are



FIG. 2. RESIDENCE OF MR. G. E. BERGSTROM DURING CONSTRUCTION.

country and suburban houses as have thus far been erected may be divided into two classes: those following the burned-clay systems and those built according to the concrete systems, while in a few that might be cited the two are combined.

The first illustration is the house of an architect, built for his own use. It was erected in 1907 for Mr. G. E. Bergstrom, of Parkinson & Bergstrom, architects, at the corner of Vermont Avenue and

constructed according to the Johnson tension system, 4-inch tiles being generally used. The foundations are of concrete, and reinforced concrete is used for interior girders and exterior lintels. The spans of floors and roof are from 16 to 20 feet. The chimneys, balustrades and flower stands are built of hollow tiles. The visible part of the roof is covered with Mission tile. No steel is used, except as a tension material for the floors, the concrete girders and concrete lintels.

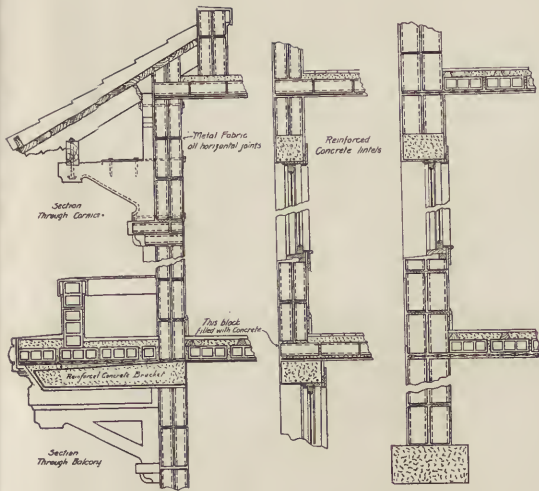


Fig. 3. Constructional Details of Mr. Bergstrom's Residence at Los Angeles, Cal.

These comprise all the materials used for construction. The exterior is coated with a cement and fine gravel mixture, and treated with acid to remove the cement from the exposed surface and leave the gravel visible. The total cost was about \$20,000.

As an illustration of what a well-informed architect does when he invests his own money, for his own use, this building forcibly illustrates the tendency of independent opinion on the part of some of the architects of the Pacific coast. As an example of original design, it is worthy of serious attention, for it shows the adaptation of design to material rather than the use of a vernacular style or an attempt to repeat the popular so-called Mission architecture which is so much in vogue in that locality.

For comparison with the last design, the house erected about the same time by Matthew Sullivan, of the firm of Maginnis, Walsh & Sullivan, architects, at Canton, Mass., also for his own use, is shown in two illustrations. Fig. 5 shows one side of the house during construction, and Fig. 6 shows the other side after completion. This house is built of hollow tile, covered with stucco on the outside. But the floors and roof are not fireproof, being of wood. The

tile were specially made for it of a form designed by the owner.

The house shown in Fig. 7 was erected about ten years ago from the designs of Charles Henry & Son, architects, of Akron, Ohio. It was one of the earliest houses built throughout with hollow tile, and was erected for the late Henry B. Camp at Akron. Mr. Camp was one of the earliest manufacturers of all kinds of hollow-burned clay products, and had erected many plain houses and barns in his part of the State of Ohio in previous years, with sections of burned clay flue linings. His experience led to the manufacture of special sections of hollow tile for building purposes, the use of which is shown in his own house. The tile used for it were not plastered or painted on the exterior, but were all made with great perfection by machinery. That is, they were forced through dies on a vertical steam press, the same that is used for the manufacture of sewer pipe. The plain wall tile here seen are of fireclay. Those of a darker color are salt glazed. The building is as fireproof as hollow tile can make it, all the partitions being of the same material, and the floors are built on the tension principle spanning the full width of the rooms, as shown in Fig. 4. It will be noticed that the porch and its balustrade are built of the same material as the walls.

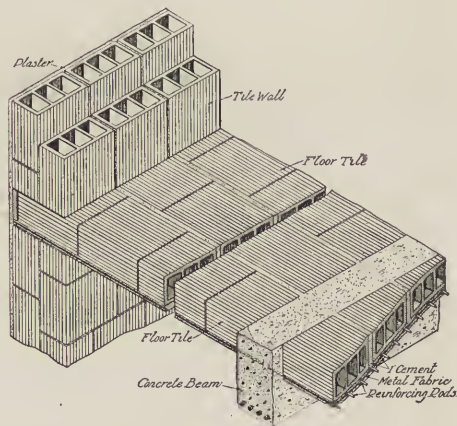


Fig. 4. Isometric View, Showing Constructional Details of Walls and Floors in Mr. Bergstrom's Residence at Los Angeles, Cal.



FIG. 5. HOUSE OF MR. MATTHEW SULLIVAN DURING CONSTRUCTION.
Canton, Mass. Maginnis, Walsh & Sullivan, Architects.



FIG. 6. OPPOSITE SIDE OF MR. MATTHEW SULLIVAN'S HOUSE TO THAT SHOWN IN FIG 5.
The house in this view is shown completed.



FIG. 7. HOUSE OF THE LATE HENRY B. CAMP.

Akron, Ohio.

Charles Henry & Son, Architects.



FIG. 8. RESIDENCE OF MR. CHARLES W. CLINTON.

Tuxedo Park, N. Y.

Clinton & Russell, Architects.



FIG. 9. RESIDENCE OF MR. WILLIAM BORLAND.

Mount Kisco, N. Y.

Delano & Aldrich, Architects.



FIG. 10. THE SUMNER RESIDENCE.

Englewood, N. J.

Delano & Aldrich, Architects.

II.—FIRE-RESISTING HOUSES OF CON- CRETE CONSTRUCTION.

The adaptation of improved systems of reinforced concrete construction to country architecture has been comparatively recent, notwithstanding the example set by William L. Ward at Portchester, New York, as long ago as 1875. Such houses as have been recently erected with this material have rather been an evolution from the methods that have been employed in factory construction within the last few years, than from that used in the Ward house. Yet the basic principle involved is the same in both.

The examples illustrated herewith are on the Pabst Farm, at Oconomowoc, Wisconsin, which have been recently completed. Mr. Frederick Pabst, of Milwaukee, grandson of Philip Best, one of the pioneer brewers of Milwaukee, purchased one thousand acres, or thereabouts, of land and lake, and on it has installed a breeding and stock farm. No less than thirty buildings were required for its complete installation, including a summer residence for the owner. All the others are accessory thereto, and are disposed in groups according to a general plan. All the buildings were designed by Fernekes & Cramer, architects, of Milwaukee, and are built wherever possible of concrete, with no attempt to conceal its nature and construction. Four of them are now sufficiently completed to illustrate the general effect of the group. The system of construction used is uniform throughout. They are practically monolithic. No attempt has been made to imitate stone. The floors are either made in single reinforced slabs, with reinforced beams and slabs where increased spans called for them, and in some instances with girders, beams and slabs. Hollow burned clay tile have been used only for partitions and for the furring of exterior walls. The latter expedient was for the double purpose of securing dryness and protecting the interior surface of the concrete walls in case of interior fires. The houses are sufficiently isolated to avoid the contingency of exterior fires.

Those illustrated are the summer resi-

dence of Mr. Pabst, the residence of the superintendent of the farm, that of the stock superintendent and the private garage which is attached to the residence of the house gardner. As one walks over the farm he discovers groups of buildings which at a little distance might be taken for survivals of the fourteenth century architecture of England, but which, at nearer view, betray their newness and want of clinging vines and surroundings that make their progenitors so charming to our modern eyes. The simplicity of the design fits well upon the novel material used. This is enhanced in the interiors where its massiveness and substantiality are evident. The large rooms in Mr. Pabst's house, which is one hundred and sixteen feet long in its greatest dimension, required very large concrete beams to span them. These are plastered and finished with simple mouldings which do not detract from the massive effect. The walls between the ends of the beams are treated with a simple relief ornament in cast cement. In cases where ornament was thought desirable on the exterior it is also in cast cement of very simple design. Mr. Pabst's house is roofed with red clay shingle tile, and the others are covered with asbestos shingle tile. These are all set in cement on cast concrete blocks, set between light I-beams, which form the roof construction in all the houses. This is the only steel entering into the construction of the residence buildings except the reinforcement used in the beams and floor slabs.

An account of fireproof country houses in the vicinity of Chicago would not be complete without mention of the two important residences now being erected near Lake Forest, Illinois. One is for Mr. J. Ogden Armour, after plans drawn by Arthur Heun, and the other for Mr. Harold McCormick, and designed by Charles A. Platt. Neither of them is yet in condition to be photographed, and both will be the subjects for more extended treatment when completed. They will embody the systems of fireproofing best adapted to their plan and design.

Peter B. Wight.



FIG. 11. ENTRANCE SIDE—RESIDENCE OF MR. FREDERICK PABST ON THE PABST FARM.

Oconomowoc, Wis.

Fernekes & Cramer, Architects.



FIG. 12. ANOTHER VIEW OF MR. FREDERICK PABST'S RESIDENCE.



FIG. 13. RESIDENCE OF THE FARM MANAGER ON THE PABST FARM, AS IT APPEARED WINTER BEFORE LAST.

Oconomowoc, Wis.

Fernekes & Cramer, Architects.



FIG. 14. THE SAME HOUSE SHOWN IN FIG. 13, AS IT APPEARED AFTER COMPLETION LAST SUMMER.



FIG. 15. RESIDENCE OF ASSISTANT MANAGER ON THE PABST FARM IN WINTER.
Oconomowoc, Wis. Fernekes & Cramer, Architects.



FIG. 16. GARDENER'S HOUSE AND GARAGE ON THE PABST FARM.
Oconomowoc, Wis. Fernekes & Cramer, Architects.

THE ARCHITECTURAL RECORD

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"HERCULES AND ANTAEUS," BY A MANS SCULPTOR (XVI CENTURY)
IN THE GARDENS OF THE CHATEAU OF LE LUDE.

NOTES & COMMENTS

MODERN FIREPROOF- ING SYSTEMS

In 1881 what we now call modern systems of fireproofing began to come into general use, and were soon developed to a degree that has since known little improvement. The history of the art before that time has often been written. The theory that incombustible building materials alone were needed to make a building fireproof was exploded in 1871, after the Chicago fire. Fireproofing was made the subject of discussion at a convention of the American Institute of Architects in Boston some days after that conflagration; what was said was confined to the destructive effects of fire on iron, and the uselessness of any kind of stone in conflagrations. The discussion was kept up for ten years in various journals in a one-sided way, for no one appeared as the champion of iron as a fire-resisting material, notwithstanding the large interests involved. Yet incombustible buildings continued to be erected. Before 1855 many government buildings had been erected with vaulted brick floors, carried by brick and granite piers. It was the Roman system which had been practiced since the Neo-classic revival in the latter part of the 18th century. In that year (1855) rolled iron I-beams were first used in this country, and the floors built between them with segment brick arches, and later with corrugated iron segment arches covered with concrete. There were others, but these were the usual methods. During that time many genuine and praiseworthy attempts were made by American architects to erect incombustible buildings, supposing them to be fireproof. Some of these buildings still standing have no wood in their inside finish except the floors, the window frames and sashes being of cast iron and the partitions of iron studs, faced on both sides with corrugated iron inlath lathing covered with plaster.

Similar methods continued to be used during the transition period from 1871 to 1881. But it was during this period also that experimental work of another kind was done in scattered instances, both in the East and the Middle West.

EARLY ATTEMPTS AT FIREPROOFING

In New York, Philadelphia and Baltimore this plastic system of making incombustible and protecting iron from the effects of fire with a composition of plaster paris and an imported French cement called Lime-of-Tiel, was introduced by the Fireproof Building Company of New York. The hollow blocks used were according to the system invented by Garcin in 1867. They were the first flat arch floor construction used in this country. All blocks were hollow. The architect Peterson, used hand-made hollow tiles in the first floor of the Cooper Institute, New York, in 1856. They were in one piece, flat on the bottom and arched on the top. The late George H. Johnson invented a similar floor construction made in the same form in several pieces to make a flat arch, which was used in the corridors of the New York Post-office about 1872. The Fireproof Building Company used similar flat arches of burned clay in the halls of the Coal and Iron Exchange, New York, now destroyed, built from plans of Richard M. Hunt about 1876. Later, Mr. Hunt specified the same for the floors of the Tribune Building. In 1872 George H. Johnson built the whole interior of the office building in the burned district of Chicago, called "The Equitable Building," with hard-burned hollow clay blocks, and later did the same for a building of the Singer Sewing Machine Company at St. Louis. In 1875 and 1876 Thaddeus Hyatt, an American, made his extensive experiments with reinforced concrete in England. They were probably the most exhaustive tests ever made of this material for construction purposes. They were published in book form for private circulation in 1877. Nothing of consequence has been discovered since that time bearing on the practicable use of reinforced concrete for building purposes, except the details of constructive systems, and their application to new purposes. In 1876 William L. Ward, of Portchester, New York, built the first complete building of reinforced concrete ever erected in this country. Walls, floors, roof, partitions, porches are of reinforced concrete, and in fact the entire

house, which is a large one and finished in a costly manner, as became a man of wealth building for his own use. It was many years before anyone else determined to duplicate Mr. Ward's work (see page 359).

In 1875 the first cast-iron columns fireproofed with burned clay (there are only two of them) were used in the Chicago Club, now the DeJonge Restaurant. They were covered with porous terra cotta blocks, burned with a small vertical hole in each and fastened to the column with screws. The outside finish is plaster, decorated in oil colors, and the capitals are of ornamental terra cotta set around the fireproofing. In 1878 the floor arches of the Cook County Court House at Chicago were built with flat, hollow tiles of rather crude form, and the thin partitions were built of brick in which tan bark had been burned out to make them porous. The Chicago City Hall, built a few years later, 1880, occupying the other half of a city block, was the first large public building of which the entire interior was constructed with hard burned hollow tile, including hollow tile fireproofing for all columns and girders, and a hollow brick tile roof. The last two buildings have been taken down. In 1879 parts of the Chamber of Commerce at Milwaukee were fireproofed with porous terra cotta. The structure was built with cast-iron columns, wooden floor joists and iron roof trusses. In this building the cast-iron columns were covered with solid blocks of porous terra cotta screwed to the iron, and the ceilings were covered with porous terra cotta tiles two inches thick screwed to the floor joists. The most interesting work done on it, which had never before been attempted, was the fireproofing of the individual members of the roof trusses with porous terra cotta.

In 1879, a Mr. Ferry, of Detroit, Mich., appreciating the frailty of cast-iron columns in the case of fire, ordered all the interior columns in a store which he built in that year for Newcomb, Endicott & Co. at Detroit, completely fireproofed with porous terra cotta. There were more than 500 of these fireproofed columns, though in no other respect was the building fireproof. The same thing was done by the late Amos Grannis, at Chicago, a few years later, when he built the Grannis office building, for all the columns in it were fireproofed also with porous terra cotta, screwed to the iron. These are instances quoted to show that at that time investors were alive to the danger of iron columns from collapse in a fire. The Grannis Building was in no other respect fireproof. A few years after the whole interior was burned

out, and D. H. Burnham, whose office was located in it, had a narrow escape. When the interior collapsed all the columns above the first story fell into the wreckage, but when they were pulled out, all the fireproofing was still attached to them and uninjured. This was a remarkable test of their fireproof qualities, though they had nothing to do with retarding the flames. They saved themselves, though they did not save the building. It is an experience worth recalling now, because in recent years, when there have been conflagrations in which poorly fireproofed columns covered only with hard hollow burned tile have failed of their purpose and been condemned by the critics of burned clay fireproofing, the experience of the Grannis Block and several other buildings, which might be mentioned, in which the columns have been similarly protected and subjected to severe fire, does not seem to have been of any profit to more recent constructors of fireproof work in buildings.

**PRESENT
CONDITIONS
OF THE
ART OF
FIREPROOFING**

Chicago, whose inventions have contributed perhaps more than any other locality to the improvement of building construction throughout our country, has been prominently mentioned by various writers as one of the advance posts against the demon of conflagration. This is true to a certain extent. Fireproofing devices commenced to be put into extensive use in 1881, and the number of buildings fireproofed in the following years up to the money panic in 1893, has been such as to make it impracticable in the limits of this note to name more than those in which some new features were introduced.

The first office building fireproofed throughout in the modern manner was the Montauk at Chicago, erected in 1881-2, remarkable also as having been the first in which concrete and iron grill foundations were used. With the exception of the fact that tiles were not inserted under the ordinary iron beams (a method that was first used in 1884) it was probably as thoroughly fireproofed as any building that has since been erected. In fact it was once attacked by and resisted an exceptionally severe fire on its most exposed side where there were many windows. This building was taken down two years ago to furnish part of the site for the First National Bank Building. The Montauk Block was of brick with some terra cotta details on the exterior and was partially subdivided by brick partition walls,

and provided with brick vaults in stacks. The subsidiary partitions were of hard-burned hollow tile three and a half inches in thickness. The cast-iron columns were covered with blocks of hand made porous terra cotta three inches thick, fastened with machine screws tapped into the iron. The girders were covered with porous terra cotta, in no place less than two inches thick over the most projecting parts. The flat floor and roof arches were made of hollow tiles of high grade fireclay. The bottoms of the beams were covered with three quarters of an inch of cement held between the heels of the skewbacks and covered additionally with the regular plastering of the ceilings. This system of fireproofing was used in many other large buildings subsequently, until the cheap methods of using hollow hard burned tiles for columns and girders came into use.

Meanwhile hard-burned hollow and porous hollow blocks were extensively used in New York and Eastern cities, hollow porous blocks being generally used for partitions and hard tile for flat floor arches. The main difference between the materials used at the East and the West was that the Eastern fireproofing was made of a low grade of fire clay on horizontal presses, and that of the West, in Ohio, and Illinois, was made of a high grade of fire clay on vertical steam cylinder sewer pipe presses.

In 1883 and 1884 the first middle west hollow tile, made in Ohio, was used in New York City, in what is now the Nassau Street Building, the first section that was built, of the Mutual Life Insurance Company's Building. This material was used for the floor arches and partitions. The cast-iron columns and girders were everywhere fireproofed with solid porous terra cotta blocks on the same principle as that employed in the Montauk Block. A great many shapes and sizes were used. In some cases round cast-iron columns were changed by these blocks to square ones and in others square cast-iron sections were changed to circular ones in the fireproofing, to carry out the architect's design. Some columns were very large, as in the main office. All of this porous terra cotta was machine-made, that is, passed out through dies, and not cast in plaster moulds as had been the method used for the Montauk block.

The interesting feature in the fireproofing of the Mutual Life Insurance Building was that it was the first building ever constructed in which the bottoms of the iron beams were protected from fire by burned clay tiles. They had not been specified but the contractor having perfected a method for hold-

ing the soffit tiles securely in place, used them throughout the building. The soffit tiles not only covered the bottoms of the beams, but also the edges of the lower flanges and were of such section that they not only received the full thrust of the abutting flat arches on both sides, but were self-supporting as soon as the cement had set.

THE MANUFACTURE OF CLAY FIRE-RESISTING MATERIALS

From 1884 to the present very little improvement has been made in the manufacture of fire-resisting materials of burned clay. After the use of soffit tile in the Mutual Life Bldg., at New York, the next building in which they appeared was the Stillman Apartments in Cleveland. There, however, the soffit tile were made only as wide as the bottoms of the I-beams and their thickness which was not more than three-quarters of an inch, which was all that received the support of the abutting skewbacks of the flat arches. Both sections of soffit tile have been used indifferently from that day to this. Occasionally architects have specified that the soffit tiles must be hollow and two or three inches thick; but generally contractors have done as they chose to do, specifications only stating that the bottoms were to be covered with tile. The thick soffit tile, it will be observed, made it necessary where flat arches were used, to lower the ceilings to an amount equal to the additional thickness of the soffit tile, and this meant a corresponding addition to the thickness of all the floors and a necessary addition to the cost of the building.

One of the few improvements in the manufacture of burned clay fireproofing during the last twenty-five years, was the discovery, said to have been purely accidental, that terra cotta when made semi-porous possessed great toughness and was not as likely to crack in a severe fire as hard hollow tile. Attention was called to this after the conflagration in 1894 at Pittsburg, in which two nearby buildings belonging to the Horne Estate were subjected to very severe fire tests. In the department store hard burned hollow tile was used. It had walls of from one-half to five-eighths of an inch in thickness, and was badly cracked on the exposed side. In the office building a hollow tile, was used called "Terra Cotta Lumber" with walls about one inch thick, and solid tile around the columns about two inches thick. It was made of a dark red vitrifying clay, and with only about one-half of the usual quantity of sawdust

that had been employed in the manufacture of porous terra cotta, for producing the porosity when burned out in the kilns. The discovery was a valuable one, for only occasionally was a hollow tile in the Horne Office Building found to be cracked, and the solid tiles had been found to have entirely protected the iron columns. Since the publication of this discovery some manufacturers have made all their hollow tile semiporous to avoid, if possible, the objection to the fact that the exposed bottoms of hollow tile have cracked off in numerous instances of fires in buildings in which they have been used.

The diminished use of porous terra cotta for protecting the constructional steel members, is one of the evidences of the decadence in the art of fireproofing with burned clay since about 1890. Up to the present time porous terra cotta partition blocks have continued to be used in some buildings in New York and the Eastern cities. One factory at Pittsburg continues to make it, and the whole product of one factory at Chicago for fireproofing purposes is porous terra cotta.

RESULTS SHOWN BY CONFLAGRA- TIONS

The conflagrations at Baltimore and San Francisco have demonstrated the defects in hard burned hollow tile as a fireproofing material for all purposes in one respect.

While the floor arches have preserved their stability and have demonstrated their value as fire stops, and column and girder coverings have in most cases preserved the steel construction from collapse, in nearly all instances of exposure to severe fire the hollow tile has had its commercial value as a permanent building material destroyed by the breaking away of exterior shells from an unequal expansion in each material unit. This defect has been most pronounced where it has been used for column and girder protection. In the latter cases the destruction of the tile has been due not only to the breaking off of the exterior shells, but to the longitudinal expansion of the entire column covering. When the bottom and top of such covering is built in firmly between the top of one girder and the bottom of the next girder above, the longitudinal expansion of the whole covering naturally causes it to be crushed between the unyielding end-bearings. This was traced, showing different amounts of expansion and corresponding destruction by crushing, in a tier of columns in the Horne Department Store at Pittsburg after the second fire in 1897. As opposed to

this experience severe fires that have occurred within the last ten years in the two buildings of Martin Ryerson at Chicago, one on Wabash Avenue and Adams Street and the other on Randolph Street near State Street, each of these stores was subjected to a very severe interior fire. In both the columns were protected by solid blocks of porous terra cotta, screwed to the iron, and in neither case were they injured in the least. Neither were the porous terra cotta girder coverings in these two buildings in any way injured by the fire. The ceilings of the former building were of porous terra cotta tile screwed to the wooden floor joists and the fire was confined to the story in which it started.

Hollow tile partitions have failed badly both in Baltimore and San Francisco conflagrations. Where the severe fire occurred on one side they cracked and their hollow spaces were exposed, and they were often thrown down by excessive warping. In more instances their fall without apparent cause, since the several blocks were found unbroken, can only be attributed to vertical expansion of the whole partition when the great heat was on both sides, causing them to bulge and fall, because there was no relief for the expansion between the floor and ceiling. The problem how to prevent this is worthy of very serious consideration now. It has long been insisted that the partitions should be built on the floor fireproofing and wedged tightly to the ceiling. But it looks as if this supposed carefulness might have been the very cause of their collapse.

These few illustrations may serve to give some indications of the present condition of the fireproofing art with burned clay. Many others might be added; and it will naturally be asked, why should there be retrogression in the art, and why should these errors still continue to be repeated. The answer involves a serious consideration of the duties of present day architects and their relations to the contractors, as much as to their clients. It involves a consideration of the educational qualifications in which one is compelled to admit that the present day architects are quite as deficient as their progenitors of thirty years ago. The engineering press has, during the last few years, given much space to discussing the merits of this or that used in fireproofing buildings. The architectural press has given but scant attention to it, confining itself mainly of quotations from the engineering journals. The latter have taken it upon themselves to regard fireproofing as an engineering problem. It is difficult to see why it is not much more a problem in chemistry and mechanics, if it is not

entirely an architectural question. It is a matter only handled by architects in practical life, and should not be left to the engineers, who have little practical use for it.

**FAULTY
FIREPROOFING
AND THE
NECESSITY
FOR A
STANDARD
SPECIFICATION**

One can point to a few reasons for this state of affairs. The first and most elementary is that no attention has been given to fireproofing in the courses of study presented in the architectural departments of the several universities which assume to provide education for architects. It has been attempted recently in a few of them to give courses on reinforced concrete. All well and good, since that has recently entered largely into building construction. But why not make concrete construction and fireproofing merely a division of a broad curriculum in which the theory and practice of fire prevention is the basis of all such instruction? Why not treat all systems which are supposed to be fireproof from the separate points of view of fireproofing and construction? They are by their nature correlated subjects. Considered separately the clay systems and the reinforced concrete systems are the two principal ones employed in modern practice. Each has its advantages and its defects structurally, as well as advantages and defects from the fireproofers point of view. These should be understood and defined in any acceptable curriculum.

Another reason for the condition of the art to which attention has been called, is that there are no reliable experts in fireproof construction. If there are, there are none practicing it professionally, and, as far as is known, there are no architects or investors in building operations seeking for such experts. There are those who assume to be experts in reinforced concrete, but they are generally representatives of systems which are competing against each other. If there are any experts in the burned clay systems they must be in the employ of large companies engaged in the business. On all sides such experts as there may be must be mainly interested as contract getters. Another kind of experts are those employed by the great fire underwriting organizations. As things look at present they are the only real and reliable experts. But they are not there to assist architects, though glad to be consulted. The great underwriters' laboratory at Chicago is piling up information of inestimable value, applying the crucial tests that reveal the weak points of materials and combinations of materials, which are employed

in buildings, day by day, with indifference to their real qualities and powers of endurance. In course of time this information will be available, but only after more mistakes are made and more conflagrations reveal the blunders which could readily be corrected.

If it were revealed how the specifications of most architects had been made defining the materials and method to be employed in the fireproofing of hundreds of buildings that have been erected in the last twenty years, it would make amusing, as well as instructive reading matter. Those only who are experienced in the art and have the opportunities afforded to competing contractors, could tell the tale. Too often the contracts are carried out in accordance with the stock phrases "equal to" or "as good as" which are supposed to be for the protection of the owner. The low bidder gets the job and the owner gets the gold brick.

The specification writer must do his duty to his employer and cover everything that goes onto the building whether he is versed in the matter in question or not. In rare cases the architect consults some contractor whom he deems to be an expert. The contractor conscientiously leads him up to the making of a good specification. But the inexperienced contractor estimates according to his own makeshift methods, and, the bids having been opened, his low bid takes the job. The owner is satisfied if the work complies with the building laws, and overrules the architect, if he should say a word in behalf of the better method. The next time the expert contractor is less conscientious.

Perhaps neither the owner nor his architect realizes that there are many kinds of burned clay and many kinds of concrete, that there are materials and methods of assembling and securing them that have failed in recent conflagrations, and others that have valiantly served their purpose. They are fully satisfied until they run against the expert whom the underwriters now send to examine the work. But then it is too late to make changes and the owner has to stand the loss in premiums which the underwriters relentlessly exact.

**ELEMENTS
OF THE
ART OF
FIREPROOFING**

The whole art of fireproofing successfully consists of two things; first, the materials to be used and, second, the methods of placing them where they will stay until they have fulfilled their purpose. We have heard of materials that fail in themselves, and methods of setting both good and bad materials

which result in their downfall when exposed to severe tests. The method of assembling them is the most important. It can only be corrected by one who has been observant of all the failures. Still it may not be corrected even by this expert. He may in so doing fall into another unforeseen difficulty. More observation and experience is necessary. The shop test is not always reliable. The contingencies in a large building subjected to a severe fire differ in all cases. The coolest judgment is necessary to control them.

The common failing with all who are called upon to devise fireproofing systems is the want of a full realization of the varying intensity of heat in a burning building, the consequently irregular expansion of the fireproof material by heat and the effects of drafts engendered by the very nature of the plan and arrangement.

As a general theorem it must be assumed in all cases that the fireproofing should be sufficient to save itself and save all that is behind it. In so doing it saves the general construction. All inside finish and machinery is destructible. The value of this in any first class building approaches fifty per cent. of the cost of the whole.

The conditions are the same whether burned clay methods or concrete methods are used. All hollow burned clay tiles crack by unequal expansion. A method must be found, if not to prevent this, to cover them in such a way that the covering material only will be damaged. Solid porous tile is often found to be the remedy. Concrete, according to the most reliable experts, is subject to surface disintegration according to the intensity of the heat, and its duration. If this cannot be prevented the concrete must be protected by something which will receive the damage and can be renewed if necessary without much expense. Experience has shown that a hard burned fire clay tile cracks only once in its lifetime. Unequal expansion is its only weakness. Its hardness is not affected by re-heating. It can only be fabricated and burned in the hollow form. But it can be split into flat tile or flat tile with projecting webs after burning. This is a common practice where slabs are needed for any purpose. Thereafter they will not crack with intense heat, and their expansion is possible without damage. Experiment in actual fires, as well as experience, have demonstrated that when

secured so that they cannot be thrown off they are the best practical protection to the exposed surfaces of all burned clay materials, as well as to exposed concrete.

IMPROVE- MENT NECESSARY

There is a necessity to-day for improvements in the art of fireproofing, which has not yet reached such perfection that it can be regarded as a standard system. Every

great fire disaster brings the critics to their feet with denunciations of the futility of present day methods; but without the suggestion of intelligent remedies. All the systems are on trial to-day, but it is not therefore to be assumed that all are defective. Still the confidence of the public and of those who are immediately interested is too often shaken by the revelations of such examples as the destruction of the Parker Building in New York, one of the worst examples that could be found. The possible improvements in the art which have been pointed out, some of which are by no means new, but which failed of general recognition, will eventually be made as a result of recent agitation. Demands are being made on all sides for "standardization" of everything. Something of the kind should be done for this art if possible. There should be co-operation between architects to arrive at the best results. But more than all there should be co-operation between the architects and contractors. Without the experience of the latter and the results of their extensive investigations and tests any investigation of the real merits of materials and methods of construction would be fruitless of valuable results. Another invaluable addition to knowledge of the subject could be found in the exhaustive tests conducted at the Laboratory of the National Board of Fire Underwriters.

The time has arrived for the formation of a commission to investigate the whole subject of fireproofing buildings with a view to arriving, if possible, at a standard specification. Such a commission could only be formed of representatives from the national body of architects, who should take the lead, inviting contractors of experience in the art, in both clay and concrete methods, and a representative from the Underwriters' Laboratory.

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No. 6

Selecting the Suburban Home Site

Practical Suggestions

In the April issue, the general principles which should govern the development of building estates were outlined; in this article it is intended to emphasize a few of the more practical points therein mentioned, and especially the importance to the intending purchaser of utilizing professional knowledge in the selection of a site as well as in its subsequent development. It is desired also to point out that the ideal development of a building-estate rests as much with the purchasers as with the management. It is for this reason that points of interest to both parties have been mingled, as the welfare of the estate should be of mutual interest.

One of the first points taken up in the previous article referred to the advantages accruing to an estate by thinning-out thick and mature woods. It was shown that by so doing a fair share of the dominating views would be assured to all lot owners, thereby increasing the value and salability of the individual lots, as well as increasing the general artistic tone of the whole property. As the process of woodthinning is a somewhat unique one the method of procedure will be explained in some detail. The operator should first absorb the dominating characteristic features of the woodland by reviewing its entire reach from some lofty vantage point. He should then acquaint himself with the internal topography of the woodland by tramping through it until its every detail and all of its com-

ponent parts have become clearly "mapped-out" in his mind. By thus studying the situation he will have determined the parts which require the severest "thinning-out," he will have noted the most picturesque and characteristic formations, and will thus be enabled to form his plans in such a way that the final grouping of the plants will preserve, so far as is consonant with the utilitarian end in view, the most artistic combination of nature-groupings and of open meadow land. Without thus photographing upon his mind the general topographical characteristics of the land, the operator literally works in the dark, and will achieve nothing but haphazard views and scraggly and disconnected effects.

The trees to be felled must then be marked for the axeman. With two or three laborers, armed with short axes, or with pails of paint and brushes, he then proceeds through the woods "blazing" all trees which are to be felled, or according to the system to be adopted. "striping" the trees which are to be saved. Where the latter are in the vast minority, it is a time-saving policy to "stripe" the trees with paint. If, however, the reverse is true, it is safer to "blaze" the trees which are to be cut. In any case whichever system is adopted it should be continued to the completion of the work, for if the two systems are worked together there is great danger of serious mishaps occurring.

The operator should not attempt to

complete his task in one wholesale marking. He should repeat the operation several times, as after each marking or cutting a more comprehensive grasp of the result can be obtained. The winter months are the most economical for such work, but the final, or even the two last cuttings, should be performed in the Spring months, after the leaves have matured. Doubtful points can in this way be solved with greater accuracy.

offered to the engineers. Where strict economy is not a necessity a minute topographical map should be made. It is always a desirable luxury, and will in innumerable instances be the means of avoiding loss of time and will frequently be the means of avoiding current engineering. It is always a comparatively costly item. On flat and unobstructed ground such a map is a superfluity. The mere outline of the property, with possibly a few important

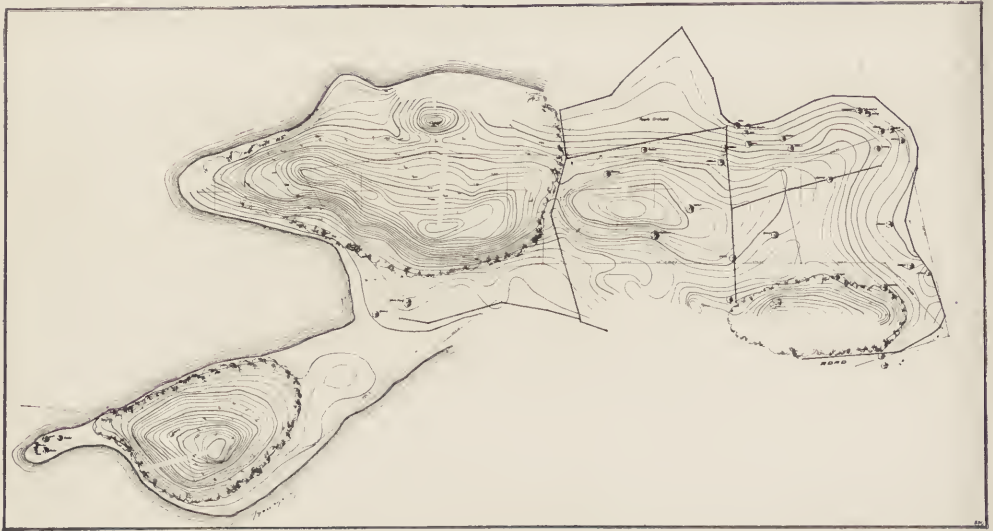


Plate I.—This plate shows the topographical map to be used in connection with the General Sales Map, Plate II. It is not intended to be an accurate working map, but to aid intending purchasers to acquire a clear idea as to the general character of the land. As pointed out in the text, it is of importance to each purchaser of a plot to have a definite idea as to the general policy of the company, and to this end it should be the aim of every estate to supply its clients with all available information. A topographical map, a general sales map and a figured map will convey the required data.

An open prospect is so obviously a pre-requisite to the full enjoyment of country property that no company should neglect the operation of wood-thinning, and where this has been neglected, every lot owner should insist upon its performance.

If a topographical map of the property is to be secured it should not be made until the woods have been thinned. The cost will then be at least one-third, possibly a full half less, owing to the increased facility of movement

notes, is all that is required for a designer to make his "out-lay" of roads and lots. However, where the property is of a hilly and irregular nature with steep and abrupt gradients, a topographical map is of considerable working value. It is correspondingly expensive.

Apart from its value as a working basis to the constructing engineer it has a pictorial value insofar as it is descriptive of the general type of the property. In this sense it is frequently

used by companies in conjunction with the general sales map, to such prospective clients as are unable to personally view the property.

Otherwise a topographical map in itself has no value to the intending purchaser. What is, however, of vital importance to the future purchasers is the general sales map. The purchase of property which represents the

own judgment in the purchase of valuable objects of art.

A building site is, or should be so considered, an object of art—a jewel in the rough—and every building-estate is but a collection of such jewels more or less well assorted and offered to the public for individual selection. The problem which confronts the purchaser in selecting a plot is two-fold, first, he

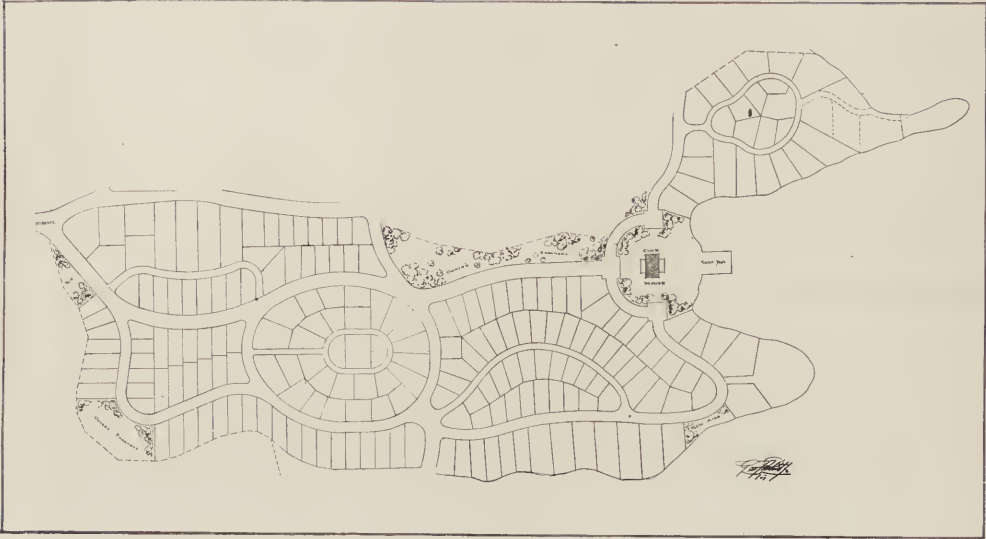


Plate II.—The above plate represents a good type of a General Sales Map. By comparing it with the topographical map (see plate I.) a comprehensive conception of the character of the land, the various sizes of the lots and their adjustment to the land may be obtained. It is not a "figured" map from which lots are sold, but a descriptive diagram made for the purpose of enabling intending purchasers to obtain a clear idea of the system of sub-division which the company has adopted.

The irregularity of the lots as to their sizes and areas will indicate that the road system and the lots have been "worked out" upon the ground and that each lot will afford a suitable and logical site. Such a map guarantees the future environment of each lot. A map so designed removes the possibility of reducing the average size of the lots at a future date. A map of this kind should be distinguished from what is known as a "figured" map. (See Plate III.) Lots should not be bought from such a map, and in the event that a company has not prepared a completely worked out and figured plat, each separate plot sold should be guaranteed by some responsible title company.

future home of a family is a question of supreme importance and yet the average layman considers himself fully competent to select a parcel of land as being fitted to the most artistic development, or at least, capable of development along lines suitable to his personal tastes. Such an attitude is no less illogical than would it be for him to attempt the designing of his own house and grounds, or to rely on his

must ascertain that it is flawless, and second, that it is capable of such artistic treatment as he desires. Viewing the purchase of land in this light, the wisdom of employing professional opinion in the selection of a site will appear obvious to all. No artist can do justice to himself or his client unless his has been the guiding hand from the very inception of the process of creating a home. To expect of an artist to create

a perfect picture without having had the privilege of selecting its very basis—the essential item of the entire work—is to expect the impossible. No landscape painter of any self respect would accept a commission to “fill in” a canvas, the back-ground of which had been started by a layman.

But to return for the present to a more prosaic side of the matter —. The general sales map of the company

relation between map and ground facts, and negligence—to use no stronger word—on the part of the company, to strictly adhere to the “promises” of the map, is a cause of endless disagreement, disappointment, and in many instances, of law-suits. A general map should not be offered to an intending purchaser as a “bait,” but as a positive representation of what has been or is to be constructed. The potential surroundings

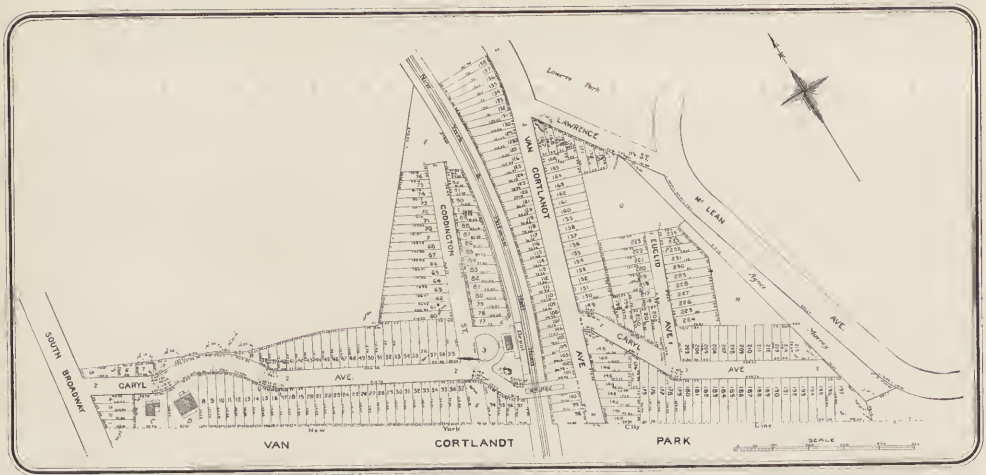


Plate III.—The above plate represents a typical “figured” map, as distinguished from a “scaled” map. Every building estate map should be so figured in order to avoid subsequent disputes as to boundary lines. Avoidance of this initial expense is the most frequent cause of law suits over boundary lines, and the absence of such information on any map may be taken as an indication of false economy on the part of the estate, which will inevitably lead to future litigation between its clients and itself.

As it is a costly operation, it is avoided wherever possible, and especially in connection with estates which are situated in country districts, and which are designed with irregular road and boundary lines.

may or may not be of value. It too frequently is little else than a charming picture. It is for the layman, or his expert, to determine as to its intrinsic value. This depends upon the faithfulness with which its representations have been adhered to in the actual execution of its suggestions, that is, upon the accuracy with which its lines—its roads and lot-subdivisions—have been executed in concrete form or “staked out” upon the ground.

Carelessness upon the part of the intending purchaser in ascertaining the

of a lot determine, to a large extent, its value. The fact that a road is to go here or there, that an adjoining plot is to be reserved as a park area, or playground, or as the site of a public building, all tends to increase or decrease the future value of a lot. It is important to have positive information upon such points as these. There is but one way to ascertain such facts. If the general map agrees with what has been constructed or with what has been “staked-out,” and if the deed refers to both and equally accepts both as a basis

of the covenant to the purchaser, the latter may rest assured as to the facts. It would seem obvious that every purchaser of a lot should follow such a procedure. But it is safe to say that nine out of every ten purchasers of building-estate lots, especially during the early days of the construction work, are more or less ignorant of such facts, and further, it is also safe to say, that a large percentage of purchasers are not positive even as to their own boundary lines! Again, land companies do not, nor do their clients, always realize what the constituents of a practical lot are, to say nothing of what constitutes an artistic parcel of land. It frequently



Plate IV.—The above diagram represents the plot referred to in the text. It is in area little less than six acres. The right of way is indicated at the north end of the lot. The incongruity of a fifteen-foot right of way leading to a plot of such an area is only too obvious. The fault lies in the original sub-division of the estate. It is by no means a unique case. It is a typical deed map as given by a modern building estate. The general map is not figured, hence each lot as it is sold must be located individually. Such location should be done with the utmost accuracy. The map in question is certified to as "substantially correct." It would not be in its present condition accepted by any reliable title company. Eventual disputes as to its boundary lines can only be avoided by the indifference of the adjacent property owners as to the accuracy of their own boundary lines, or by checking the errors in figuring the areas of the adjoining lots.



Plate V.—Representing a typical Adirondack summer camping estate. Each cabin is rented for the season only. The whole property is common to all, there being no sub-division of property for the individual cabins. The casino supplies the common dining hall and lounging rooms.

is a literal case of the blind leading the blind. It is a frequent custom for companies to sell their lots "as per map." It need hardly be pointed out that a purchaser should invariably ignore such a practice. He should buy land and not representations, and he should buy land that is fitted for the purpose he has in view. Hence the importance to every building-estate company, which pretends to a sound financial and honorable standing, to have prepared a well thought out and carefully draughted map and of having it transferred accurately to the ground. "Staking-out" should be done so clearly that every intending purchaser may see beyond peradventure exactly where his boundary lines run and just what they include. In many instances this is originally done most thoroughly. But neglect to maintain the work once done results in mis-adventures quite as serious as original neglect. The majority of estates are before the public many years and the successive winters and the wear and tear of circulation, tend gradually to destroy all vestiges of roads and boundary lines, with the result that the elusive memory of the sales agent is depended upon to approximate the actual boundary lines of the lots. Many

instances could be enumerated to exemplify the exasperating occurrences resulting from carelessness on both the part of the agent and the buyer.

One instance occurred as follows: A corner lot was purchased overlooking the Sound. It was bounded on one side by a deep and precipitous ravine. The other two sides were bounded, as the agent informed the purchaser, approximately "by those two trees and from thence to about here." The whole making a very desirable corner lot. The lot was purchased. Subsequently it was discovered that the important boundary line described by the agent as "from thence to about here," forced the building site so near the edge of the ravine, that in order to construct the house it was necessary to project the body of it considerably over the edge of the ravine. The new owner had in fact, as he expressed it, "bought more air than land." There was but one alternative, namely, to buy the adjoining lot! Another instance may be mentioned: a picturesque lot was purchased and the house practically completed. The land designer was called in to arrange the ground. A casual survey of the property disclosed the fact that there was no practical line for a driveway to the house. Result: it required weeks of irritating litigation to secure a right-of-way through an adjoining property. As this easement was but fifteen feet wide the error was but partly checked and could only be fully checked by the purchase of more land. Many an owner has been exasperated beyond measure upon finding, after the purchase of his lot, that certain features, such as a picturesque grouping of trees and rocks, or a fine clump of pines, were not included within his boundary lines. Or to reverse the condition, a given lot may frequently be made logically complete by including within its area a strip of an adjoining plot, which should have been acquired simultaneously with the original purchase. The majority of such errors and omissions could be obviated by clear and accurate demarkation on the part of the company and by the layman securing expert advice in the

selection of the land for his future home.

A point of considerable importance for every purchaser to determine in weighing the future real and artistic value of his prospective property, is the relative position of the contiguous house-sites. The company should, in order to enable this point to be ascertained, demark in a conspicuous form these probable sites. It is also a good plan for the company to have constructed a cheap platform the height of which will correspond to the floor level of the second story of an average house. This will provide an opportunity of ascertaining the prospect which the proposed house will afford.

It is well to point out here that the leading building-estates of to-day are at infinite pains to improve their properties to the greatest advantage, well knowing that the majority of people, other things being equal, will seek that property which has been most scientifically and honestly developed. And it may be stated here that one of the most telling hall-marks as to the policy and the character of the expert advice which has and is to govern the out-lay and development of a given property, is the system of road alignment and lot-subdivision which has been adopted, and which show on the sales map. The adopted system will to a large extent determine the class of buyers that will eventually be attracted to the estate. Without repeating what was pointed out in the previous article as to the relative merits of the "gridiron" system, as compared to the "logical" system, it may be said with assurance that, where the policy of intentionally subdividing the lots into areas too small for individual use, for the purpose of compelling the purchase of two lots instead of one, that the property will eventually deteriorate into third or fourth class investments. This building-estate "trick" originated with the "gridiron" system but is frequently adopted in the "natural" system. Thus the alignment of the road may be correct, but the lots will have been "squeezed"—that is, one logical site will have been divided into

two or three "paper lots." The result is obvious. It is always easier to sell one lot at a comparatively high price than two or three lots at a comparatively low price. Hence where one individual will buy three or four lots and build accordingly, five or six individuals will buy but one lot and build accordingly. The smaller investments naturally depreciate the value of the larger investments, and eventually determine the controlling value of the whole property. A study of the general map as compared with the topography of the land will at once discover the policy of the management in this respect.

It has been pointed out that the ideal development of an estate rests as much with the buyers as with the company. All that the company can do is to scientifically dissect its property into the most logical and individually desirable lots. From this point on the artistic value of the estate as a whole depends upon the wisdom with which each owner has chosen his site and with what taste it is subsequently improved. It is not enough to have secured a clean title to a given parcel of land. The point here to be punctuated is that having accomplished so much, the average owner believes he has accomplished all, whereas for the real purpose in view, the creation of a beautiful and harmonious home, he may have accomplished naught.

The two primary essentials in the creation of a perfect home are, first, the selection of the artist and upon his advice the selection of the land with a view to the desired form of development. The majority of artists are selected on account of their personal traits; whereas they should be selected on account of their inherent artistic bent. A fascinating manner can hardly compensate for a badly designed Colonial villa and yet it is an undeniable fact that the more talented an artist is the more specialized is his talent. Hence the client should in the process of creating a new home proceed thus: he should first decide what manner of house and garden is most to his liking; he should then select the artist best adapted to

materialize his ideal: and finally, he should, subjecting himself to the advice of the expert, purchase the land for his new home. Thus equipped he has at least started with every available requisite for the successful issue of his venture.

A casual stroll through a modern building-estate, will to the competent eye, clearly show that nine-tenths of the houses have been designed by one mind, despite the fact that there are apparently twenty different styles (?) of architecture and gardening. A closer scrutiny as to the relation of the houses to their sites will disclose the fact that but a sparse minority of them are really designed with feeling or in conformity with the character of the land upon which they rest. The reasons for this are clear, and although not peculiar to the architecture and gardening of building-estates, they are more clearly brought into relief by the proximity of the houses and the inevitable "oneness" which characterizes all such estates.

In the event of the company itself erecting the majority of the houses upon its estate, it should not employ or contract with one architect to design everything from a fifteen hundred dollar bungalow to a twenty thousand dollar villa. Obviously it should employ one who is fitted to design bungalows, another who is fitted to do classical designs, and still another who is adapted to the more romantic or less classical styles.

The American layman has not yet grasped the essential inter-relation between the land, the house and the artist. The average American architect will accept, is compelled to accept, as a means to a livelihood, any commissions whatever, ranging from a twenty-story office building to an Adirondack log cabin. Such obviously is not the ideal relation between client and artist. It has been pointed out what this relation should be. A little thought will show that the eventuation of this ideal relation depends almost entirely upon the independence of the layman and his appreciation of the artist's limitations.

George F. Pentecost, Jr.



HEADQUARTERS BUILDING, RIVERSIDE—CHARLES RIVER RESERVATION.

Stickney & Austin, Architects.

Boston.



REVERE BEACH RESERVATION, BOSTON—CARNIVAL WEEK.

A Monumental Work of Landscape Architecture: The Metropolitan Park System of Boston

Probably nowhere else in the world are so fully illustrated the relations that landscape architecture bears to architecture pure and simple as in the metropolitan parks of Boston. This is mainly by reason of the diversified character of the park system itself—diversified both in landscape and in functions. Such a range in nature and in use implies a corresponding range in what might be called architectural traits. And here it seems proper that at the start due significance should be laid upon the circumstance that the relations between these two great branches of design have in this instance been logically developed according to their normal bearings—and not invertedly, and consequently pervertedly, as unfortunately has elsewhere now and then turned out to be the case.

This normal relationship is founded upon the simple axiom that architectural activity of any kind, if it is to be kept

true to its purpose, must be a manifestation of structural utility expressed in terms of art. However it may be with other phases of art, true architecture can never be an “art for art’s sake.” Even when we come to the purely monumental this must hold true. For here the purpose, the use, lies in the thing that calls for expression; unless the result is true to this the work itself has no reason for being. So in a work that is to be expressed in terms of landscape design it follows that the dominating motive must reside in its landscape quality. Insofar as architecture itself is concerned therewith it must hold a complementary or incidental relationship. So soon as it tends to assert itself on its own account it becomes false to itself as well as false to its mission. In landscape work where the hand of the designer is betrayed in evidences of its touch, as in the roads and paths of a



Mattapan Bridge—Blue Hills Parkway.

J. R. Roblin, Engineer.
Wheelwright & Haven, Consulting Architects.

public park—in contrast with the guiding impulse that employs art for the concealment of artifice—these are made subordinate to the main intention by a frank recognition of their function as necessary intrusions and are reconciled to the scheme by imparting to them an accidental character. That is to say, that when, for instance, a road is made to lead to a charming view where, perhaps, certain qualities of the scene culminate in an emotional appeal, either tranquillizing or picturesquely piquant, it may not be in a way that ostentatiously declares itself; to achieve its end it must lead to its object without the effect of self-consciousness, as of a hand pulling aside a curtain to say: "Behold!" It must be done quietly and naturally until the end is revealed much



Auburn St. Bridge—Mystic River Reservation.

J. R. Roblin, Engineer.
Wheelwright & Haven, Consulting Architects.

as a flower unfolds itself. Palpably constructed features, like roads and paths, are not designed—as so many suppose and as the tyro attempts—for the sake of producing upon a paper plan a pleasing composition of gracefully curving lines. They are nothing more than carefully devised means to aid the public in convenient access to the various parts of a pleasure-ground and to guide it in its movements in a way that will contribute to its enjoyment and prevent injury to the elements that make up the sources of gratification—an injury that surely would result from the defacements wrought by uncontrolled movements on the part of many people. Roads and paths are thus made incidentally to contribute to the successive revelation of beautiful qualities that impress themselves upon the beholder in a series of scenes or pictures. A park, when properly designed, is never planned with reference to the construction of an attractive arrangement of roads and paths. On the contrary, these are made as few and as inconspicuous as possible. It is in such things that the skill of the landscape architect shows itself. In the rest of his work his skill is not in evidence at all. So with architecture in these relationships. Unless it is employed in nicely harmonized subordination to landscape qualities it fails of its purpose.

That there is need of saying this is evident when we recall a striking instance of the contrary procedure. Since it is well that notable instances should be put on record, either for the sake of encouragement or of wholesome warning, the specific case may here be mentioned. It may be remembered that some years ago, at the time when it was decided to utilize New York's Bronx Park as a botanical garden and an arboretum, the question arose as to its equipment for that purpose. The friends of the project were influential socially and financially. In certain quarters it was felt that here was a prime chance to make a telling architectural effort; on the other hand it was urged that whatever structural works were undertaken should be subordinated to the purpose of the park. The former view unfortun-

ately prevailed. The main result was a monumental-looking building, large and pretentious—good enough in itself, but decidedly out of place in its environment. It asserted itself in a rather vain-glorious fashion as the culminating feature of the park, set as conspicuously as possible for the sake of architectural display, whereas in site and in treatment it should have been kept strictly incidental to the true use of the park. But the actual effect was that of a park employed as a setting for a palace. *Indecorum* is perhaps none too strong a word to characterize the procedure.

A public pleasure-ground, or a system of pleasure-grounds, must be equipped with certain instrumentalities demanded for the proper service of the public for whose benefit it exists. The designer, the landscape architect, establishes the roads and paths, concourses, terraces and other modifications of the surface requisite for the ends in view. Then there must be bridges, shelters, houses for resident officials, accommodations for police, and buildings designed to meet the various recreative purposes for which the place is intended, such as restaurants, field-houses, and the like. These require the services of the architect. But in the execution of his task, just as the landscape architect must regard his roads, paths, and other features as necessary incidents to be carefully subordinated to landscape qualities, so this artist must also regard his activity as one of subordination and co-ordination, harmonizing his work with its landscape surroundings, making it express its purpose as quietly and unobtrusively as possible—always with due regard to these limitations. While holding these limitations steadily in view, the architect need not fear that he is losing any opportunity whatever, or sacrificing his artistic individuality in any respect, through a recognition of the necessity of his keeping a minor place in the scheme of things. Indeed there is ample scope for work of the greatest excellence under these conditions. Here the opportunity of the artist is that of exercising the skill and taste required to maintain a proper sense of values in relation to other elements of



Boston & Maine R. R.—Mystic River Reservation.

J. R. Roblin, Engineer.
Wheelwright & Haven, Consulting Architects.

the larger work in which his own work plays but a part. On the other hand, should the architect insist upon asserting himself he would thereby lose his opportunity through the very fact of unceasingly endeavoring to make more of it.

In Boston's metropolitan parks uncommonly good opportunities have been given for the exercise of architectural talent, since the extensive scope of the system, the variety of functions represented by the various individual parks, have given opportunities for a correspondingly wide variety of architectural activity. To appreciate this notable circumstance some idea of the character of the system is essential. It consists of a considerable number of separate features, widely differing and often strongly contrasting in character. The system



Alewife Brook Bridge—Mystic River Reservation.

J. R. Roblin, Engineer.
Wheelwright & Haven, Consulting Architects.



Bridge in Medford—Mystic River Reservation

J. R. Roblin, Engineer.

Wheelwright & Haven, Consulting Architects

aims to do for a great metropolitan district made up of forty separate municipalities, with a total urban population of more than a million and a quarter, that which at the time its realization was first determined upon had already with remarkable completeness been done for the central city by an elaborate park system of its own. Not only has it complemented Boston's municipal park system with a needed range of outer parks that have conserved in perpetuity and upon a grand scale many of the most valued and distinctive features of the scenery of the region; it has enabled the numerous suburban municipalities to do for themselves through concerted action what Boston had already so well done for itself, and which previously they had lacked power to do. The metropolitan system, taken in connection with the local systems, makes a remarkably complete whole; an equipment of recreative open spaces and connecting pleasureways such as no other great city in the world yet possesses in respect to artistic design and scientific regard for the needs of a great metropolitan community. In this system the typical natural landscape has been preserved by the establishment of three important wilderness reservations. One of these, the Blue Hills Reservation, embraces what is practically an entire mountain range in its area of nearly 5000 acres. On the opposite side of the city, to the north, at about the same distance from the center as Boston's municipal pleasure-ground, Franklin Park, lies

the Middlesex Fells with an area of about 3000 acres, including various lakes nestling amidst a wild region of rocky hills. Somewhat similar in character to the Middlesex Fells Reservation is the large area known as Lynn Woods, where the great reservoirs for the water-supply belonging to the city of Lynn have been protected by setting apart the surrounding well-forested hills for park purposes, making an area of altogether something like 2000 acres of land and water. Another wilderness reservation, of modest extent as compared with these, is the Stony Brook Woods. This, like the Blue Hills, lies on the south side of the city; it has 400 or more acres making a sort of an expansion of a great picturesque parkway connecting the municipal system of Boston with the Blue Hills. These wilderness reservations are intended to be simply developed, the sylvan landscape maintained scrupulously free from appearance of artificial intrusion beyond the features necessary to make them conveniently available to the public and serve the uses that mean a liberal enjoyment of natural scenery and of life in the open air by the great urban multitudes living near by.

The surroundings of a maritime city naturally include a great deal of waterfront, much of which, either by reason of shallow water or of facing the open ocean, is of a character that makes it unavailable for commercial or industrial uses. Moreover, the seashore offers the greatest attraction to the multitudes



Granite Branch Bridge—Furnace Brook Parkway.

J. R. Roblin, Engineer.

Wheelwright & Haven, Consulting Architects.

throughout the warm weather. Thither the people resort for the cooling breezes from the water and for bathing and other aquatic enjoyments. Elsewhere, as at New York's Coney Island for instance, it has usually been customary to depend entirely upon private enterprise for meeting the demands of the public for seaside pleasuring. The result is apt to be a heterogeneous utilization of the shore in ways that offend the taste as well as hamper the recreative opportunities of the public. Such was the case at Revere Beach in the days before it became a public domain and one of the leading features of the Metropolitan Park system. Here the occupancy of the shore was of an extremely disreputable and squalid appearance. The policy of seashore reservations as features of the metropolitan plan, first instituted here, has been followed out by the reservation of various portions of the metropolitan water-front for park purposes. Hence we have the six different seaside reservations of Revere Beach, the Winthrop Shore, the Lynn and Swampscott shores, Nahant Beach, the Quincy Shore, and Nantasket Beach. Beside these the city of Boston as a municipality has important seashore recreative grounds of its own. Quincy Shore, like Boston's Strandway and Marine Park, lies upon the quiet waters of the land-locked bay at about the same distance from the center as Revere



Ginn Field Bridge—Mystic Valley Parkway.
J. R. Roblin, Engineer.
Stickney & Austin, Consulting Architects.

Beach and the Winthrop Shore on the north; Nantasket Beach on the south, with its surf-bathing, corresponds in location to the Lynn and Swampscott shores and Nahant Beach on the north.

These seaside pleasure-grounds are indeed most precious public possessions. Their relation to each other in distribution at corresponding distances from the center, like the relative position of the great wilderness reservations, is strikingly symmetrical. A like order in distribution applies to the features that constitute the third element in the great metropolitan scheme; that is the reservation of the water and banks of the three principal streams that flow into Boston Bay; the Charles, the Mystic, and the Neponset rivers. The reservation of these river banks, and the consequent improvements of the streams by restoring the ancient cleanliness of their waters and their shores in ridding them of unsanitary occupancies was due to the inspiring suggestion of the late Charles Eliot, the lamented young landscape architect who was a main and indispensable factor in securing the establishment of this great park system, and who thereby in his work set himself a monument even more enduring and noble than that which the architect of a great cathedral may create. With simple and convincing eloquence Mr. Eliot pointed out how in these rivers and their shores lay the potentiality of great recreative areas where the needs of the great surrounding popu-



Electric Railway Bridge—Middlesex Fells Reservation.

J. R. Roblin, Engineer.
Olmstead Brothers, Consulting Architects.



Headquarters Building and Police Station—Middlesex Fells Reservation.
Stickney & Austin, Architects.

lations might most easily and cheaply be met, at the same time assuring great hygienic improvements in the opportunities thus given for the fresh sea-air to draw unpolluted up the valleys to the interior. These valleys also offered the most natural lines of movement for the great population seeking convenient routes to the seashore. All of this ideal has now been achieved in its main lines, and the execution of its details remains to be carried out as occasion may demand.

A fourth element, incidental in its relation to the larger features of the scheme, is the inclusion of certain minor reservations created with regard to their peculiar value in picturesque or beautiful scenery, unique



Headquarters Building—Blue Hills Reservation.
Stickney & Austin, Architects.

so far as the neighboring region is concerned. One of these, the Beaver Brook Reservation in Waltham and Belmont, is notable for the finest group of ancient oaks to be found in this part of the world. These noble trees, in age estimated at a thousand years at least, grow along a meandering terminal moraine that makes a topographical and geological feature of exceptional interest. Through the reservation runs the historic Beaver Brook, celebrated in one of Lowell's most beautiful poems.

Another feature of this class is the Hemlock Gorge, an uncommonly beautiful piece of wild and picturesque scenery on the Charles River at Newton Upper Falls. This is now included in the Charles River Reservation which comprises the greater portion of the banks of the river throughout its course of nearly 30 miles in the Metropolitan District.

In this connection may be mentioned the relationship between the metropolitan system and the properties in charge of the Massachusetts Trustees of Public Reservation, an organization incorporated for the purpose of preserving beautiful and historic places entrusted to its care for the public benefit. The first of these reservations thus given in charge—a beautiful grove of white pines and hemlocks, Virginia Woods, given by a woman in commemoration of her daughter—is now a portion of the Middlesex Fells Reservation. Another, the historic Governor Hutchison Field, opposite the site of the Governor's country home in Milton, adjoins the Metropolitan Neponset River Reservation and commands one of the most enchanting prospects of river, field and shore scenery to be seen in New England.

A highly important and distinctive feature of the metropolitan scheme comprises the connecting parkways and boulevards. These add immensely to the value of the system for the public. They connect all the principal reservations with the metropolitan center and with the various suburban populations, and also, to a great extent, with each other by routes that enable the public to reach the various pleasure-grounds with the greatest convenience and enjoyment. These pleasure-

ways have been laid out so far as possible with reference to landscape character. Thereby the enjoyment of a holiday in the open practically begins at the outset by making agreeable from the start the way to a pleasure-ground, otherwise too apt to be tedious, wearisome and generally uncomfortable. This is accomplished not only by the construction of pleasure-drives, but by incorporating as a feature of the design, so far as possible, routes for electric-cars running in reserved spaces where, according to the admirable precedent set in the construction of the celebrated Beacon Street Boulevard, the rails are laid in turf. The parkways and boulevards have thus become routes for popular transit as well as purely pleasureways for the movement of vehicles. This system of parkways and boulevards has been of enormous value since the advent of the automobile. The ordinary highways are either so congested, or so fully devoted to regular traffic, that had it not been for the relief afforded by the pleasureways of the Metropolitan Park system, not only the general inconvenience but the public danger from motor-vehicles would have been tremendously increased. Under the circumstances thus developed since it was projected, it is difficult to see how this system could with safety have been dispensed with, and it is fortunate that it has been so well developed.

The total cost of the metropolitan park system to date is something like \$15,000,000; the parkways and boulevards alone cost something like \$5,115,000 and the parks very nearly \$10,000,000. Beside this are to be reckoned the investments of Boston and the various suburban municipalities in municipal pleasure-grounds amounting to many millions of dollars.

It will be seen that a great system of recreative open-spaces like this requires a wide diversity of constructional work, all of which in turn demands commensurately artistic treatment. This may range from the simplest to the most elaborate, but all features must always be carried out scrupulously in keeping with their surroundings and subordinated to the main character and function of the



Stables—Charles River Speedway.
Stickney & Austin, Architects.

scheme. In the first place we may consider the element of bridges and viaducts. Water-courses must be crossed; roads or paths must be carried over or beneath lines of railroads. A most interesting diversity in the structures designed to meet these needs has been achieved. The longest of these, Wellington bridge, must be excepted from the list. Its lack of monumental quality is largely for the reason that it serves an existing line of highway as well as the Middlesex Fells Parkway, which it carries across the estuary of the Mystic River. The great cost which a suitable bridge of masonry or metal construction would entail forbade the undertaking of it in that manner. When the time comes for its re-



Public Convenience Station—Blue Hills
Reservation.
Stickney & Austin, Architects.

newal an adequate monumental bridge will doubtless be realized.

The bridge across the Neponset River connecting the Blue Hills Parkway with the Boston Park system by the way of Blue Hill Avenue at Mattapan Square was the first of an elaborate character to be undertaken for the Metropolitan Park system. The architects had distinguished themselves shortly before with the designing of the great Cambridge Bridge across the Charles River Basin, and more recently the noble bridge across the Connecticut at Hartford.

The Mattapan Bridge is more conspicuous in its relation to the highway than to the stream. Apparently for this reason it has been kept extremely simple in design, developed from flat walls with smooth-faced granite. A noteworthy feature is the unsymmetrical distribution of the arches in one wide span and two small semi-circular ones; the latter describe complete circles when reflected in smooth water.

More effective in treatment are the two bridges crossing the Mystic River in Medford, designed by the same architects, each with a single span and a very flat arch. Both are of re-inforced concrete construction. The first, commonly known as the Armory Bridge, has courses of blocks cast in concrete. The other, the Auburn Street Bridge, is confessedly a monolithic structure. Bridges of concrete present a comparatively recent problem in architectural design. The stone bridge must of course be the pro-



Police Station and Headquarters—Revere Beach Reservation.

Stickney & Austin, Architects.

totype, but unless the example is followed with due regard for basic differences in material the results are likely to be artistically defective. In this bridge the problem has been dealt with by the employment of simple means to obtain agreeable modifications in qualities of texture, and a diversity in light and shade in large elemental masses. The greater part of the surface has been rough-hewn, with a lightly contrasting smooth band to accent the course of the arch. Other examples of simple concrete construction shown in the same reservation are the Alewife Brook Bridge and the viaduct that carries over the parkway the Southern Division tracks of the Boston & Maine Railroad. In connection with the latter, the illustration shows the Auburn Street bridge in the distance framed by the arch. Another viaduct by the same architects carries over the Furnace Brook Parkway the tracks of the Granite Branch in Quincy, an interesting example of granite-faced construction with an ovoid arch. The most important example of concrete bridge construction yet undertaken for the metropolitan system is the three-arched viaduct near Spot Pond in Middlesex Fells. This is notable as the design of the landscape architects who from the start have had the shaping of the entire park system. To carry an electric railway directly through the heart of a great wilderness reservation without inflicting serious mutilations is a most delicate task. At this point the



Bath House and Police Station—Revere Beach Reservation.

Stickney & Austin, Architects.



Bath House—Nahant Beach Parkway.
Stickney & Austin, Architects.

crossing of a park road that had been laid out with particular reference to fine landscape qualities of woodland and water made it a difficult thing to deal with. The introduction of architectural qualities, simple in mass and of striking dignity, has avoided the effect of intrusiveness and has even enhanced the picturesque quality of the scene. One may fancy how the ordinary electric railway practice might have affected the scene with trestle-work or steel-girder construction, and then consider what has been escaped in an achievement like this. It should be said of all of these examples of recent bridge construction that the ultimate effect can be suggested only by imagining the relief of the crudeness that comes with newness by judiciously grouped planting with shrubs, trees and climbing plants.

A wholly different quality in bridge design, happily suggesting a Japanese influence, is represented in the graceful wooden foot-bridge that crosses the Abajona River in Winchester. A foot bridge of quite another type is that of the Charles Eliot Memorial, on a slope of the great Blue Hill not far from its summit. A memorial to the man whose genius and whose unselfish devotion to a public-spirited cause gave him rank as a creator of the great metropolitan park system had been determined upon for this locality. It was felt by many that a site better related to the center of the great work that Eliot wrought would have been more appropriate. But the locality having been chosen it remained to carry out the idea in the most fitting

way. A natural simplicity was most suitable to such a theme. The fundamental motive is that of a path encircling the hill not far from the summit, with tributary paths ascending the slopes and here converging at various points. In carrying this path across a shallow ravine it was necessary to construct a bridge. It was in association with this bridge that the memorial was placed in the form of a recess from the path with a suitable tablet integral with a plain wall of rough-hewn granite. The impression is quietly pleasing; as lacking in ostentation as was the beautiful soul of the man whom it commemorates.

Headquarters buildings for the various reservations have contributed some of the most satisfactory architectural features of the metropolitan scheme. These have been studied with extraordinarily fine feeling, particularly with regard to their environments, each as a distinct problem. All the buildings in this class are the work of the same architects. At Middlesex Fells the picturesquely spreading structure with plastered walls and tile roof fits most admirably into the broad slopes of the adjacent woodland hillside—neither shrinkingly nor obtrusively, but with a fine well-bred reserve as befits the location upon a much-frequented highway, coupled with a sort of cordial attitude towards passers that well expresses its public relationship. On the other hand, the headquarters building for the Blue Hills Reservation, assigned to a more re-



Shelters and Sea Wall—Revere Beach
Reservation.
Stickney & Austin, Architects.



Bath House—Nantasket Beach Reservation.
Stickney & Austin, Architects.

mote and retired location, suggests, with its extremely simple form and walls of rough-hewn granite, the dignified home of a well-to-do farmer who might be found at such a spot. Correspondingly appropriate is the wayside character of the stables, connected with the superintendent's house, on the Charles River Speedway. Beautifully studied with reference to its waterside character is the delightfully pictured headquarters building of the Charles River Reservation, near the Riverside Station in Newton, with its stone basement and arches for the passage of the boats kept within, and the low roof and timbered superstructure with plastered panels in the gables. In a similar style, recalling the wooden architecture of Norway, Switzerland and the Black Forest, in a charming blend most appropriate to the mountain-like neighborhood, are the shelters and the public-convenience station at the Blue Hills Reservation.

Most important, architecturally, as befits the extremely popular character of their purpose, are the structures designed to serve the various seaside reservations. How popular this purpose is may be inferred from the panoramic view of a portion of the Revere Beach Reservation, with its shelters in the foreground, shown on page 389. Several of these shelters, with their terraces, are located at intervals along the beach, contributing very handsomely to the civic character of the Reservation, with their effect of utility developed as motives for dignified em-

bellishment, which lends itself well to the holiday quality of the seaside spectacles that enliven the scene throughout the summer. The first of these terraces was constructed in front of the great bathhouse, separate subways for the two sexes carrying the bathers beneath the driveway and promenade, directly to the beach. This bathhouse, the largest and most complete establishment ever designed for public bathing, well expresses its character as an important center of recreation for the people. The adjoining high brick walls enclose many hundreds of dressing-rooms. A completely equipped emergency room, shower-baths and other facilities for promptly serving the throngs that resort to the building are features of the establishment. A neighboring building is jointly occupied as a police-station and laundry. A notable feature is the way in which the laundry chimney has been masked by the tower. A chimney of the factory type is necessary to the operation of the elaborate machinery whereby thousands of bathing-suits are promptly washed, sterilized, dried and returned to the bathhouse for use. The organization of these buildings offers a significant instance of the way in which a great public work can be thoroughly co-ordinated in its various elements and efficiently administered. In planning for this, and in manifesting the purpose in terms of art, the architects have achieved in these three related structures—the bathhouse, the laundry and police station, and the terrace with its shelters—an exceptionally noteworthy civic group, shaped to express the holiday character of the great public resort which here has been developed out of the squalid and promiscuous origins that marked the days of private occupancy of the water-front.

Nantasket Beach stands second only to Revere as a metropolitan reservation, resorted to by great throngs throughout the summer. Its location, however, is isolated, and it has not the physical connection with the rest of the metropolitan system that distinguishes the other seaside pleasure-grounds. Hence the architectural developments to meet the public

demands similar to those at Revere are more palpably utilitarian in quality. The laundry, for instance, is a plain industrial-looking brick structure, and the bathhouse is of wood and shingled, attractive in a somewhat reticent fashion, but with a sort of holiday aspect and a suggestion of civic utility that an ordinary commercial bathhouse would not be likely to possess.

The entire water-frontage of the city of Lynn, on the ocean side, has been developed for recreative uses for the metropolitan system. The Nahant Beach

Reservation is an element in this development. Its bathhouse has a delightful festal character, well suited to its admirable setting beneath sunny summer skies. It is a captivating utterance of the sense of vernal gaiety. Its joyous implications are heightened by a brilliant contrast of gleaming white-walled surfaces and red-tiled roofs, intensified by the sparkling accents of rich and well-disposed decorative reliefs, in the designing of which maritime symbols are fittingly in evidence.

Sylvester Baxter.



CHARLES ELIOT MEMORIAL—GREAT BLUE HILL.

Boston.

A. W. Longfellow, Architect.

The Small English Home as a Place to Live In—Its Seamy Side

In the April issue this subject was viewed from the American point of view. The article below states in a rather interesting way how the matter is regarded by an architect in England, who dissents from some of the current architectural practices of contemporary English domestic architecture.—Editors of the Architectural Record.

"Is five feet six inches too high for a Dining Room—if not, why not? Ask" and there follow the initials of a designer of English country houses whose work has been widely exploited by a journal which includes "arty" architecture—if I may use the words together—amongst the other matter between its covers. The question and answer quoted were doubtless clipped from the best of architectural publications "The Purple Patch," the *rag*—not the journal—of the Architectural Association. The question is important and by inference we are able to settle a doubt which has often arisen in our minds as to the significance of the word "short" in the well-known assertion that "art is long and artists usually short." What artist that has read the line has not felt it to be a grave insinuation against the financial soundness of his professional fraternity? Perhaps, however, its author was referring to our average stature—but we could never believe him guilty of the impertinence. Alas! it would seem probable for here we have evidence to support the latter theory, because if artists—which term is supposed to include architects—were tall, as tall as other people, would they not consider five feet six inches about the right height for a dining room or any other room and let it go at that? But the question has been raised and we turn—as all wise architects invariably must—to the great examples of precedent, recent examples of course, which have appeared from time to time in the architectural periodicals and others which publish designs for houses, and we find—what *do* we find? That, hitherto, in many cases, five feet six inches has

been considered far too high for a bedroom, at least at the side where the window comes, so why not, also, too high for a dining room? In such a design as the "Country House" (Figs. 1 and 2), how high is any room; and does it contain either bedrooms or a dining room? Should one enter such a house could he stand up in it, or would he have to be as Apollodoros found the goddess in Hadrian's design for a temple, necessarily seated because the head would go through the roof if standing?

Nothing could be easier than to attack the type of small house which has grown up in England during the past decade or two, which consists principally of a vast roof with numerous chimneys resting upon walls not much higher than the curb of a cyclone cellar, in which appear rows of little windows, reminding one of the side of a tram car, and elaborated with the sort of detail so much approved of by the school of "new art." Many of the architects who designed such work ten years ago would gladly repudiate it today, though they know it did a certain amount of good to the cheaper classes of houses in general by tending towards the elimination of many of the absurd features which formerly had been considered a necessary part of residence design. It must be, however, a matter of some difficulty to convince the enthusiast upon modern English work that many of the houses by the best known architects—particularly the small houses—if better in appearance than the kind with the little green shutters with heart shaped holes cut in them and the green barrel to catch the rain-water, are far from being what an Am-



Fig. 1. Country House.
M. H. Baillie Scott, Architect.

erican would consider well constructed or well planned, convenient or comfortable; so many of us would gladly forget these disadvantages and remember only the charm which the design adds to the scenery. It must be borne in mind that England is not a country which could be considered sunny or bright. The climate is rainy and dull; there is not much hot weather and to a New Yorker or Chicagoan it could never be considered cold. During the spring and summer the sky is frequently overcast while during the late fall and the winter a great deal of rain and fog is usual. The principal considerations, therefore, should be to provide ample lighting and good natural ventilation, guard against dampness and draughts and devise a means of uniform heating. In a way, all of these things have received a certain amount of attention, but, again, to the American, or to anyone who has lived in America or Germany, the way does not lend itself to praise or appear very efficient.

The Englishman is nothing if not an economist and he sees no reason to go to the expense of a basement under a house unless he can put the kitchen in it, and he discovered during the Victorian days that there is only one place where the kitchen may not be placed and that is underground; it may be planned on the roof or off the main entrance hall, as it frequently is, but it must not be in the basement. If the kitchen may not be placed in the base-

ment, nothing may and hence there need be no basement. Its existence for the purpose of keeping the house dry and as a place for fuel storage and the accommodation of a modern heating and ventilating system is not, as yet, recognized. In the case of the most modern English houses the whole site is covered with a raft of concrete consisting of broken brick and sand and *some* cement is added when the Clerk of the Works is watching. A damp-proof course to the walls designed to prevent the wet from rising in the wall is sometimes effective in the better class of buildings where asphalt is used, but the projecting slate course in the houses of moderate cost serves often as a water table to catch the rain, which runs down the wall, and conduct it under and into the wall above the course. Nine-inch brick walls are considered sufficiently thick, and hollow walls or walls lined with hollow bricks are unusual. Furring is almost unknown. The plaster is applied directly to the walls. One staircase is still deemed enough for a house costing less than ten thousand dollars. Whether a vestibule is a necessity or a luxury is an unsettled question. The entrance hall which is, as a rule, not heated even by a fire place, communicates directly with as many rooms on the ground floor as possible, including the kitchen and a small toilet room (Figs. 3 & 4). Through this entrance hall every occupant of the house



Fig. 2. Rear View of Fig. 1.

must pass in going from one room to another as communicating doors are considered unnecessary. Trunks, furniture, the family washing and house cleaning utensils and occasionally the chimney sweep pass through this hall, for, as before stated, there is but one staircase. The dining room is often planned at one side of the entrance hall and the kitchen at the other so that the maid, arrested in the act of serving the soup, may place the tureen upon the stairs while she answers the bell at the front door, though this scheme is being rapidly done away with in favor of the American plan of placing the china closet or butler's pantry between the kitchen and the dining room. Sometimes the love of the picturesque leads the architect to arrange some of the ground floor rooms at different levels from the others to the infinite exasperation of the housekeeper while the male occupant as he falls into it in the dark is reminded of Burgess's rhyme:

"I wish that my room had a floor,
I don't so much care for a door,
But this walking around
Without touching the ground
Is getting to be quite a bore."

At the back of the house there is the "Scullery", a kind of laundry which includes the sink where the dish washing is done and a number of cells for the



Fig. 5. A House in Surrey.

E. Guy Dawber, Architect.

storage of fuel, provisions and boots and shoes and an outside Servants' W. C. of which the pipes freeze and burst every time there is a cold snap.

Upstairs the planning is much the same; bedrooms are not provided with closets, even the linen closet is frequently omitted; one bath room does for as many as six or seven bed rooms and is used by family and servants.

The typical English living room or bedroom has but one door and one window or one row of windows and fortunately but one fireplace. The door is of deal and when the house is five years old, the door does not fit its frame by nearly a quarter inch. The fireplace is for heating and ventilating but during the winter months not more than one-third of the room can be warmed by this means, while, as to ventilation, one can only say that in different cases fireplaces probably give very different results. It is a well-accepted theory that fireplaces are one of the best means of house ventilation. The writer's experience does not lead him to that conclusion; on the contrary the upper part of a room has been found to be several degrees warmer than the lower, and the air in the upper part, especially above the tops of the windows, to be stationary, whilst around the door and window and between these and the fireplace there is a rapid current of cold and damp air. One's head and shoulders are warm while his shins



Figs. 3-4. Plans of House Shown in Fig. 5.

are cold and his feet almost freezing. The effect of such "ventilation" is to be observed as to the people, that the number who suffer from rheumatism in the legs and feet is enormous. Of course, the native will not admit that it is rheumatism, or due to the fireplace and the draughts along the floor, but claims it is gout and his miseries chargeable to the amount of malvoise consumed by his tipping ancestors. The windows are often the casement, which, if it opens inward, drains its exterior upon the floor; if outward, is forever breaking fastenings or refusing to shut, and now and then torn by the wind from its hinges.

Most architects could only commend the client who will sacrifice some comforts and alleged conveniences for the sake of architectural effect—and a row of casements is undoubtedly more pleasing than double hung sashes and few would find cause for quarrel with the one who, having a good thing, refuses to experiment with something which may or may not be as good as what he possesses. A fire of blazing coals is not only cheerful in a climate as dull as that of England but the fireplace with a good mantel is often the most notable ornament to the room, while a radiator is a hideous thing.

The rooms at a level a few steps lower than the ground floor are usually so arranged to give better proportions to a very large room or because the house for the sake of picturesqueness is set upon the side of a hill, perhaps the windows to such rooms may appear like transoms from within and cellar windows from without, perhaps, too, the rain which runs down the hill runs in through the entrance hall, which is sometimes below the level of the ground. We suspect there is difficulty about head room in the second story, but still we think that for a row of workmen's cottages where economy must be studied they are not bad. It is not, perhaps, until we discover that such houses have been built with no regard to economy and are not the homes of the poor who are forced by

circumstances to live the simple life nor the homes of those who live that kind of life by choice, but are mere scenic efforts, the affected imitations of rows of fishermen's hovels done on a grand scale and at great expense—sometimes to the extent of a large country house, that we begin to wonder whether it would not be possible to have all the attractive features equally as artistic and at the same time avoid using the entrance hall as a serving room, provide it with other means of warming than by the steam which escapes from the boiling cabbage on the kitchen stove; and to get along without answering in the affirmative the question:—"Is five feet six inches too high for a dining room?"

A number of American ideas have been instilled into the minds of English house designers, such as placing the butler's pantry between the kitchen and the dining room, as previously mentioned; others being to introduce a lobby between the hall and the kitchen so that the latter is closed off from the former by at least two doors; and providing the doors with self-closing checks, but more might be welcomed.

In a country with a climate consisting of three months of summer and nine months of bad weather a vestibule seems a necessity to a modern—or should we say effete?—home; a warmed, dry basement and the bottoms of the joists raised far enough above the ground to admit light and air below them would save many a floor from rotting and many an Englishman from rheumatism—I mean gout—and his ancestors from a reputation of vile intemperance. Finally, the introduction of a back or service stairs, windows at two sides of a corner room would brighten up dark corners in those coated with dismal papers and a change in the depth of tone of the papers themselves would be desirable and may come—when gas is substituted for the soot producing soft coal fire—and that day still seems distant from the present in good old England.

Francis S. Swales.



FIG. 6. MECHANICS' NATIONAL BANK (1876).

Albany, N. Y.

Russell Sturgis, Architect.

Russell Sturgis's Architecture

Very likely the majority of the professional readers of the *Architectural Record* are unaware, at least of their own knowledge are not aware, that the late Russell Sturgis ever did any architectural work at all. His work in that kind was, in fact, with one not specially significant exception, all completed a full generation ago. According to the common computation of a generation as a third of a century, that would take us back to 1876 as the time when his architectural activity ceased and determined. And, as the new generations may need to be reminded, 1876 was the occasion of a considerable architectural awakening. For it was the year of the Centennial Exposition at Philadelphia, which was quite as influential in its effect upon architecture and art, though in a widely different way, as the Columbian Exposition at Chicago, seventeen years later. The architectural effect of the Chicago fair was, of course, to bring us back to our classical moorings, to show us, howbeit rather in the buildings than in what was "exposed" within them, what great effects there were still to be elicited from the old Greco-Roman forms, how we might revive, if not in actual and costly marble, yet in specious "staff," remains of the Forum and the Palatine, and realize the dreams of "Dido Building Carthage" and "Regulus Leaving Carthage." One result of the Philadelphia fair was to teach visitors more about the importance of the Continent of Europe in comparison with the British islands. It is not without significance that the centennial year of our political Declaration of Independence should have brought with it our architectural Declaration of Independence. For it was in that year that Trinity Church in Boston was built. The immediate vogue and general acclamation with which the design was received fixed the course of American building for the next ensuing decade. This was the first real break with the "colonial"

building tradition. Up to then we had followed the architectural fashions of the mother country, importing even our French and Italian Gothic by way of England. And our architectural Declaration of Independence thus followed our political by the space of just one hundred years.

As an architect, Russell Sturgis preceded this revolution, which afterwards, as a critic, he eagerly promoted. With one exception, and that a supplement to what he had done already, he had ceased to design before Richardson began. It is true that his technical preparation for practicing architecture had been gained in the office not of an Englishman, but of a German, though I think you would not deduce this fact from any of his own work. But Leopold Eidlitz, though a German, and in so many respects a German of the Germans, was one of the most enthusiastic adherents and promoters of the Gothic revival, and found more aid and comfort from his fellow architects of British or American training and traditions than of German. Cologne was to him the ultimate historical achievement of the art of architecture. But he was more than willing to join hands with those of the English revivalists, who, whether inspired by Pugin and ecclesiasticism or by Ruskin and romanticism, were remaking, in the fifties and sixties, the architecture of Great Britain, primarily in church building, but extending their attempts to all departments of secular work, endeavoring to show that Gothic was good for houses and public buildings, as well as for churches. This was what Ruskin was preaching in England and Viollet le Duc in France. Owing to Ruskin's "Seven Lamps" and "Stones of Venice," and to Street's "Brick and Marble in Italy," and still more to the work that young British architects were doing under the influence of these writings, the younger American architects of the early

sixties betook themselves more and more to Italy for the motives and the treatment of their secular designs in Gothic. The earliest, and perhaps the most successful, of these essays was Mr. Wight's New York Academy of Design. Towards the end of the decade, the earlier years of which saw the erection of this work, its author was commissioned to do the Street Art Building for Yale, and Mr. Sturgis to do two dormitories, the donors and sponsors of which were, respectively, Farnam and Durfee, with a chapel at the angle which was to bear the name of its donor—

ing officially dated 1869 (Fig. 1). Possibly it is the best of the three. The composition is as effective as could be expected from the conditions, the stairways and their entrances being not only unmistakably expressed, but so disposed as effectively to punctuate the rugged expanses of the brownstone fronts, a punctuation to the emphasis of which the chimneys also contribute. These are relieved without being enlivened to the destruction of repose, according to the temptation to which so many of the Victorian Goths of that time succumbed. The angle turrets detach the gables, the



FIG. 1. FARNAM HALL, YALE UNIVERSITY (1869).

New Haven, Conn.

Russell Sturgis, Architect.

Battell. Whether the commissions were conferred and the design conceived all at once, I do not know, nor does it matter. It is evident that the three buildings were designed with reference to one another and to the total effect of all three, that they were the most successful buildings that Yale had up to that time produced, and that they have had an excellent influence in the way of moderation, restraint, conformity and harmony on such of the subsequent architects of the university as would submit themselves to that influence. Farnam is the earliest of the three, be-

light stone of the wrought work and the dark brick of the tympana of the openings offer enough and not too much of contrast with the rough brownstone of the wall fields. Very nearly a model of a college dormitory, one says, with just enough animation not to interfere with its dignity and sedateness.

Perhaps this earliest of the dormitories is the best. It is easier to make a structural effect with sandstone rubble than with smooth brickwork, for one thing. For another, the architect had the rather unhappy thought, in the second of his buildings for Yale—the Dur-

fee Hall—of distinguishing and emphasizing, by projection, the staircases which, as we have seen, were sufficiently distinguished and emphasized by treatment (Fig. 2). It seems that he would have done better to leave these in the single plane of the front, and that he need not have been afraid of the resultant monotony, which he might have relieved by the discreet application of color, after the methods of the north Italian work, which pretty clearly in-

would have been evaded the difficulty that is met by the cottagelike gables. These, in turn, involve three different shapes and sizes of dormers, which are injurious to repose and tend to confusion. They are redeemed from utter confusion by the effective fenestration and the insistence on the horizontal string-courses that run through and emphasize the expanse, and by the general sobriety and decorum of the work, qualities which were by no means common in



FIG. 2. DURFEE HALL AND BATTELL CHAPEL, YALE UNIVERSITY.
(Durfee Hall, 1870.)

New Haven, Conn.

Russell Sturgis, Architect.

spired the design. North Italy appears most confessed in the detail of the entrances, with their doubled columns and the "punched" tympana of plate tracery. Moreover, the projected walls have hardly visible means of support in the doubled columns. A porch, projected from the general plane, would have answered every purpose of relief that is answered by the actual arrangement, while the doubled columns would have been quite adequate to carry it, and there

the revived Gothic of 1870, nor, indeed, in the architecture of Yale, whatever the style, at a much later date. Durfee Hall is not prevented from being good by the fact that Farnam is even better.

The third of the group is fifteen years later than the second, and the last of its author's architectural works. Lawrence Hall (1886) (Fig. 3) has virtually the same "layout" and the same motive as Durfee. One notes that the criticisms which the earlier invited have

been obviated in the later, or partly so. At least the porches are projected without carrying their superstructures along to the full extent of the projection. The porches are to that extent more satisfactory, and the crowning of the lesser projection of the staircases is a flat roof and a balustrade instead of a gable, thus avoiding the tormenting of the skyline with three kinds of roof windows. These things are clear improvements. But if, as in Farnam, the projections were withdrawn to the face of

it might very well have been a part of the original scheme. In material, it conforms to the earlier of the dormitories and if it had been flanked by Farnam's on both sides, that is, by buildings in its own combination of rough brownstone and wrought work of lighter stone, the total effect would have been better. As it is, the chapel wins the praise of respectability and conformity and hardly aspires to any other. For the apsidal chancel, in its exterior, at the outer or street corner of the quadrangle, is a



FIG. 3. LAURANCE HALL, YALE UNIVERSITY (1885).

(Durfee Hall to the left, Phelps Hall to the right.)

New Haven, Conn.

Russell Sturgis, Architect.

the wall, and the distinction between staircase and dormitories made merely by the treatment of the openings, the effect would be even better than it is, especially if the chimney stacks of the earliest building had been retained as the animation of the skyline. Not that the effect is bad or that all three do not hold their places with credit and respectability in the more recent competitions of the university.

Battell Chapel comes in between Durfee and Farnam, being some five years later than the younger of them, and, hence, very likely, an afterthought. But

much more effective architectural composition than the front or the flank of the chapel, as seen from the inside (Fig. 4). This outer apse, indeed, fulfills very effectively its function of ultimate abutment and stoppage of the long range of dormitories extending all across the "Green," as happy a terminal feature, indeed, as Mr. Haight's much later Phelps Hall is a central feature. To appreciate the value of the chapel in this respect, you have to visit the spot. The photograph does not do justice to, nor does it exhibit, this architectural function. But it does show an ordered,

aspiring and picturesque mass, of which, again, it is one of the highest praises that the animation does not exclude repose. And all this work for Yale is exemplary in its moderation and discretion. The more the pity that these qualities have impressed themselves so little on succeeding architects.

but full of suggestions how the banality of that edifice can be obviated. The main banking room is avowed in the big mullioned windows of the flank, though it seems to be denied in the two separate stories of the front. The front, indeed, might perfectly be that of a dwelling house. The banality of the type is very



FIG. 4. REAR OF BATTELL CHAPEL, YALE UNIVERSITY (1876).

New Haven, Conn.

Russell Sturgis, Architect.

Very much more pretentious and much more successful in its pretentiousness is the picturesque Mechanics' Bank, in Albany, which no sensitive wayfarer can have passed without being moved to some gratitude that its owners should have been moved to employ so artistic an architect. In dimensions, and, indeed, in "lay-out," it is only an ordinary three-story house.

successfully circumvented by the fenestration, by the quality of the detail, and by the picturesque corbelled turret which emphasizes and adorns the angle. It is a very grateful object in Albany, and would be a grateful object in any city of the class of Albany as an addition to its street architecture, and as well with regard to its more specific expression as a "banking house." It has also a very

interesting interior, for the success of which Mr. Sturgis always gave the larger share of the credit to Mr. George Fletcher Babb, who was associated with him in the design. This interior was an attempt to make and express a thoroughly fireproof construction before the days of steel and tile arches, and when rolled beams and brick were the most eligible materials at hand. After a generation,

With one exception, all the buildings we have been looking at were designed and built within a single decade, after which their author renounced practice and took to theory.

Doubtless he did well. We could spare many more such buildings better than we could the "Dictionary of Architecture," the "History of Architecture," and, above all, the continual



FIG. 5. HOUSES IN WEST 57TH STREET, NEAR 5TH AVENUE (1875).
New York City.

Russell Sturgis, Architect.

the interior is as well worth inspection as a solution of that particular problem, even with reference to modern uses, as the exterior merely as a picturesque bit of street architecture.

All these things are respectable and creditable. But they by no means indicate that their author forsook his true vocation when he betook himself to discussing architecture instead of doing it. None of them suggests that "necessity to create" which is the birthright of a born designer, and which takes in his work unexpected and yet inevitable shape.

stream of well-informed, informing, elucidative, suggestive and appreciative comment which, as the readers of the Architectural Record know so well, Russell Sturgis kept playing, for the later years of his life, upon the works of his colleagues who continued in the practice of the art the practice of which he himself had abandoned. There are more architects as good as he had been than there are critics as good as was, and, to the progress of architecture, his critical work was even more helpful than his architectural work.

Trinity's Architecture

How unlucky, for this whole community, that the first fruits of a change in the rectorship of Trinity should be the raising of all this pother about St. John's Chapel! The comparative importance of the Trinity estate on Manhattan Island has been diminishing for more than half a century. Probably its absolute importance also as measured by revenue. While every other "piece or parcel of land" in Manhattan has been growing in value and utility, this alone is stationary, if it be not actually receding. Elsewhere on Manhattan land superseded for one use has become still more profitable for some other. Who can doubt that "the Dominie's Bouwerie," in secular hands would be now yielding a great multiple of its actual income? There is only one possible explanation. The "temporalities" of Trinity have not been well managed.

It was not always thus. No sharper contrast could be pointed between a successful past and a failing present than the final proposal to abandon St. John's Chapel, a proposal which, it is quite impossible to dissemble, has been adjourned only in deference to an aroused and outraged public opinion. Because St. John's was the trophy of the greatest of the secular successes of Trinity. For the region of which it and the beautiful park in front of it formed the central feature became a great possession, not by inheritance nor by the "unearned increment," but by enterprise and foresight. It was the actual creation of values.

Mr. Henry's pictures of the church and park in their glory, which they retained down nearly or quite to 1840 are as authentic as they are pious memorials (Fig. 1). From that meridian of its glory, the neighborhood hastened, or rather gradually declined to its setting. First Washington Square, the reclamation for residential purposes of the Potter's Field, then Madison Square usurped the sceptre of fashion. Forty

odd years ago, I knew an old lady, then residing in South Washington Square, where she continued to live until she died, who used to describe the consternation and commiseration she had excited among her old neighbors forty odd years before that, when, upon her marriage, she and her bridegroom had migrated northwards and braved the perils of the wilderness of Washington Square. In fact, this second resort of fashion was much more slowly built up than the first. You may see that to-day by walking into the square and observing that, while the remaining old buildings of the south side are still as "Colonial" as the relics round about St. John's Park; on the north side the "Greek revival" is already in full force and effect.

At any rate, after the flitting really set in, St. John's Park, we must admit, could no longer be "the court end of the town," as Dr. Dix calls it in his "History of Trinity Parish." It could no longer be the Belgravia, but it might have become and remained the Bloomsbury. In fact, those who have had recent occasion to observe the London Bloomsbury have had occasion to note that the present noble and ducal owner thereof has exhibited much more of the spirit of enterprise than has been exhibited by the vestry of Trinity during these last two generations; one might say during the last three, or since the spurt of enterprise of which St. John's Church and Park are the trophies died out. The genius who effected that transformation has had no successor. One says Bloomsbury. But, in fact, the Trinity estate combines an inland quarter, with a water-front. The improvement of the water-front with commercial erections seems to have been perfectly compatible with the maintenance of the inland part as a highly respectable, if no longer a "swell," quarter of residence. Its proximity to "downtown," of which it is within walking distance,



Fig. 1. St. John's from the Park (about 1835).
(From the painting by E. L. Henry.)

would have kept it as attractive as it even yet is to the few families which, having settled there in the days of its prosperity, refuse to be dislodged, to a very considerable multiple of their number, considerable enough to have left no question of a "congregation" for St. John's; whereas now the bulk of the surrounding population is of the poorest and least profitable sort of tenantry and the inheritance and acquisition of Trinity may fairly be described as a slum. It is a lame and impotent conclusion, made more so by the threat on the part of the corporation to go out of the real estate business altogether. This is a threat to turn over one's patrimony to



Fig. 2. The Hudson River R. R. Freight Station (1869).
St. John's Park, New York.
J. B. Snook & Son, Architects.

somebody who knows how to make a better use of it.

As the first impetus to the development of the region was the establishment of the church and the park, the last was the abandonment of the park, just forty years ago. Commodore Vanderbilt's million was the perfectly inadequate mess of pottage for which the birthright of the corporation was sold. The consent to the degradation was a most pitiful modern instance, on the part



Fig. 3. Broadway Front of St. Paul's Chapel (1766).
McBean, Architect.

of incompetent stewards, of the worship of the Golden Calf (Fig. 2). And one could not point to a more exact, though highly inartistic, perhaps because highly inartistic effigy of the Golden, or, rather, of the Bronze Calf, than the highly ridiculous "Vanderbilt Bronze" set up for worship on the west side of the freight station. This was instigated by the hero worship of one now forgotten De Groot, an unfeigned and sincere worshipper of the Golden Calf, in the shape of commercial success, to whose instigation is also due the rather ridiculous bronze Franklin in Printing House Square. But the expense of the Bronze Calf on the

site of St. John's was borne by the Commodore or by his stockholders.

The value of a park as a social anti-septic was not so well understood, very likely, in 1868, as it is now, although, even then, there were object-lessons enough of that value in the prices of land round about Washington Square and Stuyvesant Square and Gramercy Park and Madison Square to serve as a guide and admonition to Trinity. To turn the park into a freight station, in particular, with the daylong procession of trucks on all sides of it, was to condemn all the surrounding property as no longer eligible for human abodes. From that day to this there has been no sign of any adequate or comprehensive effort to make a more profitable use of it. An individual owner who should have dissipated his inheritance after this fashion would be in danger of proceedings, by



Fig. 4. Churchyard Front of St. Paul's Chapel.



Fig. 6. Trinity Offices, St. Paul's Churchyard (1887).

C. C. Haight, Architect.

"de lunatico inquirendo" or otherwise, on the part of the heirs to arrest the dissipation. The occasion is apt, however, of the threat to demolish or abandon St. John's to make a survey of the architectural holdings of Trinity. The inquiry one finds of the greatest interest. Let us pursue it chronologically.

St. Paul's is much the oldest church (Fig. 3), and must be nearly the oldest building on Manhattan Island, having been begun in 1764 and reported "completed" in 1766, though the steeple is a much later addition, being not far from contemporary with the steeple of St. John's, and possibly by the same author. I suppose I am the only person in New

York who, at this writing, knows the name of the original architect of St. Paul's a small piece of knowledge which I hasten to share with the readers of the *Architectural Record*. I came across it, quite by accident, not long ago, while rummaging the files of the late John Durand's ephemeral magazine of culture, the "*Crayon*," in search of something else. In the files of that periodical



Fig. 5. Interior of St. Paul's Chapel (Decorated for Christmas, 1908).



Fig. 7. The Portico of St. John's (1803).
John McComb, Architect.

for 1857 there is a note, signed "W.," which I transcribe:

Last week, in an accidental street conversation with Mr. Isaac Bell, now ninety years of age, and in full vigor of body and mind, I was agreeably surprised on learning from him the name of the architect of these edifices. It was McBean who was both architect and chief builder of St. Paul's. From the date and, from the circumstances I have already mentioned, I doubt not that he was also of the church in William Street. The actual building was beyond Mr. Bell's recollection, but he knew McBean after the Revolution, residing at New Brunswick.

When John Adams was traveling southward from Boston to the meeting of the first Continental Congress in 1774, and meeting at each remove a higher stage of social civilization than that he had left at home, a conviction



Fig. 8. Interior of St. John's Chapel (Decorated for Christmas, 1908).

against which the good Puritan strenuously struggled, but which was evidently borne in upon him all the same, traveling in a triumphal progress which he never, to the last of his ninety years, forgot, and came upon New York, the observations of his diary are especially worth reading. The reader readily perceives that as his great grandson has recently owned about himself, the austere man, far from following a multitude to do evil, or, for that matter, good, had a probably inherited and certainly transmitted tendency to opposition, was, in the delightful phrase of his descendant, "perhaps inclined to be otherwise minded." *Nil admirari* was the attitude he struggled to maintain among what now seem to have been the moderate carnal glories of colonial New York and of colonial Philadelphia, as his kinsman, Edmund Quincy, similarly tried to "bear up" against the superior social civility of Charleston, S. C. Here is what John had to say about the then new St. Paul's:

We then went into St. Paul's. This is a new building, which cost eighteen thousand pounds, York money. It has a piazza in front and some stone pillars, which appear grand; but the building, taken altogether, does not strike me like the Stone Chapel, or like Dr. Cooper's meeting house, either on the inside or outside.

It may be necessary to supplement the diarist by explaining that to translate "York money" into sterling you subtract one-fourth, so that the "eighteen thousand pounds" dwindles to £13,500, which was yet a great sum in those days. And it is necessary to correct him by explaining that the "stone pillars" were and are, in fact, of brick, covered with stucco. Perhaps some Boston antiquarian can identify "Dr. Cooper's meeting house." If it was the "Old North" it is perhaps fairly comparable with St. Paul's; if the "Old South," one disables John at once as an architectural critic. By the way, John found the "new Dutch church" "the most elegant building in the city." One needs a New York local antiquary to identify that. It may have been the other work which Mr. Isaac Bell identified as McBean's. In that case it can hardly have been the "Middle" Dutch church in Nassau Street, demolished to

make room for the building of the Mutual Life, which, in its secularized condition, served as a post office until the erection of Mr. Mullett's masterpiece in City Hall Park, since McBean's effort was in William Street. To be sure, the lot may have run through. As for the "Stone Chapel," properly King's Chapel, that shrine of the Pink Woman of Anglican Prelacy which Governor Shirley had struggled hard to rear and had even



Fig. 11. Trinity Church House (1873).
Trinity Place and Church Street.
Richard M. Upjohn, Architect.

imported a British architect to design, one Peter Harrison, a pupil of Van Brugh's, it was the horror and scandal of Puritan Boston. It is quite possible that the austere Adams had never seen the "inside," as doubtless he often had of "Dr. Cooper's meeting house." And as to the outside, it was not much to look at in his day, except for being, as it doubtless was, the only building of hewn stone in Boston. For, although the body of the church—which is a mere



Fig. 10. Trinity from the Southwest.

parallelepiped of cut granite and shows no architecture at all—had been completed in 1749, the portico was not added until 1790, and then only in wood, and the portico was the only architectural feature of the design, excepting the steeple, which has not been added, even to this day. So that it must have been Bostonian chauvinism which made the Stone Chapel to "strike" the diarist harder than



Fig. 9. Interior of Trinity Church (1839-46).
Richard Upjohn, Architect.
(Reredos by F. C. Withers, 1876.)



Fig. 12. Trinity Chapel (1855).
West 26th Street, New York.

St. Paul's. St. Paul's was, in fact, even with the steeple, its most admirable and artistic feature, still unbuilt, a highly respectable edifice in 1774, unparalleled to the northward, though possibly surpassed by one church in Philadelphia and two in Charleston. It is a highly respectable edifice even yet, imposing enough in the design of the Broadway front to make one wish that the "or-



Fig. 13. Rear of Trinity Chapel.
West 27th Street, New York.

der" of the portico had, in fact, been built of the stone which the Bostonian fancied that he saw. The portico loses some of the attractiveness that belongs to its design by being so evidently ex-crescential and irrelevant to the church. One finds quite as attractive the more homely and vernacular other front, the front on the churchyard, which is simply a straightforward piece of masonry, without the pretension of stucco or veneer (Fig. 4), and which, with the addition of the steeple, still forms an "elegant" and attractive composition. The interior, *pacé* the Bostonian critic, is an excellent example of the British taste of its time, carried out more extensively, as well as more sumptuous-



Fig. 14. Interior of Trinity Chapel.

ly, than that of the "Stone Chapel," interesting as that interior also is as a specimen of Georgian architecture. Christ Church, in Philadelphia, has been restored during the nineteenth century, and comparisons with that are not possible. But we may well take leave to doubt whether "Dr. Cooper's" or any other "meeting house" in the Boston of 1774 presented so decorous an interior, one so well abreast of the best British tradition of the time, the only tradition about which the colonists knew or cared, as did the interior of St. Paul's (Fig. 5). And the interior which John Adams saw in 1774 is, to all intents and

purposes, the interior that any New Yorker may see in 1909 by the simple expedient of turning in for a moment from the madding crowd's ignoble strife, at the corner of Broadway and Vesey Street, and resting awhile in the shadow of an earlier and quieter time.

One must not leave St. Paul's without taking note of the modest range of buildings that occupies the westward end of the churchyard, and that is restricted in

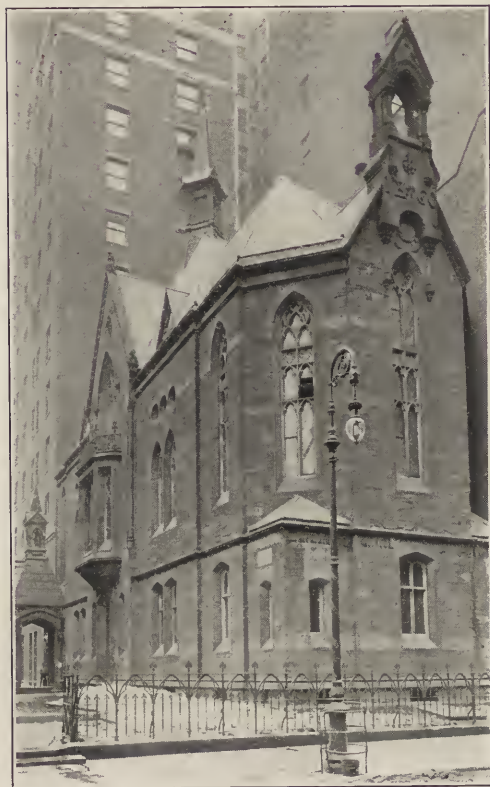


Fig. 15. Church School, Trinity Chapel.

depth to the irreducible minimum required by an avoidance of desecration of the graves. These are the "Trinity offices," succeeding, in the same area, predecessors to which nobody could attach any architectural, hardly any historical, interest. The area of this fringe of buildings being thus determined by relevant sentimental considerations, the height may be supposed to have been limited by considerations of the same kind, though specifically different. Land exempted



Fig. 16. St. Chrysostom's Chapel.
7th Avenue and 39th Street, New York City.
Richard M. Upjohn, Architect.

from taxation upon the ground that it is held for religious and charitable uses cannot be devoted to bald money-making without exciting invidious inquiry. So, when Trinity rebuilt its "rotten row" of offices in St. Paul's churchyard, it very wisely limited them to the area of the replaced offices, though the ordinary commercial altitude had in the meantime, even twenty years ago, been much enlarged. Not only the "riparian" owners, but the casual passer, has reason to be grateful for this decision of the corporation and for the admirable use its



Fig. 17. Interior of St. Chrysostom's.

architect made of his wisely restricted opportunity. There is nothing better about St. Paul's than this modest red brick fringe of red brick, three story, shallow buildings, whether one takes the view westward across the churchyard (Fig. 6) or the endwise view of the new row, whether from Vesey Street or



Fig. 18. Front of St. Augustine's Chapel (1877).
East Houston Street.

Robertson & Potter, Architects.

from Fulton Street. In fact, one may say that if the erection of the picturesque and cloistral row had had no practical purpose at all, instead of having a very pronounced practical purpose, and had been designed merely as a dignified and appropriate architectural screen to seclude the church from the

world, and the churchyard from the rattle and roar of the elevated railroad, as well as from the sight of that gaunt erection, it could not have fulfilled even that limited function more perfectly. One would like to praise equally a sort of appanage to St. Paul's, it seems, not far away, at 211 Fulton Street. But one is rather relieved to find that the seeming is fallacious, and that "the parish" has no architectural responsibility for an erection made by an association of charitable lay people, organized on their own account, and merely, as it is officially stated, "more or less in connection with Trinity Church." Because the front, though making a fairly



Fig. 19. Interior of St. Augustine's.

distinct proclamation of ecclesiastical uses, is but too evidently the mere "putting up a front" of churchly pretensions on the unregenerate six-story warehouse which is the normal construction of the neighborhood. That it has been "done over" is the clearest statement the front makes, unless it be that it has been unsuccessfully done over.

And now to return to St. John's in its chronological order, from which we have been diverted by the "actuality" of the threat to abandon it and the agitation to preserve it, this actuality being, in fact, what induced the able editor to instigate this present article. Suppose a corporation were to embark, in this present year of grace, upon the same sort of real

estate speculation upon which Trinity embarked, with such brilliantly successful results, in 1803. It also would have to have some sort of civic and social center for its enterprise. It might, if well enough advised, sacrifice for a park a considerable portion of its new holdings. But to sacrifice so large a proportion of them as St. John's Park, in 1803, bore to the total acquisition of the parish, would make all but a very bold and confident "operator" hesitate. Quite true, the operator in question may have argued, and evidently successfully argued, the land cost nothing and would be worth nothing except what the "improvements" made it worth. So the sprat which was thrown away to catch the whale was of no use for any other purpose. But when it came to laying out a great deal of good money on a monumental building, that was another matter. In our day, the monumental building would be some sort of social and mundane resort, some clubhouse, some "casino." In 1803 it simply had to be a church. And, moreover, it simply had to be a Protestant Episcopal church. If the wise speculator had had no connection with Trinity parish at all, it would have had to be an Episcopal



Fig. 21. Interior of St. Agnes'.



Fig. 20. St. Agnes' Church from the Northwest (1889).

91st Street, near Columbus Avenue.
W. A. Potter, Architect.

church to allure the kind of settlement that he had it in mind to attract, and that he did actually attract. The fact is a conclusive proof of the social ascendancy which the Episcopal Church had attained so soon after the Revolution, which might be supposed not only to have disestablished it, as of course it did, but to have discredited it, as it so evidently did not. It is was not for nothing that "General Washington's pew" had already been distinguished in St. Paul's, as it continues to be to this day. After the park, the church. For, note that the employment of John McComb to design and build the handsomest, most spacious and most monumental church on Manhattan Island for the use of the new quarter was a preliminary step to the "booming" of the project, contemporaneous and correlative with the laying out of the park. Possibly it was John's success in getting himself publicly acknowledged, in spite of the grumblings of a few who knew better, as the architect of the City Hall (which he so clearly was not), which put him in view as the architect of the new church. City Hall and church, we know, were begun in the same year. The church is as indisputably English as the City Hall is indisputably French. Possibly, nay, probably, the astute McComb had known where to find a competent

British designer for the one, as we know that he had known to find, in the person of Mangin, a competent French designer, for the other. And the intention is evident in the design and the execution of St. John's to make it, in point of scale, material and workmanship, the most spacious, costly and monumental place of worship on Manhattan Island in the year 1803. Not the now "Old Trinity" of a generation later was a more marked advanced in these respects upon what was already to be seen in the way of ecclesiastical architecture. There was nothing mean about the lay-out. A lot 250 feet wide was taken as the site for a church 75 feet wide, and thus afforded it ample detachment. The width is exactly the same as that of St. Paul's, but the depth is 155 feet, against 115 of the older edifice, with a proportional increase in interior impressiveness (Fig. 7). If John Adams had postponed his visit thirty years, St. John's would have been the first lion his hosts would have taken him to. As to material, we have seen that what imposed themselves upon the innocent John as "stone pillars" were, in fact, but brick cores covered with stucco. But the larger pillars of St. John's, including the capitals, were of honest and costly stonework. You will observe, also, that a Corinthian capital is a much more expensive and exact-



Fig. 22. Trinity School.
West 92d Street.
C. C. Haight, Architect.



Fig. 23. St. Luke's Chapel (1821).
Hudson Street.

ing piece of work than an Ionic (Fig. 8). When Jefferson was securing the adoption of the *Maison Carrée*, at Nîmes, for the capitol of Virginia, he had reluctantly to acquiesce in the change of the order from Corinthian to Ionic "on account of the expense." In fact, I do not recall a Corinthian order in our Colonial architecture except in interior woodwork. These capitals, on a scale highly respectable, if not colossal, were themselves a "swell" and startling feature in the architecture of Manhattan in the first decade of the nineteenth century. And the order, altogether, by material and scale and material and workmanship, is much more impressive than the earlier example. McBean, you observe, took the liberty of spacing his columns unequally, in order to give a better view of his big Palladian window between the middle two of them, while McComb adhered to the equal classic spacing, and the portico of St. John's is correspondingly more effective. The entablature in each case one grieves to find of wood. In the later case that was probably the effect of constructive timidity, rather than of economy. It was "ere yet the art was known" of inserting behind a stone slab arches turned

from column to column to relieve the apparent lintel, much more before the art was known of cunningly inserting a bowstring girder of metal for the same purpose. And then the whole front of St. John's is of ashlar, while the front of St. Paul's is of cheaper stucco. The sides are in each church of rubble, probably originally covered with stucco in St. Paul's; certainly so covered in St. John's, as you may see at the side, where some of the stucco still adheres. But you will notice that the rubble of St. John's is much more presentable where the stucco has flaked off, than the rubble of St. Paul's, which really must have been covered to be presentable at all. And you will also notice that, in place of the mere quoining at the angles of St. Paul's, the angles of St. John's are far more expensively turned with cut stone pilasters, crowned with full, elaborate and expensive Corinthian, capitals to match those of the portico. Our unknown genius was not the man to lose a whale for want of a sprat to throw away on him. Taking for correct John Adams' estimate of the cost of St. Paul's, forty years before the beginning of St. John's, as \$66,500, we find that St. John's cost quite three times as much, "upwards of \$200,000." and whoever inspects and compares the two edifices to-day can account for the difference.

All this while the "mother church," O'ld Trinity itself, had been overshadowed and eclipsed by her daughters. The first edifice, built in 1696, only twenty years after the definitive change of sovereignty from Holland to England, and while the social ascendancy of Manhattan remained indisputably with the Dutch-speaking population, was but a mission chapel "in partibus," in spite of the efforts of the royal governors, from Fletcher down. In 1774, when it was still less than eighty years of age, John Adams found it so little of a local lion that he had nothing to say about it except that it was an "old church." Two years later it was utterly destroyed by fire, and not only not rebuilt during the British occupancy, but not until five years after the recognition of independ-

ence. Anglicanism and Toryism were still, in the popular apprehension, pretty much the same thing. It was an un-gainly as well as a belated Phoenix which began to rise in 1788 upon the ruins of 1774. At the consecration, in March, 1790, Washington attended, in the pew which the vestry had just voted to be reserved for the President of the United States, but apparently without disturbing his relationship as a parishioner of St. Paul's. Prints of the Phoenix are still available, from which it appears as a mere colonial meeting house, with only the badge of Anglicanism which was furnished by a domical chancel at the east, or Broadway, end. And, when it was demolished, in 1839, to make room for the third and present church, it does not appear that there was a dog to bark at its going. If such a dog there was, he was not an architectural critic.

For without doubt the Trinity which supplanted it remains the best church in New York; one of the most creditable public buildings in the country, one of the most valuable and valued of our civic possessions. One wishes, of course, for the genuine vaulting for which the sub-structure seems competent and intended, and for which, evidently, the lateral abutments, the flying buttresses, might easily have been supplied. Every Gothic architect is necessarily subject to "vaulting ambition." But to "vaulting ambition that o'erlaths itself" no true Gothic enthusiast is subject. It is quite inconceivable that Richard Upjohn conceived that interior of Trinity as we see it in execution. Professor Babcock, his son-in-law and partner of later years than those of Trinity, will pardon me for adducing his evidence in behalf of an overwhelming antecedent probability. Mr. Upjohn meant the church to be vaulted in the honest brownstone of which the piers or the nave are built up to the springing of the arches and of the vaults. Being overruled in this, he did not propose to carry out the vaulting in the actual imitation of real vaulting. On the contrary, he submitted a design, and one is quite prepared to believe a very interesting design, for a ceiling of open

timberwork which should have been "the real thing." But here again, it appears, the sons of Zeruiah in the vestry were too hard for him, as they have on so many occasions been too hard for the zealous clerical and lay ministers of Trinity, who have striven to make the ancient corporation worthy of its historic function and pretensions. And so he was reduced to executing a sham of his conception of a vaulted ceiling. So we must regard the actual interior of Old Trinity as largely an imitative and "scenic" performance. But, even so, how very good it is! Have we anything else on Manhattan Island, in the way of an ecclesiastical interior, that approaches the effectiveness of this "long-drawn aisle and fretted vault," the aisle not too long drawn, the vault not overfretted? (Fig. 9). For that matter, have we anything in the way of an ecclesiastical exterior that approaches the dignity, the purity, the harmony, of the outside of Old Trinity, for which, truly, one could not wish a better neighboring than the roaring mart upon which its spire looks so serenely down (Fig. 10), or even no longer down? No overslaughting by modern skyscrapers can destroy the dignity of that seventy-year-old erection. On the contrary, as John Lafarge has said it, "it is the work of art that judges us." But one has to add that the subsequent and accessory erections of Trinity have all been made in the spirit of a really reverent appreciation of the old fabric itself. One may smile at the local piety which the corporation invoked in 1852, in the form of a public meeting presided over by the Mayor, to prevent the cutting through of Pine Street to the westward, through Trinity churchyard, and over patriot graves. But one can only acclaim the landmark that stopped the irruption of the secular Goths and vandals. It is the work of that brilliant Gothicist, too early lost, Frank Wills, who furnished a most interesting version of the type of monument, as old as the "Eleanor Crosses," of which Sir Gilbert Scott's modern variation, in Charing Cross, is familiar to all visitors to London, of which the Walter Scott monument in Edinburgh

is one of the most successful examples, and of which the Albert monument, in Hyde Park, is by common consent the least successful. For the "motive" one must go back before the revived Gothic, back to the tomb of Can Grande, in that memorial architecture reared by "those who could bear daily to behold from their palace chambers the places where their fathers lay at rest, at the meeting of the dark streets of Verona." Like many others of its kind, this is criticizable, of course, as being a shrine which is not a reliquary, a protective canopy of an effigy which is wanting. But, all the same, how good it is, as a purely monumental study in architecture, how good in proportion, in composition, in scale and in detail. Really, can you confidently point to any designer of 1909 who could do so good a monumental study in this style or in any style, as in this work of Frank Wills, produced in 1852? Compare it, for example, with the best of the recent cenotaphs in our urban or suburban cemeteries. A measure of the same quietness and decorum, enforced, one may plausibly hope, by the proximity of the mother church, has inspired the subsequent ancillary erections. The enforcement is clearly enough shown in the design, by the original architect's son, of the "Church House," of which the crocketed and gargoyle tower comes in so luckily and picturesquely in the look across the churchyard from Broadway (Fig. 11). It is equally shown in the latest addition to the church itself, the single story added in 1878 by the late Mr. Withers, who was also the author of the "Astor reredos" inside, and of the decoration of the chancel. Nay, it is not fantastic to suppose that the architecture of Trinity has had its effect upon the designer of the towering buildings which overlook Trinity churchyard from north and south, and that equally in the design of the Empire Building, which is in a style superficially so different, as in the design of the Trinity Building, which is in a style technically akin to that of the church. Mr. Kimball, as a humane and sensitive person, was impressed with the desirableness of conforming, so

much as might be to the beautiful work which he found himself compelled to overslough and submerge. In fact, there is no possible way of measuring the civilizing influence of such a conspicuous example of pure architecture as, in our community, Old Trinity has for almost the scriptural term of human life been furnishing.

And the next example of Trinity's architecture is, upon the whole, worthy of its predecessor and exemplar. Trinity Chapel, of course, offered no such architectural opportunity as Trinity Church, or as St. Paul's, detached and surrounded by its ample churchyard. It belongs, like St. John's, to the class of "inside churches," even more markedly than St. John's. The church consists, architecturally, in effect, of the front and the rear only, of which one imagines, most visitors will care more for the effect of the rear than for the correct and respectable, but quite commonplace, front (Fig. 12). But an apsidal chancel has a form which is quite safe to make its effect, exteriorly, as well as interiorly, and this apsidal chancel is so scholarly and so well studied, and its dependencies so well adjusted to the central mass, that it is a valuable feature in our street architecture (Fig. 13). One does not see how a designer could have done anything much more effective who was compelled to deny himself aisles and transepts, and to restrict himself to a single nave. The classical prototype of all the single-naved churches is, of course, the Saint Chapelle, and the rear of Trinity Chapel, at all events, is a worthy restudy of that intensely and typically Gothic design, in spite of the lack of the complete development which seems to some essential to entitle a church to the name of Gothic. The rear and the interior, which whoever has not seen by no means appreciates the church. In its less pretentious and less elaborate and less advantageous way it is not only a worthy successor to Old Trinity, but even a worthy rival to it (Fig. 14). And the front, rather dull, perhaps, in itself, has a marked adventitious advantage in the two flanking buildings

which were added—the church school, from the design of Wrey Mould, in Fig. 15; the library of the rectory, from that of Mr. Haight. The bold picturesqueness of Wrey Mould's style, and the success of his application of color, have not often been better illustrated than in this sparkling little work, which serves to illustrate without "jarring" Mr. Haight's later study in safe and dignified collegiate Gothic. The church and its dependencies make up a very attractive group.

Probably most parishioners of Trinity have forgotten the exigencies which made it seem in 1868 that there was need of a mission chapel at Seventh Avenue and Thirty-ninth Street. It is unlikely that the need and the opportunity would reveal themselves now, with the actual occupation of the neighborhood. But we have reason to be thankful that a want was felt which has resulted in decorating the neighborhood with so good a specimen of architecture as St. Chrysostom's (Fig. 16). Here, in place of an inside church, with a decent, if not liberal, reservation of ground on each side, is a corner church which occupies merely the ground it stands on; in effect, a square, abutting at each of its ends on the adjoining secular buildings and so compelling a rather unusual arrangement, especially as orientation is preserved, and the chancel occupies the street front. The result is an effective exterior, in which the low mass of masonry, stopping at the springing of the large pointed windows that occupy the flanking gables, is crowned with a steep hood which serves almost as well as a lofty spire would do, its architectural function of supplying a mediating and reconciling member between the two equal gables. The interior is even more interesting (Fig. 17). The want of symmetry entailed by the necessity of walling out the aisles on one side is cleverly got over. A dignified interior accrues, with a particularly interesting solution of the chronic and crucial problem of a transeptual church with an open-timbered roof, the expressive and appropriate framing of the "crossing." One does not often come upon a solution

of it so successful. On the whole, and whatever the actual uses which the building subserves, forty years after its erection, the hunter after the picturesque in the streets of New York must be grateful that it was put into the hearts of the corporation so long ago to supply so agreeable an interruption to the equal monotony or the unequal animation of Seventh Avenue.

Thus far, whether Georgian or Gothic, the architecture of Trinity parish was strictly conventional and decent, operating within well-defined metes and bounds. But in the next mission chapel, that of St. Augustine, in Houston Street, there came in the passion for "eclecticism," characteristic of that later, or Victorian, phase of the Gothic revival, of which it may almost be said that its products were first impure, then unpeaceable. Not by any means that this is an unfavorable example of the phase. But the problem itself was rather unusually complicated, and the edifice rather reflects than simplifies the complication of the problem. Here the church, the fountain and origin of the whole scheme, is relegated to the rear of the lot is, in fact, quite invisible from the street with which it is connected only by a corridor, just as the ordinary theatre is withdrawn. The front building traversed by the corridor is here, it is true, connected in use with the church; it is, in fact, a parochial building. The thing to do, one would say, was to indicate the ecclesiastical interior by as dignified and churchly an entrance as the designer could contrive, and to subdue the front to its subordinate uses. Certainly one does not see the necessity of erecting a steeple to crown the "business block" in front of the church. The block is not only so crowned, but the framed spire has an awkward jog in outline in the course of its ascent, while the front is grouped and varied and tormented to an inexplicable degree (Fig. 18). It is only when one passes the portal and enters the corridor that he perceives the corridor itself to be an interesting piece of design, with moulded and cut bricks, which were a novel means of expression and decoration in

1877, and that the vista furnished by its own length much enhances the effect of a well-designed, well constructed and distinctly "churchly" interior, which would be impressive even if it had not such a forecourt, and in which the animation by no means destroys nor even disturbs the repose (Fig. 19). It is, in fact, in many respects a model for a church interior which is relegated, not merely to an "inside lot," but to the back of the lot.

Far more ambitious and extensive, and of far more architectural importance, is the next and the latest of the additions to Trinity's architecture: Really, St. Agnes' bears much the same relation to the exploitation of the upper west side that St. John's bore, in its time, to the exploitation of the lower west side, with this difference—that the development of the lower west side a hundred years before was the work of the same promoter who conceived and instigated the church, while the later church was simply an incident of a development with which the parish had nothing whatever to do. The Romanesque had by this time succeeded the Gothic fashion, and the late and lamented Mr. William Appleton Potter had addicted himself to the Richardsonian phase of Romanesque with enthusiasm. St. Agnes's is only one, though, no doubt, the most important, as well as most costly and pretentious of the churches with which he adorned Manhattan under this influence, though he afterwards outgrew it and did his remaining work in grammatical Gothic. In composition, St. Agnes has evidently enough a bad fault. There is no dominating feature. The two features of which either might dominate in the absence of the other are not co-operative, but competitive. One is the big and rather bald "cimborio" which covers the crossing, and for which Trinity Church, Boston, immediately, and Salamanca Cathedral ultimately, may be held responsible; the other the tall unbuttressed campanile. This latter had its precedent in Richardson's work, in the tower of the Albany City Hall, But Richardson was better inspired than to try to

combine the two. If the central tower of St. Agnes' had been the only feature, and the money spent upon the belfry had been added to it, or if the central tower had been omitted and the belfry correspondingly enlarged and enriched, the effect would doubtless have been better than it is. But these faults do not, and worse faults would not, prevent St. Agnes' from attaining a distinguished architectural success (Fig. 20). The unusual magnitude and protrusion of the flanking buttresses are sometimes alleged as faults. But, in fact, they are no bigger than seems necessary to abut the great arches of the nave, while they do, without question, add to the expression of massiveness and repose in the flank of the church. While the campanile is evidently, and, as it were, avowedly, taken from that of Albany, and while the combination of material throughout is that popularized by Richardson of rough gray granite or rubble, with wrought work of brown sandstone, the tower of St. Agnes is in many points an improvement upon the prototype, most notably, perhaps, in the combination of the two materials which are here "implicated" throughout; whereas in Albany a belfry stage, all brownstone, surmounts a shaft all granite. The apse, again, recalls that of Richardson's first great success in Boston, while it shows a sensitive and artistic restudy of that design. The interior, on the other hand, owes nothing to the prototype of the exterior. It is a very straightforward, expressive and impressive example of the Romanesque which, even in its architectural detail, and still more in its interesting furniture and fittings, harks back from the western Romanesque to the eastern, to the Byzantine (Fig. 21). It is not only an excellent example of a fashion which has passed. It is one of the examples which makes it seem rather a pity that it was a fashion only, and that it has passed. The parochial buildings flanking the apse are of the same solid and seemingly character as the church itself. And one remarks with interest that there is no lack of comity and neighborliness between this rock-faced proto-Gothic and

the smooth brownstone which Mr. Haight has adjoined to it, in that phase of the latest degeneration of Gothic we call "Jacobean," for the uses of Trinity School (Fig. 22).

As for St. Luke's, it would be quite unfair to hold Trinity to any responsibility for its architecture (Fig. 23). For, although the building has the respectable antiquity of nearly ninety years, it was merely taken over by Trinity in 1892, when its own congregation migrated northward to erect its new church in Convent Avenue. Who, if anybody, was the architect, does not appear, and evidently does not matter. But the view of St. Luke's is worth giving, if it were only to explain and largely to justify those hereditary parishioners of St. John's Chapel, who have shown such marked reluctance to be tranquilly transferred from that building to this without their own advice or consent.

For the rest, these illustrations make it plain what a public benefactor, in the way of architecture, Trinity has been for the past century and a half. It has followed the fashions, but not too precipitately. And, in whatever fashion of ecclesiastical architecture it has worked, it has given us excellent examples. Whether it be Colonial, revived Gothic, "Victorian" Gothic, or Provincial Romanesque that was in vogue for church-building, Trinity has furnished us not only with typical, but with admirable examples of the prevailing style. One who has made such a study as this present has found much more to admire in the management of the spiritualities of Trinity than in that of the temporalities. It needs such a research to enable one to appreciate the courage and the devotion, the fidelity and the insight with which the vicars of Trinity have wrought towards fulfilling their "mission," in all cases so altered from the original purpose of their respective establishments, what incomputable good they have done in and are doing in maintaining true centers of civilization in the polyglottic new populations that surrounds each of the outlying chapels. "But that is another story."

Montgomery Schuyler.



Boston.

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McKim, Mead & White, Architects.

Architecture in the United States

I.

The Birth of Taste

Architecture, although the least plastic and animate of the arts, images at all times a nation's character, changing as that changes. It is the mirror of the national consciousness. It cannot lie. If it seems to do so it is only the more truly to betray the essential falsity of the social condition under which it had its origin. The parallel between our architecture and our national character holds good all along the line; it everywhere reflects the social tone that dictated it. The difference between Independence Hall, let us say, and a modern skyscraper, is the measure of the difference between the men and manners of Colonial days, and the men and manners of to-day. To trace, therefore, the development of architecture in the United States, from Colonial times until now, is to learn something of the ramifications of the public temper and the public taste during that period, while a knowledge of that taste and that temper, gleaned from other sources, will help to clear up many obscurities which such a survey presents.

Our architecture has not undergone that slow and orderly development which has usually characterized the progress of the art in other countries and in times past. Before our War for Independence, and for a considerable

time thereafter, the Georgian style, that is, the manner of building prevalent in England during the reign of the four Georges, modified into what we have come to call the Colonial style, was universally employed for buildings of every size and class. The architecture of the Georgian period represents the Renaissance of Jones and Wren in its last gasp; but with all its faults, something of the grand manner of an age of taste survives in it, and it is characterized by a quiet dignity arising from a certain simplicity of motive and a justness of proportion of which the builders of that day possessed the secret, or instinct, and which we appear to have lost. Certain it is that in the Colonial style we came as near as we have ever approached to achieving an American style of architecture, and its representative examples, for appropriateness and beauty have never been surpassed. I hasten to qualify this statement by reminding the reader that the problems which confront the modern architect are as difficult, compared with those presented to the Colonial builders, as the problem, let us say, of living the simple life at the Waldorf-Astoria, is difficult compared with living it on a New Hampshire farm.

Georgian architecture gave place to that of the so-called Classic Revival.



Fine Arts Museum.

Boston.

This curious phase of our development has found but small place in our literature, but it has left many a souvenir in the names of villages and cities. (There are 27 Troys, 15 Romes and 12 Carthages), and in many old white houses with tumble-down Greek porticoes, for this was the period of pseudo-temples, their "orders" laboriously worked out, by modules and minutes, and translated literally, without the change of a phrase, from stone into wood and brick and plaster. It was all false, affected, pretentious, yet occasionally, in the right environment was achieved an effect of sober dignity—almost of grandeur—to which the unmitigated and un-redeemed mid-Victorian ugliness which succeeded it,



Independence Hall.

Philadelphia.

could never, under the most flattering conditions, lay the smallest claim. The late H. C. Bunner has happily suggested the superiority of the elder vogue to the later by this apostrophe of an old white pillared house, addressed to a new Queen Anne shingled cottage.

"I have had my day. I was built when people thought this sort of thing was the right thing; when we had our own little pseudo-classic Renaissance in America. I lie between the towns of Aristotle and Sabine farms. I am a



Trinity Church.

New York City.

Richard Upjohn, Architect.

gentleman's residence, and my name is Montevista. I was built by a prominent citizen. You need not laugh through your lattices, you smug new Queen Anne cottage, down there in your valley! What will become of you when the falsehood is found out of your imitation bricks, and your tiled roof of shingles, and your stained glass that is only a sheet of transparent paper pasted on a pane? You are a young sham! I am an old sham! Have some respect for age."

Even the Carpenter's classic period and the dim Victorian limbo were not without their glimmerings of light. These took the form of a few—a very few—really beautiful Gothic churches—of which Trinity in New York was among the finest—built by Upjohn, and his disciples; men inspired by the vital, but abortive Gothic revival in England. The influence they exercised upon our secular architecture was little enough, and rather pernicious than otherwise, since it produced the Gothic Farm House type, exploited in the pages of building manuals and agricultural papers—a thing of broken roofs, contorted chimneys, and long, narrow win-



De Vinne Building.
New York City.
Babb, Cook & Willard, Architects.

dows. Of a different order, but scarcely more happy in results were the buildings inspired by the teachings of Ruskin, a man whom Mr. Cram characterizes as "of stupefying ability * * * quite the most unreliable critic and exponent of architecture that ever lived, but gifted with a facility in the use of perfectly convincing language, such as is granted to few men in any given thousand years." The existing Boston Art Museum is a typical example of the misdirected efforts of this particular group who "turned to detail and decoration the use of colored bricks and terra cotta, stone inlay, naturalistic carving, metal work, as the essentials



Lenox Library.
New York City.
R. M. Hunt, Architect.

in constructive art, abandoning the quest for effective composition, thoughtful proportion and established precedent."

1880. I do not know why this apparently random combination of digits should mark an epoch in the history of manners and taste, both in England and America, but such is the case. Max Beerbohm wrote an essay on "1880", treating the period, in his elfishly humorous vein, as almost unimaginably remote—and remote indeed, it seems, so swiftly have the wheels of change revolved since then. Time, in the last analysis, is but succession, and



Marshall Field Warehouse.
Chicago.
H. H. Richardson, Architect.



Ponce de Leon Hotel.

St. Augustine, Fla.

Carrère & Hastings, Architects.

when changes succeed one another rapidly, time seems to extend; when slowly, to contract. The Italian Renaissance from its earliest dawn till twilight was scarcely two generations in length. But to return from this digression: It was in, or about 1880 that the aesthetic darkness of the "Scientific Century," by being made a subject for laughter became a subject for thought. The renaissance of taste in England, inaugurated by William Morris, and the Pre-Raphaelites, and perpetuated by the "Aesthetes," was a fertile, and perhaps a fit subject for the satire of Mr. Gilbert and "Mr. Punch," since all movements at all revolution-



Tiffany Residence.

New York City.

McKim, Mead & White, Architects.

ary are apt to have their beginnings in exaggeration and excess; but the humors of "Patience" and of "Passionate Brompton," could not blind intelligent people to the enormous significance of the fact that men were again being born into the world with a craving for beauty—"mere" beauty, if you will. They found this beauty in Greek sculpture, in Gothic architecture, and in the paintings of the Italian Primitives; but in their own environments they

New York Life Insurance Company's Building.
Minneapolis, Minn.

Babb, Cook & Willard, Architects.

found it nowhere except in some scattered and random trifles brought in the holds of farfaring vessels from China and Japan. The storks, fans, and cat-tails, with which the Aesthetes adorned their dados, make us shudder now; but they testify to the sincerity of their admiration for the only vital art manifestation of any magnitude in the world at that time, and are eloquent witnesses of the fact that the appreciation of Oriental art was contemporaneous with the first concerted



Trinity Church.

Boston.

H. H. Richardson, Architect.

and serious attempt in modern Anglo-Saxon civilization towards the realization of beauty in the every-day life.

Even the most refined and sensitive spirits of the immediately preceding generation, though generally right on questions of morals, were generally wrong on questions of taste. The things with which the Hawthornes adorned their apartments and the presents given and received by Browning and his circle, there is no epithet fitly to describe. The letters written by New England's Brahmin caste abound in references to painters and sculptors of that day who are compared to the old masters to the latter's disadvantage. Charles Sumner writes to Story: "George Russell tells me that your

Saul is the finest statue he ever saw;" and Story says of one of Page's portraits, "No such work has been achieved in our time." In speaking of the aesthetic sensibility of the sixties, Henry James shrewdly observes, "The sense to which for the most part, the work of art or of imagination, the picture, the statue, the novel, the play, appealed, was not in any strictness the aesthetic sense in general or the plastic in particular, but the sense of the romantic, the



St. Nicholas Hotel.

St. Louis, Mo.

Louis H. Sullivan, Architect.



The Villard Houses.

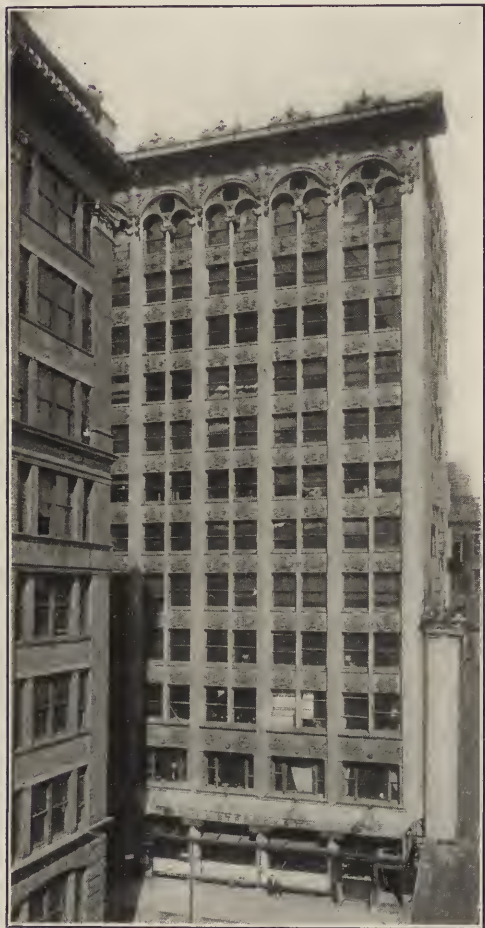
New York City.

McKim, Mead & White, Architects.

anecdotic, the supposedly historic—the explicitly pathetic."

In 1880 this point of view suffered a sea-change. Oscar Wilde, the particular prophet who carried the new gospel of aestheticism to our shores, wrong as he was in matters of morals, was right in matters of taste, and he found, here, a considerable number of men and women who were right, we are bound to believe, in both. Architecture, which is the mirror of man's mind in space, was not slow to reflect this newborn sensitiveness to beauty, but in localities and on a scale commensurate

with the restricted character of the movement, which was limited to the towns and cities of the extreme east. Among the ugly and arid crags and crannies of the Boston, New York and Philadelphia streets, there began to appear some rare and delicate flowers of architectural art, the work for the most



The Condit Building.
New York City.
Louis H. Sullivan, Lyndon P. Smith, Architects.

part, of young Americans whose aesthetic sense had been nourished at the bountiful breast of Italy or France.

There is something touching in the refined and faded beauty of certain of these early essays in an American style, elbowed as they are on every hand by the big, florid, bedizened steel-frame

skyscrapers of to-day. They seem to say to the passer-by "You'd love us if you'd only look at us," and so we would, New York can show nothing better of their several sorts, than Mr. Babb's De Vinne Press Building on Lafayette place, Mr. Ware's Manhattan Storehouse on Forty-second street, and Mr. White's pedestal and exedra for St. Gaudens' Farragut in Madison Square.

Not in these directions of restrained and cultivated originality, however, were we destined to develop just then, for Richardson, a flaming comet, was already blazing in the architectural firmament, attracting and scorching up all lesser luminaries, save three or four. Richardson compelled even the Philistines to sit up and take notice; to him belongs the credit of popularizing architecture in the United States. He was a great man, and the buildings he left are worthy of his genius; but his influence was as pernicious as it was pervasive and he delayed the normal evolution of architecture for many years. The style which he made his own, a modified and more massive Romanesque, neither lent itself readily to American needs and conditions, nor was it capable of expressing these with any degree of appropriateness and truth; it expressed only the powerful and romantic individuality of its creator, and in the hands of lesser men, fated, like all copyists, to seize on the idiosyncrasy and miss the essential—it degenerated into a thing more crude, false, feeble, and pretentious than anything that had gone before. A short time after Richardson's death, when it was found that only Thor could wield Thor's hammer, most of the architects in the East, even Richardson's immediate pupils and disciples, turned elsewhere for their inspiration.

Messrs. McKim, Mead and White, who had never for one moment submitted to the Richardson obsession, continued to produce charming, scholarly, refined work, based, for the most part, on early Italian Renaissance models. The Villard houses, in New York, reminiscent of certain places in



Farragut Monument.
New York City. Stanford White, Architect.
Augustus Saint Gaudens, Sculptor.

Florence, and the Boston Public Library, which, though composed of the same elements as the Library of St. Genéviève, in Paris, harks back to Alberti's Malatestian temple at Rimini, are two characteristic examples. The firm soon gained a substantial following, and the work produced was vastly better and more appropriate than the earlier excursions into Richardsonian Romanesque, though perhaps a little thin and anæmic to eyes grown accustomed to the bold and virile manner affected by the men educated in the methods of the Ecole des Beaux Arts. Of this manner Mr. Richard M. Hunt's old Lenox Library is perhaps the earliest example, and Mr. Whitney Warren's so different New York Yacht Club, is among the latest.

Meanwhile, other and different influences were at work elsewhere throughout the country. In Philadelphia and its environs the delicate and individual art of Wilson Eyre, and the more imitative, but admirable work of Frank Miles Day and Cope and Stewardson was mitigating, in spots, the ugliness of the earlier time. At St. Augustine, in Florida, Messrs. Carrère and Hastings inaugurated their brilliant career with the wonderful Ponce de Leon hotel, a building so original, so

beautiful, so rational, so suited in every way to its environment and purpose, that it may truly be called a masterpiece. In Chicago, Richardson had built, in his happiest vein, a great warehouse. Simple, severe, utilitarian, but most impressive, the work of a poet in stone, it seemed to symbolize the city's very soul, and it furnished the inspiration for many important buildings erected by Messrs. Burnham and Root, and Messrs. Adler and Sullivan. Of these the Auditorium Building is perhaps the best example.

After Richardson's death there was need of a new prophet in our architectural Israel, and to the eyes of a little circle of devotees in Chicago, he presently appeared in the person of Mr. Sullivan, who early developed a style of his own, which straightway became that of a number of others, (with a difference, of course)—young and eager spirits, not fettered by too much knowledge—not fettered, indeed, by enough! Outside this little circle Mr. Sullivan was either unknown, ignored or discredited by those persons on whose opinions reputations in matters of art are supposed to rest. Engaged for the most part upon intensely utilitarian problems in an intensely utilitarian city, he had no opportunity to captivate the popular imagination as



New York Yacht Club.
New York City.
Whitney Warren, Architect.

Richardson captivated it in his Trinity Church, Boston. Yet by the power of his personality and the vitality of his genius, he has exercised as great an influence upon the national architecture as his illustrious predecessor—greater in fact, because more abiding, for Mr. Sullivan concerned himself with principles, not preferences.

Mr. Sullivan's theories and his accomplishments will be considered at greater length in a subsequent essay. It is sufficient to say, in this connection, that he has solved the aesthetic problem of the sky-scraper more successfully than any architect before or since. This problem had always been a thorn in the side of the academically trained designer, who usually endeavored to achieve diversity in the exterior where none existed on the plan by a series of superimposed motives, separated by cornices or string courses which had the effect of diminishing the apparent height. Mr. Sullivan was among the first to perceive the inherent irrationality of such a treatment. He saw, moreover, a great opportunity in the problem of the modern office building. Since loftiness was of necessity its chief characteristic, instead of suppressing he emphasized the vertical dimension.

The Guaranty (now the Prudential) Building in Buffalo, and the Condit Building in New York, are two embodiments of his idea. Although these have not been paid the sincere tribute of exact imitation, the force of Mr. Sullivan's example, more than that of any other man, put an end to the meaningless piling of feature upon feature. To emphasize, and not minimize the vertical dimension of a high building, has come to be the accepted practice.

The pre-occupation of the Chicago architects with the practical and economic aspects of the tall office building to the general exclusion of the aesthetic, had the odd effect of rendering their early essays in that field superior, as a general thing, to those of about the same period in New York. The latter show ornament for the most part misapplied, and an aesthetic pre-occupation misdirected. Mr. Root's old Monadnock building, for example,

is better architecture than Messrs. Carrère and Hastings' Mail and Express Building, though they stand at opposite extremes in the matter of cost and embellishment. The last-mentioned architects showed later, in their altogether admirable Blair Building, that they had learned from Mr. Sullivan or elsewhere their lesson.

Such architectural graces as other Western cities could lay claim to, up to the time that I have brought this chronicle, that is, just before the Columbian Fair, they owed, for the most part, to alien talent. San Francisco in particular, before the advent of men trained in the more scholarly methods of the East, was a veritable chamber of architectural horrors. It is said that in the early days it was the custom for the builder, at a certain stage in the construction of a house, to appear upon the scene with a wagon load of miscellaneous jig-saw ornaments, which he would then hold up, one by one, in the presence of its owner, until the latter had selected those that pleased him best. I have heard the theory advanced that the nickel and mahogany Pullman cars of the Southern Pacific first established the California criterion of taste, in the matter of house decoration—being the particular order of magnificence with which her sons were first and most familiar.

Mr. A. Page Brown's work in San Francisco, Messrs. McKim, Mead and White's New York Life building in Kansas City, Messrs. Babb, Cook and Willard's splendid office buildings for the same Company, in St. Paul and Minneapolis, and Mr. Sullivan's St. Nicholas hotel and Wainwright Building in St. Louis, to mention only a few typical examples, established a standard of excellence in these cities which had an effect upon the profession throughout the entire West, and when the time came for determining into what hands the exceptional architectural opportunities afforded by the World's Columbian Exposition should be entrusted, the most eminent Eastern architects were freely given the lion's share.

Claude Bragdon.



APARTMENT HOUSE IN MANHATTAN SQUARE.

West 77th Street, New York.

Harde & Short, Architects.

An Apartment House Aberration

Manhattan Square, New York City

How many readers, one wonders, of the *Architectural Record*, remember when there used to stand, in Broadway, just above Grand Street on the Western side and adjoining or almost adjoining the then retail store of Lord & Taylor, the simulacrum of a cathedral window, dedicated to the uses of the retail dry goods trade. It was already, in 1875, or a little later, a little antiquated. Because it was made of cast iron, painted white to imitate marble. It had already before the middle of the eighth decade of the nineteenth century come to be understood that an exposed iron skeleton was not to be trusted against fire. That expensive lesson had been inculcated by the great fires of Chicago and of Boston, particularly that of Boston, where the exposed skeletons of ironwork withered and collapsed in the fiery furnace to which they were subjected. To be sure, it was later than that that the late R. M. Hunt essayed to treat iron fronts idiomatically in two store fronts, on the East side of Broadway somewhere about Broome Street, one in a very free classic, the other in Moorish. But it was some years before that that the late F. C. Withers had essayed the same task in a store front in Canal street, near Broadway, which was pretty evidently of a Gothic inspiration, though the architect had studiously omitted any detail derived from the Gothic treatment of masonry. These fronts strove to make up for their attenuation and for the lack of functional modelling by pigmentation. They were interesting experiments towards the rationalization of a metallic construction. Broadway was full of iron fronts in those days, mostly relics of the sixties, possibly even of the fifties. But there was no pretence of rationalization or of rationality about the others. They were merely and frankly imitations in metal of fronts in stone, mostly in the classic manner, the

"mercantile Renaissance" of the Broadway of those days. This particular front we are recalling asserted itself mainly by being a reproduction of Gothic forms instead of classic. It was quite as far as its classic neighbors from any pretence of rationality or of adaptation. It was in fact, a very richly traceried window five stories high, or four, since the basement was more solidly treated, of the normal "cornice line" of that old Broadway, by, say, twenty-five feet of frontage, which was also not abnormal. In point of fact, it was in dimensions the normal mercantile "unit", only in its treatment an aberration from the mercantile architecture of the street as exhibited in the cast iron fronts, and an aberration not necessarily for the worse. Practically rather for the better, since a cathedral window between narrow piers admits more light than any other imitation of historical forms in masonry. And this was a cathedral window which may have been literally copied from some accredited example, possibly magnified, possibly on the scale of the original. In either case rather an impressive example of "scale" in that old Broadway. It is true that the rich tracery of the arch-head may have been irksome to those condemned to dwell behind it. But, again, these were only the janitor's family who were well recognized to have no rights that architecture was bound to respect, and who may have been quite as comfortable "behind the bars" of the tracery, as the families of the janitors of the cast iron Renaissance palaces cooped up behind the monumental cornices, and peeping out through inconspicuous slits conceded grudgingly to their merely human requirements.

Long since have the Gothic windows in cast iron, as well as the Renaissance palaces in cast iron disappeared, submerged under that rising tide of Yid-

dish architecture in skeleton construction which now borders the Middle Broadway which was then the boast and favorite promenade of Manhattan. But it is very vividly recalled by the enormous amplification of it even now completing on the South side of Manhattan Square, just opposite the interminable fronts of the Museum of Natural History, and so in full evidence. One may have been preaching for years the particular appropriateness of Gothic to the "skeleton construction." In fact developed Gothic was the nearest approach to a skeleton construction of which the nature and limitations of masonry admitted. The most advanced and typical of the French cathedrals were those which most nearly eliminated the wall of masonry, leaving in its place a wall of glass, punctuated at intervals and divided into "bays", by buttresses, as narrow and deep as possible. Though the shape of these, the narrowness and depth, was dictated by mechanical considerations, arising out of the mechanical function of the buttresses, it had the effect of reducing by so much the area of the wall. In extreme examples, like that of the Sainte Chapelle in Paris, it went to the extent of abolishing the wall, as wall, altogether, leaving in place of it a mere "sash frame." Now the demand of the projectors and inmates of the modern skyscrapers, whether commercial or residential, office-building or apartment house, is equally for a "sash-frame." "The prayer of Ajax was for light." It is true that "light" was hardly the prayer of the projector of the mediaeval cathedral, since he took pains to shut off and "contemper" the flood of light he obtained by filling the open spaces with a gallery of transparent or translucent pictures. What he was aiming at was what has been so admirably expressed by Milton,—

Storied windows richly dight
Casting a dim, religious light—

and the modern tenant does not want his light either dim or, even less, religious. But, leaving out the painted

glass, the mediaeval "skyscraper" was the most artistic "sash-frame" ever evolved out of masonry, and to that extent seems to offer the most practicable precedent for the newer "skeleton construction." It is true that the upright and the horizontal members of the old skeleton construction were of actual stonework, of the newer only steel bars, enclosed and protected against weather or fire by wrappings of masonry or of baked clay reduced to the irreducible minimum of area. But clearly the principle is quite the same. The cathedral window between its bounding buttresses is the most accurate historical prototype of the modern skyscraper.

When, however, one who has been preaching thus find his precepts suddenly reduced to practice in such an erection as this apartment house in West Seventy-seventh street, the result makes him, to recur to Milton, "stare and gasp." Milton did not say anything about a fourteen-storied window, richly dight or otherwise. Milton could not have imagined a human person doing business, or a human family inhabiting, say, transom 13, mullion X, of one of his imaginary windows. But, after all, why not? One's astonishment at the unfamiliarity of this strange apparition is nothing whatever against it. We have called the front a cathedral window. But its aim is really yet more ambitious. The motive is a complete cathedral front, with the whole nave occupied by one huge window, and each of the towers, from top to bottom, occupied by another. One notes that the analogy is carried out even in the asymmetry of the flanking towers. The designer simply must have been thinking of Amiens when he put that curt, truncated roof on the left hand tower, even though he were apparently still seeking for a properly counterparting motive for the other which should not counterpart too closely. The pinnacles of the actual tower appropriately enough flank it, and set it off. It is not their fault, nor yet that of their designer, if they have no very visible means of support, if he simply could not afford the space to detach suitably the flanks from the

centre, the aisles from the nave, still less the space to give the towers that air of comparative massiveness and solidity which should properly distinguish them as flanking and framing members. One has known the like shortcomings in the fronts of skyscrapers in which there was nothing at all of unconventional or aberrant. It is a pity that with so generous a frontage, a frontage of not far from 100 feet, the designer did not see his way to do more in this direction. But you perceive he has done what he thought he could afford to do by emphasizing the intermediate and the terminal piers with color. And the skeleton gable that crowns the "nave" you must admit to be a picturesque and even a "jolly" feature.

Really, one can have nothing but commendation for the manner in which the architect has stuck to his text, and refrained from creating a factitious architecturesqueness at the expense of his employer. If he had not refrained, there would be nothing exemplary or suggestive about his work. There is no progress in the design of skyscrapers to be hoped for from the work of designers who seize the opportunities that skyscrapers offer to rear monuments for themselves out of these examples of a bare utility, instead of extracting from them every last dollar they can be made to yield in revenue to the designer's employer, the owner. True, one may imagine, from a view of this front, and without knowledge of the plans beyond what the view gives him, that this designer has shown a needless

degree of asceticism, and that he would not have diminished the revenue paying capacity of his work by planning to give a little more or even considerably more expanse of wall where such expanse is so urgently needed. Even a few feet more of breadth of plain wall would have made an immense and beneficial difference in the effort of the front by emphasizing its main divisions. But the fault, if it be a fault, is in the right direction. In a building of which the sole use and function is to yield the greatest return on the investment, even the judicious hunter after the picturesque would rather see evidence that the architect had denied himself than that he had denied the owner.

This, of course, as to the general lay-out and disposition. No reasonable owner would or does begrudge the time and thought his architect gives to the devising or adaptation of the best and most effective detail, nor object to the additional cost of this. External attractiveness is undoubtedly an asset in a fashionable apartment house, as the sacrifice of the essential maximum of "accommodation" is a liability. And this detail is in fact, very good, well chosen, well adjusted, well "scaled". Compare this freakish front, for example, with its next door neighbor, in which there is surely nothing of aberrant. How much better composed it is and how much better detailed! How can the humane and sensitive passer fail to be grateful to the designer who has given him so much, not only that he must look at, but that he must find so well worth looking at.



TOWERS AND FAÇADE OF THE CHÂTEAU OF LE LUDE, FACING THE PARK.
(Built by Guy de Daillon.)



EASTERN FAÇADE—CHÂTEAU OF LE LUDE.

Notes on Some Famous Châteaux of the Sarthe

Almost imperceptibly our summer in Touraine had slipped away. September had come, and with it autumn's messengers. In the early morning, before the sun had had time to warm the air, the cobwebbed furze-bushes at the sides of the lanes of Touraine were covered with myriads of tiny dewdrops, whose sparkle strangely mimicked the hoarfrost of winter. The long rows of poplars, which were rapidly changing their green foliage for one that was yellow and scanty, faded into a misty distance. On low-lying meadows near the Loire and the Cher the ground was purple with thousands upon thousands of colchicum blossoms. As to the grapes, these were rapidly reddening on the vines, and in a few weeks' time would be gathered in amidst laughter and song.

On the recommendation of Balzac, who writes with his usual enthusiasm on the subject of the vintage and autumn of Touraine, we were much tempted to linger on in the ancient province. But the call of the city was unfortunately imperative, and our departure thence was now a question merely of days. Besides, the main purpose for which we had come to this part of France had been accomplished, and I can assure you that we prided ourselves not a little on the fact that there was not a château or a ruined castle of importance which we had not visited.

"I see that you have seen everything," said someone to whom I had enumerated the places at which we had called. "That is, everything in Touraine. But what about the châteaux of the Sarthe? Geographically, they are out of the district you proposed to explore. But, now that you are here and within such a short distance of them, you must not think of neglecting the principal one amongst them—Le Lude. Palustre, the authority on the French Renaissance, says that it would be difficult to find a more elegant example of the architecture of the Renaissance than that beautiful castle."

As this suggested excursion would add, we were told, but a couple of days to the length of our sojourn, we decided to undertake it. Tours, therefore, saw us once more. We made a quick run in our car from that town to Château-la-Vallière, which is noted for its picturesque lake and forest, and thence to Le Lude, an ancient and prosperous little town on the Loir. The scenery we encountered on the way consisted largely of woodland. In fact, the whole of the Sarthe has the aspect of an extensive forest, the department gaining this appearance owing to the numerous hedges which separate the fields and the clumps of tall trees which are dotted here and there.

Our adviser was certainly right in recommending us not to miss the Château of Le Lude. Its stateliness, the beauty of its ornamentation on pilasters and dormer windows, and the charm of its gardens place it on an equal footing with some of the most important of the châteaux of the Loire. The gardens, which are even finer than those at Chenonceaux, are especially noteworthy. The *jardin à l'anglaise* is situated on a raised terrace overlooking the Loire and facing the southern façade of the castle, and it is embellished along its entire length of two hundred yards with superb marble vases—Italian work of the sixteenth century. At the end of the terrace is also a fine marble group, representing Hercules and Antæus, by Mongendre, a Mans sculptor who lived about the end of the reign of Louis XIV. Beneath, and bordering the Loir, is the French garden, set out in that formal manner which accords so well with the lines of the eastern or eighteenth-century façade of the château facing the river.

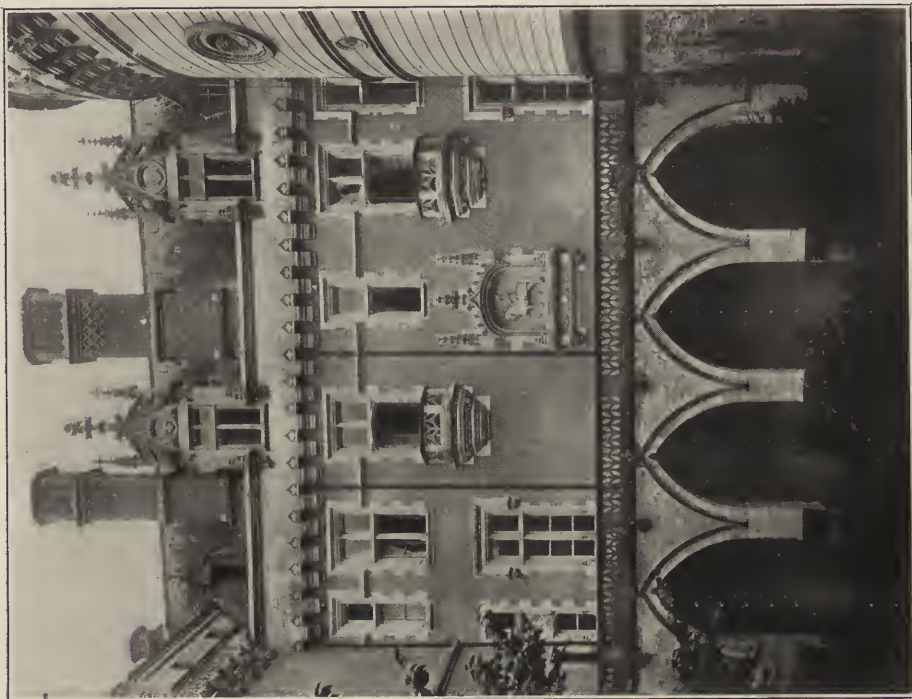
The Château of Le Lude, which forms a large quadrilateral, surrounding a rather diminutive courtyard, was built by members of the Daillon family. Jacques de Daillon began to build it on



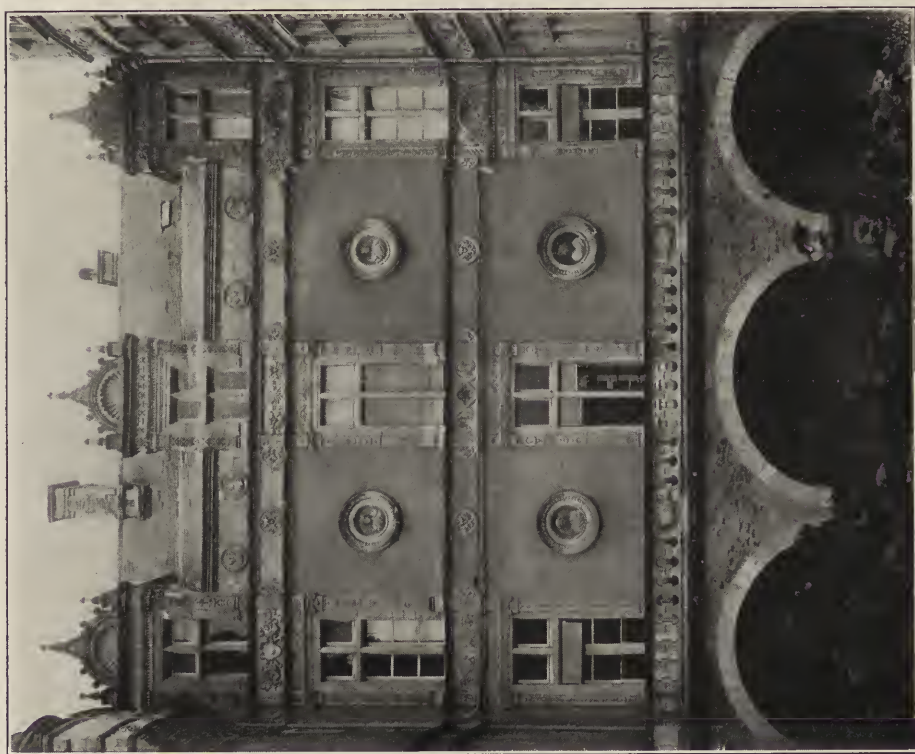
CHÂTEAU OF LE LUDE—ENTRANCE FROM THE TOWN.



CHÂTEAU OF LE LUDE—THE FRENCH GARDEN.



Northern Façade.



Façade Facing the Park.

CHÂTEAU OF LE LUZE.



Marble Vase (XVI. Century), one of a number ornamenting the grand terrace and the English garden at the Château of le Lude.

the site of a feudal castle about the year 1520; the work was continued by his widow, Jacqueline de la Fayette, on behalf of their son Jean; and it was completed by Guy de Daillon, the son of Jean. Jacqueline de Daillon's work, which was carried out during her husband's absence at the wars, in which he met his death, consisted of interior decoration. In 1777 there could still be seen in the *salons* and in the galleries of the castle numerous French, Italian and Spanish emblems and devices, interlaced with arabesque. An interesting discovery made in 1853 by M. Delarue, the architect who assisted in the restoration of the château, confirmed this. He brought to light, in a little oratory in one of the towers, a number of remarkable mural paintings by artists of the school of Rosso and Primaticc. The principal picture is one representing a lady of Lude sorrowing over the death of her husband. The news that he was killed at the Battle of Pavia is brought to her by a messenger, who is showing her the hero's cloak stained with blood.

To Guy de Daillon we owe the towers and the façade facing the park, as shown by a date, 1577, and the general style of the architecture. Later owners made additions or alterations. Thus, Thimoléon de Daillon, whose sundial, bearing the arms of his family and those of his wife, with their initials and the date 1649, stands in the garden facing the eighteenth-century façade, directed his attention principally to the gardens; whilst the Marquis de la Vieuville, who restored the castle at a cost of over \$55,000, pulled down the western wing which connected the two towers nearest the town, replaced it by the present buildings and a three-arched portico, and built the eastern façade. This three-arched porch, which supports an open terrace ornamented with a balustrade, was a happy change, for it opened up the courtyard, which, up to then, had been somewhat dark. This courtyard is oblong, 20 meters by 10, and it is ornamented on three of its sides with pilasters separated by empty niches. Between these niches the walls are decorated with plaques of colored marble,



Ancient Sun-Dial at the Château of le Lude.



THE CHÂTEAU DE JARZÉ.



CHÂTEAU DE JARZÉ—GRAND SALON.



CHÂTEAU DE JARZÉ—PETIT SALON.



CHATEAU DE JARZÉ—FORMER GUARD ROOM.



CHÂTEAU DE JARZÉ—PAINTED CEILING OF THE ORATORY.

symmetrically and tastefully arranged. The restoration of Le Lude was continued in 1853 by the present owner, the Marquis de Talhouët, and has only recently been completed. The northern façade, with its modern equestrian statue of Jacques de Daillon, and the monumental entrance to the grounds from the town, form part of the work he has had carried out.

The interior of the château, in spite of the richness of its decoration, proved a disappointment in comparison with what we had seen outside. The four huge machicolated towers give the idea that the building is a very roomy one, but on entering you find that this is not so. With the exception of the large and small drawing-rooms, and the Salle des Fêtes, the rooms are small, and, withal, astonishingly dark. The electric light had to be turned on even in the fairly large Salle des Fêtes in order to be able to see the sculptured mantelpiece to advantage. Yet the sun outside was shining magnificently from a cloudless sky. This sombreness is caused, of course, by the immense thickness of the walls and the equally unavoidable narrowness of the windows, and is one of the disadvantages, from the modern point of view, of most of these ancient castles. Otherwise, the apartments are above criticism. On all sides—in the dining-room, library and drawing-rooms—are choice furniture, pictures, tapestries and other works of art. The recently completed carved stone staircase is a fine example of modern work; and the bedrooms, in one of which Henry IV. slept during his visit to Le Lude in 1593, as shown by a framed letter preserved there, are interesting for their contents or their historical associations.

It was inevitable that, having come so far as Le Ludé, we should proceed a little further towards Jarzé, which held forth the prospect of an interesting château, since we were informed it had been built by Jean Bourré, the builder of Langeais. On our way there we came first to La Flèche and then to Baugé, both famous places. The former is celebrated for its military school, which, founded by Napoleon in 1808, in eccle-

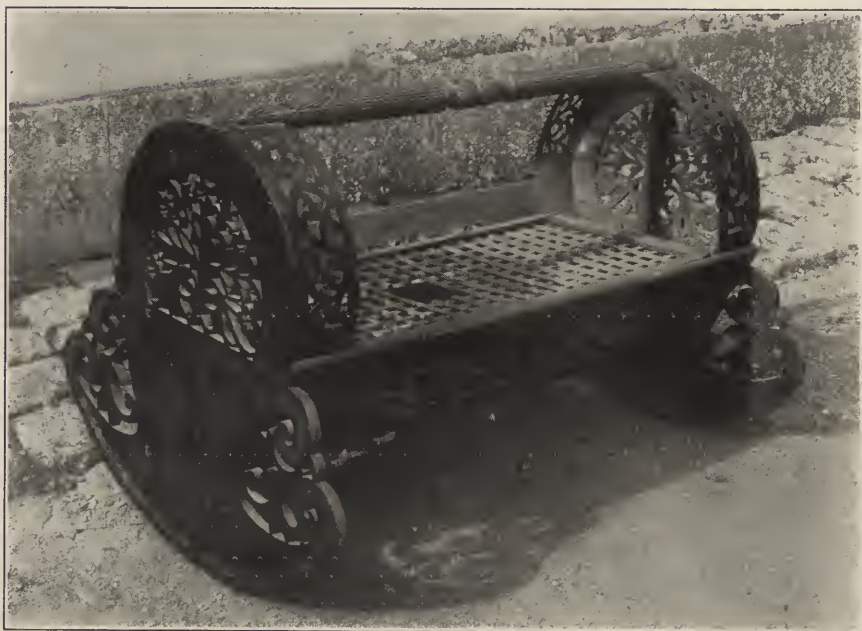
siastical buildings dating from about the middle of the seventeenth century, has produced many of France's finest soldiers. But this Prytanée interested us less than the pretty Château des Carmes, a former convent near the bridge that crosses the Loir. There is also a château at Baugé—a picturesque, weather-beaten building of the fifteenth century which is attributed to King René, who, according to legend, was very fond of this town and district. The former residence of the good King of Naples (he was surnamed "Le Bon," on account of his paternal character, his pacific government, his constant serenity under ill-fortune, and his love for art and literature), is now the Mairie and Gendarmerie. The best preserved portions are the sculptured doorway to the tower, facing the Place du Château, and the winding staircase within, a staircase surmounted by a fan-vaulting on which are armorial bearings supposed to be those of René. Whilst on the road from Baugé to Jarzé you get a view, on the left, of the towers of the Château de Landifer, which should be visited if you wish to be able to say that you have explored the Sarthe thoroughly. Not professing to have set out to do that, we did not find the time to see this partly Renaissance, partly modern, castle.

Jarzé is a plain, a very plain, country house, situated on an eminence, whence an extensive view can be obtained of much of the surrounding country, even as far as Angers (twenty-seven miles away), when the weather is good. Having Langeais in our mind's eye, we expected to find something a good deal more castlelike than this. But it appeared we had paid our visit a little more than one hundred and ten years too late, for nearly the whole of the castle built by Jean Bourré in 1500 was burnt down in 1794. Two paintings over the doors in the Petit Salon of its comparatively modern successor show its outward appearance. The still remaining portions of the old castle consist of a small guard-room and a little oratory with vaulted ceiling, on which are paintings of cupids. The other rooms are frankly modern. Yet they have one

peculiarity which is certainly worthy of being mentioned: their beauty may lie hidden beneath their lath and plaster ceilings. For beneath these, in all probability, are other ceilings with painted beams. One of the sons of the owner, M. Cloquemin, took us into a bedroom

where the ceiling had been pierced, and through the hole, sure enough, we could see the original plafond, with its ornamentation almost as fresh as the day it was painted. The restoration of Jarzé might, therefore, be worth undertaking.

Frederic Lees.



ORIENTAL CRADLE AT THE CHÂTEAU DE JARZÉ.



NEW YORK SCHOOL OF APPLIED DESIGN FOR WOMEN.
Lexington Avenue and 30th Street, New York.

NOTES & COMMENTS

ABERRATIONS AND OTHERS

There have appeared in these pages from time to time articles under the title "Architectural Aberrations." The buildings which are the occasion for these articles are for

the most part examples of deficient scholarship combined with a desire to do the original thing at any cost. They are as good as can be expected from their origin. They exercise a useful function in educating the public in matters architectural in arousing interest by their utter lack of propriety.

But there is another species of architectural design, the influence of which for evil is as great as the common run of "aberrations" for good. An occasional example of the latter is about sufficient to destroy the confidence in the integrity and efficiency of the architect which the building public has so slowly acquired. We refer to that class of architectural design which has all the ear-marks of scholarship in its elaboration and detail, combined with a most inexplicable and astounding lack of common horse-sense in its conception. A building which has recently been completed in New York City for the New York School of Applied Design for Women fairly typifies the sort of thing alluded to.

The number of people who take an interest in the appearance and adaptability to purpose of our buildings is increasing and their interest in the subject is deepening. A collection of massive columns supporting entablatures and pediments no longer constitutes architecture for the layman of discriminating judgment. He may be attracted by these elements and sometimes prejudiced by their presence, but generally he will attempt to reach some conclusion as to the merits of the solution which has been adopted as the best under the circumstances. If the building be costly he will inquire whether or not the money has been well spent and judiciously distributed, with due regard for the practical considerations of the problem. He will recognize the fact that the design of a building is a work of art wrought not to be beautiful merely

for its own sake, but rather to give expression to the purpose for which it was built. Purpose, then, will be one of the very first things to be inquired into. That being stated, the general character of the accommodations required will give the necessary information on which an intelligent lay opinion of the design would be based. Such a process applied to the building shown on the opposite page leads to a conclusion so obvious as to need no expert to give it expression. We forbear and leave the reader free to express himself in his own terms.

N. P. LEWIS ON CITY PLANNING

Some very sane and interesting remarks that there was need of making were included in an address recently delivered by Nelson P. Lewis, engineer of the Board of Estimate and Apportionment in New York, before the Rochester Engineering Society, at its annual meeting. The subject was the now familiar one of city planning, and he said that while a city could be guided, it could not be clubbed, in its growth. The best opportunities for effective work were in the undeveloped parts, and here, he thought, there should be a plan to which the city should gradually adapt itself. As to the sort of man who should be the controlling spirit in the planning, Mr. Lewis said he was asked whether he should be an engineer, architect, landscape architect, or president of the chamber of commerce. His reply was that he should not be chosen simply because he is a member of one of the professions or because he is at the head of a great commercial organization. He should be chosen because he is a man of broad views, clear vision, and with foresight. The plans should contemplate many, many years of growth. As a rule, "we keep our eyes too close to the drawing board; we should view things from the housetop occasionally." He thought that in Germany, where men are working on municipal projects which they cannot live to see completed, the results were most far-reaching and intelligent.

AN
ELEGANT
OLD
STATION

The demolition of the old Park Square Station in Boston invites reminiscence and architectural comparison. The latter is rather too obvious, with the current periodicals full of vast station projects—the Grand Central and Pennsylvania, approaching completion in New York; the lately finished Union Station in Washington, and the Chicago & Northwestern station beginning in Chicago. But reminiscence involves unconscious comparison and is interesting in itself. In the Boston "Transcript" a writer, delving in the files of thirty odd years ago, quotes a newspaper account of the opening of the Park Square Station. "The magnificent edifice . . . this modern railway palace," the article begins. It "was brilliantly illuminated for the occasion. The great hall of the head-house, 180 feet long and 44 feet wide, was packed solid with people, five thousand at least being present." "The public are loud in the praise of the perfect manner in which the work has been done. No richer designs or finer finish can be found. Marble fountains supply water, and great pendant chandeliers afford light. Upon the walls are painted maps of Long Island Sound and the Shore Line to New York, with all the railroad connections. In addition are the different stations with their distances." The station is declared actually to include, such is its completeness, "a fully equipped barber shop" and a café which is "an elegant room." Yet this was as late as 1875, and in the "Transcript" itself. The writer of this article in question says that he can remember wandering through the marble spaces of the "great hall," marveling at the "finish," and "alternately charmed and repelled by the 'marble fountains.' Those fountains seemed at times to take the likeness of strays from the 'fully equipped' barber emporium—no, it was only a simple shop in those days—and at other times the sparkling water raised visions of baptismal days in churches, an impression heightened by the upholstered oaken settles, so like to church pews." He recalls that nothing was too good for the Park Square station. Architects were invited to submit plans in competition, and "about six different schemes were presented." The king of Hawaii was present, Reeves' American band furnished music, and the officers and their lady friends filled the gallery. But leaving these frivolous matters, it is quite to the point to learn that the successful competitors were the present day firm of

Peabody and Stearns, a firm then so young that this was its earliest large undertaking; that the style was "Victorian Gothic," which was then having a run in this country, though the Park Square Station may have been the first use of it in America for railroad purposes; and that the arrangement of the station was really exceptionally convenient, especially in regard to exits and entrances. This was due in part to its admirable location. The writer says: "In the dimness of closing day"—when the station's "ornament" was lost in shadow—"the front of the station took on almost the dignity of a cathedral; and from the Common, near the monument, the picture of the stream of human beings flowing beneath its entrance arches was one of peculiar charm. Here in Boston, as elsewhere in America, our good buildings suffer from the difficulty one often has in seeing any one of them as a whole. This advantage the Park Square Station had in remarkable measure, and it was peculiarly fitted for its place at the end of certain long vistas across the Common."

NEW YORK
TO BE
PICTURESQUE

In a long interview printed in The New York Sun, Whitney Warren, of Warren & Wetmore, architects, of New York, is quoted as taking a very hopeful view of the city's present and future architecture. He thinks there has been extraordinary improvement in the last few years, and is reported as saying: "Take a walk along Fifth Avenue by the park and you may be discouraged by the lack of uniformity in the houses of recent construction. But it will come out all right, and when we get through New York will be one of the most picturesque cities of the future. There is a square in Brussels which has the same lack of uniformity in color and in detail and yet is beautiful. For one reason or another the problem of making New York better architecturally and a more agreeable city to live in and get around in has been looked upon as more or less impossible. As a matter of fact, when we think of what Rome was, of what Paris looked like once, and London, too, the problem of New York, an unfinished and in many parts an uncommenced city, is not so difficult after all." There is a large element of unfamiliar truth in this, and doubtless it is more encouraging and helpful to look on the bright side than on the dark. But New York ought to be a great deal more, or bet-

ter finished a city than it is. The great streets and squares that make European, and South American, cities so handsome have been built since New York was old enough, big enough, and rich enough to do the same. The spirit that prevented has not quite passed yet. We are building better than we have before—note the railroad stations, for example. But we still locate even stations meanly, and through cross-roads economy are most likely to tuck public buildings on side streets and shiver at the thought of great improvements. We may be making New York, more or less unconsciously, as Mr. Warren says, picturesque; but picturesqueness is not the character best fitted to a metropolis. We should not be quite satisfied, as he himself points out. He closes with the interesting prediction that "ten years from now the building all over this country will be terrific. Everything has got to be rebuilt because it will be inadequate. Look at the way we are growing and figure it out for yourself."

PLANS FOR CALIFORNIA TOWNS

Of recently prepared city plan reports, the most elaborately published is that made by John Nolen, for the Civic Improvement Committee of San Diego. San Diego is not very big—yet; but in this matter, it has set an example to a great many large cities. As for the report, it is prepared with the conscientious care characteristic of its maker's work. It is not very long in itself; but it is supplemented by many quotations, admirably chosen as a whole, "by illustrative extracts" and by a brief bibliography. Since the San Diego Report was published, another California town, Santa Barbara, has been obtaining a report on its improvement possibilities. Charles Mulford Robinson was the author of this report. It was prepared for the Civic League, the Chamber of Commerce, the Commercial Club, the Realty Board, the city, and the local improvement clubs as well as the Civic League united to receive it, and then and there formed a Central Committee, made up of representatives from all the organizations, for the purpose of securing the carrying out of the plans proposed. It may be well in this connection to note a recent newspaper reference—in New England—to civic improvement plans. It is coming to be felt, the writer declared, that the agitation of the past in this direction has been wrongly based. "It has been assumed," he says,

"that the aesthetics are simply a more or less artistic veneer engrafted upon ugliness. The growing conception is that civic art is only an attribute of utilities, and that the way the people develop their utilities is simply an indication of what is within them desiring expression. If this idea is correct, we shall have civic art only when it is in people to express themselves in artistic ways in the development of their utilities. Civic art will not be developed by tidying up around aimless streets." This is well put; but it ought to be added that one value—perhaps, indeed, the really greatest value—of such a report as that lately obtained by San Diego or Santa Barbara is its effect on the people themselves, is the putting not merely into their minds of a concrete vision of what their town might be and should be, but the putting into their hearts of the wish and purpose to make it so.

DENVER ENTERPRISE

On February 20, the city of Denver began the publication of a weekly newspaper. It appears each Saturday, is entitled "Denver Municipal Facts," is well printed, is amply but not too profusely illustrated, and is so admirably edited as to be most interesting reading—even outside of Denver. Locally it keeps the people in touch each week with current civic history, and as it is sent free on request, no voter need be without the information which it contains. There is nothing dry about the paper. Its whole tone is inspiring and calculated to increase civic pride in Denver. It has already had the sincere flattery of imitation in several cities, and these papers may yet be the means of injecting a new and very powerful force for good into our municipal life.

An article of general interest in one number was an account of the artistic lighting apparatus now used on the Denver business streets. The selection of the fixtures was put in charge of the Art Commission and original designs were obtained. On each street which receives the ornamental poles—the system is being gradually extended—all wires except those for the trolleys are put underground. This is required as a first step. Sixteenth Street, a central highway in the retail district, was the first street to be so improved. By agreement with the street railway people, and to avoid the multiplying of fixtures, it was arranged to use

the trolley poles as a basis for the lighting fixtures. Now these poles, to bear the weight and strain of the trolley wires, are set to slant out at a slight angle from the tracks. The Art Commission observed that while the slant was not great, it was yet sufficient to destroy the artistic effect which it was desired to obtain by suspending lights from them. Accordingly there were designed cast iron casings large enough to cover the trolley poles and allow for the slant. There results a large, heavy-looking standard, but their even spacing, four to the block on each sidewalk, their black color, the "art nouveau" base and well designed top, and finally their double lamps hanging from decorative arms, give to them a stately and quite striking aspect that rather grows on one. They serve well also as standards for bunting and flags on gala occasions, and are so used by the city during important conventions. At Christmas time, by order of the mayor, large wreaths of evergreen were suspended from the side arms. The next street to be taken in hand was Fifteenth, and an entirely different style of fixture was installed. The trolley poles here were set at so slight an angle that the slant was not noticeable. Instead of a casing, therefore, Chairman Read of the Art Commission, who is an artist of note, designed a decorative base, two collars and a headpiece that could be used on the existing wrought iron trolley pole. These fixtures carry one lamp, which hangs over the roadway by an ornamental side arm. An interesting feature of this bracket is that, at its lower terminus considerably below the arc lamp, it has a little 16-candle power incandescent light under a red shade. The effect as one looks down the street is unique and charming. For some reason, the lighting company supplies the current for the little red lamps free of charge. For the boulevards and parkways the Commission has secured a design for a columnar pole surmounted by a special lamp in an opal globe.

PLACING PARK SCULPTURE

The recent exhibition of plastic art, conducted by the Municipal Art League of Chicago, in Humboldt Park in that city, is said to have proved a greater success than even its friends had anticipated. Most of the exhibits were loaned by the Field Museum; but the purpose of the exhibition was not so much to arouse public interest in sculpture as to

give some popular education as to its proper outdoor setting—a point on which there is great need of education. A discussion of this subject at the annual dinner of the Municipal Art League last spring was, indeed, the forerunner of the exhibition. The arranging was done mainly by Lorado Taft, Charles J. Mulligan and Jens Jensen—the latter the gifted superintendent of Chicago's West Park system. The exhibit, which was unique, consisted of formal and informal divisions, the first in the circular rose garden, while the informal groups were distributed along winding walks, on gentle slopes, and against the naturalistic planting on the banks of a stream. Thus the Boy and Frog was set in the actually running water where a little streamlet tumbled down to join a larger pool. Lorado Taft, in a talk preceding the opening of the exhibition, disarmed some of the criticism that would naturally have been offered by saying: "We would people our parks not with long-coated statesmen and restless warriors, but with figures of airy grace, fit denizens of woods and meadows." The result was a very beautiful as well as an instructively suggestive exhibition.

ARCHITECTS AND CIVIC ART

A Municipal Art Society has lately been formed in St. Paul, under the auspices of the Institute of Arts and Sciences. At the initial meeting an address was made by Grant Van Sant on "the urgent need of harmony and arrangement in municipal architecture." He spoke of the apparent demand for the creation of handsome approaches to the Capitol and the new Cathedral, and urged the promotion in every practical way of a higher class of architecture and of artistic street improvement. The address was a recognition of the part which good architecture, if adequately set off, can play in handsome city building.

The country residence of Mr. Francis C. Huntington, at St. James, Long Island, published on page 319 of the May issue, was erroneously credited to Messrs. Ford, Stewart & Oliver as architects and designated as located at Lawrence, Long Island. The credit for its design, we are informed, belongs jointly to Mr. Lawrence S. Butler and Messrs. Ford, Stewart & Oliver as associated architects.





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