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**A FINE WORK OF AMERICAN ARCHITECTURAL
SCULPTURE.**

THE new portals and their bronze doors which are now in place on Madison Avenue, at the corner of East Forty-fourth Street, and which make up what is indeed a new front for the old Church of St. Bartholomew, are more evidently the work of the sculptor than of the architect. And yet this statement is true only in so far as if one were to say that the lower story of the west front of Reims Cathedral were, to the hasty looker, mainly the work of the sculptor. If that were stated the other question would immediately arise in the mind, even of the uncareful, the question as to who it was that ordained and marshalled that sculpture and gave it its fitting place in a great composition.

The architect who had charge of this recent piece of work is one of the ablest of modern designers; and in one important respect he is perhaps without a rival. He can turn out more fine and elaborate work in a given time—he can perfect an important composition like this with less jarring of contrary interests and ambitions, with a more perfect and speedily won success, than his neighbors. And as to the difficulties which attend the carrying out of such an undertaking, no person can know what they have been, or how great they have been; no one can even guess at them, except the practitioner in decorative architecture who has been through the mill already and has tried with partial success to rally up the forces of three or four sculptors' studios—or of three or four mural painters' ateliers—or the strength of decorative artists of any class and kind, but who think themselves, with reason, workmen of individual and independent merit. No one who has not had that experience can even guess at the difficulties which the controlling intelligence has been compelled to see through and to harmonize in the case before us.

A comparison between this portal and the great porch of Trinity Church in Boston has been made more than once, as of course it

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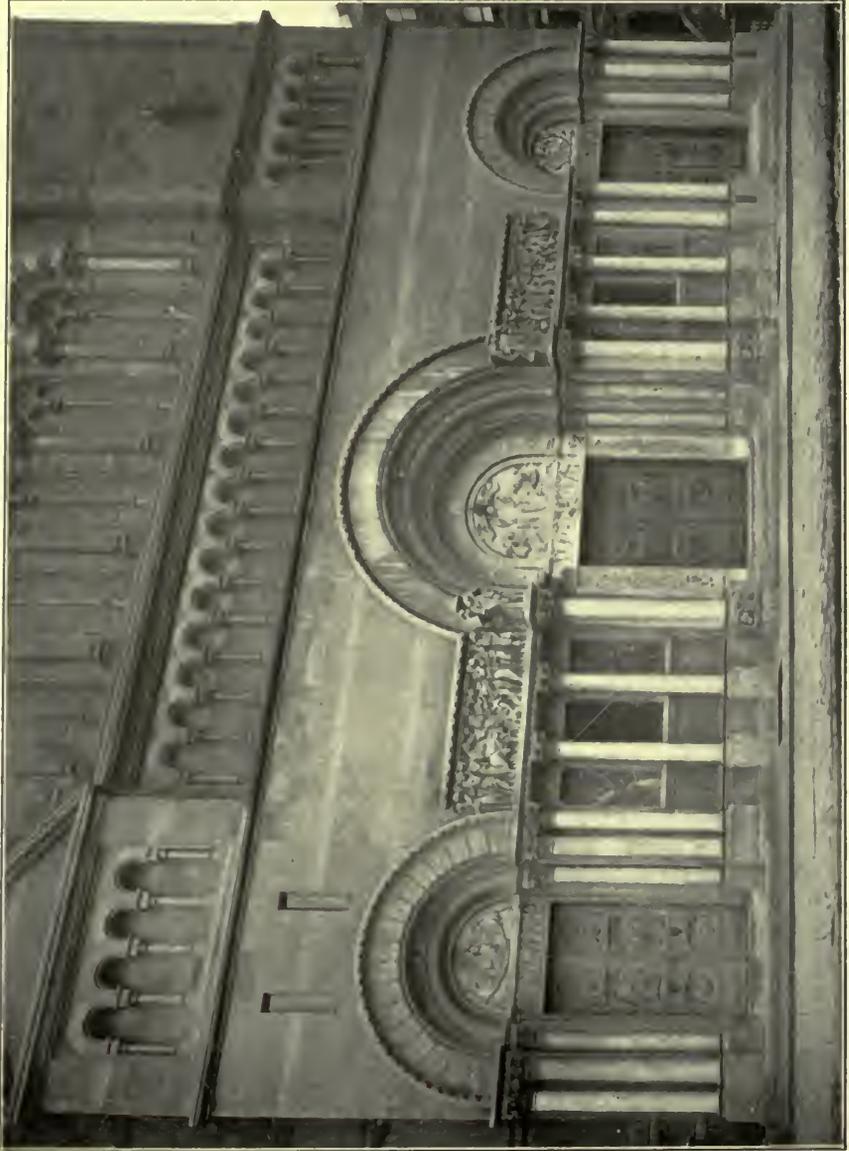


PLATE I.—GENERAL VIEW OF THE NEW PORTALS OF ST. BARTHOLOMEW'S CHURCH.
McKim, Mead & White, Architects.
Madison Avenue and 44th Street, New York City.

would necessarily be made. Those two pieces of detail, alone in very recent times, are worthy to be considered at all in comparison each with the other. And yet the essential differences between them are so interesting that it is well to point them out once again. In the Boston porch the usual methods of the architect have been followed; a massive structure has been planned, its details carefully considered, its effect on the whole previously existing monument weighed; and then, for the statuary and reliefs, an architectural sculptor was employed and the design, as in the style of the Southern Romanesque of France, was carefully wrought on historical lines. Mr. Evans, the sculptor in question, worked in perfect harmony with the architects, Shepley, Rutan & Coolidge; working as he should, like a stonecutter with a more delicate job than usual in hand. As to the modeling of the figures, and the very judicious intermingling of modern anatomical knowledge with twelfth century design, there is no room to discuss the subject here, nor is it now our immediate purpose; except to remind the reader that in such a composition every part,—every fold of the drapery,—is a detail of the architecture, as well as of the sculptor's own conception; a result less certain to follow the more usual working out of the sculptor's thought. However much a given statue may lack in special interest, the whole design is an excellent piece of that "associated sculpture" which has been truly spoken of as the very essence and purpose of mediaeval art.

In New York the conditions have been as different as possible. Three sculptors of very high standing were engaged for the work, one of them especially a veteran and an admitted master, and to each one of them a portal was confided; but a fourth most able artist joined this company because Mr. French, controlling the central doorway, found himself compelled by other important duties to divide his arduous task, and associated with himself Mr. Andrew O'Connor. Each one of the three men chosen—Daniel Chester French, Herbert Adams and Philip Martiny—had taken for his own one whole doorway and its bronze valves; and, as the middle doorway fell to French, so the large frieze which flanks the arch of that doorway and stretches away on both sides was added to that sculptor's undertaking; and one sees in this a sufficient reason, apart from all others, why an assistant sculptor was needed in this important case. But take either doorway that you please; look at it and consider how (say in the southern portal) the bronze with its two larger panels, its four smaller and oval panels, the elaborate framing and setting of these panels in delicate foliated sculpture cast in the bronze, are in turn set within a frame of carefully considered stone work, sculptured judiciously at the right points, and the most richly where the wealth of design could best be seen and

appreciated—let all this be examined and let the student remember that the sculptor named must be understood to have executed all the work which is not abstract architectural carving. Thus the flat leafage of the archivolt and the entire leaf-composition of the capital; the elaborate spiral of the great mouldings which frame in the doorway and its tympanum, and the more elaborate carvings of the hood mouldings outside of the arch; all this is the work of the architectural sculptor; that is to say, these were modelled by Mr. Buehler and cut by the contractors for the stonework, B. A. & G. N. Williams. This purely architectural carved work, then, delicate and refined as it is, and inferior to the work of the sculptors first named only in so far as it deals with conventionalized leafage and accepted sculpturesque traditions, has been done in the same manner in which all the work of the Boston porch was carried out. What the New York architect has been compelled to do was to so arrange his general design as to include and utilize the work of men not accustomed to subordinate their sculpture to other considerations than those springing from their own general designs for a monument of any sort—to so arrange his general plan of action that each one of those able men could work in harmony with him and with each other for the production of such a design as we have before us.

It seems right to insist upon this even in a journal which addresses itself mainly to artists. Unfortunately it happens rarely to the American architect that he should have a great chance like this. Unfortunately, it is but seldom that the American sculptor has such a show!

It seems proper to state that this great opportunity came of the generosity of the immediate family of the late Cornelius Vanderbilt. The first proposal to give as a memorial the bronze doors, thus soon developed into the more varied and extensive work of art which we are considering.

Plate 1 shows the entire composition—the three doorways with the newly built walls above and resting upon them. It will be seen that the transition from the extremely rich and varied work below to the commonplace modern Romanesque work above, left over from a bad old time for New York architecture, is managed in a simple and effective way. There was nothing to be done of any special moment here, merely to avoid too close looking by the looker-on into the methods used: one exception only being made to this statement, the attention given to the color-scheme. The old front of the church was designed in harshly contrasting sandstones of two or even three reddish browns and a light greyish green. The architect of the new addition has tried to construct a delicate color scheme not wholly out of harmony with the too violent one



PLATE II.—THE SOUTH PORTAL OF ST. BARTHOLOMEW'S.

Herbert Adams, Sculptor.

McKim, Mead & White, Architects.

above, and has used shafts of cipollino, panels of darker green veined marble and other panels of the red sandstone, which last are delicately fluted. There is shown also a delicate sense of that color value which may be given to a surface by a relief pattern more elaborate than fluting; and the flat sculpture of the archivolts results from that perception.

Taking up, now, the doorways, one by one, the southern doorway, that on our left in Plate I, is the work of Herbert Adams,



PLATE III.—TYMPANUM, SOUTH PORTAL OF ST. BARTHOLOMEW'S.
Herbert Adams, Sculptor. McKim, Mead & White, Architects.

except, as above stated, in the matter of conventional architectural carvings of capital and mouldings. This doorway is shown in Plate II. The exquisite tympanum, reminding one in a pleasant way of Luca Della Robbia, is certainly one of the loveliest details of the whole front and confirms the opinion of those to whom Mr. Adams has always seemed one of the first of decorative sculptors; see Plate III. And let no one suppose that this adjective is used in a sense other than that of the highest praise. To be truly a decora-

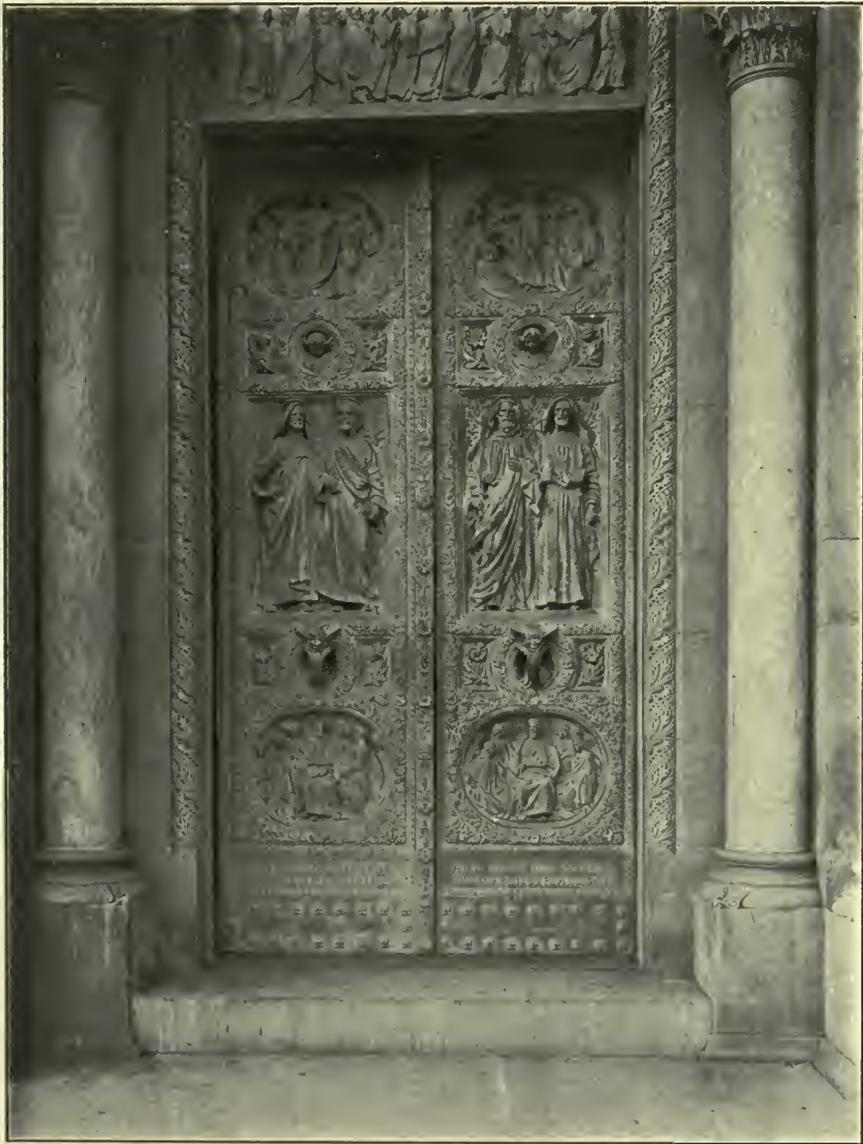


PLATE IV.—BRONZE DOORS, SOUTH PORTAL OF ST. BARTHOLOMEW'S.
Herbert Adams, Sculptor. McKim, Mead & White, Architects.



PLATE V.—NORTH PORTAL OF ST. BARTHOLOMEW'S.

Philip Martiny, Sculptor.

McKim, Mead & White, Architects.

tive sculptor is to be what is allowed to few modern men. There are sculptors of greater fame and wider renown than Herbert Adams, who have gained their reputations from the expression of sentiment or of action in their work without having one tithe of his power of working to scale and to the point—of producing what we need most when we ask of sculpture its noblest artistic results in glorifying a building beyond and outside of its utilitarian purpose.



PLATE VI.—TYMPANUM, NORTH PORTAL OF ST. BARTHOLOMEW'S.

Phillip Martiny, Sculptor.

McKim, Mead & White, Architects.

That is to be a decorative sculptor, indeed. Unfortunately enough we have a contrast to that lovely tympanum in the frieze below it and forming part of the same general design. It is hard to say it, but that frieze is trivial in appearance. The tripping action of the gowned figures following one another, although broken by the very different pose of the armed men, is still too aggressive; and from far away that frieze shows a restless and disordered composition. It seems to come of a too earnest search for realism in gesture and pose—but realism of this sort is not desired, it is even objectionable in many designs not connected with architectural

sculpture, for a class requiring dignity and chromatic charm, as for mural painting or noble glass—even for that. Just as we object to landscape paintings or historical paintings or the painting of incidents on the wall treated as if on the small scale of the easel picture, so we object, and have a right to object to restless and unsubdued composition and a too evident study of the inessential facts of nature. The bronze doors, shown in Plate IV., are less stately in effect than those of the other doorways.

Therefore we turn to the north doorway, Plate V, and here it is easy to find a nobler treatment of the bronze; as much realism, perhaps, but a stronger spirit of decorative design to inspire it and make it harmless. As to the stone-carving, it is impossible to praise the tympanum, Plate VI, and therefore, with so much admirable work by Mr. Martiny and his coadjutors to praise, it will be well to pass to the frieze. Here the free and vigorous rendering of the Route to Calvary is worth anyone's study and patient thinking out. Is it or is it not too huddled a composition? Are we in the presence of the really noble handling of a complex subject, varied action, many and diverse elements of design, all bound nobly together; or is there too much for architectural sculpture of the illustrative spirit, of the story-telling spirit? Let the meaning of this query be expressed by a comparison with one of the most important works of art of the century—the well-known and constantly praised Shaw Monument by Augustus Saint Gaudens. The great alto-relief with the marching column, and the mounted officer to whom with his horse the file of infantry serves as a background, seems to many lovers of sculpture an unsculpturesque idea. It is not in that way, as it seems to them, that great monumental compositions are made. With this view is to be contrasted that unbounded and unquestioning praise with which this work is most often received. Is it book-illustration enlarged, or is it grand sculpture? Or if neither, how are its great merit and its possibly slight demerit to be qualified in words? So with the frieze before us. This present writer can only say that the more he has looked at it the better it seems to be—a popular and easy way of giving, as he thinks, very high praise from a single point of view. Plate VII shows the bronze doors of this portal; and nothing is more annoying than the necessity of leaving them without minute analysis. Indeed, each several door of the six calls for and rewards detailed examination.

The middle doorway (Plate VIII) is entirely the work of the sculptors French and O'Connor, as stated above, but it appears that Mr. O'Connor has done the actual work of the doorway—has modeled the groups, is, in fact, the sculptor in the ordinary sense; while as for the determination of the design, to whom this and that part should be ascribed—we have no means of distin-



PLATE VII.—BRONZE DOORS, NORTH PORTAL OF ST. BARTHOLOMEW'S.

Phillip Martiny, Sculptor.

McKim, Mead & White, Architects.



PLATE VIII.—CENTRAL PORTAL OF ST. BARTHOLOMEW'S.

Daniel C. French and Andrew O'Connor, Sculptors.

McKim, Mead & White, Architects.

guishing the different parts due to the two different, but harmoniously working intelligences. There is a diversity of character in this figure-sculpture; and a singular readiness is shown to adapt the conditions of the figure-sculpture to the requirements of the decoration. Thus it had been decided evidently by the architectural supreme intelligence that this middle doorway should be adorned by broad pilasters and an architrave of scroll work, so that the



PLATE IX.—TYMPANUM, NORTH PORTAL OF ST. BARTHOLOMEW'S.

Daniel C. French and Andrew O'Connor, Sculptors. McKim, Mead & White, Architects.

bronze doors should be brought down to a width only slightly greater than that of the side doorways; so there arose the necessity for those little squares of high relief and scroll-like and twisted movement, which are to be seen serving as capitals to the pilasters (Plate X). Let the reader look at them and see how perfectly they serve their purpose. They are on a horizontal line with the frieze and adjoin it; and yet they form no part of it whatever. They are on the same vertical line as the pilasters, and even more closely are they bound to the pilasters by their architectural position, and yet they tell at once as figure-sculpture, and as being many degrees higher in the artistic scale than the Roman scrolls and realistic bird forms beside and eke above them. They are beautiful compositions

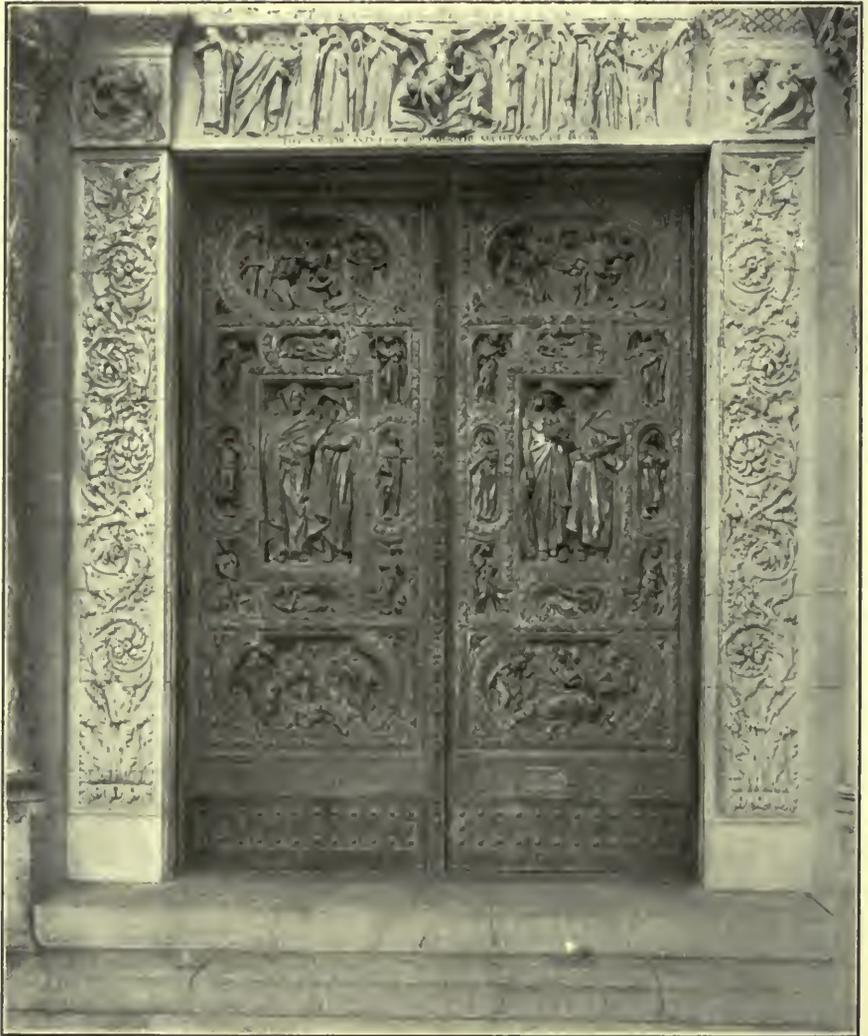


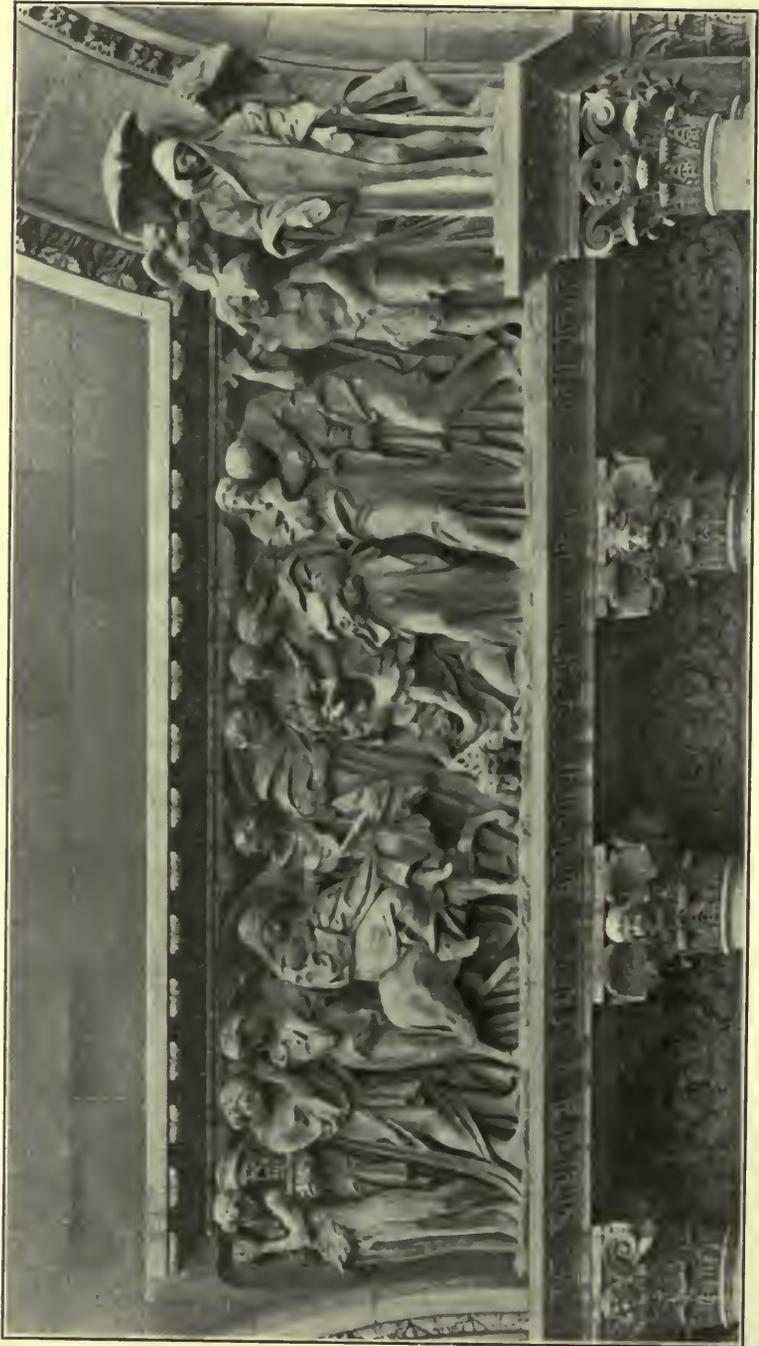
PLATE X.—BRONZE DOORS, NORTH PORTAL OF ST. BARTHOLOMEW'S.

Daniel C. French and Andrew O'Connor, Sculptors.

McKim, Mead & White, Architects.

—the one representing, as it seems, the Revelation to Saint John; the other the Temptation in Eden; but that is not so much the point. If those subjects are to be treated in connection with the middle doorway it is indifferent, from our point of view, where they are put in; the essential fact concerning these reliefs is that they so perfectly lend themselves to the purpose for which they were needed, namely, to connect the horizontal frieze of figure subject with the vertical bands of formal sculpture. And as for the horizontal band, the frieze below the tympanum (see Plate X), it is perhaps unfortunate that it is set a little lower than are those of the side portals. It is a little lower, and it looks much lower, because of the width and importance of the doorway and the height of the stilted arches above it. Ignoring this, which is certainly not an essential peculiarity, the frieze itself, considered as an architectural treatment of the Crucifixion, is a very noble thing. Nowhere is there a more pure and faultless composition. The strongly allusive and ecclesiological treatment of the composition only help the abstract and decorative, or (as people may prefer to see it called) the architectural character of the sculpture. The tympanum above it (see Plate IX), with all its dignity and in spite of the exquisite group of angels, one group on either side, is less fortunate in the central figure.

The bronze doors (see Plates IV, VII and X) are notable in this, that they have been cast complete; the whole surface modeled in clay as one composition and moulded and cast as one piece of metal-work. This is so very unusual in the history of this industrial art that it deserves to have special consideration on the part of every student, first as to the mere theory of the thing, the good taste, the sense of propriety, the intelligence displayed; and, secondly, as to the resultant effect. This effect can only be judged by one who has looked carefully at bronze doors in the past and has been annoyed by the formality, the hard cold lines, the lack of harmony in the treatment of the moulded framework, the setting as it might be called, of the sculptured groups. Such a student will enjoy a real thrill of pleasure when he sees in these doors the figure subjects of the panels, the flower and leaf work which surrounds them, the formal and semi-architectural disposition of the whole treated as a single work of art, modeled as one design, cast in bronze as one complete entity. This is true of each one of the six separate *vantaux*—of each door in the strictest sense, and the recognition of this is a delightful sensation which awaits him who visits the church. This process, which seems to be an innovation—at least in the United States, and which cannot be common in any part of Europe—is due to the initiative of Mr. French, the chief sculptor of the middle doorway.



Daniel C. French and Andrew O'Connor, Sculptors.
PLATE XI.—FRIEZE, ST. BARTHOLOMEW'S.

McKim, Mead & White, Architects.

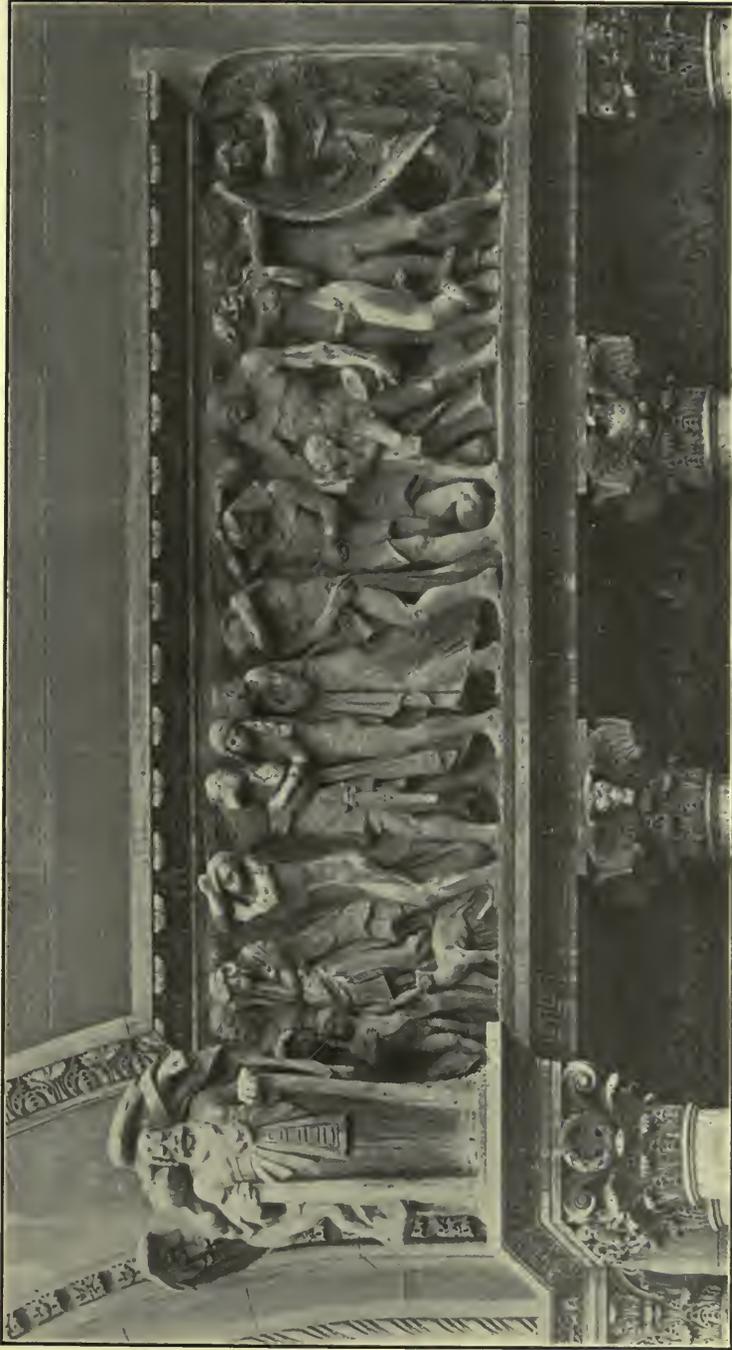


PLATE XII.—FRIEZE, ST. BARTHOLOMEW'S.

Daniel C. French and Andrew O'Connor, Sculptors.

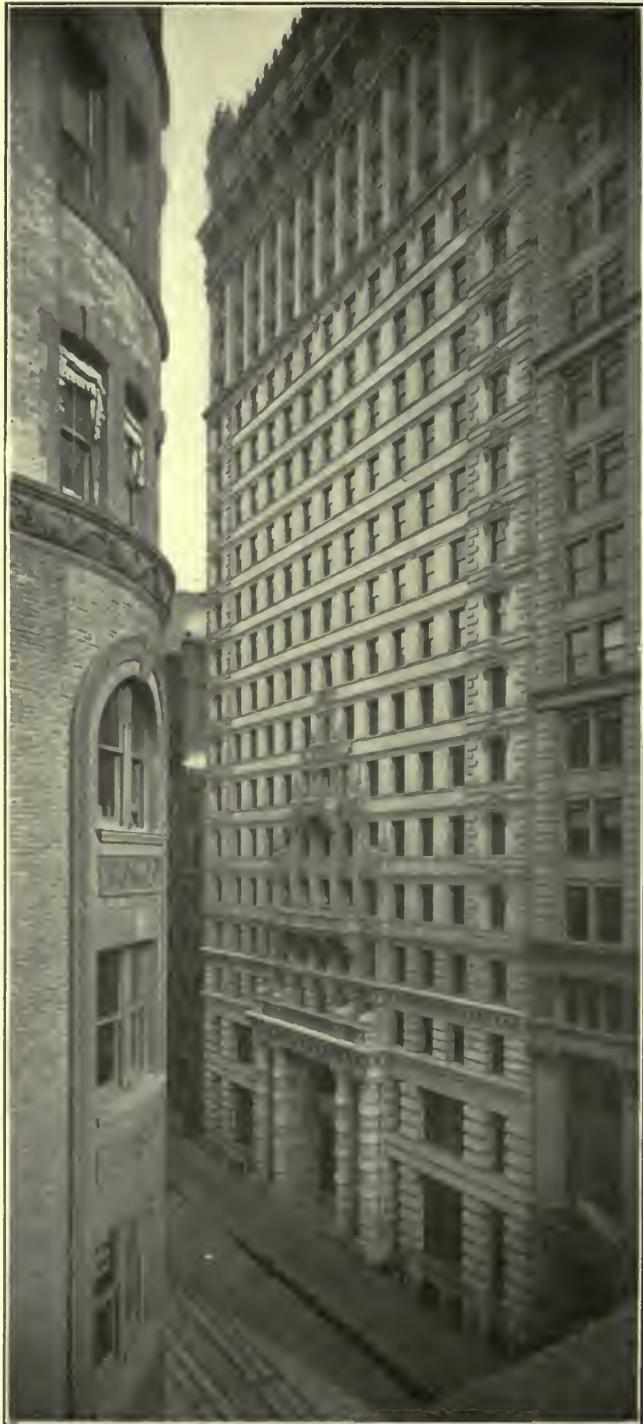
McKim, Mead & White, Architects.

It is most unfortunate that various considerations of utility, the desire for light and easily swung doors as the congregation goes in and goes out, to protect the interior of the porch from draft, the desire to protect the bronze from too rapid staining with dust and rain, should have involved the almost complete concealment of these precious doors during the greater part of the day. In fact, one does not know how to so dispose his visit to the church as to see bronze and marble together, sculpture with the tool and sculpture from the cast. No matter what you do, unless you obtain a special dispensation and appropriate money to take down the flapping outer doors, you will never see the composition as it is shown in our Plate I. It would be absurd to blame those who have brought about this result: they knew their own requirements and are right in meeting them; but the monument of art is most seriously marred by the exerescence here mentioned.

Now as to the most striking and brilliant part of the whole composition when the sculpture is considered, the broad frieze which in two parts crosses the front of the church, or seems to, filling up the gap on either side between the middle and the side portal. This detail comes to us from the same sculptors as the middle doorway, and we are told that it is to Mr. O'Connor especially that these highly decorative adjuncts are due, together with the lions carved in the block which serves as the pedestal to the columns of this doorway, and the solemn groups immediately above the capitals of the same columns. This frieze shown on a large scale in Plates XI and XII, is one of the most remarkable sculptures of modern times in the way of extreme remoteness and subtlety of thought. Every pair or small group of figures is to be weighed by itself both as to its significance in an ecclesiological way, its import in a psychical way, its interest to us as a piece of artistic composition. There is, at first sight, a great deal too much of Rodin in the restless over-action—the exaggerated postures; and the evil influence of that great artist is seen here as it is seen in some other modern works. If the vast power and energy of Rodin and his brilliant modeling should get a strong hold on the sculptors who are now coming to full power, the art of architectural sculpture will have a most serious setback; the taking out of the artistical human figure of tranquillity, of repose, of the dignity which comes even to emaciated saints and suffering martyrs from the tranquil spirit of the art in which they find expression, will be the death of sculpture considered as the highest of decorative appliances. Thus in the case before us, the composition and the treatment of the small frieze over the middle doorway is more attractive by far than that of either one of the great panels of the frieze above, because of that very reserve which we associate, indeed, with the

arts of the past, but which also we associate with the noblest hopes of the future. The decided action of the small alto-reliefs already spoken of, those of the two ends of the lintel, can be easily accepted and even admired for the reasons mentioned above—they form a part of the series of Roman scrolls, they break the series but connect the parts of it again; they are, in short, in their place, and do their work nobly. In like manner the frieze of the lintel is in place, its lines helping the architecture, its severe vertical mass of drapery on either side controlling the more broken group of the center. It cannot be alleged that there is too much action here, although there is so much, and this because of the admirable treatment of that action, the severity and gravity of line with which it is invested. But of the two panels of the great frieze this would not be altogether true. The bold experiment of using the nude form rather freely in so purely ecclesiastical a composition as this, is one which it will take some months or years to rightly evaluate; but it seems clear that in so far as we are reminded of the debased rendering of humanity in Rodin's *Burghers of Calais*, just so far there is a false note struck. And observe that this comes of details of modeling, so far as the study which has been possible during the constantly severe weather of the present winter will allow the enthusiast to judge. It seems as if a touch here, the changing of a fold by so very little, the modifying of a pose in ever so slight a degree, would have made the frieze a nobler thing. For it breathes all the spirit of a true sculptural conception. Everything that designer and modeler could do to make the thing a great work of art, is there; marred only, as the present writer feels, by the intrusion into the noble composition of a thought too much of the illustrative spirit, the spirit of realism in the matter of bodily action, of movement, which is not often a fortunate thing for sculpture of any kind—least of all for sculpture of architectural association.

Russell Sturgis.



New York City.

NO. 42 BROADWAY.

Henry Ives Cobb, Architect.

THE ECONOMY OF THE OFFICE BUILDING.*

The writer presented a brief statement of the practical limiting conditions in the design of an office building in a former number of the Architectural Record, describing it as "the mammoth structure,

**The Duration
Of Its
Economic Life.**

of many stories, that the conditions of our present business life requires us to erect in all centers of population, where the fever of money-getting is permitted to have full swing, unhampered by any traditions that involve avoidable loss of time." This description still applies to those examples which jump to the mind when office buildings are mentioned; but for the purposes of this article a further definition is needed.

An office building is a building susceptible of minute subdivision into practically uniform rooms (called office units), all well lighted, heated and ventilated—easy of access both from the street and from its own various floors—and intended for the brain-worker of any type or class, and the clerical force needed to give his work effect. It is the place for housing the executives of all kinds of business, and its cost, therefore, is a necessary charge upon business receipts. Generally, the building is too large to be occupied exclusively by one concern, and the renting of the surplus space serves to emphasize its purely commercial aspect. The writer wishes to state once for all, and as strongly as it can be put, that the only measure of the success of an office building is the average net return from rentals for a period of, say, fifteen years. Everything put into the building that is unnecessary, every cubic foot that is used for purely ornamental purposes beyond that needed to express its use and to make it harmonize with others of its class, is a waste—is, to put it in plain English, perverting some one's money. Of course, in the Wall street district, high rents cannot be obtained from a building with its halls finished in concrete, when the adjoining buildings have a marble finish; but a mansard, or a tower, or a group of statuary does not add to the value of the renting space, and consequently is a waste.

For this reason the design of these buildings has gradually become more and more of an engineering problem, until now it may be said that the best results will be obtained by securing the plan from the engineer of special training. He turns over to an artist the bare skeleton, for him to clothe and decorate as well as he can. The former practice of intrusting the design to a man

*Being the first of a series of articles on the modern office building.

who is primarily an artist, and of permitting him to determine the engineering plan, is commercially bad for every one but the artist, and is a plain departure from the practice obtaining when the world's most noble edifices were built. In a following article this branch of the subject will be elaborated. At present, we will consider the next most important commercial aspect of the skyscraper—its economic life—or the question of how long it will serve its purpose properly.

We know that in manufacturing there are few machines that should not be replaced in from ten to fifteen years, as by that time there are new machines to take their place, doing the work at less cost. In manufacturing plants, as a whole, we know that good business requires a remodelling or rearrangement at least every ten or fifteen years. In the case of one new plant, for instance, it has earned in three years, over four times its cost, and the point has been reached where a very much larger plant is needed. We frequently hear of such changes, and we occasionally have brought home to us the folly of too much procrastination (such as the ignorant delay in the electric operation of the New York "L" roads for at least six years, and the consequent loss of millions of dollars) and should keep these examples in mind in considering our problem.

It sounds very imposing to say, "We are building for all time." It might be much better business to say, "We are building for fifteen years." The canvas tent of the traveling circus, the plaster buildings of a World's Fair, the granite and marble of a municipal building, differing as they do, yet each exactly meet the requirements of the particular case. In the case of New York below Chambers street, we may expect to see eventually all the space occupied by office buildings, and so should build for at least fifty years. In other localities, wisdom would limit the probably useful life to twenty years.

Our office buildings of to-day must be of a certain type and plan, slightly varied to suit certain localities and designed in accordance with the definite limiting conditions. What changes are likely to occur in this ever-changing city to make a certain building less remunerative? What changes or improvements will occur in the planning and equipment of office buildings to make our new buildings out of date? How soon may we expect to see these changes? What changes in our business methods might occur which would change business needs so that these buildings would no longer meet them?

Well, the office building has come, because men wish to get closer together and save time in transacting business; and they will not cease to need skyscrapers unless by so doing business can

be facilitated. As aids to business, the elevator and the telephone have helped amazingly, but the personal interview for really important transactions is still necessary. In fact, the telephone has made it easier to clear the way of preliminaries, and therefore has made more business possible, the personal interview shorter perhaps, but more essential than ever to bring two minds together so that the stenographer and the typewriter may put the conclusion into definite and practicable form. If this reasoning is correct, humanity will continue to press closer together for the purpose of transacting business, until the physical limit is reached in every direction. The only sufficient obstacle to this result would be an invention, whereby two separated rooms are so placed in communication that whatever goes on in one can be seen and heard in another as readily as if they were one room. Then mankind will perhaps gratify its love of fresh air and sunshine. Our cities will be deserted or will become storehouses for the convenient distribution of manufactured products. Should such an invention be perfected, it would require, however, a generation to work a material change in business methods so that we may continue to build with an easy mind until some such invention comes. While we may, therefore, feel reasonably secure against any complete destruction of the utility of the office building for at least a generation, are there not possible improvements that will change its character or fundamental design?

We are accustomed to think and speak of the enormous and steady progress made in modern industrial machinery. While in general this may be true, in the office building it is only true of the details. We are beginning to put into effect improvements suggested years ago, and have made real progress in the direction of carrying out our plans more quickly, and all things considered, more cheaply; but our plans have not changed substantially, and the limiting conditions are the same. We are still aiming to make our buildings attractive, easy to re-arrange to suit tenants, well lighted, with convenient internal communication, polite and efficient service, quick elevators, and as accessible as possible to elevated and underground stations. We supply them with every necessity and many luxuries, and do all in our power to get the maximum return for the money invested.

The writer considers it certain that for at least a generation there will be an imperative demand for office buildings, and that the present type will be practically unchanged in its broad outlines.

How Office Buildings May Be Improved.

The improvement made during the past ten years may be briefly stated. There has been a very slight increase in net elevator speeds obtained mainly by improved signalling devices. Automatic heat regulation is practically unchanged, but is a little more generally used. Gas has practically been entirely replaced by electricity. The finish of the buildings is a little more luxurious, and the exterior a little more expensive. The average height of a building has increased. There has been the usual number of gold bricks on the market, and as usual they have mostly been connected with the elevator service. One company claimed for a time that it could operate cars at speeds of 700, 800, 1,000 feet per minute, but in the language of the day it did not "make good." The speed was there, but the time lost through missing landings, starting and stopping, was far greater than the time saved in traveling from one landing to another and, besides, poor human nature could not stand the pace. To-day the highest practicable speed for a way elevator is 450 feet per minute, and for an express 600 feet to 700 feet per minute, depending on the distance traveled.

We may, therefore, safely say that the future will see but little improvement, except in details, and to show this more plainly, let me state the problem rather more in detail.

We are required to produce on a given lot a building of any number of stories, susceptible of a subdivision into a great number of units, varying in size according to location, but approximately with 16 ft. x 20 ft. of floor space and 10 ft. to 12 ft. high, each one opening into a street or a court of from 18 ft. to 25 ft. in width, which court usually has its long axis north and south, and is as much open to the south as conditions will permit.

The vertical movement of the occupants must be effected by small rooms (elevator cars), moving in vertical shafts at speeds of 600 feet per minute or less. The number of cars is determined by the condition that nobody shall be required to wait at any floor more than 45 seconds in general, and not more than 30 seconds in the financial district, and the size of the car by the number of office units per floor and varying from 25 to 40 square feet in area.

The height is to a certain extent unlimited, but probably twenty-five stories is likely to be the average of the high building. The writer may be in error, for there are many influences to be considered; but so far he has been able to discover absolutely no engineering or economic limit of height below about eighty stories, provided the area of the lot be sufficient. Taking into consideration, however, the ethical or sentimental side of human nature, it is the writer's belief that, while many buildings will exceed twenty-five stories, many more, sufficient at least to establish a general practice, will be kept down to sixteen or twenty stories, if left free

from municipal interference. On the other hand, the writer believes that the interests of the municipality would be best served by establishing height limits in certain districts, so that the population by day in such areas will not be too large for easy transportation and wholesome living, and so that some regularity of skyline may be secured. The typical plan will naturally tend towards a U-form, open to the south.

**Elevator
Improvements.**

It is theoretically possible so to perfect the starting and stopping of elevator cars as to make the higher speeds unobjectionable; but in order to accomplish this the human element in the control of the speed must be almost entirely eliminated. The acceleration must take place in a predetermined number of feet, regardless of the load in the car; the stop must also occur in a predetermined distance, and as a consequence the function of the operator on the car must be to simply push in a starting button and hold it. To stop, either the operator or a person on a landing must push a button corresponding to the proper floor, which will set the stopping device in motion at exactly the right time, without regard to the operator. When a car is at a landing the doors should automatically open and remain open until closed by the operator, and unless closed it should be impossible again to start the car. The mechanical arrangements will not be simple, and will require considerable power. They may cost more than they are worth, when compared to the approximation to these conditions now obtained.

The economy—that is, the relation between the pounds of coal burned and work done—by the present appliances is very low; the work should be done with an expenditure of not more than one-quarter of the present amount of energy.

From the nature of the service it is probable that some form of hydraulic apparatus must continue to be used, since only in the hydraulic apparatus is there stored up the large amount of energy necessary to produce the high rate of acceleration absolutely required in an instantly available and convenient form. Electric elevators are absolutely unrivalled in their field, but office building service is not their field, nor is there any sufficient mechanical reason for the expectation that in any of their present forms they will ever extend their fields to include this service. The problem is to impart a velocity of from 6 to 8 miles per hour, to a weight of from 175 to 2,000 pounds, in from 1 to 2 seconds, or to bring this weight to rest when moving at this velocity, in the same time. The energy stored up in water under pressure will do the work perfectly. The work may be stored up in the water, providing

the tanks are large enough, at the average rate for a day requiring a relatively small amount of power constantly expended. There are two drawbacks: which are that the expenditure of energy is not proportioned to the load, but must be the same whether the elevator car be full or empty, and that all forms of pumping engines suitable for any but the very largest plants are inefficient. The line of improvement must take the direction of overcoming these two objections.

**The Heating and
Ventilating
System.**

The heating of the offices is well enough; but the ventilation is very largely neglected. These two are so closely related that they should be considered together. Present practice is to provide a radiator for heating controlled either by hand or by thermostat for each office unit, and to provide ventilation by opening the window, the foul air passing into the hall. The ideal arrangement would be to introduce a fixed amount of warmed, fresh clean air to each office unit at any predetermined temperature automatically, and all past attempts may be classed as failures for general use. In fact, there may be said to be no existing way of properly warming the bulk of the offices of an office building without the constant use of a little knowledge, intelligence and trouble. The foul air can be drawn off into a vent-shaft placed at any convenient place. For banking and similar large rooms on lower stories, the standard hot-air heating system, with either exhaust or blast fans, works with entire satisfaction and but little loss of valuable room, but the air inlets should be always 8 ft. above the floor and at least 5 ft. from ceiling, and the outlets for foul air should be near the floor and large enough to have a very low velocity (less than 10 ft. per second). Then the occupants will not feel a draught. The inlet radiators must be high up, because it is at times necessary to introduce the fresh air at a temperature lower than 100° F. when it feels cold and produces the effect of a draught. If the fresh air forms a current flowing always in one direction, surfaces near it will get very dirty, and we are therefore compelled to keep away from the ceiling.

The expedient of using warmed air furnished to each office through flues in the walls has been tried, but is objectionable on account of the large space occupied by the flues, the transmission of noise from floor to floor, and the difficulty of maintaining the desired degree of heat in each office. All floors and walls might be heated by warmed air circulating through them, but the necessary air passages are objectionable, because they afford a harborage for vermin, and in the case of a fire in the contents of an office might distribute the smoke through the building. The neces-

sity of having widely varying temperatures in the different offices also complicates the problem.

If ever electricity can be produced commercially at say 1/10 of present minimum rates, the problem will be solved, for fresh air can be introduced through an opening in the outside wall, all of the dust screened out, warmed to any desired degree by passing over electric heaters and drawn into the office by electric fans, the degree of heat and the speed of the fan being determined by setting a dial hand at the desired temperature, the remaining regulation being automatic and independent of the direction or force of the wind. The windows constitute a serious problem. We want to look out, and at the same time we want fire protection. If we use wire glass we cannot look out, and if we use clear glass it will fly out with the first touch of flame. A three-sash metal window, with one sash glazed with clear glass and two sashes glazed with wire glass, solves the problem and will mark the next step. Cleaning need not present any difficulties or dangers.

**Improvements
in the
Trim.**

We need either an incombustible wood or a substitute for the trim of the office, the doors, moldings, base and fixtures. It will come—in fact, has probably come, as there are several materials of promise now on the market. The ideal material will be readily worked, wear as well as wood, be a poor conductor of heat and incombustible. It will then be pleasant to sit on, pleasant under foot, and absolutely safe.

An improvement will be made by departing from the custom now prevalent of using a cord of wood, more or less, in trimming the office, putting in a high base, chair rail, picture mold and architraves around the doors. There is really needed only the picture mold, and that only to carry wires in a way which permits them to be tapped at any point; and some member to make the joint of the door frame with the partition. With the simplification of design we may expect to see a marked improvement in this latter respect.

**Details of
Illumination and
Construction.**

We may expect improvements in lighting in the line of luminous surfaces rather than points, the illumination being obtained with a relatively small expenditure of energy. Wires will probably be still used, and our distribution systems will only change in detail. So long as the present conditions obtain, an improvement can be made by using one central chandelier in each office unit; making the picture mold a receptacle for wires and supplying those wires from mains running up column lines. The desk illumination can be obtained by drops

from the picture molding and partitions can be easily shifted. If a system should be devised by which the salutary effects of sunlight would be reproduced, we could reduce our courts to simple vent shafts drawing pure air from the roof level and discharging it at a proper temperature in each room. That only means the flooring over of the courts and a shifting of partitions. Nearly all of our buildings could be so changed without difficulty.

Partitions can now be made sufficiently sound and fireproof in a variety of ways. The cost of making them can be decreased under reasonable labor conditions. Any of the solid plaster partitions resting on the floor construction and against the floor construction above are efficient protection against the spread of fire. They are frequently spoiled by the introduction of sashes glazed with plate glass which, in the event of fire, immediately falls out. Only wire glass should be used, and as the sashes interfere with the utilization of the wall, they should be omitted.

**Less Steel to be
Used in Future.**

It is probable that the future will see a decreasing amount of structural steel used in the floor framing, and an increasing amount of reinforced concrete, the development progressing until the only structural steel used will be in the columns, in stay beams connecting the columns of sufficient strength to support the centers for the concrete, possibly of less strength than that, and in wall beams. This is the writer's opinion. One does not wish to be dogmatic, and it is only fair to say there are other views on the subject, held by well-informed people who would not agree at all with the foregoing.

Brick, stone and terra cotta are the materials used at present in constructing the walls. Concrete is offered as a substitute. When it is good, it is as good as any other substance; but for walls it is not likely to be uniformly good, nor is it likely to be consistent in color or as pleasing in appearance as stone. Glazed terra cotta is probably the best substance if properly made and set, because since each rain washes it off, it is less likely to be injured by fire, and when injured is more easily replaced. Any material is liable to serious damage from fire in adjoining properties. The greatest improvement that could be made would be a law, requiring all new structures to be fireproof within certain limits and making owners of property in which a fire originated responsible for all of the damage caused by the fire regardless of where this damage occurred or how the fire started.

We are using such large quantities of steel in our buildings, and in fact, are absolutely dependent on it for strength, that we need more knowledge to protect it absolutely from fire and rust, and

should improve our practice in applying the knowledge we have, which is certainly sufficient to enable us to guarantee a life of fifty years.

**How Fire
Insurance May
Be Improved.**

Fire insurance, as conducted, really places a premium on bad construction under our present laws and practice, for it permits the careless and criminal to avoid the consequences of their acts to a very large degree. A man can build an inexpensive low building, insure it to the limit—insure its contents to the limit—have a fire from which he will reap a profit, and damage an adjoining handsome building to a greater amount than his total loss. Moreover, the adjoining building cannot be protected fully from this loss, except by an exorbitant annual payment. It should be impossible to insure a really hazardous building. In theory present practice, expressed generally, is to fix a minimum premium or charge for each building of a certain class in a certain locality and increase the premium for each departure from what is considered good practice and to force the owner to bear some of the risk. In practice anything can be insured. The difference in premium between a safe and hazardous building is only a small fraction of the difference in the interest cost, so that it is really cheaper to build badly and insure fully, than to build well and insure reasonably. The increases of premium for departures from good practice, are in some cases indefinite and in other cases absurd (as when a charge is made if a fire-proof door is omitted between the boiler-room and the rest of the cellar, even when there are other doors absolutely shutting off the balance of the building, and there is positively nothing combustible in either boiler-room or cellar, except the coal). The credit for covering the metal columns of a building, certain to fail if left bare and exposed to a small, fierce blaze, certain to cause great damage and loss if they fail, is so small as to be practically of no consequence as an offset to the interest on the cost of covering. The writer knows of one case where a fire, in itself causing not more than \$500 damage, would endanger columns, which, if one should fail, would cause a loss of certainly \$20,000, and probably many lives. Some of our serious losses have been from so-called exposure fires, and yet the decrease in insurance cost that comes from the use of wire glass and metal sashes and frames, instead of wood sashes and frames and plain glass, the one affording complete protection and the other no protection at all, is so little that it is not worth considering. This whole subject requires readjustment and reforming, and the data on which the premium increase is based should be obtained by a continuing series of experiments conducted by an admittedly impartial, competent direc-

tor with adequate facilities, and the insurance companies should absolutely refuse to insure a really dangerous building or any building, the value of which was materially less per cubic foot than those immediately adjoining it. If it were possible to win a suit for damages, where one building is injured by fire originating in another, just as it is possible to win a suit for damages when an owner makes an improper use of his property to the injury of the adjoining property, this liability would quickly force owners of hazardous property so to improve it as to make it safe. It is to be hoped that some of our large corporations will try to establish the precedent. Once established, it would work a wonderful change in the point of view of the owners of many relatively unimproved and really dangerous properties.

**The
Power Plant.**

Now let us descend almost literally into the bowels of the earth; let us go far below the surface of the street to the place where heat, light and power are generated, and see what is doing there. We must first of all consider the often discussed and by no means settled question of private plants vs. supply from the street; i. e., from some lighting, heating and power company.

An office building is a very large consumer of power. For some years the Public Utility Company has endeavored to supply all the power and heat necessary, and does supply many buildings at a price which often shows a marked economy in the operation of the building by so doing, but the mechanical engineer who is really competent knows that wherever economy is so shown in a large building, the owners of the building have been shamelessly robbed by their employees. The writer knows of many plants in large buildings that could advantageously take all power and light from the street; but for every dollar so saved at least one dollar and fifty cents could be saved by getting a competent superintendent and making a few changes.

To illustrate: Recently the writer changed the fuel of a plant in which he was interested from Pocahontas coal to buckwheat and rice coal. The coal bills were practically cut in two, with no loss in efficiency. In one of our large buildings egg coal is used exclusively—if rice were used the fuel bill for that building would be less than half. Engines are run under improper conditions, using from one and one-half to twice as much fuel as they need. Pumps are run with their drips open, thus doubling their coal consumption. Compound elevator pumps are run at variable speeds, the maximum being less than one-half what it should be. The consequent coal consumption is from four to eight times that of a decently

designed plant. Exhaust steam is wasted and live steam used for heating, thereby increasing the coal consumption from one and one-half to two times.

Architects provide wholly inadequate spaces for machinery, and so necessitate the use of inefficient boilers, insufficient tanks, steam wasting appliances and other bad features that can be put into a design, and make matters still worse by limiting the cost of the plant to an absolute minimum. Contractors are furnished with the merest outlines of requirements; the bids are obtained and contracts awarded to the lowest bidder, who is either careless, ignorant or dishonest enough to talk of an economy (even to guarantee it, sometimes) that a competent man knows he cannot attain. Still it goes; the plant goes in; is a failure, and the New York Edison gets another contract. If, however, the engineer or *real* architect is familiar with the problem, this very essential part of the building is allowed adequate room. The parts are harmoniously designed to fill the requirements. The superintendent of the building is a competent engineer, who is paid enough to be above the temptation to steal, and knows enough to keep his force up to their work. The plant is relatively simple, easy to handle, and during the first year reports are sent to the designer so that a record of performance is made, by which the owners can judge of competency in the future. When these precautions are taken, the cost of operation is far below the sum which the New York Edison Company will charge. The writer and other engineers have proved this in many plants, but the objectionable conditions obtain in so many more, that general practice is rather in favor of procuring all of the power possible from the Edison Company. Future development will be in the line of better engineering and more independent plants in buildings of 5,000 square feet or more.

The ideal plant should contain at least three boilers of the same size, one being sufficient for the ordinary summer or light duty. The other two will take the winter or heavy duty, leaving always at least one in reserve. They should be of a type adapted to the available space—Manning, Marine or Water Tube.

The engine for power should be high speed automatic *simple* engine of Curtis Turbines (when they can be purchased) at least three of the same size, with heavy parts. The cylinder should be of the same dimension for bore and stroke, proportioned to take a generator overload of 30% when cutting off seven-sixteenths to one-half stroke. They should supply power for every purpose except that of the boiler-feed return pumps and the elevator pumps, regular duty and for all lights. Two of them, however, should be able to carry all lights and two-thirds of the power when overloaded 25%.

There should be three elevator pumps, compound, to work against three pounds back pressure in the exhaust, with tanks so large that, if a car is to start every thirty seconds from the first landing, two pumps can supply the necessary water at a piston speed of say 75 feet per minute uniformly maintained. One pump at 75 feet piston speed can then handle a 60-second schedule with irregular running of cars and regular running of pumps. The tank capacity should permit half the number of cars to start up simultaneously, or to stand simultaneously without changing the pump speed for six seconds. With a very large number of elevators—eight or more—the pump should be of the fly-wheel type, compound, to work against three pounds back pressure in the exhaust, with liberal tank capacity and with two compound pumps of one-half capacity each, in reserve. Under no conditions should the pump work against a governor that constantly varies the speed by throttling, because this wastes steam. There should be an electrically-operated pump for all night service, giving half the normal speed for one car. This pump could be arranged with a special suction on the pressure side of the other pumps to use as a safe-lifting pump by making the water end strong enough.

There should be two boiler-feed pumps connected through a return tank and governor, to the return of condensed steam from the hot water tank and heating system. No less than three electric pumps for house service; two air compressors for elevator and house service, electrically operated, and two stage. Two rotary electric pumps for low-line drainage, drip and blow-off tank work. One feed-water heater, open or water-tube.

Furthermore, space should be provided for two or more feed-water heaters, the water tube to go on exhaust line for hot water heating, perhaps a sewage lift, certainly a number of exhaust and heating fans, and finally for the storage of at least one week's supply of coal and one week's accumulation of ashes. The reciprocating engines are likely to be displaced in the near future by the Curtis or similar turbines. In very large installations there may possibly be a field for the Parsons turbine; but ordinarily the requirements of exhaust steam for heat will operate against turbines of the Parsons type. Turbines requiring reducing gears are not to be considered in general on account of the excessive noise.

Assuming that these various appliances are properly proportioned and arranged, they require so much room that at least all of the cellar of a building occupying less than two lots is needed. For the building having less than this area, the greater part of the supply must come from the street. Future improvements will be along the line of a more efficient production of electric current, first by improved forms of generating apparatus, engines and boilers;

by the introduction of more electrically-operated apparatus; by the use of more economical pumping engines until they can be discarded; possibly by discarding steam and using gas or pulverized coal; and probably finally by the almost direct conversion of the energy stored in the coal into energy in the form of electricity. When electricity is so cheaply produced that it can be used for heating, steam will no longer be needed, and our plants will be practically eliminated. When that time comes the cost of distribution, which is now as great as the cost of generating electricity, will be reduced certainly to ten per cent. of its present cost, and so will make it economical to generate the current in the building. With electric current at say 1 per cent. per horse power per hour every plant in New York almost could be economically shut down and taken out.

The field for speculation in this branch of the subject is almost infinite, but really hinges, so far as any radical change is concerned, on the discovery of a new process of producing electricity or power very cheaply.

Two matters remain to be considered—whether as improvements or merely as developments depends on the point of view; they are the question of height and of designing.

Conditions
Determining
Height

Height is effected by the following considerations: (a) Sixteen stories or less can be carried on piles or grillages, no matter how bad the bottom. More than sixteen stories require caissons, or an equivalent expense if the sub-soil is bad.

Therefore, several additional stories must be put in simply to pay interest on the extra cost of the caissons. (b) For lots of 7,500 to 12,500 square feet, five cars will give a satisfactory elevator service up to twelve stories. Higher than that a car should be added for each additional three stories, costing 100 square feet of room on each floor per car. For still greater area the number of cars must be increased, say one car for each 2,000 square feet, and this is because it is impossible to load and unload a large car fast enough—two cars of forty square feet running in a twenty-story building will handle more people in a day than one of eighty square feet, and do it with very much more satisfaction.

(c) In a sixteen-story building, with ordinary foundations, the addition of a seventeenth story will add more than one-sixteenth the cost of the building by 5%; for an eighteenth story 10% must be added to the one-sixteenth, and so on. Thus, if a sixteen-story building costs \$480,000, then a seventeenth story will add to the cost \$31,500; an eighteenth story, \$33,000, etc.

(d) The time necessary to go from a street corner to the twentieth floor of a twenty-story building in front of which a person is standing is about the same as the time required to walk half a block, and reach the tenth floor of a neighboring building.

(e) The time required to go from the twentieth to the fifth floor of a twenty-story building is about the same as that required to go from the tenth story of a ten-story building to the tenth story of an adjoining ten-story building.

(f) The heating of one upper story (above the tenth) will cost nearly as much as heating two lower stories, unless there is always exhaust steam to waste.

(g) The average temperature of the outside air at any 200 feet above the street and above is from 3° to 5° less than the average at the street. This is an advantage in the summer and a disadvantage in the winter.

(h) If the elevators could be divided into sections and the shaftways for the way elevators stopped, for example, at the tenth floor of a twenty-story building, then a saving of space could be effected. This has not yet been done, and would require a change in the New York building law. The space so saved would not always be available for renting purposes.

(j) No formula can be made to express all the conditions, for it would have to be based on so many assumptions that would have no value when solved; but by averaging a number of cases and making certain assumptions, it may be stated that probably a thirty-two story building would have a gross return of 11% under conditions that would show a gross return of 10% for a sixteen-story building on the same lot. That is, an investment of \$3,420,000 divided into: lot, \$1,000,000; building, \$2,420,000; would show a return of \$376,200; where a total investment of \$2,000,000 divided into lot \$1,000,000, building \$1,000,000, would show a return of \$200,000. That means that an additional expenditure of \$1,420,000 would return \$176,000. There are many cases in which the smaller amount could be obtained, while the larger could not.

(k) The vibration of very tall buildings (over twenty-five stories) is an unknown quantity. Theory indicates that it would be objectionable. Practice reveals its existence in certain cases, though in a slight degree. It is probable that in buildings exceeding sixteen stories and of a height exceeding five times the least width, there will be objectionable vibration after the buildings have been erected fifteen to twenty years.

If the soil is such as will support a sixteen-story building but no more, the commercial considerations detailed above would limit the height to sixteen stories. If it is doubtful whether more than sixteen stories can be carried and the site is expensive, then

we must put in caissons and decide on twenty stories. If the lot is not expensive, we would be content with sixteen stories.

Finally in the design and erection of these buildings we can already see the line of future development. While many owners stick to the old practise of selecting an architect who draws plans and gets gratuitously from contractors the plans for the foundation, structure, heating, lighting, elevators, plumbing and even decorations, who combines them more or less (generally very much less) successfully, and who then jobs out the erection to one or more contractors, other owners have adopted the latest practice of having a corporation make the plans, erect the building, and even for a time operate it; there are even many cases where the owner plans, erects and operates on his or its own account. There can be no question that the best way is to have one concern design, erect and operate, and this will be improved upon only by specializing to the extent of limiting the field of the designing and erecting concern to one class of buildings. Whether this be done by an individual or a corporation makes no difference, since in either case there must be the same organization, the same executive on whom must rest the final responsibility, and from whom is demanded a good general knowledge of the subject, great executive ability and that knowledge of men that will enable him to select his associates successfully. There may be a board of directors, there may be a president to dictate a general policy, but there must be in this work, as in every other work—steel manufacture, railroads, manufacturing—anything else you choose—one head—a calm, constructive, thoughtful, intelligent, self-reliant, honorable man, to direct affairs. It does not follow that necessarily the success of a company will only be coincident with that man's life. In fact, the greatest effort of such a man, after securing the success of the company, would be to develop a worthy successor. Such men, while relatively few, are still to be obtained. The first step in this development will be the combination of promoting, financing and building in one corporation in which the public, as shareholders, will have a part. This final step has, in some cases, been taken, and is destined to be ultimately successful, not by crushing competitors, but by doing so much better work in its chosen field that there will be no competitors.

Geo. Hill.



THE FRICK BUILDING.

Pittsburgh, Pa.

D. H. Burnham & Co., Architects.

THE FRICK BUILDING
PITTSBURGH, PENNSYLVANIA



D. H. BURNHAM & CO.
ARCHITECTS



ENTRANCE OF THE FRICK BUILDING.

Pittsburgh, Pa.

D. H. Burnham & Co., Architects.



HALLWAY—FRICK BUILDING.

Pittsburgh, Pa.

D. H. Burnham & Co., Architects.



STAIRS AND HALL—FRICK BUILDING.

Pittsburgh, Pa.

D. H. Burnham & Co., Architects.



THE LION—FRICK BUILDING.

Pittsburgh, Pa.

D. H. Burnham & Co., Architects.



STAINED GLASS—FRICK BUILDING.

Pittsburgh, Pa.

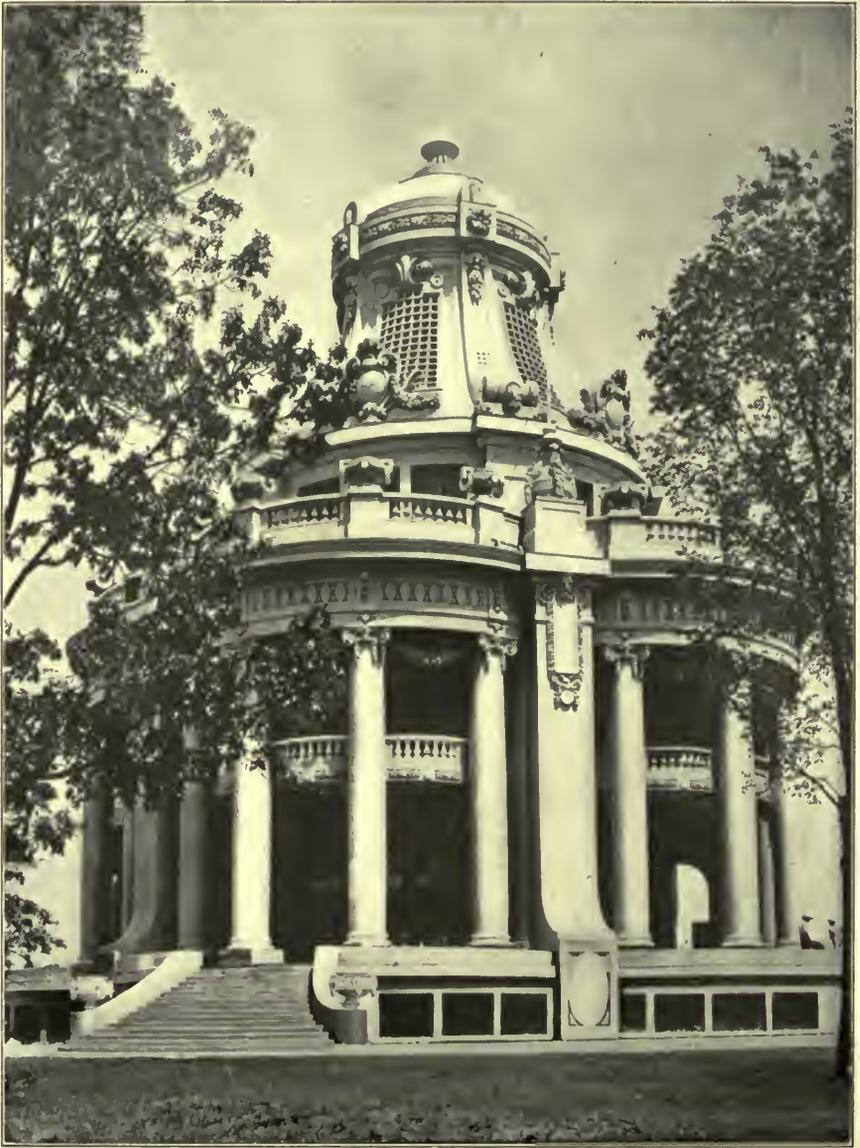
D. H. Burnham & Co., Architects.



TWO INTERIORS—FRICK BUILDING.

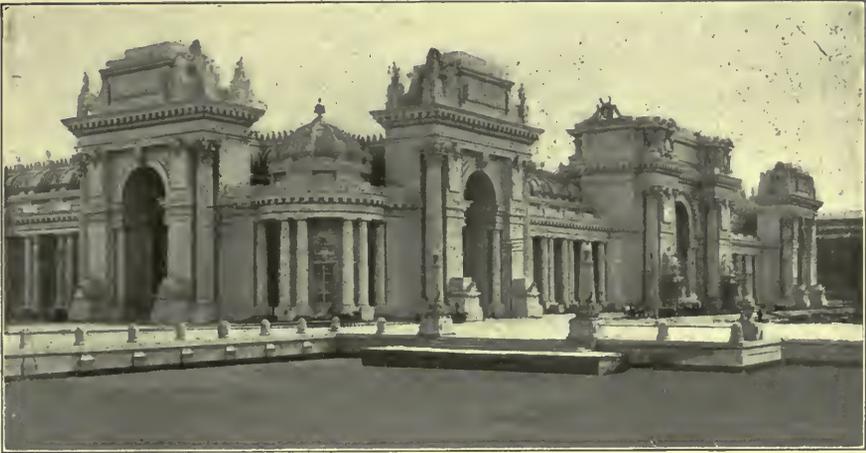
Pittsburgh, Pa.

D. H. Burnham & Co., Architects.



RESTAURANT PAVILION AT THE END OF THE TERRACE OF THE STATES.
Louisiana Purchase Exposition.

E. L. Masqueray, Architect.



SOUTH FRONT OF THE LIBERAL ARTS BUILDING.

Louisiana Purchase Exposition.

Barnett, Haynes & Barnett, Architects.

THE ARCHITECTURE OF THE LOUISIANA PURCHASE EXPOSITION.

THE architecture of the Louisiana Purchase Exposition will be much better than most people, and particularly than most architects suppose. A visit to the grounds enables one to say that with great confidence. The fair has been more or less discredited, or, to use the expressive phrase of the street, "queered" by the reports of the artists who have helped to make it. Every train that sweeps from the West has brought to our ears the wails or curses of some disgruntled architect, sculptor, mural painter or what not, who has had his tale of woe to tell. As he was naturally more intent upon doing justice to himself than to the show, the show has correspondingly suffered in public estimation.

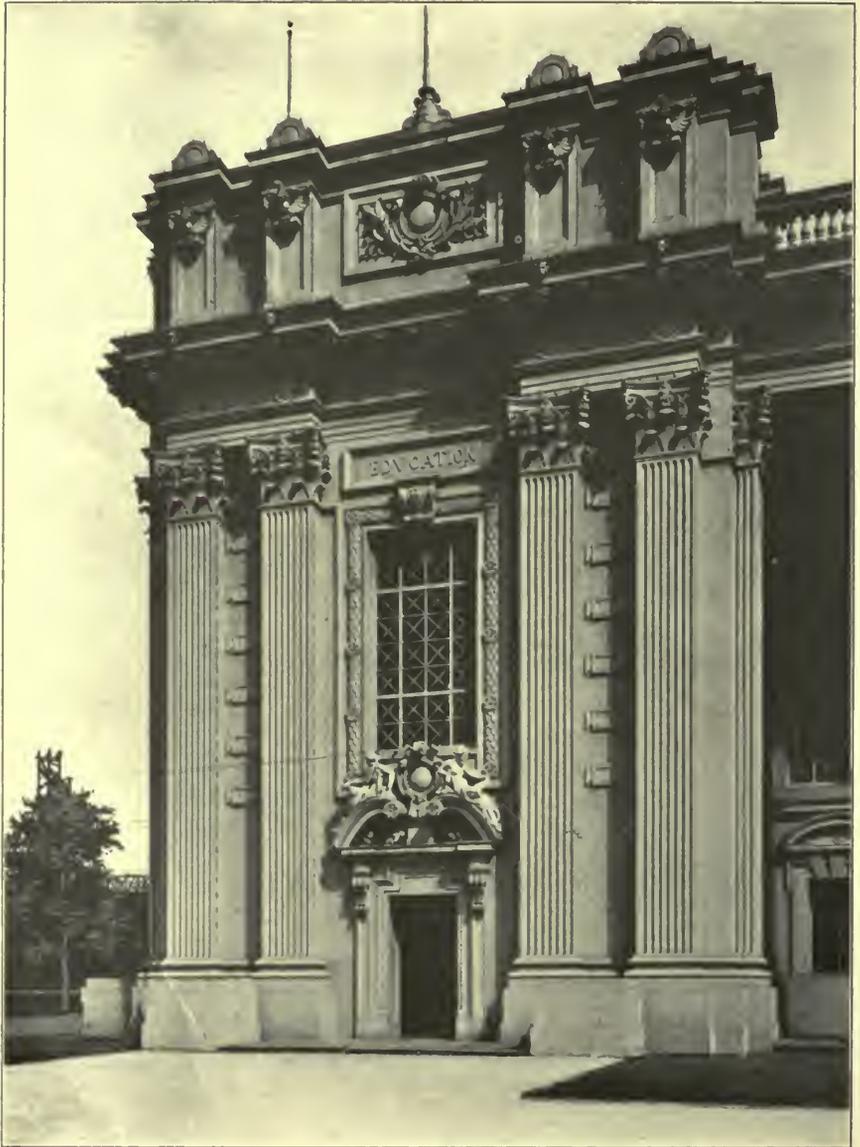
There are more causes for this than one. In the first place, to refine upon the phrase of the street, the avidity of mordication of the projectors of the fair has evidently exceeded their capacity for mastication. They have been short of money wherewith to execute their ambitious and grandiose designs, and they have had no choice but to lop and prune in what the artists naturally assume to have been an arbitrary and Procrustean fashion. The notion at the bases of the projectors' brains and the tips of their tongues was that it devolved upon them to "beat Chicago." Now, beating Chicago in the artistic merit of the fair was a difficult and ambitious, but a legitimate and worthy undertaking. This was

not quite the view the projectors took of it. By beating Chicago they meant making a bigger exposition, not a better. Anybody can see that from the kind of advertising to which they have addicted themselves. They do not expatiate to you upon the advantage they have over that flat stretch of lake shore in the terrain at St. Louis, although that is a marked and clear advantage. They do not point out to how skilfully this advantage has been employed, as they accurately and properly might. They tell you, instead, how much more mileage the fences of the fair enclose than were enclosed at Chicago, and how much more acreage it has "under roof" until you are grievously bored, and even begin to suspect that General Choke and Jefferson Brick and Hannibal Chollop have been making the fair as well as advertising it. But what the fair is they never tell you, never, at least in the most widely circulated and official of their proclamations. That it is "bigger than Chicago" is the one fact that is hammered in upon your brain.

And it is in this naive effort that the inequality between the mordication and the mastication of St. Louis becomes evident. Because beating Chicago, in point of mere magnitude, is a very ambitious effort for St. Louis. Why should the St. Louis Fair be a bigger thing than that of Chicago when Chicago itself is so much bigger a thing than St. Louis? In 1893 there were nearly twice as many people in Chicago as there now are in St. Louis. There was, we may assume, a proportionate superiority of wealth, and there was a seething and ebullient local patriotism to which the world had no parallel. The Chicago Fair cost, all told, over thirty millions. The St. Louis Fair had spent, a few weeks ago, sixteen millions, and urgently needed some five millions more, but had nothing left but to go to Congress, as it did with success. The effort to beat Chicago in bigness with less money, under these conditions, seems to have involved a sacrifice of things more to be desired than bigness. If St. Louis, like Buffalo, had cut its coat according to its cloth, it might have given a fair so attractive that no visitor would have asked or cared whether it broke any or all records of mere magnitude. The actual effort involved, for example, the abandonment of the steel interior construction which enabled the bridging of such vast spaces and the reduction of the width of the naves to what could be spanned with timber. It is true that this reduction gives scope for a decorative treatment of the interior courts. But such a treatment also costs money, and the money was not to be had. It had all been spent upon the outsides and upon their sculptural accessories. A few weeks ago, when the observations were made upon which these remarks are based, there was a great deal of landscape gardening, including transplantation of considerable trees, which urgently needed doing in order

to carry out the plan. And there was equally urgent need of the exterior employment of color. There was a chief of color, Mr. Louis J. Millet, whose interesting and suggestive decoration of the outside of the Transportation Building at Chicago will be remembered by all visitors to the Columbian, and whose competency for the work may be taken as established. And there were buildings in evident need of this enrichment. Mr. Link, the author of the Building of Mines, is the "Secessionist" of this Fair, as Mr. Sullivan, the author of the Transportation Building was the Secessionist of Chicago, and has been equally inspired by the desire to make a real building out of plaster instead of being contented with the semblance of a building of masonry. This purpose, at least, seems to be denoted by the bold projection of the eaves, with their solid shadows, and the plain expanses of the walls, even if it be elsewhere contradicted, as in the massiveness of the pylons of the entrances. But, evidently; the device which is meant to take the places of the conventional modeled ornament must be the application of color. And there are other buildings, designed by the Chief of Design, or consulting architect of the Exposition, upon which economic considerations have imposed an extreme plainness of design which without the addition of painted decoration threatens to become baldness. Of these are the buildings of Agriculture, of Horticulture, and of Forestry, Fish and Game. Excepting for a very modest and sparing decoration of the entrances by modeled ornament, these are but vast sheds, though very well proportioned, well designed and well lighted sheds, evidently depending for their festal effect upon decoration to be added, that is to say, upon painted decoration. In fact, at every turn upon the grounds one came, five or six weeks ago, upon evidence of the need for more money—in some places to "make these dry bones live," in all to put the fair into presentable and attractive condition. One was quite prepared to believe that the additional four millions and a-half for which the managers appealed to Congress was the irreducible minimum of their requirements.

But let us turn from the temporary and casual imperfections of the execution to the design. Without knowing the history of the scheme, the spectator on the spot imagines that the original design has been supplemented by an amendment, and so supplemented as in some respects to supplant it. The site of the Exposition is part of the "Forest Park" of St. Louis, consisting of a level, say a mile in extent each way, which was known as "The Wilderness," grown with a tract of virgin woodland interspersed with some thousands of fine forest trees. These have been quite ruthlessly sacrificed, one is tempted to say wantonly, for although the clearing was evidently necessary, given the site of the fair, there



CORNER ENTRANCE OF THE PALACE OF EDUCATION.

Louisiana Purchase Exposition.

Eames & Young, Architects.

seems to have been nothing to prevent the moving of the fair back to a point where no such sacrifice would have been entailed. The site, however, would appear to have been chosen before any artistic counsel was invoked. When such counsel was taken, it appeared that the one natural feature of the site, at least the only one left to it after the clearing was a wooded ridge bounding it to the Southeast. To crown this ridge, at its central point, with the most monumental, and in fact the only permanent building of the fair,

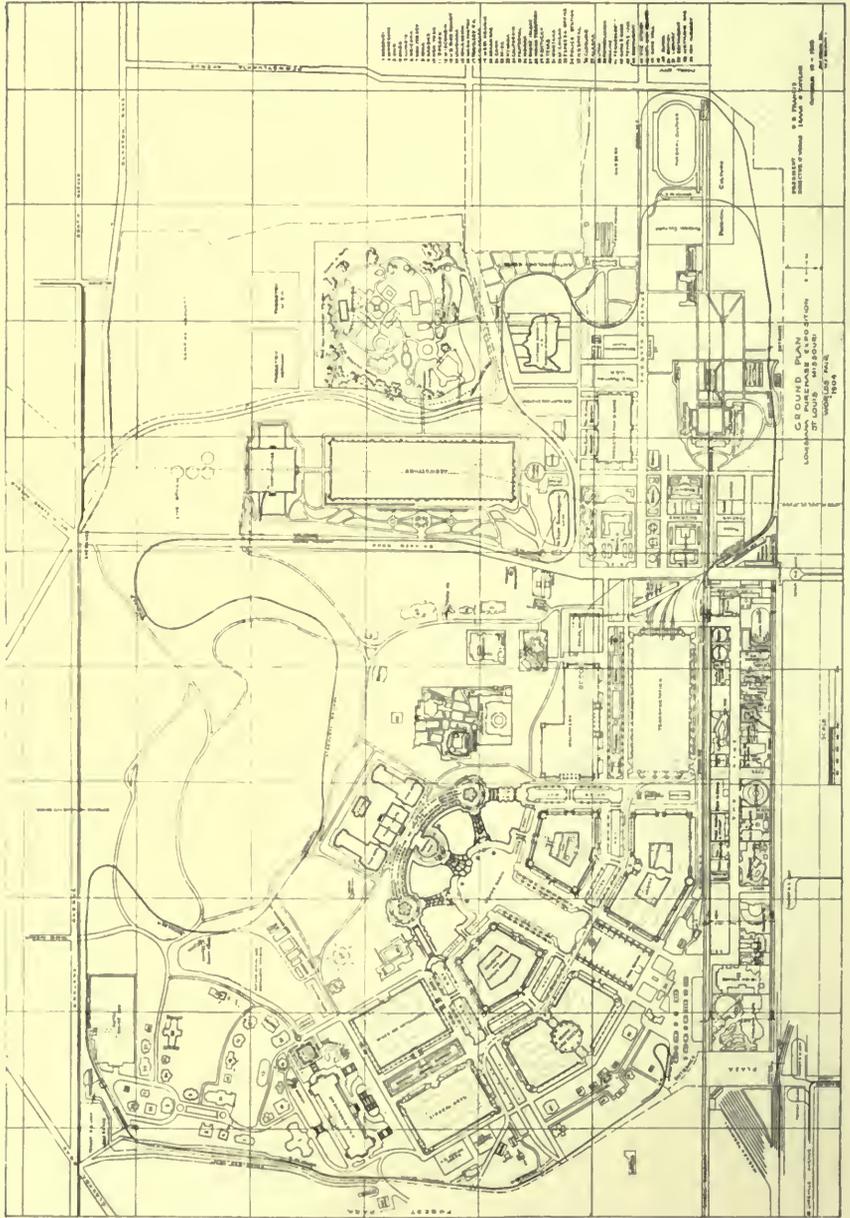


NORTH FAÇADE OF THE PALACE OF MANUFACTURES.

Louisiana Purchase Exposition.

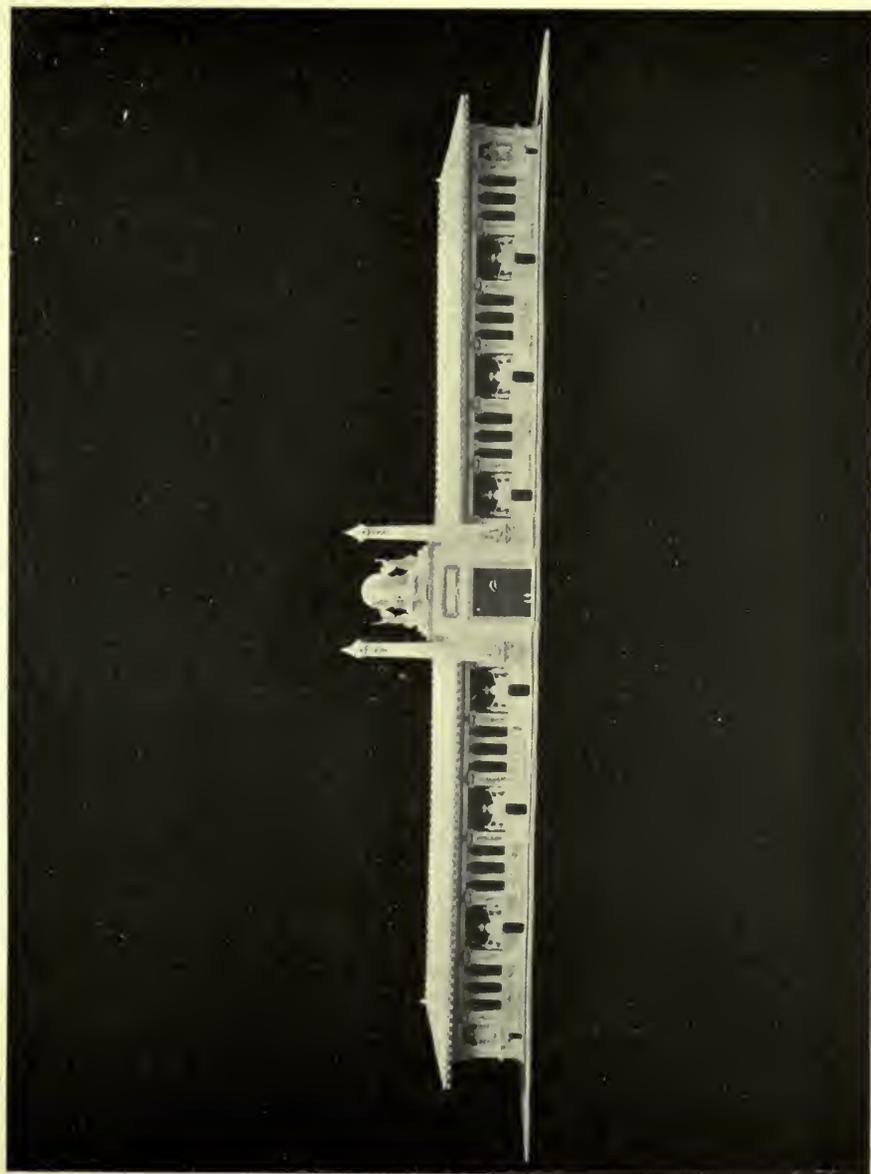
Carrère & Hastings, Architects.

was an obvious expedient. Accordingly, this site, commanding the plain below which was to hold the group of palaces, was reserved for the Art Building, which Mr. Cass Gilbert was appointed to design, and which was expected to be the dominating feature of the show. But a second thought indicated that the picturesque possibilities of the hill were not exhausted, nor even fully employed by this acropolis, that the whole of this central ridge should be occupied by the crowning feature of the fair, and that the slope of the hillside should be brought into service also. Doubtless that was a happy thought which issued in the Terrace of the States and the Cascade Gardens which are in fact what the French call the "clou" of the whole display. Only the execution had the unfortunate incidental



PLAN OF THE LOUISIANA PURCHASE EXPOSITION.

CHAS. H. HERRICK
ARCHT. & ENGR.
DIRECTOR & SUPERVISOR
OF LOUISIANA PURCHASE EXPOSITION
NEW ORLEANS, LA.
1884



PALACE OF MINES AND METALLURGY.

(From a model.)

Louisiana Purchase Exposition

Theodore Fink, Architect.

effect of obliterating the Art Building as the central feature of the fair, or, indeed, as a feature at all in the general view. The curving colonnade, a quarter of a mile in length, which is called the Terrace of the States, is built directly in front of it, with the cupola of Festival Hall rising two hundred feet, and of about the same diameter at the base, at the centre, effectually screening out the building behind from any participation in the general effect. There was perhaps no help for this after the better second thought had superseded the first, and yet it seems a pity and a waste. In fact the Art Building will not be fairly seen, will not be seen as it was meant to be seen, until the fair has been demolished. The change was made, it must be owned, with every possible consideration, for it was the architect of the Art Building who was invited to efface his own work by designing the building that was to hide it.

At any rate, this curving ridge being selected as the centre of the plan, the rest of the plan, at least in its main outline, follows as a matter of course. Festival Hall on its hill commands and terminates the great avenue that leads direct to the main entrance, the great avenue, five hundred feet wide, from front to front of its bordering palaces, and the main entrance half mile away. The first third of this interval outward from the central feature is occupied by the hillside down which the cascades that take their rise at the centre and at the ends of the colonnaded "Terrace of the States" are to flow, and by the "Grand Basin" into which they are to be emptied, and thence to be diverted, in the form of canals, around the two palaces that front the basin, the palaces of Electricity and Education. Two lateral avenues diverge from the pavilions which form the terminal features, as Festival Hall forms the central feature, of the Terrace of the States, and of which one stops the vista of the avenue, looking inward, which looking outward is stopped by an entrance gateway. Observe that the avenue, a waterway between the inner palaces, is terra firma between the outer, and the transverse avenue between the inner and outer groups is likewise waterway between the lateral avenues, and sunken garden outside of them. This transverse avenue brings up one of the puzzles of the plan. Since it could not be kept straight, being in effect a segment struck with a radius from the central Festival Hall, and since, therefore a view of it from end to end could not be preserved, why not make it a curve instead of a broken line, and moreover a broken line of which the break comes at the centre of a "block" of palaces? There were very likely practical reasons for adopting the actual arrangement. One sees that the laying out and construction of the buildings along the curve would have involved more skill and trouble, and hence more expense, than laying them out and building them around a corner. But while the curve might have been practically

awkward, there is a distressing architectural awkwardness about the broken line. One result of it is that no one of the buildings which face this transverse avenue gets the benefit of its dimensions. Evidently the effect of the colonnade of Education, or of the arcade of Manufactures would have been far more impressive, if it had been built along a sweeping curve than it is when it is rudely broken by an abrupt change of direction. On the inner buildings the designers have suffered from this misfortune only on one side, and that the outer, where the angle is a projection, but in the outer on both the longer fronts, while on one of them the angle is a recess and offers a space extremely difficult to make a "feature" of. It seems a great pity that the segment of a circle should not have been adopted for this cross street, and the designers relieved from the necessity of trying to treat these awkward and intractable polygons that accrue from the actual plan. With regard to the actual treatment, the architect of Electricity, who had only a projection to manage, seems to have been ill advised in voluntarily making it a recess. Of the two designers who were forced to treat recesses, the architect of Manufactures has resorted to a simple truncation, occupied by a triumphal arch bigger and more imposing even than the wide and deep arch that forms the unit of his design, while the architect of Varied Industries has resorted to the ingenious and effective expedient of a projecting and segmental colonnade. But from the arrangement it follows that the actually shorter fronts of these four buildings are architecturally and effectively the longer, and that the greatest effective length is not of one of these principal and most conspicuous palaces, but of such an outlying building as that of Transportation; outside, that is, of the lateral avenue on its side. To be sure this is a quarter of a mile long, and looks it, but it is not so long as the outer front either of Manufactures or of Varied Industries would be if it were straightened out. Moreover, its extent becomes monotonous for want of the central feature which the architect designed for it, a reproduction of the colossal and effective triple portal of the ends, which appears in the drawings for the long side but has disappeared from the building. It would rather have emphasized than disturbed, while it would have enlivened, the vast expanse of this flank.

Another puzzle of the plan is the placing of the Louisiana Purchase Monument, monument so-called, though only of plaster and destined to no longer a duration than that of the fair. This is a stout erection, a solid tower rather than a column in the classic sense, of which the architectural purpose is to provide at one end of the great basin a counterpart to the Festival Hall at the other, which shall be a focus for lookers-on from the hill as that for lookers-on from the lower level. It is well-designed for its purpose, but

ill placed. It seems obvious that this shaft should stand in the axis of the transverse avenue as well as in that of the straight central avenue and focus the view from so much of its extent, on either side, as the turn allows to be taken in at once. For this purpose a bold semicircular projection from the shore at the centre of the basin is pretty plainly indicated. Yet in fact the monument is withdrawn behind the building line of the flanking palace and is not apprehensible except from the central avenue itself. Whatever practical considerations may have seemed to require the abrupt turn in the transverse avenue, instead of a gradual bend cannot have operated here. The artistic loss is without practical compensation.



THE TERRACE OF THE STATES.

Louisiana Purchase Exposition.

E. L. Masqueray, Architect.

These two drawbacks are important as affecting the general "lay out" upon which the spectacular and panoramic success of the Exposition must so largely depend. In spite of them, and in spite of the fact that to make it the most costly, important and permanent structure of the fair, the Art Building had to be sacrificed for the whole period of the fair, and that, for the purpose of the fair the money spent upon its architecture has been largely wasted, this lay out is admirable, and makes the best use of the terrain. But the defects are precisely such as were avoided at Chicago, and were avoided there by that harmonious and enthusiastic co-operation of everybody concerned which really made the success of the Columbian Exposition. Everybody concerned would doubtless admit, did, in fact, at the time admit, and even proclaim that the one in-

dispensable factor in that success, so far, and that was very far, as it was an architectural success, was the personality of Mr. Burnham, who, more than anybody else, was the designer of a fair in which he did not appear as designer at all. It was he who made the "direct selection" of the architects who so vindicated his choice, and who afterwards stood between them and the business men with whose notions their own were so apt to come into conflict, and who also mediated effectually between themselves and promoted that interchange of friendly but frank criticism by which the work so



PROJECTING ANGLE OF THE ELECTRICITY BUILDING.

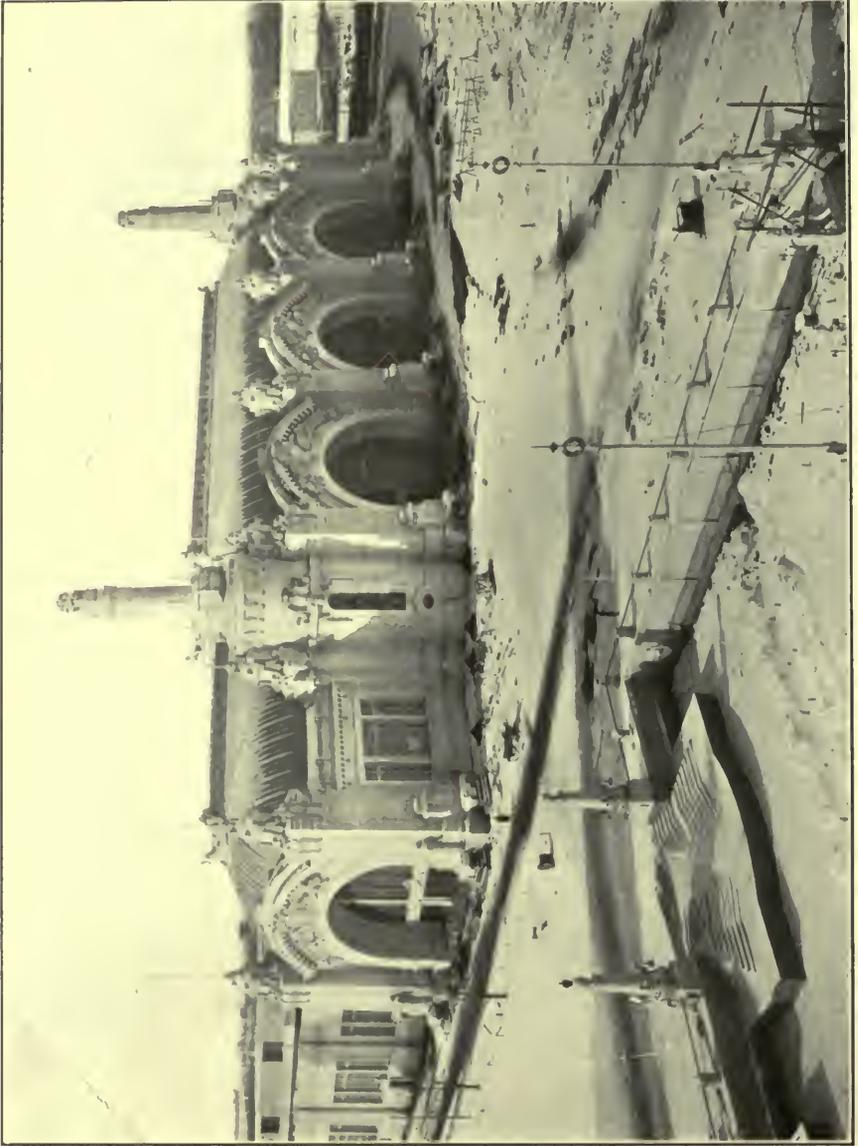
Louisiana Purchase Exposition.

Walker & Kimball, Architects.

greatly profited. It has not been the fault of the managers at St. Louis that Mr. Burnham's services have not again been made available. But to expect an equal success in the way of loyal and cordial co-operation without the man who brought it about was

"As if a miracle could be encored."

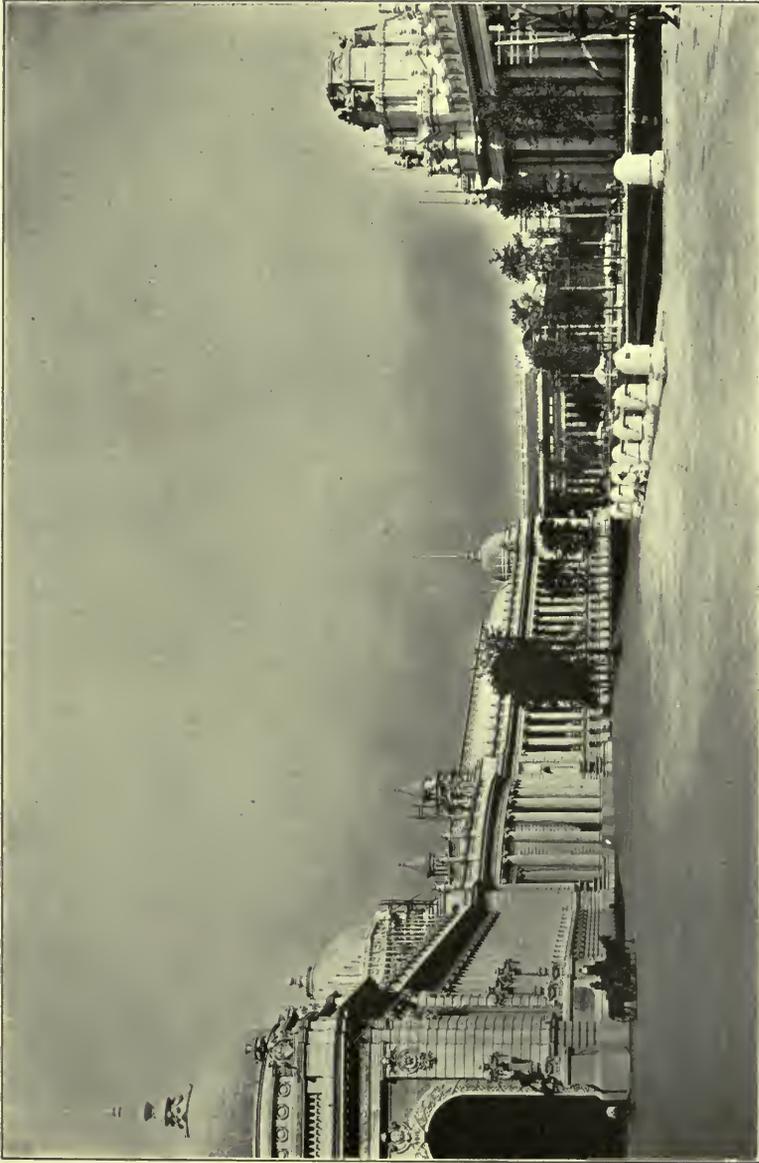
The same system of selection has prevailed at St. Louis as at Chicago, and Buffalo. That is to say, the work has been equally divided between local architects and architects from outside. But the system has not worked in all respects so well in this instance as in those instances. The architects of Chicago, counting among them



E. L. Masqueray, Architect.

TRANSPORTATION BUILDING.

Louisiana Purchase Exposition.



VARIED INDUSTRIES BUILDING ON THE LEFT; LIBERAL ARTS BUILDING IN THE CENTER;
ELECTRICITY BUILDING ON THE RIGHT.

Louisiana Purchase Exposition.

Mr. Atwood, who succeeded John Root as consulting architect, at an early stage of the work, contributed quite their full half to the attractiveness of the Exposition, and the architects of Buffalo, as everybody knows who saw the Pan-American, came out unexpectedly strong. Nobody can go about St. Louis without seeing evidences of such professional competency, in the design of commercial and domestic buildings, which, as in Chicago, so nearly ex-



CORNER OF LIBERAL ARTS BUILDING.

Louisiana Purchase Exposition.

Barnet, Haynes & Barnet, Architects.

haust the architectural activities of the place, as would clearly entitle the architects who have manifested it to take part in the building of a World's Fair. But the visitor does not find that in all cases, it is the men who have manifested this competency who have been chosen, and in some cases comes to speculate with some wonder upon what the principle of selection can have been. For, if the most complete architectural success of the principal palaces is, as it seems to the present visitor to be, the palace of Education, by a local architect, the palaces of Machinery and of Liberal Arts, which he finds himself unable to acclaim as successes, are also the works of local architects—not, just now, to put in either category that questionable and question-provoking edifice, the palace of Mines.



THE EDUCATION BUILDING.—ONE OF THE MAIN ENTRANCES.

Louisiana Purchase Exposition.

Eames & Young, Architects.

A glance at the ground plan will show that the central part of the Exposition, in which a uniform, formal and grandiose scheme of architectural treatment seems to impose itself, consists of eight palaces. Those of Education and Electricity, as confronting the Grand Basin and the Cascade Gardens, and consequently as nearest to the centre of the diverging plan, are at once the smallest and the most conspicuous. By reason of their centrality and their conspicuousness, one is inclined to think them, in spite of their lesser dimensions the architectural prizes of the plan, the buildings one of which an architect who had his choice of all the fair would prefer to do. The architect would be likely to be tempted, not only by the situation, but also by the fact that the awkwardness entailed by the break in the line of the transverse avenue occurs only on one side of the building, and then in the mitigated form of a projection and not in the aggravated form of a recession. Behind these, that is to say, across the transverse avenue, come the larger bulks of Manufactures on one side and Varied Industries on the other. The greater magnitude of these can scarcely be counted an advantage when one considers that it not only entails the necessity of trying to signalize the awkward recess, but that, architecturally, the magnitude is not effectively greater than that of the buildings which in area are so much smaller. The straight side of Electricity or Education is as long as that of Manufactures or Varied Industries and as long as either of the two facades into which, by the peculiarity of the plan, the outer front is broken which, if straightened out, would equal or approach the length of the great building of Liberal Arts at Chicago. But only half of one of these outer fronts can be really seen at a time. The inner fronts to be sure can be seen together and all at once, and if the avenue they front had been curved instead of broken the expanse might have been made most impressive. But the impressiveness is very much diminished by the jog at the centre, which moreover offers such an awkwardness in itself that one is tempted rather to condole with the authors of these larger buildings upon an architectural difficulty than to congratulate them upon an architectural opportunity. Outside of each of the four buildings of this central group, flanking it, that is to say, comes another, which is to be seen in conjunction with it, and which has the advantage of a parallelogrammatic plan, Mines outside of Education, Liberal Arts outside of Manufactures, Machinery outside of Electricity, and Transportation outside of Varied Industries. The two former are nearly squares, the two latter nearly double squares, and affording by far the best opportunity for the emphasis of mere magnitude, or rather of mere longitude, which the Exposition presents. As has been indicated, the design of Transportation, or rather the execution by omitting an important element in the design, puts



THE MANUFACTURERS' BUILDING—THE VESTIBULE.

Louisiana Purchase Exposition.

Carrère & Hastings, Architects.



THE ELECTRICITY BUILDING.

Louisiana Purchase Exposition.

Walker & Kimball, Architects.



PRESENT STATE OF EXPOSITION GROUNDS.—EDUCATION BUILDING ON THE RIGHT.
Louisiana Purchase Exposition.

emphasis on this feature so exclusively that the result becomes monotonous. It is a pity, for the great triple portal of the end, designed to be repeated on the side, would not only effectively relieve this monotony, but is in itself, in its largeness and simplicity, and its unfailing success in scale and in detail, one of the most impressive things the Exposition has to show. The building of Machinery suffers from the opposite defect. Its parts are so numerous, so various, and so insistent, that the expanse of the whole, which would be so impressive if it had been left more alone, tends almost to disappear as an element of effectiveness. The huge arcaded and pedimented central feature which almost constitutes the end of the building is repeated, with the addition of a mansard and flanked by two towering steeples, at the centre of the side, to such effect that nobody is likely to complain of the monotonous length of the building, or even to observe it, while even the curtain wall between this central feature and the lower steeple, with a pedimented and columned base, carrying a pedimented and columned belfry stage which occupies the angle, is diversified by being divided between a central colonnade and two flanking arcades. Decidedly, it is not monotony that one primarily objects to in this collection of features which scarcely constitute a countenance, and in the profusion of which the architect seems almost to have exhausted his repertory of forms of the Italian Renaissance, in a "free" version of which all the buildings of the Exposition are supposed to be designed.

Of the central group of four I have already expressed my own belief that Education is the most successful. For one thing, it is the simplest. The stately and interminable classic colonnade, given the chance to do it on the grand scale, is among the most obvious of all architectural effects, but it is one of the surest alike to break in upon apathy and not to become stale by iteration. It is one of those appeals to which, as Stevenson has it, a man must be dead and buriable when he fails to respond. But to say that the building of Education displays on every front a colossal Corinthian order by no means exhausts the design of it, nor limits the merit of the designer to his selection of a motive. The very point of which we have just been speaking, the difficulty of emphasizing extent so as to make it effective without making it monotonous, in which the flank of the Transportation building by a misfortune of execution shows one kind of failure, and the flank of the building of Machinery by a misfortune of design shows another, is admirably dealt with in the building under consideration. On each of the three straight fronts the effective extent of the colonnade is the whole extent of the front, and yet each shows a centre and two ends emphasized in the design, the former a triumphal arch with a flanking and pro-

jecting order, of which the raised attic is crowned with a quadriga, the latter square and massive pavilions in which the columns of the colonnade are subdued to pilasters, so that the actual extent of the colonnade is only that of the curtain walls, and nobody is likely to complain that the fronts are monotonous on the one hand, or that they are unduly cut up and frittered away on the other. To attain this just mean so that the features of the design shall animate the expanses without interrupting them is a task to the successful performance of which there has evidently gone a deal of study. There is no question of the success here, nor that the building is a scholarly essay in a really classical spirit as well as in the conventional classical forms.

A scholarly performance likewise, is doubtless the counterparting building of Electricity. If it comes short of the success of the other, it seems that that is largely because in the boldly projected order which alternates with the large plain round-arched openings of the wall behind, on its most conspicuous front, the designer seems to have hit upon a unit of design so large as to dwarf his building, or at least to prevent it from getting the full benefit of its dimensions. The columns of the colonnade of Education, being not at once numerable by the eye are practically interminable, whereas nobody can help being aware that the curtain walls of Electricity consists of just three bays each. The pains the designer has been at to exaggerate the magnitude of the parts has the effect of belittling the whole: 600x700 feet are very respectable dimensions. But when the parts are so "scaled up" as these are, the frontage which would make them take their places as the units of an effectively extensive series would have to be greater by a considerable multiple. Moreover, the crowning features of this edifice, the terraced roofs of the terminal pavilions, rising actually or at least apparently higher than the central gable with its pediment and its big semicircular window, seem to have no necessary connection with the substructure or with one another, nor are they in themselves of attractive form or outline. Nevertheless there is a grandiosity about the performance. The building has a style of its own, and fills not unworthily its important place.

In the respects in which we have been finding fault with it the building of Manufactures offers an instructive contrast to this. Here also the architects took a unit larger and more important than that of a column as the motive of their design. Here also this is the Roman arch, framed in "orders" and the feature is on an ample scale. But the columns and the arches go very much better together than in the building of Electricity where the emphasis given to the order by its projection seems meant to emphasize its separateness from the construction it adjoins. In Manufactures, it

is so subdued as to become an integral part of that construction. With the smaller scale and the greater length of frontage, the succession of arches becomes really a series, an arcade, as it is so far from becoming in the other case, while the colonnaded pavilions of the corners and the triumphal arches of the central entrances take their places not as detached objects, but as parts of an impressive and successful whole.

The building corresponding to that of Manufactures, that of Varied Industries, is noteworthy as the work of the only architectural firm represented at St. Louis which was also represented at Chicago. The present building, however, does not at all recall the Electricity Building at Chicago, showing, for one thing, a very distinct advance upon it, and, for another, recalling another building of the Court of Honor, that of Machinery, namely. This it does unmistakably in virtue of its steeples rising from the Spanish looking dead walls of their lower stages, and flanked by the long colonnades over an arcaded basement. The effect is at once stately and animated, and one feels moved especially to congratulate the architect on the device by which he has circumvented the awkwardness of his recessed angle, by projecting in front of it a segment of colonnade. One cannot do so much by the cupola, so incongruous with the steeples of the other front, that crowns this feature, and still less by the open and bell-crowned corner pavilions that emphasize a void where there was required an emphatic solid. Neither can one at all or anywhere congratulate the architect of Liberal Arts, whose "features" are so big and so insistent as to deprive his building of a countenance. The huge size and the number of the triumphal arches of entrances would denote that the purpose of the edifice was mainly to be got into and out of, for they dwarf into nothingness the strips of wall between them, while at the corners he has connected a huge monumental arch on each front by means of a round colonnade. The effect may not be more easily imagined than described, but certainly it is not easily described.

Last of the great palaces comes that of Mines, of which the effect, as has been said, cannot be judged without the color it was still, a few weeks ago, awaiting. Evidently enough, the huge overshadowing eaves that protect the walls and cast their solid shadows no more come within the most liberal construction of the "Italian Renaissance" than do the Egyptian pylons that flank the entrances. There is this marked difference between it and the Transportation Building at Chicago. The Transportation Building at Chicago was isolated. This building is part of the principal group and must be seen in connection with other buildings of an entirely different inspiration. Whatever its individual success may prove to be, it will be one at the expense of its neighbors, and at the ex-



CORNER OF THE VARIED INDUSTRIES BUILDING.

Louisiana Purchase Exposition.

Van Brunt & Howe, Architects.

pense, therefore, of the general effect. Evidently that is not polite. But evidently there is more to be said about it than that one may not see the relevancy of the pylons. But one has to see that the building is a forcible and effective composition, in itself considered.

The Louisiana Purchase Exposition will be worth seeing. There is no doubt about that. There are a great many more things to be said about it. But one that it would not be decent to omit expressing is the recognition of the admirable way in which the accessory architecture has been handled in the office of the Chief of Design. The colonnaded "Terrace of the States" with its terminal pavilions is the most conspicuous example of the work of the office, but many examples of it are to be seen at every turn about the grounds, and all of them confirm the impression that in this matter the managers of the fair have been particularly fortunate.

There is a good deal to be said, too, about the subordinate buildings, foreign and domestic, particularly about the great advance that is shown since Chicago in the design of the buildings beginning with the Government Building. "But that is another story," and matter for another article.

Franz K. Winkler.



THE ARCHITECTURE OF IDEAS.

IT is beginning to be more and more apparent that a number of the better architects of the West have a tendency consciously to break away from the time-honored European tradition to which their eastern brethren devotedly cleave. The statement, however, that such a tendency exists must be made with due caution and with many qualifications. It is not a tendency, which by any means stares one in the face, as one wanders observantly through the western cities. On the contrary, the new buildings, of all descriptions, which one sees most frequently seem to belong to much the same types of design as the buildings which one sees under similar conditions in the eastern cities. As has been frequently observed before, there is a "regular thing" in office-buildings, hotels and private houses, which is coming to have a prevailing influence, wherever any pretence to good design exists; and these popular types, while by no means entirely satisfactory to a well-trained eye, possess, nevertheless, an increasing fitness and architectural respectability. What is more to our present purpose, however, the popular types of buildings, which, as I have said, dominate the newer architectural landscape, are all of them more or less faithful reproductions of well-known traditional types of design. Consequently the observer of architectural conditions throughout the country will be impressed superficially, not by any divergence in the habits of design of the eastern and western architects, but rather by certain general similarities.

It is true, nevertheless, that there is a group of western architects, resident chiefly in Chicago, who are, as I have said, departing from the allegiance to the strict European tradition which prevails in the East. The number of the protestants is not as yet very great; several of the architects whose work shows the influence of the different ideal are by no means consistent in their devotion thereto; and the different members of the group differ considerably in the extent to which they push their search for an original vehicle of expression. In the cases of some of them the desire to free themselves from tradition does not go much further than a search for irregularity in exterior design and for certain novel details in the interiors. Others have become absolutely revolutionary in their ideals and in their technical machinery. They are seeking to make one big jump from a condition of stylistic servitude to that of irreverent and self-assured independence. They do not seek originality, however, as the "great American architect" once did by combining a number of traditional types into one in-

congruous architectural hodge-podge. The radicals among the group are seeking for a rational and consistent basis for American design and ornament. The more conservative are merely seeking to reduce their debt to the European tradition to a few fundamental forms and to work out on the basis of those forms some new types of design. For the most part the movement is marked by moderation and good sense.

It is natural that some such departure should be made in the West, because the western architect does not, as a rule, handle the traditional European architectural forms with any very zealous sense of the peculiar values of those forms. So far as the East is concerned, it is undeniably true that the great successes have been made by architects, who were capable of designing thoroughly well along strictly conventional lines. These architects have been fully equal to the task of taking any one of the several Renaissance domestic styles, and of reproducing in the American embodiment of the type some of the vitality and flavor of the original, so that the American reproduction has an effective presence and a permanent carrying power of its own. They have caught, that is, something of the spirit of the periods wherefrom they borrow, and can make their buildings, both inside and outside, a great deal more than academic imitations of European types. So far as the exteriors are concerned, they can frequently give that appearance of measure and balance to the elements of the composition, without which the various Renaissance forms are lifeless; while at the same time they can impart a certain freedom to the design by the adaptation of some of the important members of the composition to local American needs. So far as the interiors are concerned, they have acquired the power both of reproducing with some charm of effect the formal French styles of interior decoration, and of rehandling the materials used by the old French and Italian decorators in an idiomatic manner—with the result sometimes of making genuine living-rooms out of the remnants of rooms in European castles, palaces, churches, halls and galleries. Like thrifty business men, they justify their borrowing by the fact that they make their loan yield a good deal more than the interest charges. So far as my observation goes, the western architects have not shown the same power to anything like the same extent. The attempt to get the quality of measure and balance into the exterior of buildings designed under the influence of classic models does not seem to go beyond symmetrical duplication of the several parts of the building, the resulting effect being both loose and stiff. Neither are they very much more successful with the interiors, when these interiors are wrought of similar materials. In the first place, their clients, the well-to-do western gentlemen

for whom the houses are built, do not seem to demand the use of European styles and remnants to the same extent as do the eastern owners of expensive dwellings. They are content with home-made furniture and fabrics, and when they do ask for an interior designed along the same lines as that, say of the Whitney house in New York, they cannot get it, or, at least, they have not got it in any of the houses of this kind, which the writer has seen. The western architects do not seem to have a lively sense for this sort of thing. They have never gained touch with the tradition that endows it with life and meaning.

It will probably prove to be a fortunate thing for American architecture that such is the case. In a country, such as the United States, which is in the process of making and naturalizing its local architectural traditions and forms, it is a good thing both that some of the leading practitioners should intentionally cleave to the standard authoritative historic styles, and that others should propose, also intentionally, to depart from strict allegiance to the time-honored tradition, and to substitute types of design that have a manifest local propriety. These two ideals of design seem to be exclusive; but both are as necessary to the steady progress of American architecture as are a conservative and a liberal party to a healthy political organism. The two sets of ideas will prove to be supplementary—provided both of them are sincerely and intelligently adopted, and are applied with a high sense of technical honor. What American architecture needs very much more than devotion to any one group of forms is devotion to an uncompromising technical standard. When such a standard prevails, and brings with it all that it implies, the forms will take care of themselves.

The group of western architects, whose work shows a conscious attempt to break new ground, are most assuredly sincere and intelligent designers possessed of a sufficiently high technical standard. Their work is inevitably more uneven than is the work of the eastern architects who stick more closely to the "regular thing;" it is not calculated to please people, whose point of view makes them unsympathetic with architectural experiments; yet, nevertheless, it has a quality and effect which can only come from a thoughtful and conscientious attempt to devise forms which are appropriate, novel and striking. The forms which they devise occasionally suggest the influence of the "New Style," which is so popular abroad; but when this is the case the suggestion points rather to the German than the French variety of that movement. For the most part, however, it borrows little either from "L'Art Nouveau" or the "Jugend Style." It really derives its momentum and inspiration chiefly from the work of Mr. Louis Sullivan, and

from a very able architect, who issued from Mr. Sullivan's office, Mr. Frank Wright. But it is still too young to have a history, and probably ten years must pass before any very intelligent estimate can be placed upon its value. In the meantime its significance as an attempt to meet a real need both of local and of general American architecture should be recognized and be allowed its full credit.

In order to give some idea of what this group of architects is doing, there are reproduced herewith photographs of four houses which have recently been erected in or near Chicago. Two of these houses were designed by Mr. George Maher and two by Mr. Richard Schmidt. It would be going too far to say that these houses are thoroughly typical of the movement to which attention has been directed, because this movement is a very composite thing, and includes a variety of new tendencies. But while not claiming that these houses are thoroughly representative, it is none the less true that they typify fairly well, on the one hand, the extremely radical phase of the new movement, and on the other, the phase which is content with a more modest ideal and a less uncompromising rigor of rejection.

Of the four houses, that of Mr. L. Wolff, Jr., designed by Richard Schmidt, exhibits probably the new movement more nearly at its best. The general character of this design obviously owes a great deal to the work of Mr. Frank Wright, and this is as it should be, for Mr. Wright is the most thoroughly and sensibly original among the younger men. One marks immediately the very simple and rational method of the exterior design, the frank treatment of the materials, the exclusively utilitarian situation of the openings, the almost complete rejection of detail and ornament, and the manifest seeking for structural honesty. The architect is evidently thinking in terms of masses, of surfaces, and of light and shade. He is looking, that is, for a well-massed structural effect, the surface of which shall express the color value of the brick, and which shall at the same time be made a little spectacular by the bold shadows cast by the overhanging roof. All this is very good; but it must also be remarked that the simplicity of effect, just because it is obtained by such a process of rejection, has within limits the danger of becoming the simplicity of attenuation. The rejection of the classic precedents has gone so far that proportion and symmetry are secondary elements. It is very well to think in terms of masses and surfaces and it is probably better to do so than to stick to the current practice of interpolating detail for the sake of composing it; but there should be enough detail to afford some chance of effective proportion, some chance of that simplicity which results from the perfectly achieved organization of a wealth of structural and ornamental members.



RESIDENCE OF L. WOLFF, JR.

Hazel Avenue, Chicago.

Richard Schmidt, Architect.



INTERIORS IN THE HOUSE OF L. WOLFF, JR.

Hazel Avenue, Chicago.

Richard Schmidt, Architect.



INTERIORS IN THE HOUSE OF L. WOLFF, JR.

Hazel Avenue, Chicago.

Richard Schmidt, Architect.

In passing to the interior of Mr. Wolff's house, one is impressed by the same seeking for an honest simplicity of effect. In this case the architect is obviously pre-occupied chiefly with the surfaces of the walls and panels, and the colors whereby they are decorated. Wherever he can he tries to get large surfaces, which are never figured or disfigured with paper, but if not paneled, are tinted with some solid color. At the same time these wall surfaces are made interesting by a well-designed base and cornice, and by a treatment of the woodwork around the openings which gives these spaces a varied and appropriate framing. The paneling, wherever it is used, is also designed with the utmost discretion, the scale of the mouldings and depressions being admirably appropriate. In short, the desirable simplicity of effect has been obtained without as many sacrifices as the architect felt impelled to make on his exterior, and the result possesses not merely integrity but an open and comfortable charm. The only jarring note in these rooms is the furniture. Some of it has evidently been designed for the house, although without very much success, but in other cases—as, for instance, the piano, several of the ponderous stuffed chairs, the stool with the palm on it, and the elaborately carved piece in the hall—in all these cases the style of the furniture disagrees with that of the house; and it becomes evident at once that people who wish houses designed in this style should be prepared to make a clean sweep of their customary household belongings. The ordinary modern Colonial, Italian and French furniture is for the most part entirely out of place in such rooms as these.

The other house, of which Mr. Schmidt is the architect, that of Mr. Chas. Thorne, possesses some of the same characteristics, but the result is decidedly less successful. It is a frame structure, designed with the same disregard of proportion, and with the same bold effects of light and shade, derived from the projecting eaves. There has been a manifest attempt also to give the material something of its proper value. The house presents a gay, picturesque and fragile appearance. The sharp mouldings which frame the clapboards in as if they were panels, break the surface of the building and intensify the dominant lines at that point. But the effect is none the less bizarre and confused. Neither is the interior as pleasing as in the case of the other house. Here again Mr. Schmidt has given a spacious effect, and has kept his abundant wall surfaces bare of paper; but the woodwork is much less interesting, and the stenciled design which he has placed above the shelf in the drawing-room is unpleasantly frivolous. In this case also the furniture which apparently is "Grand Rapids Colonial," does not harmonize with the style of the decorations and leaves an uncomfortably jarring impression. Doubtless many of the differences

between the two houses are directly traceable to the fact that in one case the architect had more money at his disposal than in the other; but in the second case the smaller resources might assuredly have been better used. Evidently in designing in this unconventional manner, an architect may easily lose his clue and go pretty well astray, for he has nothing to correct an error but his own taste; and personal taste, even with the most gifted men, is often a doubtful support.

If Mr. Schmidt represents a moderate version of the new movement, Mr. Maher evidently stands for its most revolutionary ex-



HOUSE OF CHAS. THORNE.

Winnetka, Ill.

Richard Schmidt, Architect.

treme. He is assuredly the "new architect" in his most garrulous and candid moment. He has not been afraid to design houses, which would impress any eye, not merely as extraordinary, but perhaps as grotesque; and in so doing he stands alone, for the other architects this group are much more discreet in their innovations. Personally I prefer in this matter the quality of discretion to the quality of courage; but Mr. Maher's courage, if it makes him more dangerous as an example to imitate, also makes him more serviceable as an example to study and consider—particularly when



we have what may be taken to be an official expression of his artistic creed. An admirer of his writes as follows:

"A gratifying example of art from the philosophical standpoint is offered in the work of Mr. Geo. H. Maher, of Chicago. Casting tradition to the winds, this artist presents a system which is at once novel and enduring. . . . He is a champion of rational æstheticism, and holds that the expression of art, to be consistent and therefore idealistic, from its very nature can never be identical in any two localities. Environment and local conditions are the leading indices." Let us see what sort of a building the philosophic architect will conceive.



INTERIOR OF THE HOUSE OF HARRY RUBENS.

Glencoe, Ill.

Geo. Maher, Architect.

The Hollyhock as a "Floral Emblem."

The best opportunity which Mr. Maher has had to give expression to his system of rational æstheticism is contained in the house designed for Mayor Patton, at Evanston, Illinois; and, indeed, a better opportunity has rarely been offered to any architect. I have already remarked how important it is that the "new architect" should have the chance to design everything about a house, inside and out; and this is just the chance which Mr. Patton has



RESIDENCE OF MAYOR PATTON.

Evanston, Ill.

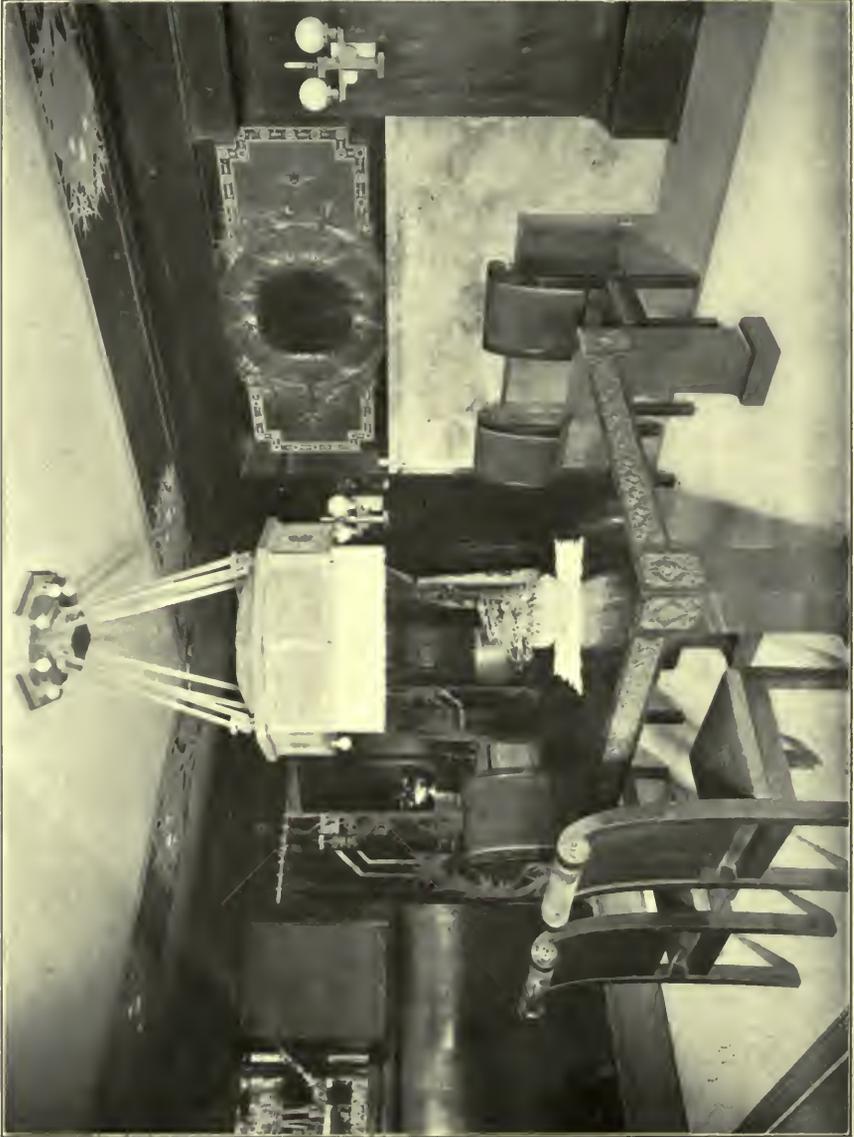
Geo. Maher, Architect.



RESIDENCE OF MAYOR PATTON.—EXTERIOR DETAIL.

Evanston, Ill.

Geo. Maher, Architect.



THE DINING ROOM OF THE PATTON RESIDENCE.

Evanston, Ill.

Geo. Maher, Architect.

placed in Mr. Maher's hands. Consequently, in this instance, unlike so many others, the responsibility for satisfactory results or the reverse belongs exclusively to the architect.

The first impression which the untutored and undisciplined observer obtains from the Patton House is not very exhilarating. It strikes one as a heavy, gloomy, chunk of a building, with depressing reminiscences in its appearance of such primitive architectural achievements as Pelasgian masonry and Egyptian sarcophagi. But mingled with this unfavorable impression is the consciousness that to dismiss it with such words on one's lips would not be fair to Mr. Maher. We are dealing with an architecture of ideas, which is struggling not very successfully at formal expression; and it is only fair that the idea should be considered as well as the incarnation. Even though ugly and clumsy in appearance, such a building may, at least, have the intellectual integrity, the "rational aestheticism" of art from "a philosophical standpoint," and an interest of this kind, a closer examination, most assuredly proves the design to have. It assuredly has the value, for instance, of a very honest piece of stone masonry, with the structural value of the granite almost painfully emphasized by the huge, rough, flat blocks of which it is constructed. The ruggedness of its effect is modified by the smooth and restful stone base and cornice, which provide the only pleasant lines of the building, and do more than anything else to give the design distinction and unity. In spite, however, of the honesty of the stone work, the total sacrifice of scale to massiveness of effect, which the building exhibits, remains unappeasably disagreeable. It reminds one of the figure of a man whose arms and legs are swollen, so that no matter how bold his muscles are, or how vigorous the whole effect of his strong body, that effect is spoiled by the disproportion of certain salient parts.

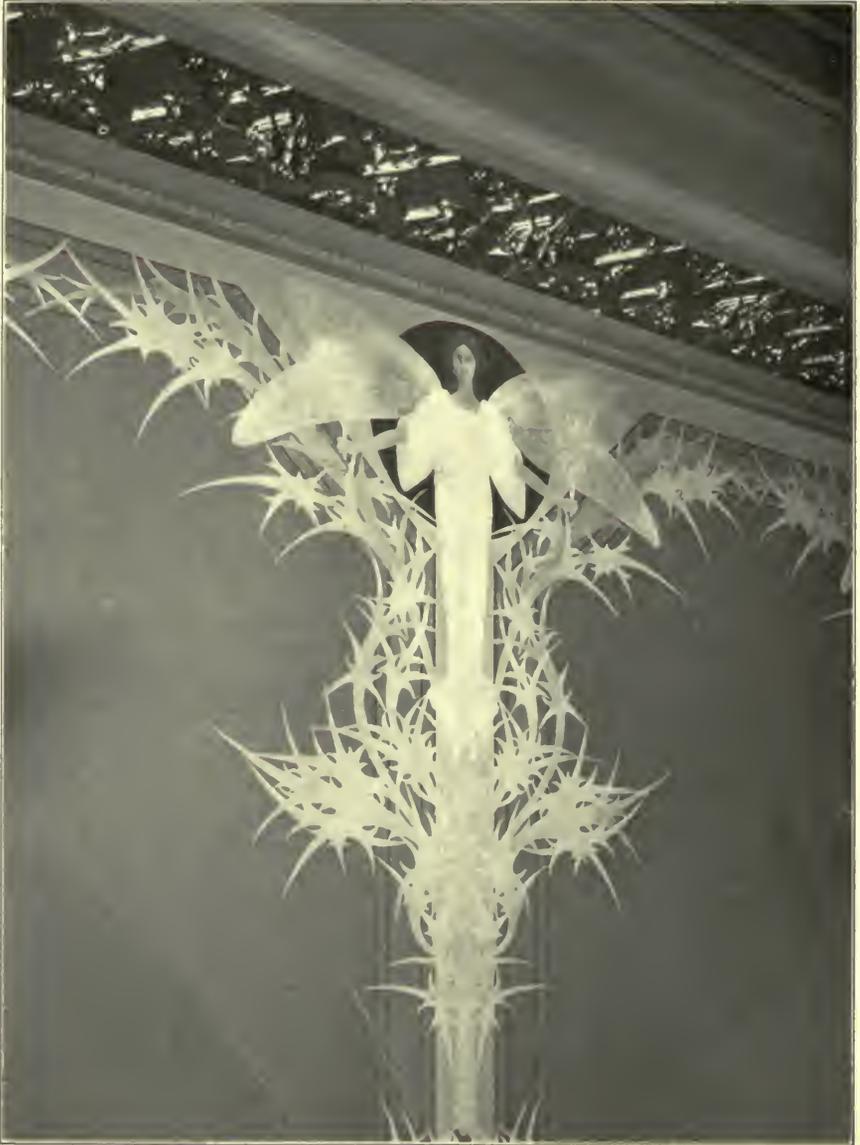
All the ornament on the exterior of the building is concentrated on the balcony above the entrance door, and it is significant that this ornament consists almost exclusively of a superficial carving and mosaic and some beauty of effect and originality of design. It is this fact that the ornament is designed, instead of being merely copied, which gives the ornament its best promise. In this respect Mr. Maher is, of course, frankly the follower of Mr. Louis Sullivan, and he follows him, not merely in seeking for original ornamental forms, but in confining his ornament mostly to surface treatment. Perhaps this is necessarily the case with architects who seek to depart from the classic forms; but if so, it means, most assuredly, a relation between the structure of a building and its decorative detail, which is as objectionable in one way as is in another the more general practice of designing apparently



THE RESIDENCE OF MAYOR PATTON.—WOODWORK IN THE
HALL AND DINING ROOM.



INTERIORS IN THE RESIDENCE OF MAYOR PATTON.



RESIDENCE OF MAYOR PATTON.—WALL DECORATION.

Evanston, Ill.

Geo. Maher; Architect.

structural members for merely decorative purposes. This superficial ornament is not architectural and lends the architectural effect of the building little assistance, so that the architect is thrown back, as has already been observed, chiefly upon masses of his building and the surface value of his material; and any attempt to bring the composition into close relation to the material could result only in substituting for the block-like simplicity of the best of the present architecture of ideas a freakish irregularity of design.

It is on passing to the interior of the house that one begins to realize the full proportions of Mr. Maher's enterprise. The decorative motives suggested on the interior of the building have been carried out on the inside with incorruptible consistency. It is part of Mr. Maher's creed that the ornament "should be identified with some floral element of the locality to which he is confined, recognizing that the leading flower of a neighborhood is nature's symbol of the spirit out-breathed there." The "floral element of the locality" to which Mr. Maher was confined in the case of the Patton residence is the thistle, a motive which is varied ingeniously to cover large areas of wall, to surmount mantelpieces and side-boards, to figure curtains, and to supply decorative borders to wall surfaces tinted in solid colors. Some of these designs are in themselves very beautiful, and one cannot help attributing to the architect, who is capable of handling such a motive with so much variety, so much originality and in a sense with so much propriety, very unusual powers of design. The effect of the ornament is in other cases somewhat explosive, as if a shell had burst, and was blowing the "floral element" all over the wall; but for the most part it is handled with a good deal of restraint. One cannot say as much that is favorable of the hectic angel, into which the stem of the thistle flowers in specified places. The sort of thing is so extremely jarring to the writer that he can scarcely consider it with decorum and patience. To my sense she is merely ornamental impertinence, which would become intolerable as steady company, and which is an example of the worst solecism which the architecture of ideas can commit.

There is less woodwork than in many houses of this class—the hall and dining-rooms being apparently the only apartments in which it prevails. Wherever used, however, the dimensions of the members designed in this material are framed on a scale, which is much more appropriate to a bar-room or a hotel than a private house. Mr. Maher, indeed, has throughout kept his structural members extremely massive, while his ornamental "elements" have been made almost aerial in their lightness. Even the furniture is chunky and heavy—too much so for the taste of most people,



INTERIORS IN THE RESIDENCE OF MAYOR PATTON.

Evanston, Ill.

Geo. Maher, Architect.



THE HOUSE OF HARRY RUBENS.

Glencoe, Ill.

Geo. Maher Architect.



THE HOUSE OF HARRY RUBENS.

Glencoe, Ill.

Geo. Maher, Architect.

but none the less very cleverly designed from the architect's point of view.

It is very difficult for the writer to pass upon the effect of the interior as a whole, because, as I am bound to confess, I am commenting on the house with nothing but the photographs before me; and obviously much if not most of Mr. Maher's effect depends upon his colors. Furthermore, it is probable that the photographs over-emphasize the excessive scale of some of the parts. Nevertheless, one cannot help remarking that the architecture of ideas, when embodied in such a fashion as this, places even a heavier responsibility upon the owner and occupier of the house than upon the architect. Just think of living in such a thorny environment! Think of being constantly entangled in such a system of "rational æstheticism!" Think of trying to establish one's household gods in such a temple of artistic puritanism! One could scarcely buy an ornament or place some flowers on a table, or cover a cushion without the danger of producing a jarring effect—as may be seen from the cushion on the lounge in the study, the one homely detail in the whole austere interior. Evidently the architecture of ideas is intended for clients, who are willing to trust their architects absolutely, and who are prepared to make great sacrifices for the good cause—from which we may conclude that the real hero of this architectural enterprise is even more Mr. Patton than it is Mr. Maher.

Finally we come to the house of Mr. Rubens, at Glencoe, Illinois, designed also by Mr. Maher—in which it must be straightaway admitted that the architecture of ideas goes to seed. Indeed, this house or group of houses makes one wonder what the difference is between "rational" and irrational æstheticism, for to all appearances nothing could be more irrational than every disposition and detail of these structures. One feels impelled to ask the question "why" about everything one sees. Why run up rectangular walls against a peaked roof? Why construct these walls of brick, while the other walls are constructed of concrete? Why put a roof on a post and give it the appearance of being inhabited? Why make all the lines of a building angular except a few of the openings, and then use circular window sashes and balcony decorations. How is the room under the tower reached, and what sort of plan can the interior of such a group of buildings have? Why anything and everything? Doubtless, some reasons may be alleged for these perverse dispositions, for this is an architecture of ideas, and Mr. Maher has evidently put plenty of them in this design; but in this instance, at least, the appearance of the building is devoid of architectural reason or propriety. The architect has broken away from the safe method of designing a good solid block of a house with

plain, honest walls, and has attempted to construct some kind of a decorative scheme. The result is simply grotesque, and leads one to hope that the "new architect" will henceforth keep his decoration superficial. This sort of thing is, of course, the great danger of architecture "from the philosophical standpoint," which substitutes ideas for traditions, and originality at any price for the authenticity of time-honored forms. The revolution which it endorses comes perilously near to anarchy. It cannot establish any authority in place of the one which it is trying to overthrow, and some kind of authority, some recognized form which can be taken for granted, is as necessary to good art as it is to an established society. The moral is, not necessarily that architects should not try to depart somewhat from the European tradition, but that the departure should be made gradually, and with the purpose not to be unscrupulously original and American, but to design beautiful and appropriate buildings.

Arthur C. David.

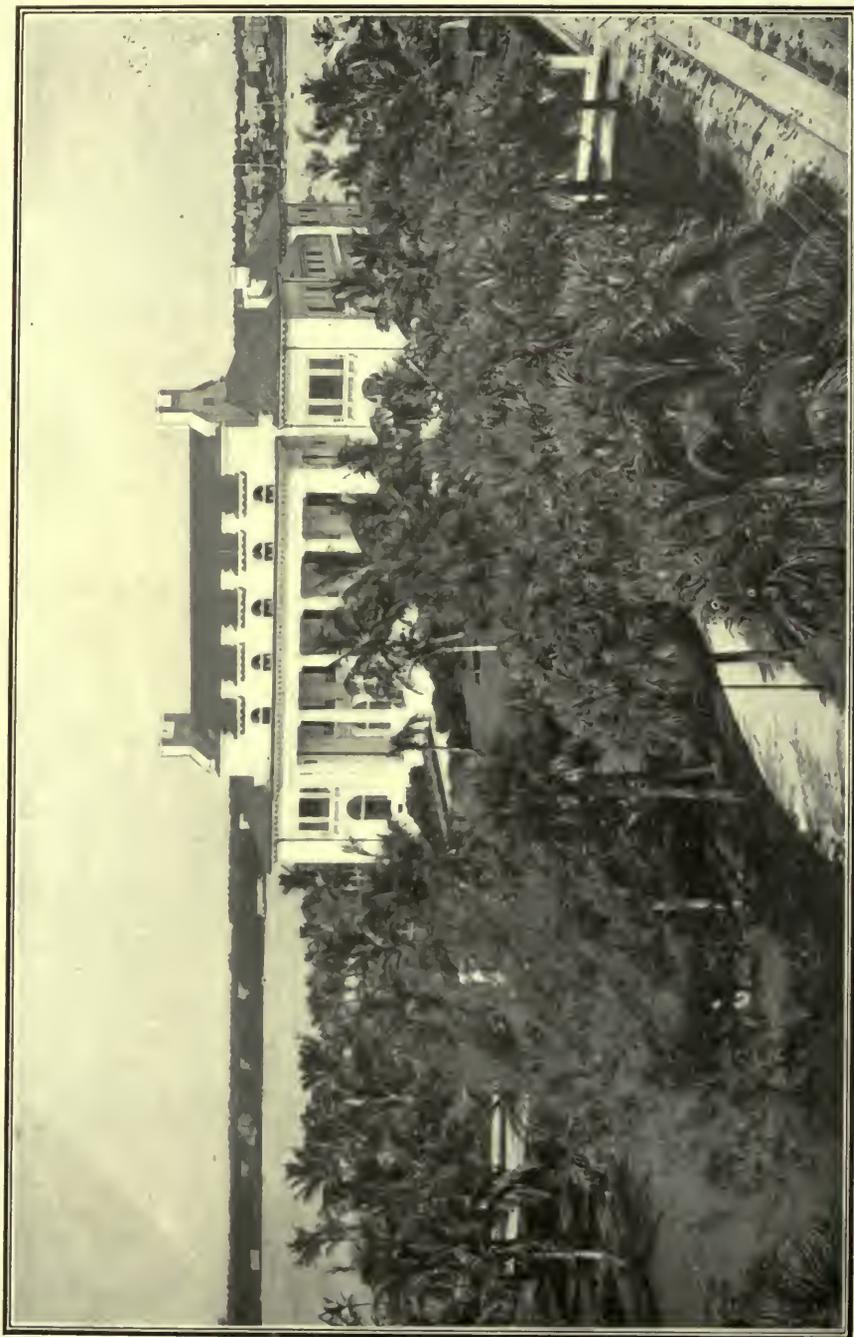


WHITE HALL

THE RESIDENCE OF
H. M. FLAGLER
PALM BEACH, FLORIDA



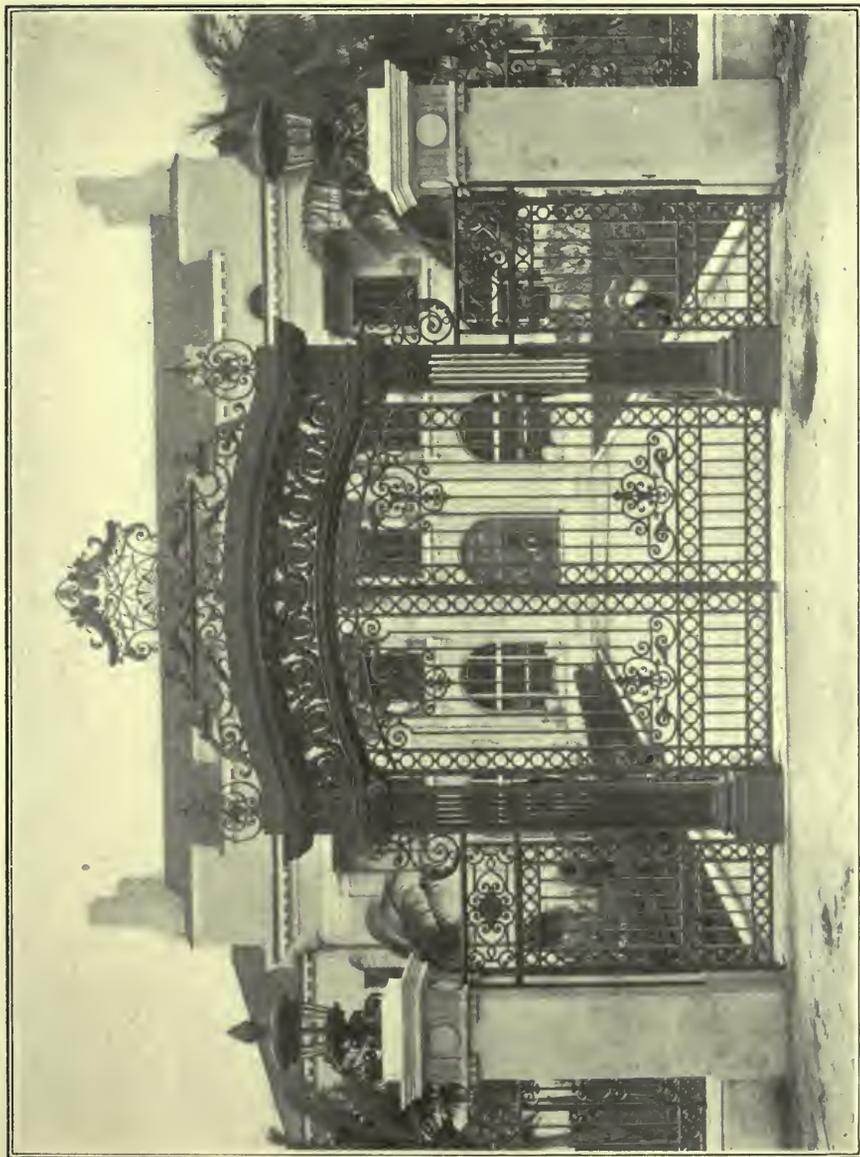
CARRÈRE & HASTINGS
ARCHITECTS



THE EXTERIOR OF "WHITEHALL."

Residence of H. M. Flagler, Palm Beach, Fla.

Carrère & Hastings, Architects.



ENTRANCE GATES OF "WHITEHALL."

Residence of H. M. Flagler, Palm Beach, Fla.

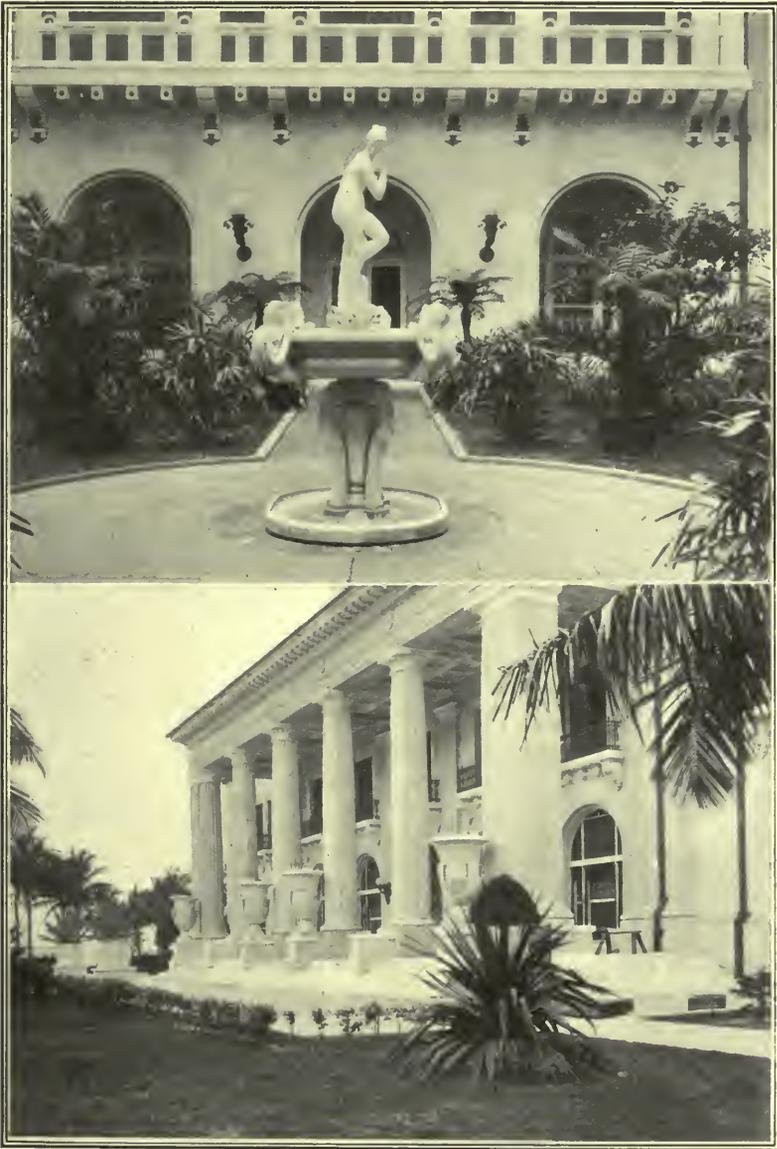
Carrère & Hastings, Architects.



ENTRANCE DOOR OF "WHITEHALL."

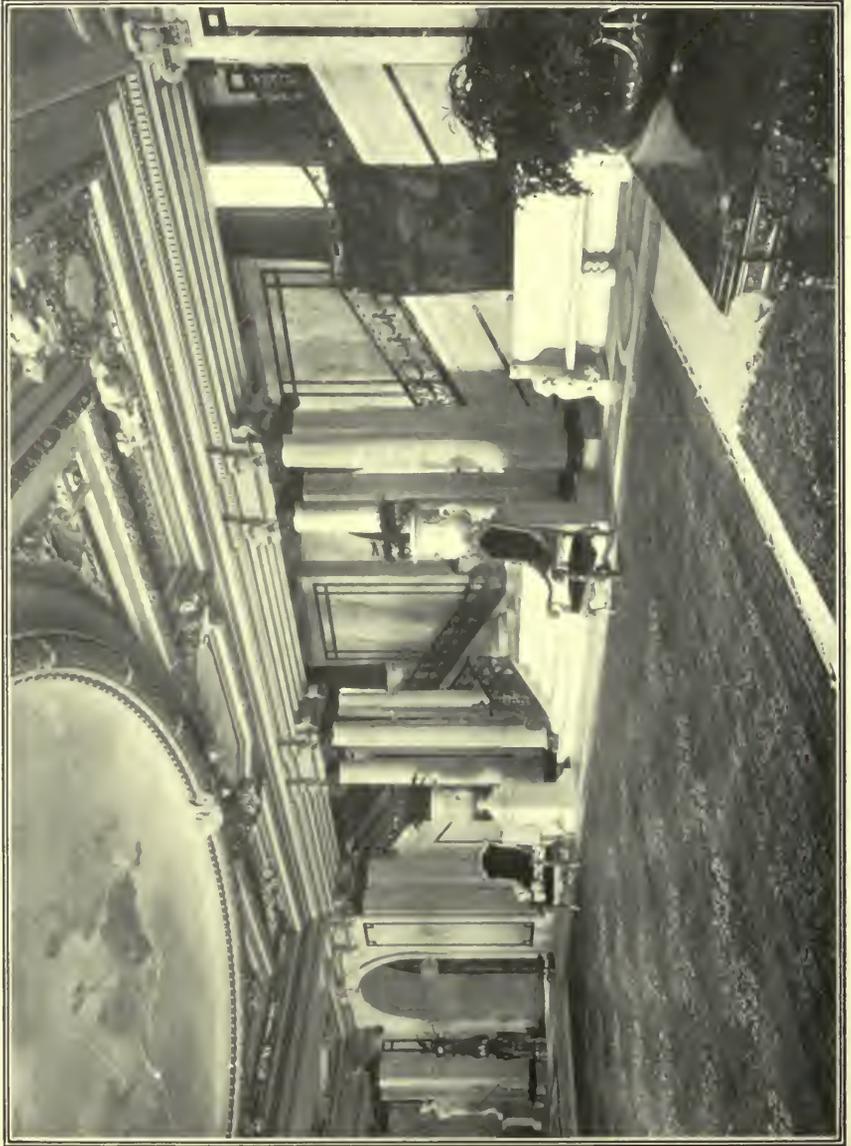
Residence of H. M. Flagler, Palm Beach, Fla.

Carrère & Hastings, Architects.



THE COLONNADE OF "WHITEHALL" AND ITS COURT.

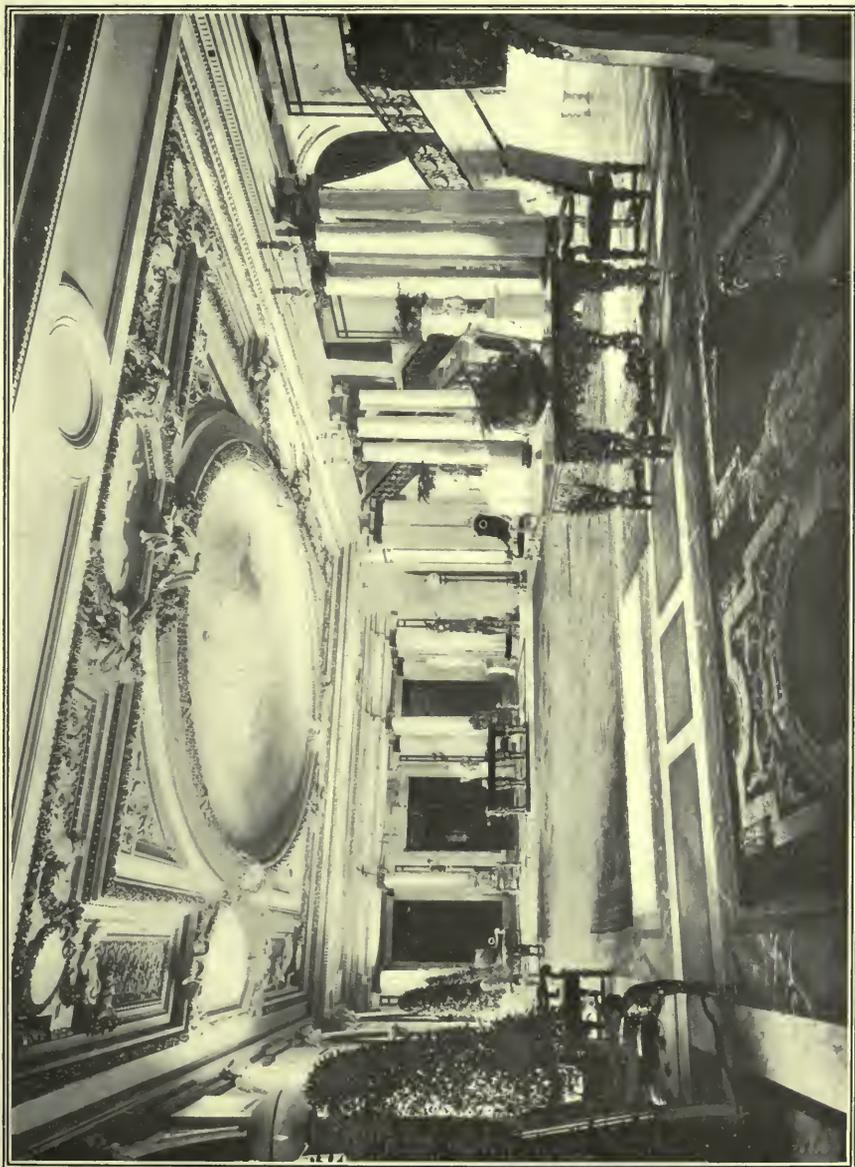
Residence of H. M. Flagler, Palm Beach, Fla. Carrère & Hastings, Architects.



ENTRANCE HALL OF "WHITEHALL."

Residence of H. M. Flagler, Palm Beach, Fla.

Carrère & Hastings, Architects.



ENTRANCE HALL OF "WHITEHALL."

Residence of H. M. Flagler, Palm Beach, Fla.

Carrère & Hastings, Architects.



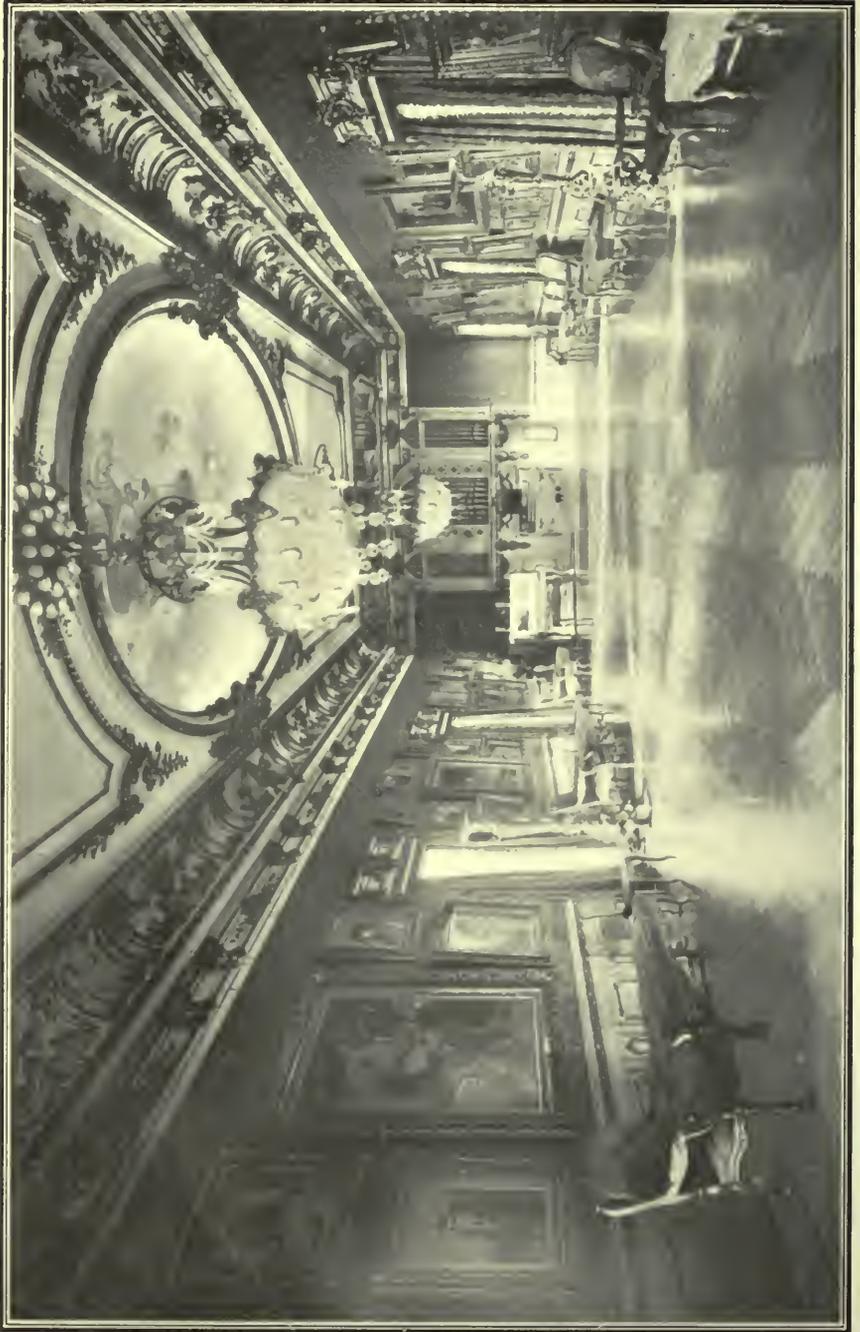
BALL ROOM OF "WHITEHALL."



DINING-ROOM OF "WHITEHALL."

Residence of H. M. Flagler, Palm Beach, Fla.

Carrère & Hastings, Architects.



Residence of H. M. Flagler, Palm Beach, Fla.

MUSIC ROOM OF "WHITEHALL."

Carrère & Hastings, Architects.



THE LIBRARY OF "WHITEHALL."

Residence of H. M. Flagler, Palm Beach, Fla.

Carrère & Hastings, Architects.



THE SALON OF "WHITEHALL."

Residence of H. M. Flagler, Palm Beach, Fla.

Carrère & Hastings, Architects.