

ARCHITECTURE AT THE WORLD'S COLUMBIAN EXPOSITION.



THE World's Columbian Exposition was organized April 9, 1890, and on the 25th of the same month Congress passed the bill giving Chicago the honor of this great enterprise. On July 1 following, Jackson Park and the lake front of Chicago were selected as the double site of the Exposition. On the 20th of August F. L. Olmsted & Co. were elected consulting landscape-architects. Between then and the following December the organization of the Department of Construction was perfected by the appointment of D. H. Burnham as chief and of J. W. Root as consulting architect, Mr. Burnham having acted as professional adviser from the beginning of the enterprise. Undoubtedly to his sagacity, energy, and breadth of view, and to his wide experience in important architectural work, the Chicago Commission is largely indebted for the great effective working capacity which it has developed; and under his organizing power the complicated machinery of administration in respect to grounds and buildings was fairly established.

For reasons which we need not state, the double site was finally abandoned; and it then became the duty of the Committee on Grounds and Buildings, under the advice of their chosen experts, to review this all-important question of locality, and to discover, if possible, within the limits of Chicago, or in its near vicinity, an area of land capable of containing, without crowding, a series of buildings which, in the aggregate, should be at least 50 per cent. larger than those of the last Paris Exposition; should be conveniently and economically accessible for visitors and for material; not divided by railroads, streets, creeks, or cemeteries; and not so encumbered with buildings or other improvements that it would be difficult to obtain possession of it and to prepare it for the reception of the structures of the Exposition.

Of the few places answering these requirements all were flat, low, and, from a horticultural point of view, unsatisfactory. The only large, agreeable, or dignified element of scenery within many miles of the town was the lake, and there was discovered only one place on the lake presenting the desired conditions. This was a tract of five hundred acres between six

and seven miles south of the central part of the city, with a length of a mile and a half on the lake side and three quarters of a mile in width. Topographically the place consisted of a series of low sand-dunes which had been thrown up successively by the lake in lines nearly parallel with the shore, the most considerable of them having an average height of not more than six feet above the high stages of the water. Between these dunes there were broad, low, flat, swampy swales, subject to occasional floods, with water generally standing one or two feet below the surface. On some of these dunes groves of small, stunted oaks were growing, and the intermediate flats were more or less overgrown by sedge and water-grasses.

This tract belonged to the South Park Commission, having been obtained twenty years before with a view to its future improvement as a public park. Practically it was in a state of nature, as we have described, except as to a limited area at its northern end, which had been graded, planted, diversified by ponds, and made accessible by drives and walks. The disadvantages of this site were sufficiently obvious; but it was considered that they, together with the inconvenience arising from its distance from the thickly populated parts of the city, would be offset by these advantages: first, that it was unencumbered with buildings; secondly, that it could be made readily accessible, either by boats on the lake or by public land conveyances of various sorts, without numerous railroad or river crossings; and thirdly, that a number of railroads passed within a few hundred feet of the landward boundaries of the tract, extending in one direction nearly to the heart of the city, and, in the other, connecting, or easily to be connected, with lines to all parts of the continent. Indeed, to the experienced eye and instructed imagination of the landscape-architects the very qualities in this desert-like waste which presented the most formidable obstacles to the realization of anything approaching the horticultural splendors, or finished park-like aspects, of previous international exhibitions suggested the possibility of procuring out of these most unpromising elements effects quite unusual, yet of a wholly appropriate character. The broad expanse of the great inland lake itself, with its ever-changing surface and its oceanic horizon, its waters prospectively alive

with sails, and animated by the incessant movement of steamers and craft of every sort, "ornate, bedecked, and gay," beneath the unlimited summer sky, would give to the *mise-en-scène* a peculiar character, under the influence of which the foreign visitor might forget to ask for that metropolitan opulence of shaded parkland which here could not be obtained. Steam-dredges and the railroad grading-processes of the West could readily at small expense enlarge the areas of higher land, and create level plateaus and stately terraces as sites for the great buildings of the Exposition, with material excavated from the wet and sedgy intervals, converting the latter into a system of lagoons connected with the lake by walled canals and basins. Thus might be created within the grounds an interior water-system, four miles in length, which would be navigable by omnibus-boats, conveying visitors from every quarter of the Park to landings before each of the principal buildings.

Under such circumstances the landscape-architects felt authorized to recommend to the committee the use of the grounds known as Jackson Park, which, after much negotiation with the South Park Commissioners, and much controversy with those advocating other sites, were finally obtained under the agreement that, after the Exposition and after the removal of the buildings, they should be left in a condition well adapted to be formed into a permanent public park for the city. A succession of ingenious plans was then prepared and reported to the committee by these gentlemen, in intimate connection with Messrs. Burnham and Root, illustrating the gradual development of a general scheme for the occupation of the site, Mr. Root making sketch-designs of all the buildings as the work progressed. The leading motives of composition were to obtain such a disposition of the greater buildings as should make the best and most effective use of the natural conditions of the ground, when modified and corrected by the art of the landscape-architect; should give to these buildings a proper and articulate relation, one to the other, and also to the water-system of the Park; should group them in a formal and artificial manner at those points where their great size and necessary mutual proximity invited a predominance of architectural magnificence, or picturesquely and accidentally, where the conditions of the landscape were such as to forbid a close observance of axial lines and vistas. But all these dispositions were made subordinate to the situation furnished by the wide expanse and horizon of the lake, so that this important element of composition should have its due value from all the principal points of observation.

Another fundamental condition affecting the general dispositions of the plan was the method of reaching the Park by the seven railroads, so that the difficult problem of debarking and embarking more than 60,000 people every hour by these means of transit should be solved with the least confusion, and at a point where the visitor should be introduced to the grounds through a monumental vestibule, from which a scene should open, stately, splendid, and surprising, alike in its architectural and in its natural elements. It was necessary, also, to consider every means of approach by street-cars and by water,—the latter suggesting the provision of moles and protected harbors on the lake side,—and also to provide for an additional intramural communication by some form of elevated railway.

None of the difficulties to be surmounted, however, were greater than those presented by the necessity of converting into a garden a tract of land which was almost a desert waste; so that the grounds in which the great monumental buildings of the Exposition were to be placed should be set forth with something more than formal architectural terraces, balustrades, bridges, statues, fountains, and canals, and should enjoy at least some of the advantages to be obtained from ordered or picturesque vegetation. Unlike the sites of former expositions, located in the heart of ancient civilizations, the prairies of Illinois afford no imperial treasuries of trees and shrubbery, from which the modern Amphion could draw the means of establishing such vast, full-grown masses of foliage as were needed adequately to decorate these impoverished acres. When the thick ice which is formed on Lake Michigan during the winter is broken up, it is driven by prevailing north winds toward Chicago, and there lingers to prolong the tardy spring. A little later, while the first leaves are unfolding, a night gale from Canada sweeps over these five hundred miles of ice-cold water, and all forms of vegetable growth along the southern margin of the lake are discouraged and delayed. Moreover, the fluctuations which are characteristic of the waters of the lake, not only from day to day, but in its normal and average elevations during the summer, must create bare and dreary shores where the intramural water-system of the Park expands from the formal, stone-bordered canals into the broad and picturesque lagoon.

To obviate these difficulties it was determined—first, so to treat the existing groves of trees that their dwarfish character would be masked by the introduction of hardy, indigenous shrubs around the margin of each group, thus creating effects of massed foliage, as seen from a distance; secondly, to edge the water with a

nearly continuous strip of reedy, aquatic plants, which would bear occasional submergence; and thirdly, to provide these with backgrounds of low foliage, chiefly shrub willows and brightly flowering local plants. Occasional stretches of well-kept lawn would also, where necessary, serve to refine the rustic aspect of the grounds.

At the outset the Committee on Grounds and Buildings, together with D. H. Burnham, Chief of Construction, were confronted by a delicate and difficult problem. How were the designs for these great buildings to be obtained? Should one architect be appointed for the whole, or, in view of the more practical alternative of appointing one architect for each building, should these be selected by general competition, by limited competition, or by direct selection? After a careful review of the subject, it was concluded by the committee, in accordance with the rec-

¹ Innumerable experiments with architectural competitions have made it clear enough that, of all the methods of selecting the architect, this is the most wasteful, unscientific, tedious, costly, demoralizing, and uncertain. It is almost impossible to devise a competitive scheme which will, as its result, secure to the building the best service, or to the competitors an opportunity to express their most useful qualities as architects. It seems equally evident that the establishment of confidential professional relations in the beginning with an architect chosen because of his proved ability and experience, and not because of the accident of his success in a game of chance, is economical of time and money, and consistent with honest business principles. Therefore, the action of the Committee on Grounds and Buildings in this case is so memorable in the history of architectural practice, that we deem it important to print here the report upon which this action was based. This report was prepared by Mr. Burnham, and, at his request, was signed by all the professional advisers of the committee.

Dec. 6, 1890.

THE HONORABLE THE COMMITTEE ON GROUNDS AND BUILDINGS, WORLD'S COLUMBIAN EXPOSITION.

Gentlemen: Preliminary work in locating buildings, in determining their general areas, and in other elementary directions necessary to proper progress in the design and erection of the structures of the Columbian Exposition, has now reached a point where it becomes necessary to determine the method by which designs for these buildings shall be obtained.

We recognize that your action in the matter will be of great importance, not only in its direct effect upon the artistic and commercial success of the Exposition, but scarcely less upon the aspect presented by America to the world, and also as a precedent for future procedure in the country by the Government, by corporations, and individuals. In our advisory capacity we wish to recommend such action to you as will be productive of the best results, and will at the same time be in accord with the expressed sentiments of the architectural societies of America. Whatever suggestions are here made relate to the main buildings located at Jackson Park.

That these buildings should in their designs, relationships, and arrangement be of the highest possible architectural merit is of importance scarcely less great than the variety, richness, and comprehensiveness of the various displays within them. Such success is not so much dependent upon the expenditure of money as upon the expenditure of thought, knowledge, and en-

commendations contained in a remarkable memorial presented to them by their professional advisers, to give to the architectural part of the Exposition, so far as possible, an appropriate national character, by making a direct selection of representative architects; thus not only avoiding the serious delays and embarrassments which would inevitably accompany any form of competition, but at the same time enlisting the services of a body of professional experts to consider the architectural questions from the beginning and as a whole, and to lay out a scheme of efficient and harmonious coöperation.¹

On January 12, 1891, the invited architects, Messrs. R. M. Hunt, George B. Post, and McKim, Mead, and White of New York, Peabody and Stearns of Boston, Van Brunt and Howe of Kansas City, together with Messrs. Adler and Sullivan, S. S. Beman, Henry Ives

thusiasm by men known to be in every way endowed with these qualities, and the results achieved by them will be the measure by which America, and especially Chicago, must expect to be judged by the world. Several methods of procedure suggest themselves:

First. The selection of one man to whom the designing of the entire work should be intrusted.

Second. Competition made free to the whole architectural profession.

Third. Competition among a selected few.

Fourth. Direct selection.

The first method would possess some advantage in the coherent and logical result which would be attained. But the objections are that time for the preparation of designs is so short that no one man could hope to do the subject justice, even were he broad enough to avoid, in work of such varied and colossal character, monotonous repetition of ideas. And, again, such a method would evoke criticism, just or unjust, and would certainly debar the enterprise from the friendly coöperation of a diversity of talent, which can be secured only by bringing together the best architectural minds of our country. The second method named has been employed in France and other European countries with success, and would probably result in the production of a certain number of plans possessing more or less merit and novelty. But in such a competition much time, even now most valuable, would be wasted, and the result would be a mass of irrelevant and almost irreconcilable material, which would demand great and extended labor to bring into coherence. It is greatly to be feared that from such a heterogeneous competition the best men of the profession would refrain, not only because the uncertainties involved in it are too great and their time too valuable, but because the societies to which they almost universally belong have so strongly pronounced on its futility. A limited and fair competition would present fewer embarrassments, but even in this case the question of time is presented, and it is most unlikely that any result derived through this means, coming as it would from necessarily partial acquaintance with the subject, and hasty, ill-considered presentation of it, could be satisfactory, and the selection of an individual would be open to the same objections made above as to a single designer. Far better than any of the methods seems to be the last. This is to select a certain number of architects, choosing each man for such work as would be most nearly parallel with his best achievements; these architects to meet in conference, and become masters of all the elements of the problems to be solved, and agree upon some general scheme of procedure. The preliminary studies re-

Cobb, W. L. B. Jenney, and Burling and Whitehouse of Chicago, were called together to consult with the chief of construction, the consulting architect, and with Frederick Law Olmsted and his partner, Henry Sargent Codman of Boston, regarding the architectural conditions involved in the scheme of the Exposition. The latest plans of the consulting architect and landscape-architects, which, as a whole, had been accepted by the National Commission and by the Chicago directors, were laid before this board of architects for consideration. After an exhaustive study of the whole problem, during which many revisions and modifications more or less fundamental were suggested and considered, it was finally resolved to recommend to the Committee on Grounds and Buildings the acceptance of the general scheme of location of buildings and waterways, as prepared by Messrs. Root, Olmsted, and Codman, with but little modification. In fact the problem had been developed by these gentlemen with so much skill and with such exact forethought for all the conditions embraced in this vast complication of interests, and the several stages of development had been so intelligently discussed by the committee and by the chief of construction, that it was evident to the board of professional experts that they could devise no better starting-point for their specific part of the work.

The sudden death of Mr. Root, after a very brief illness, during these preliminary sessions of the Architectural Board, deprived this great enterprise of services which would have been of peculiar value in perfecting the architectural work, and which already had been an essential factor in laying out the general scheme of the buildings, and in facilitating an effective, fraternal coördination of professional labor such as rarely, if ever, has occurred in the history of architecture. The strong initiative force furnished by the generous enthusiasm and bright genius of Root remained, however, with the Architectural Board, and has been an element constantly working for unity and strength in its councils.

In all projects relating to the decoration of the grounds by sculpture and monumental fountains, the large experience and eminent authority of Mr. Augustus St. Gaudens have been forces working silently for higher art, greater nobility of expression, and more effective results. Unfortunately the work of his own hand will not appear in these decorations; but his advice in the selection of sculptors for

resulting from this to be compared and freely discussed in a subsequent conference, and, with the assistance of such suggestions as your advisers might make, to be brought into a harmonious whole.

The honor conferred upon those selected would create in their minds a disposition to place the artistic quality of their work in advance of the mere question of emolument; while the emulation begotten in a rivalry so

them has been of permanent value, and has been followed with generous intelligence and to the manifest advantage of the Exposition.

The basis of operations is explained by the plan of the grounds herewith presented, which exhibits in outline the result, not of the latest studies, but of that stage of the work reached at the time when it was necessary to prepare the map for the purpose of illustrating this paper. In a subsequent paper we hope to present a more comprehensive plan, indicating the nature of the modification to which the whole scheme has been subject from month to month. It will be observed that there are three grand divisions. Of these the northernmost, which had already been laid out as a park by the city, is to be occupied centrally by the Department of Fine Arts, the State pavilions being grouped north and west of it; while the foreign government buildings will be placed east of it, toward the lake, and, if occasion requires, in the Plaisance, which is a long reserved tract 600 feet wide between 59th and 60th streets, forming a boulevard approach to Jackson Park from the west. In this tract also areas have been granted to foreign enterprise for the establishment of model villages and groups of pavilions illustrating the characteristics of domestic and industrial life in remote countries.

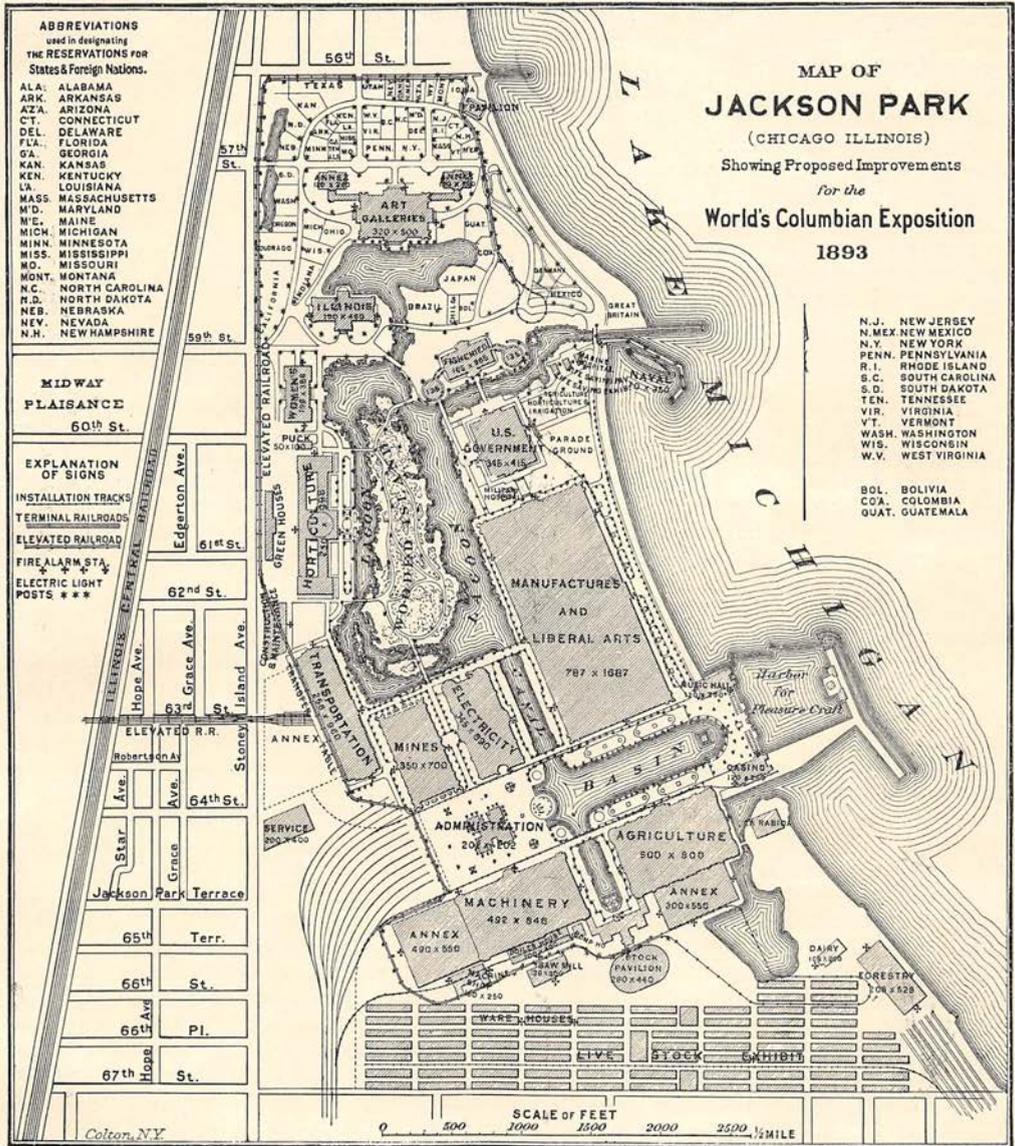
The middle division is formed by the lagoon, the most characteristic landscape feature of the grounds. This is an irregular, artificial water-way surrounding several islands, the largest among them being a wooded tract about 1700 feet long and from 200 to 500 feet wide, the natural conditions of which will be enhanced by aquatic shrubbery and flower-beds, with kiosks and rustic pavilions approached by bridges. A part of the northern end of this island has been applied for by, and will probably be granted to, the Japanese commissioners, who propose to lay out a considerable area in a characteristic garden, according to their ancient traditions in this art, and to embellish it with exact reproductions of several of their most venerable temples. The outer margins of the lagoon will be occupied on the west by the Transportation Building, by the Horticultural Building, with its gardens, and by the Woman's Building; on the east, toward the lake, will stand the Palace of Manufactures and Liberal Arts, and the United States Pavilion. The lagoon branches capriciously northward and eastward, giving water-fronts to the Pavilion of Fine Arts, to the Illinois State Building, and friendly could not fail to be productive of a result which would stand before the world as the best fruit of American civilization.

D. H. BURNHAM, Chief of Construction.

JOHN W. ROOT, Consulting Architect.

F. L. OLMSTED & Co., Consulting Landscape-Arch'ts.

A. GOTTLIEB, Consulting Engineer.



ing, and to the Fisheries and United States Government buildings. Southward this irregular quadrangle is closed by the north façades of the Mines and Electricity buildings.

The lagoon connects southward with a system of formal stone-bordered canals and basins, where will be symmetrically placed the great plaza, or *cour d'honneur*, of the Exposition, a regular quadrangle 700 by 2000 feet, about equal in size to that of the last Paris Exposition. Water-communication will be provided for at the east end of this court, and the system of railroads will debouch at the west end in a railroad terminus, masked by the Administration Building, which will be treated so

as to serve as the monumental porch of the Exposition. From the railroad terminus, through the arches of this porch and beneath its lofty dome, the visitors will enter the court, which is bounded on the right hand (southward) by the Departments of Machinery and Agriculture, on the left (northward) by those devoted to Mines, Electricity, and to Manufactures and the Liberal Arts, and in front (eastward) by Lake Michigan. The center of this court is occupied by a great artificial basin which forms a part of the water-system of the Park. Connecting with this basin, a broad canal, bordered by double terraces and crossed by arched bridges, will run southward into a minor court between the pal-

aces of Agriculture and Machinery. This minor court will be closed toward the south by an architectural screen in the form of an arcade on the first story and a colonnade on the second, with a triumphal arch in the center, through which the visitor will enter the Department of Live Stock, which constitutes the southernmost feature of the Exposition. Opposite this canal, on the same axis, is another of similar character, running northward between the Departments of Electricity and the Liberal Arts, and connecting, as we have already seen, with the waters of the lagoon.

This brief description, aided by the topographical views which we present, may serve to give in outline the general architectural scheme of the Exposition-grounds. The relative positions of the buildings being understood, we may now devote ourselves to a consideration of the architectural motives which underlie the designs of the buildings, and confer upon them character and significance as works of art. In other words, we do not attempt a description of these buildings, still less a criticism,—which would be premature,—but an analysis of the principles according to which they have been severally developed. We purpose, in fact, to put ourselves in the position of the architect when first confronted by his problem, and, as far as possible, to outline some of the processes of investigation and study through which his work gradually grew into its final form. Of course it would be impracticable to indicate the numerous false starts, the erasures, the studies tried and abandoned, and all the long tentative processes which must in every case be labored through before the scheme of a building takes its ultimate shape. The main object of these papers will have been attained if they may serve to show how a work of architecture, like any other work of art, is the result of logical processes studiously followed, and not a mere matter of taste, a following of fashion, or an accident of invention more or less fortuitous.

THE highest claim which can be made for modern architecture must rest on those characteristics of ornamented or ordered structure which have grown out of the unprecedented exigencies of modern buildings. Wherever these exigencies have been met in such a spirit that a corresponding development of style has been produced, justly differentiated from all other historic or contemporary styles not by caprice, but by growth, there exists a living and progressive art, which, like all other living arts in history, will stand as the exponent of the civilization under which it obtained its definite form. Probably the largest, the most deliberate, and the most conspicuous expression of the present

condition of architecture in this country will be looked for by foreign critics on the grounds of the World's Columbian Exposition; but they will find it rather in the latest commercial, educational, and domestic structures in and near our larger cities. By these our architecture should be judged. It is true that the industrial palaces of our Exposition will be larger in area than any which have preceded them, and will surpass in this respect even the imperial villas and baths of the ancient Romans. But they will be an unsubstantial pageant of which the concrete elements will be a series of vast covered inclosures, adjusted on architectural plans to the most lucid classification and the most effective arrangement of the materials of the Exposition, and faced with a decorative mask of plaster composition on frames of timber and iron, as the Romans of the Empire clothed their rough structures of cement and brick with magnificent architectural veneers of marbles, bronze, and sculpture. Mr. Burnham, the Chief of Construction, rubs his wonderful lamp of Aladdin in his office at Chicago, and the sudden result is an exhalation, a vast phantasm of architecture, glittering with domes, towers, and banners, like the vision of Norumbega, which presently will fade and leave no trace behind. But these shapes do not make themselves. There is, it is true, a creative energy, followed by an apparition of palaces and pavilions; but between the energy and the apparition are the consultations, the experiments, the studies of a very palpable board of representative architects of the nation, who have learned that this great architectural improvisation requires as much of their zeal, labor, knowledge, and professional experience as if they were planning to build with monumental stone and marble. However temporary the buildings, the formative motives behind them will be on trial before the world; for these motives, disembarassed as they have been, to a great extent, of the usual controlling considerations of structure and cost, and concentrated upon the evolution of purely decorative forms, have made demands upon our resources of art such, perhaps, as have been required by no previous emergency in architecture.

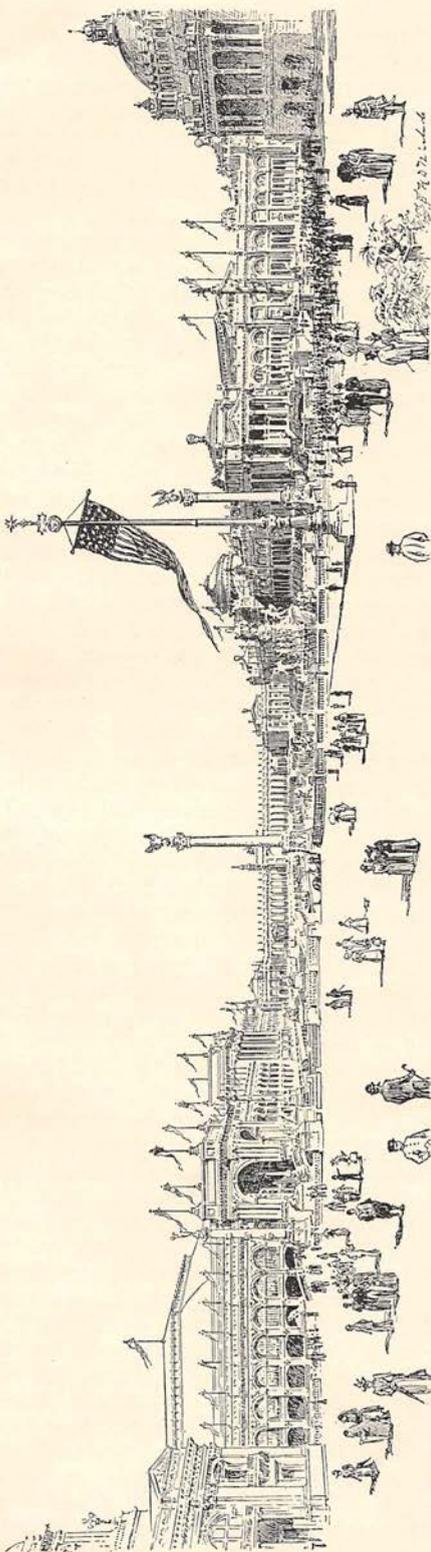
The liberality exhibited by the management and by the architects of Chicago toward their brethren summoned from other cities has been more than generous. To the latter were assigned all the buildings around the great court, a compliment which involved the most serious responsibilities, and of which the only adequate recognition could be an especial effort to justify it. In view of the fact that these buildings had a mutual dependence much more marked than any others on the grounds, and that the formal or architectural character of the court abso-

lutely required a perfect harmony of feeling among the five structures which inclose it, it became immediately evident to these gentlemen that they must adopt, not only a uniform and ceremonious style,—a style evolved from, and expressive of, the highest civilizations in history,—in which each one could express himself with fluency, but also a common module of dimension. These considerations seemed to forbid the use of mediæval or any other form of romantic, archæological, or picturesque art. The style should be distinctly secular and pompous, restrained from license by historical authority, and organized by academical discipline. It was not difficult, therefore, to agree upon the use of Roman classic forms, correctly and loyally interpreted, but permitting variations suggested not only by the Italians, but by the other masters of the Renaissance. It was considered that a series of pure classic models, in each case contrasting in character according to the personal equation of the architect, and according to the practical conditions to be accommodated in each, but uniform in respect to scale and language of form, all set forth with the utmost amount of luxury and opulence of decoration permitted by the best usage, and on a theater of almost unprecedented magnitude, would present to the profession here an object-lesson so impressive of the practical value of architectural scholarship and of strict subordination to the formulas of the schools, that it would serve as a timely corrective to the national tendency to experiments in design. It is not desired or expected that this display, however successful it may prove to be in execution, should make a new revival or a new school in the architecture of our country, or interfere with any healthy advance on classic or romantic lines which may be evolving here. There are many uneducated and untrained men practising as architects, and still maintaining, especially in the remote regions of the country, an impure and unhealthy vernacular, incapable of progress; men who have never seen a pure classic monument executed on a great scale, and who are ignorant of the emotions which it must excite in any breast accessible to the influences of art. To such it is hoped that these great models, inspired as they have been by a profound respect for the masters of classic art, will prove such a revelation that they will learn at last that true architecture cannot be based on undisciplined invention, illiterate originality, or, indeed, upon any audacity of ignorance.

It was further agreed by the architects of the court that the module of proportion for the composition of their façades should be a bay not exceeding twenty-five feet in width and sixty feet in height to the top of the main cornice, which is about the size of a five-storied

façade on an ordinary city lot. In all other respects each of these gentlemen, influenced of course by mutual criticism, and subject to the approval of the executive of the Exposition through its Committee on Grounds and Buildings, has been left perfectly free to develop, within the area prescribed in each case, the design of the building assigned to him, according to his own convictions as to general outlines and details of architectural expression. Under these circumstances, therefore, it may fairly be anticipated that the great palaces of the court will illustrate the vital principle of unity in variety on a scale never before attempted in modern times.

It must be borne in mind, however, that all this is not architecture in its highest sense, but rather a scenic display of architecture, composed (to use a theatrical term) of "practicable" models, executed on a colossal stage, and with a degree of apparent pomp and splendor which, if set forth in marbles and bronze, might recall the era of Augustus or Nero. We have not, it is true, the inexhaustible resources of the museums and schools and gardens of Paris to people this great industrial court with statues and vases, set against rich backgrounds of exotic foliage; but the opportunity will possibly enable us to prove that whatever characteristics of audacious invention or adaptation are exhibited in the best buildings of modern America, it is not because our architects are untrained in the organization of structural forms, ignorant of historical precedent, or wanting in respect for the works of the masters, nor yet because they do not know how on occasion to express themselves in the language of the most venerable traditions of art. But these great Doric, Ionic, Corinthian, and Composite orders, with their arches, porticos, pavilions, attics, domes, and campaniles, do not express actual structure in any sense, as was the case with Paxton's apotheosis of the greenhouse in the great glass and iron building of the first London Exposition; they rather serve as architectural screens, of which only the main divisions and articulations have been suggested by the temporary framework of iron and timber which they mask, and which, in itself, is incapable of expression in any terms of monumental dignity. If each architect of the board had been permitted or encouraged to make his especial screen an unrestricted exhibition of his archæological knowledge or ingenuity in design, we should have had a curious, and in some respects perhaps an interesting and instructive, polyglot or confusion of tongues, such as in the early scriptural times on the plains of Shinar was so detrimental to architectural success. The show might have contained some elements of the great "American Style"; but as a whole it would have been



FROM OFFICIAL DRAWING, BY H. G. RIPLEY.

GENERAL VIEW OF THE COURT, LOOKING TOWARD THE LAKE.

DRAWN BY H. D. NICHOLS.

a hazardous experiment, and it certainly would have perplexed the critics. In respect to the architecture of the great court, therefore, it seemed at least safer to proceed according to established formulas, and to let the special use and object of each building, and the personal equation of the architect employed on it, do what they properly could, within these limits, to secure variety and movement.

It is a fashion of the times, following Mr. Ruskin, to stigmatize the marvelous multiplication of mechanical appliances to life in the nineteenth century as degrading to its higher civilization and destructive of its art. Mr. Frederic Harrison agrees with these philosophers of discontent so far as to say that if machinery were really the last word of the century we should all be rushing violently down a steep place, like the herd of swine. But he says:

To decry steam and electricity, inventions and products, is hardly more foolish than to deny the price which civilization itself has to pay for the use of them. There are forces at work now, forces more unwearied than steam, and brighter than the electric arc, to rehumanize the dehumanized members of society; to assert the old, immutable truths; forces yearning for rest, grace, and harmony; rallying all that is organic in men's social nature, and proclaiming the value of spiritual life over material life.

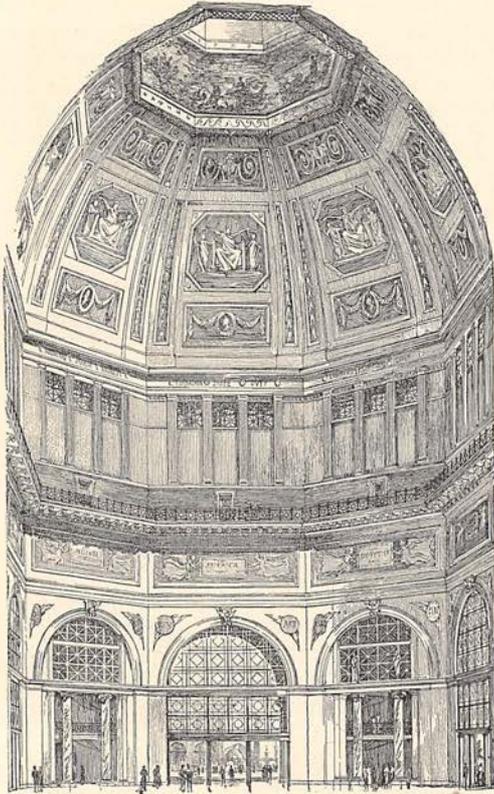
In order, therefore, to present a complete and symmetrical picture of modern civilization, it is necessary that the Columbian Exposition should not only bring together evidences of the amazing material productiveness which, within the century, has effected a complete transformation in the external aspects of life, but should force into equal prominence, if possible, corresponding evidences that the finer instincts of humanity have not suffered complete eclipse in this grosser prosperity, and that, in this headlong race, art has not been left entirely behind. The management of the Exposition is justified in placing machinery, agricultural appliances and products, manufactures and the liberal arts, the wonderful industrial results of scientific investigation, and the other evidences of practical progress, in the midst of a parallel display shaped entirely by sentiment and appealing to a fundamentally different set of emotions. It is the high function of architecture not only to adorn this triumph of materialism, but to condone, explain, and supplement it, so that some elements of "sweetness and light" may be brought forward to counterbalance the boastful Philistinism of our times. Each department of the Exposition must possess more or less capacity for architectural expression, if not by disposition of masses, by style, or by sympathetic treatment of technical detail, at least by the

suggestions of sculpture and characteristic decoration. It is true that the vast preponderance of human effort in these closing years of the century has been in favor of practical things; it remains to be seen whether this supreme test of the elastic powers of architecture to develop out of these practical things demonstrations of

fail to confer upon the work resulting from it some portion of the delightful harmony which prevailed in their councils.

By common consent the most monumental of these buildings—that devoted to the Administration—was undertaken by Mr. Hunt. Having all the elements of an academical project of the first class, it was eminently fitting that this important structure should fall into hands so admirably equipped by learning and experience to do it full justice. It was to occupy the western or landward side of the great court, and to stand in its main central axis at the point where this axis was intersected by a transverse axis which ran north and south between the Mines and Electricity buildings. It was designed to be the loftiest and most purely monumental composition in the Park, and to serve not only for the accommodation of the various bureaus of administration, but, more conspicuously, as the great porch of the Exposition. The area assigned was a square measuring about 260 feet on each side, and it was necessary to divide it into four equal parts by two great avenues crossing at right angles on the axial lines which we have described. In fact, the building was in some way to stand on four legs astride this crossing of the ways, like one of the quadrilateral Janus-coaches of the Romans, but on a much greater scale. The whole system of railway communication was to be so connected on the west with this building, that the crowds of visitors, on arriving, should enter and cross this ceremonial vestibule; should there obtain their first impressions; and by the majesty and spacious repose of the interior, should be in a manner introduced into a new world, and forced into sympathy with the highest objects of this latest international exposition of arts. Its function, indeed, was that of an overture.

These conditions suggested to Mr. Hunt the idea of a civic temple based upon the model of the domical cathedrals of the Renaissance. Following this type, he projected, upon the crossing of the two axial lines, a hall of octagonal plan; but unlike the cathedrals, this hall was designed to form the fundamental basis, the leading motive, of the design, not only on the interior but on the exterior of the structure, there being neither nave nor transepts to interfere with the clear external development of this dominating feature from the ground to the summit. Thus, at the outset, he secured that expression of unity which is essential to the noblest monumental effect in architecture. The expression of repose, at once majestic and graceful, which is no less essential, was to be obtained, not only by a careful subordination of detail to the leading idea, but by such a disposition of masses as would impart an aspect



DRAWING MADE BY F. E. WALLIS.

RICHARD M. HUNT, ARCHITECT.

INTERIOR OF ADMINISTRATION BUILDING.

art will result in furnishing any of that "rest, grace, and harmony" which are needed as a compensation for materialism.

By a remarkable piece of fortune, the architects to whom the five buildings on the great court were assigned constituted a family, by reason of long-established personal relations and of unusually close professional sympathies. Of this family Mr. Hunt was the natural head; two of its members, Post and Van Brunt, were his professional children; Howe, Peabody, and Stearns, having been pupils and assistants of the latter, may be considered the grandchildren of the household; while McKim, who had been brought up under the same academical influences, was, with his partners, of the same blood by right of adoption and practice. Collaboration under such circumstances, and under a species of parental discipline so inspiring, so vigorous, and so affectionate, should hardly



DRAWN BY E. ELDON DEANE.

ADMINISTRATION BUILDING.

RICHARD M. HUNT, ARCHITECT.

of absolute stability. This implied the necessity of procuring a pyramidal or culminating effect; the whole composition, from bottom to top, preparing for this effect by some process of diminution by stages upward. To this end he enveloped his hall (which the conditions of area permitted him to make 120 feet in interior diameter) with two octagonal shells about 24 feet apart, the space between being occupied by galleries, elevators, vestibules, and staircases. Against the alternate or diagonal sides of the octagon he erected four pavilions in the form of wings 84 feet square, in four stories, in which

he accommodated the various offices of administration; the archways, pierced through the four cardinal sides of the octagon, being externally recessed between these pavilions, thus affording two direct, broad passageways through the building at right angles. These pavilions are so treated as to be in scale with the other buildings of the great court, and are carried to the same height of 60 feet, thus securing four wide-spreading abutments with flat, terraced roofs. Above these the outer octagonal shell of the central mass detaches itself, and asserts its outline against the sky through another stage, where it

stops in the form of a gallery, decorated with bronze flambeaux, and permits the inner shell in turn to become outwardly manifest in a third stage of diminished diameter, rising in an octagonal drum, the whole mass finishing with the soaring lines of the central dome; which by vertical growth, determined by conditions of proportion, reaches the height of 275 feet from the pavement. Enriched with decorated ribs and sculptured panels, and made splendid with shining gold, this noble dome rises far above the other structures of the Exposition, proclaiming afar the position of its monumental gateway.

But as the inner surface of the outer dome would form a ceiling far too lofty to serve as a proper and effective cover for the hall, it became necessary, in order to give proper proportions to this monumental chamber, to construct an inner and lower dome, 190 feet high from the pavement, with an open eye at the apex, through which from below could be seen the upper structure, like the cope of a mysterious sky beyond. This architectural device is similar to those used by Mansart in the dome of the Invalides at Paris, by Soufflot in the Panthéon, and by Wren in St. Paul's at London, which rank next to St. Peter's as the largest and most important of the great Renaissance temples of Europe. It also appears in the rotunda of the national Capitol at Washington. But, as conceived by Hunt, the exterior dome of the vestibule of the Exposition is 42 feet higher than that of Mansart, 45 feet higher than that of Soufflot, about the same height as that of St. Paul's, and 57 feet higher than that of our national Capitol, exclusive of the lantern in each case. The interior dome has a height from the pavement 15 feet higher than that of the Invalides; it has about the same height as that of the French Panthéon; is 20 feet lower than that of St. Paul's, and 10 feet higher than that of the Capitol at Washington. In diameter it surpasses all these domes, being 38 feet wider than the first, 56 feet wider than the second, 12 feet wider than the third, and 26 feet wider than the Washington example. Indeed, in this regard, it is only 20 feet less than that of St. Peter's at Rome, which, however, in exterior height exceeds the American model by 90 feet, and in interior height by 143. Being thus in dimensions inferior only to the work of Michelangelo, it may be considered, in this respect, at least, an adequate vestibule to the Exposition of 1893.

The method of lighting the interior of this vast domical chamber in a proper and adequate manner was a problem so important that Mr. Hunt considered it one of the primary formative influences controlling the evolution of his architectural scheme. One of the noblest effects of interior illumination known in historical art is in the Roman Pantheon, the area of

which (140 feet in diameter) is lighted only by the circular hypethral opening 25 feet wide at the apex of the dome, 140 feet from the pavement. Inspired by this majestic example, Mr. Hunt proposed in this respect to depend mainly upon such light as could be obtained from the open eye of his lower dome, 50 feet wide and 190 feet from the pavement, which should in turn borrow its light from the illumination of the space between his outer and inner domes through a glazed hypethral opening 38 feet wide, forming the summit of the building, and taking the place of the lantern or belvedere which usually forms the final of the greater domes of the Renaissance.

In his decorative treatment of the problem thus evolved Mr. Hunt has exercised a fine spirit of scholarly reserve. The architectural language employed is simple and stately, and the composition as a whole is so free from complications, its structural articulations are so frankly accentuated, that it is easy to read, and, being read, cannot fail to surprise the most unaccustomed mind with a distinct and veritable architectural impression. But to obtain this simplicity of result a far greater knowledge of design and far more ingenuity of adaptation have been required than if the building had been sophisticated with all the consciousness and affectations of modern art. In order to bring his design into the family of which, by the adoption of a common module of proportion, the other buildings of the groups around the great court are members, Mr. Hunt's four pavilions of administration, forming the lower story of the façades, are treated externally, like them, with a single order raised upon a basement. He has preferred the Doric in his case, so as to obtain by contrast with its neighbors an effect of severe dignity and what might be called colossal repose, and to provide for a gradual increase of enrichment in the upper parts of his monument. His second story is Ionic, with an open colonnade, or loggia, on each of the cardinal faces of the octagon, showing the inner shell behind, and with domed circular staircase pavilions of the same order on the narrower alternate sides, niched between heavy corner piers, which bear groups of statuary, thus obtaining a certain degree of movement and complication in the outlines of his design, and enhancing its pyramidal effect. On all his exterior he has used conventional ornament with great reserve, depending for richness of effect upon three colossal groups of statuary on each of his administrative pavilions, upon two, flanking each of his main entrances, and upon eight, crowning the gallery below the drum of his dome.

This sculpture, the work of Mr. Karl Bitter of New York, is characterized by great breadth



DESIGNED BY KARL BITTER.

FROM PHOTOGRAPH LENT BY RICHARD M. HUNT.

GROUP FOR ADMINISTRATION BUILDING, "GLORIFICATION OF WAR."

and dignity of treatment, and by that expression of heroic power and fitness which is derived from knowing how to treat colossal subjects in a colossal way, and how to model figures so that they may assist the main architectural thought and not compete with it. Thus the groups which crown the corner piers of the four wings in the lower part of the building are in repose, and are so massed that they serve properly as monumental finials, while those surmounting the gallery above are more strongly accentuated, so as to become intelligible at that great height, and are distinguished by a far greater animation of outline and lightness of movement, by means of gesture, outspread wings, and accessories, so that they may act

as foils to the simple and stately architectural lines of the dome, at the base of which they stand, and so that they may aid it in its upward spring. The subjects are apparently intended to typify, in a succession of groups, beginning in the lower parts of the monument, the advance of mankind from barbarism to civilization, and the final triumph of the arts of peace and war.

Unlike the other buildings of the Exposition, Mr. Hunt's has two sets of façades, an exterior and an interior. In the latter he has not repeated his exterior orders, and the same self-denial which has chastened and purified the exterior has left these inner walls large, simple, and spacious, not even the angles of the inclos-

ing octagon being architecturally emphasized at any point. Each of the eight sides of this interior octagon is pierced with an archway occupied by a screen of doors below and bronze grilles above; over these is a series of panels filled with sculpture and inscriptions, and upon the great interior cornice which crowns these walls is a balcony, like the whispering-gallery of St. Paul's, by means of which the scene may be viewed from above. An order of pilasters directly under the inner dome surmounts this gallery, and the dome itself is decorated with panels, the whole interior being enriched with color, so disposed as to complete and perfect the design.

We have already said that this vestibule was intended to introduce the visitors to the Exposition into a new world. As they emerge from its east archway and enter the court, they must, if possible, receive a memorable impression of architectural harmony on a vast scale. To this end the forums, basilicas, and baths of the Roman Empire, the villas and gardens of the princes of the Italian Renaissance, the royal courtyards of the palaces of France and Spain, must yield to the architects, "in that new world which is the old," their rich inheritance of ordered beauty, to make possible the creation of a bright picture of civic splendor such as this great function of modern civilization would seem to require.

At the outset it was considered of the first importance that the people, in circulating around the court and entering or leaving the buildings, should so far as possible be protected from the heat of the midsummer sun. To assist in accomplishing this object the great quadrangle will be closed in by a series of sheltered ambulatories, like the Greek *stoa*, included in and forming a part of the façades of the palaces of Machinery and Agriculture on the right, and of the Liberal Arts and Electricity on the left. The vast fronts of these buildings, far exceeding in dimensions those of any other ancient or modern architectural group, with their monumental colonnaded pavilions, their sculptured enrichments, their statuary, domes, and towers, will appear in mellowed ivory marble, relieved by decorations in color in the shadowy recesses of the porticos. Immediately before him the stranger will behold the great basin 350 feet wide and 1100 feet long, stretching eastward in the middle of the court, bordered with double walled terraces, of which the lower will be decorated with shrubbery and flowers, and the upper, with balustrades, rostral columns, vases, and statuary. Broad stairs descend from the main porticos of the buildings to the water, and the canals, which enter the basin on each side, are crossed by monumental bridges. On the nearer margin of the greater basin, and in the

axis of the court, he will see a smaller circular basin 150 feet in diameter, on a level with the upper terrace, flanked by two lofty columns bearing eagles. In the center of this, on an antique galley of bronze 60 feet long, eight colossal rowers, portraying the Arts and Sciences, stand, four on a side, bending to their long sweeps; in the prow is poised the herald Fame, with trumpet and outspread wings; while aft, Time, the pilot, leans upon his helm; and, high aloft on a throne, supported by cherubs, Columbia sits, a fair, youthful figure, eager and alert, not reposing upon the past, but poised in high expectation. Eight couriers precede the barge, mounted upon marine horses ramping out of the water. The whole triumphal pageant is seen through a mist of interlacing fountain-jets, and from the brimming basin the water falls 14 feet in a series of steps into the greater sheet below, a half-circle of dolphins spouting over the cascade. This pompous allegory is the work of the sculptor Frederick MacMonnies. At the outer end of the basin a colossus of the Republic, by the sculptor Daniel C. French, rises from the water. It is treated somewhat in the Greek archaic manner, with a strong accentuation of vertical lines, but with a simplicity and breadth which give to the figure an aspect of majesty and power. Beyond it, a double open colonnade, or peristyle, 60 feet high, like that of Bernini in front of St. Peter's, forming three sides of a square, closes in the great court toward the lake. Of the two wings of this colonnade one is a concert-hall, and the other a casino or waiting-hall for passengers by boat. Its columns typify the States of the Union. In the center of this architectural screen is a triumphal arch thrown over the canal which connects the basin with the harbor. Through this and through the open screen of the colonnade one may see the wide-spreading lake, the watery horizon, and, still in the axis of the court and a thousand feet from the shore, a lofty pharos with an island-casino at its base. Animating the whole, banners and gonfalons flutter gaily from innumerable staffs; people of all nations walk in the shadow of the porches, linger on the bridges, crowd along the broad pavement of the terraces, and watch from the balustrades the incessant movement of many-colored boats and electric barges upon the water.

THE palace of Mechanic Arts, or, as it may be better known, Machinery Hall, occupies a frontage of 842 feet on the south side of the court, and a depth of 500 feet, thus covering, with the main building of this department, $9\frac{1}{2}$ acres. These dimensions are nearly the same as those of the palace of Diocletian at Spalatro, and larger than the Parliament House of Great Britain in the proportion of 5 to 2. (The Capitol



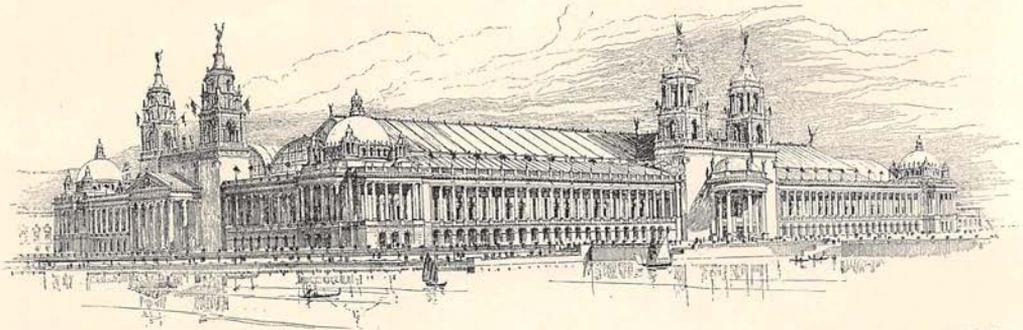
DRAWN BY JULIUS ROLSHOVEN.

STATUE OF "THE REPUBLIC," BY DANIEL C. FRENCH.

at Washington measures 680 feet by 280.) Attached to this building on the west is an annex 550 feet long, covering about $6\frac{1}{4}$ additional acres, for the exhibition of the rougher sorts of machinery. Messrs. Peabody and Stearns of Boston, in adjusting the constructional scheme of their main building to this fixed area, were governed by the necessity of providing large unencumbered spaces of considerable height for exhibits, so disposed as to facilitate classification and to avoid confusion; and by the fact, imposed equally upon all the other architects, that, so far as possible, the form of structure should be such that its material would be marketable after the conclusion of the Fair. These considerations led to the adoption of a typical railway-shed 130 feet wide, covered by a barrel-shaped roof 100 feet high, sup-

clear, large, and simple as, in great measure, to counterbalance, with their effect of spacious harmony and noble proportion, the inevitable perplexity and confusion of a display of miscellaneous running machinery.

In this way Messrs. Peabody and Stearns proposed to satisfy the principal structural and practical requirements of their problem. But the more difficult task remained to give to the prosaic and unimaginative mass an exterior aspect of beauty and fitness, which, so far as possible, should reconcile the spirit of materialism, here, in the very central place of its power, with the spirit of organized "rest, grace, and harmony." The architectural formulas by which this new and apparently ill-assorted marriage of Hephæstus and Aphrodite was to be attempted had already been established, as we have seen,



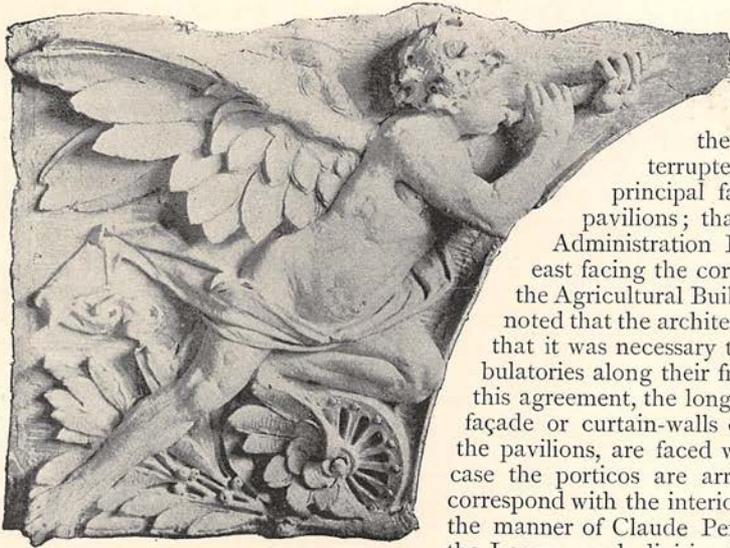
DRAWN BY C. HOWARD WALKER.

MACHINERY HALL.

PEABODY & STEARNS, ARCHITECTS.

ported on iron arched trusses 50 feet apart, as a convenient basis for their plan. They placed three of these sheds side by side. But the site of the building was such that its main entrance had to be placed in the center of the long court-frontage, opposite the south doorway of the great vestibule of the Exposition, thus establishing a clear architectural relationship with its nearest and most important neighbor. This condition suggested the crossing of the triple hall in the center by a great transept, which, being of the same width as each of the three naves, developed a noble main hall composed of three bays 130 feet square, from each of which, to the right and left, the naves opened in long perspectives of six 50-foot bays on each side. In order still further to distinguish this main avenue, giving access to these minor naves, each of its three square divisions was covered with a conical glazed roof, giving an interior effect of a succession of domes. The architects thus secured a vast covered area composed of three parallel naves with glazed roofs, crossed by a central main transept, the combination giving a total width of 390 feet and a length of 730, affording every desirable condition of practical convenience, with structural divisions so

by the agreement among the architects of the court to confine themselves to a style strictly classic, and to a definite height of 60 feet to the cornice. By this limitation of effort they proposed to secure for the great quadrangle a harmonious aspect of stately ceremony; but in so doing they sacrificed invention to convention, and were constrained, in designing their exteriors, to confine themselves to the composition of a series of architectural masks or screens, as we have already explained. These, though in general arrangement suggested by the divisions of the plan in each case and by the uses of the building, were intended to be expressive rather of possible than actual structure. In fact, so far as the exterior envelop was concerned, they were to be merely plastic models of buildings, designed so as to be capable of construction in permanent materials. The whole, therefore, may be considered as little more than a pageant of practicable stage scenery on a vast scale. The architects of Machinery Hall, in studying the problem of their architectural screen, reserved for this purpose an enveloping area, about 50 feet wide, extending entirely around their central hall. This area they occupied with external



DESIGNED BY MAX BACHMANN.
FIGURE IN WINDOW-FRAME OF
MACHINERY HALL.

and internal galleries of two stories. These galleries naturally develop pavilions 50 feet square where they intersect at the corners, and they are interrupted, in the center of the two principal façades, by main-entrance pavilions; that on the north facing the Administration Building, and that on the east facing the corresponding side porch of the Agricultural Building. It has already been noted that the architects of the court considered that it was necessary to establish sheltered ambulatories along their fronts. In accordance with this agreement, the long intermediate stretches of façade or curtain-walls of this building, between the pavilions, are faced with porticos; but in this case the porticos are arranged in two stories to correspond with the interior, treated somewhat after the manner of Claude Perrault in the east front of the Louvre, each division having Corinthian colonnades of 23 columns 27½ feet high on the long façades, and of 9 columns on the end façades, the

spacing of these columns being multiples of the structural divisions of the great interior bays. Unlike the famous Paris example, however, the basement upon which these colonnades are placed is pierced with an open arcade to form the lower ambulatory, the ceiling of the latter being treated with a dome in each bay, and that of the former with richly embellished panels. To relieve the scrupulously scholastic accuracy of the main order, and to recall the days of Columbus and of Ferdinand and Isabella, the apertures in the rear walls of the upper porticos are treated with the picturesque freedom of the Spanish Renaissance, and the arms of Spain and the portrait of Columbus are frequently repeated about them.

It became evident to the architects, in the evolution of their design, that the light and open character of these long two-storied porticos needed some strongly contrasting form of relief and support, to be obtained by transition to an expression of solidity and massiveness in the corner and middle pavilions. For this reason they were led to treat the latter very boldly as plain wall-surfaces abruptly interrupting all the horizontal lines of the orders of the curtain-walls, and carried 35 feet higher, there finishing with a level cornice. On each front this plain wall-surface they divided in three pavilions, of which the outer, 29 feet wide, are treated as towers, the wider intermediate part being slightly recessed between them. Upon these towers, which contain staircases, they placed open octagonal lanterns, in three diminishing stories, rising to the height of 102 feet, like spires enriched with balustrades and finials, somewhat Romantic in character, and following suggestions contained in Spanish or Mexican examples. On the north pavilion toward the court, and opposite the south entrance of the Administration Building, the architects embedded in this central division a temple-like portico 75 feet wide and 90 feet deep, the portion developed outside the pavilion, and forming the exterior, being apsidal or semicircular in plan. This portico they treated with a colossal Corinthian order 60 feet high, crowning the apsidal projection with a low half-dome behind a balustrade, with a pedestal and statue over each column somewhat like the



DESIGNED BY MAX BACHMANN.
FIGURE IN WINDOW-FRAME OF
MACHINERY HALL.

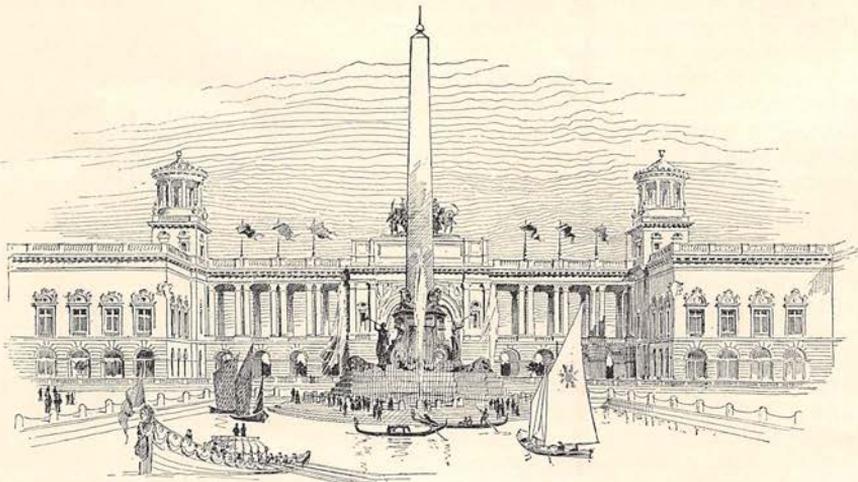
famous circular porch of the *calidarium* in the Baths of Caracalla. The east portico practically received the same treatment, the temple-portico, however, in this case being 75 feet square in plan, two fifths of it projecting outside the pavilion and finishing with a pediment, and the remainder being embedded, as it were, in the interior. It would be difficult to conceive of a more majestic welcome to this department of the Exposition. With the object of keeping the corner pavilions subordinate to those in the center, and to establish unity of design on the adjacent sides, the two-storied orders of the long colonnades are continued around them, but emphasized by a slightly projecting loggia on each face. The interior of each of these pavilions contains a grand double staircase inclosed in a circular cage of columns supporting a dome. This domical treatment is expressed externally by a much higher dome, raised upon a circular arcaded drum or podium supported on the corners by small circular pavilions and finishing with a lantern.

The long level sky-lines of these great façades, thus broadly accentuated at the corners by domes, and in the center by the aspiring lines of twin towers nearly 200 feet high, were devised to form an engrossing foreground to the long higher roofs of the triple naves behind, broken by masses of decorative skylights with clearstories, and by the three low conical roofs of the main central transept. On the shorter fronts these naves present their glazed circular ends behind and above the façade in the manner used in the great Roman baths. In this way every principal feature of the main structure is made to play a noble and expressive part in the decorative scheme. The details of this design have been kept in rigid conformity with classical and scholarly traditions, relieved, as we have

seen, in parts by motives suggested by the highly ornate Renaissance of Spain. Enriched profusely with sculpture and emblematic statues, and with effects of decorative color behind the open screen of the porticos, this composition, if it does not succeed in revealing the mysterious relationships between machinery and art, may at least stand as a beautiful model of highly organized academic design adjusted to modern uses.

The iconographic scheme of this building embraces statues representing the Sciences and the Elements, and figures bearing escutcheons inscribed with the names of famous inventors. In the great east pediment Chicago presents to America, and to the judges of the nations, various inventors and mechanics submitting their handiwork. The windows are surmounted by groups of infants bearing mechanical tools, and holding festoons composed of chains of mechanical implements instead of the conventional fruit and flowers.

Before proceeding to the consideration of the Agricultural Building, which lies east of Machinery Hall, and, with its noble façade, completes the southern closure of the great court, it is necessary to consider the treatment of the minor court, which, with the southern extension of the main canal from the basin, lies between these two buildings. The terraces in front of them are connected by a bridge thrown across the canal, and the southern closure of this minor court forms a connecting link of two-storied corridors between the two buildings, solid below and open above, and repeats the orders of the curtain-walls of the Machinery Building, which, in their turn, are not unlike those of the façade of the Museo of Madrid. This light construction is flanked at each end by a solid pavilion, still of marked Spanish accent,



DRAWN BY C. HOWARD WALKER.

PEABODY & STEARNS, ARCHITECTS.

THE CONNECTING SCREEN OF CORRIDORS BETWEEN THE MACHINERY AND AGRICULTURAL BUILDINGS.

without pilasters, and treated as a wing of the main building. One of these pavilions is designed for a restaurant, and the other for a hall of assembly. The transition from these to the delicate open peristyle of the connecting corridors is still further eased by the interposition of small towers, crowned by circular belvederes, which break the sky-line with great elegance. This screen, while making a noble connecting-link between the two buildings, serves as a frontage for the amphitheater and offices of the Live-Stock Exhibit, which will be designed by Messrs. Holabird and Roche of Chicago, and which are entered by a triumphal arch in

the center of the screen. The southern end of this canal will be decorated by a fountain with spouting lions and an obelisk.

All the architectural modeling of this building is executed by John Evans & Co. of Boston, and the figures in connection with it are modeled, under their direction, by Mr. Bachmann. The statues of the Sciences and the Elements, and the groups on the entrance to the Live-Stock Exhibit, are the work of the sculptor Waagen. The statues on the semicircular north porch, and the figures in the spandrels over the entrance to the Live-Stock Exhibit, are executed by Mr. Krauss.

Henry Van Brunt.



HAST THOU HEARD THE NIGHTINGALE?

I.

YES, I have heard the nightingale.
 As in dark woods I wandered,
 And dreamed and pondered,
 A voice passed by all fire
 And passion and desire ;
 I rather felt than heard
 The song of that lone bird :
 Yes, I have heard the nightingale.

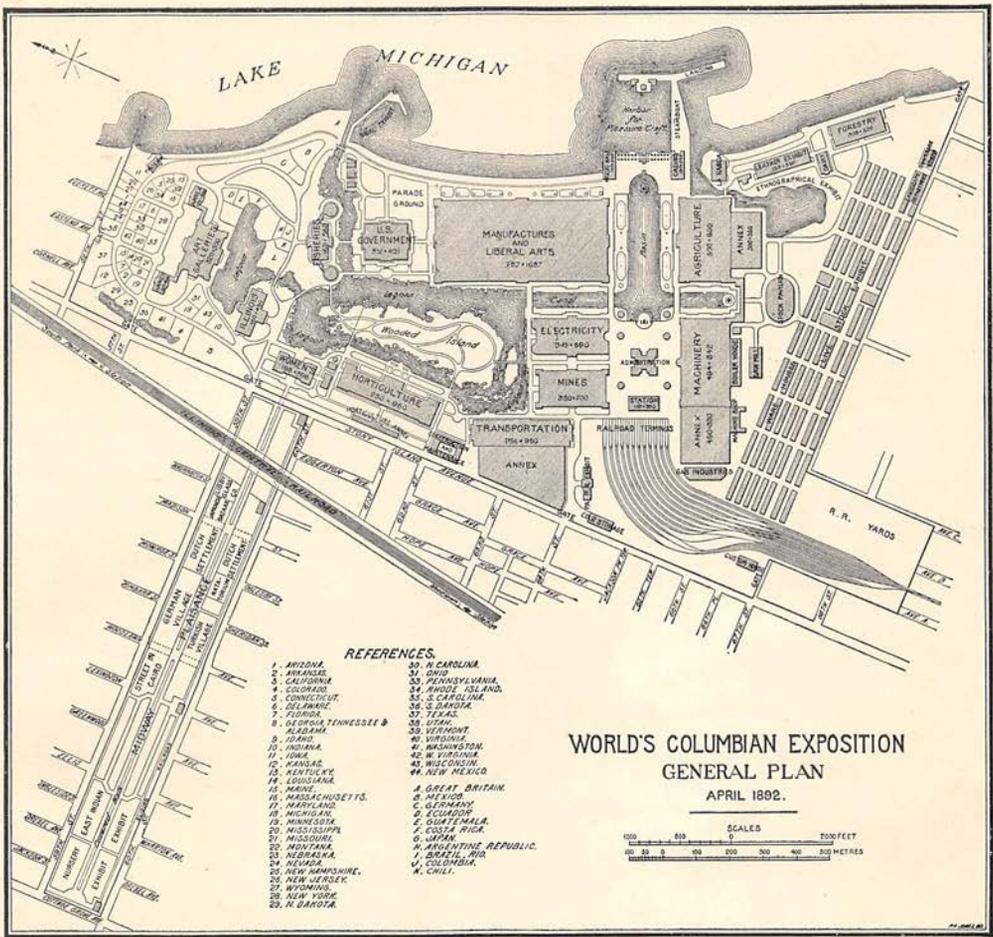
II.

Yes, I have heard the nightingale.
 I heard it, and I followed ;
 The warm night swallowed
 This soul and body of mine,
 As burning thirst takes wine,
 While on and on I pressed
 Close to that singing breast :
 Yes, I have heard the nightingale.

III.

Yes, I have heard the nightingale.
 Well doth each throbbing ember
 The flame remember ;
 And I—how quick that sound
 Turned drops from a deep wound !
 How this heart was the thorn
 Which pierced that breast forlorn !
 Yes, I have heard the nightingale.

R. W. Gilder.



- REFERENCES.**
- | | |
|-------------------|-----------------------|
| 1. ARIZONA | 30. N. CAROLINA |
| 2. ARKANSAS | 31. OHIO |
| 3. CALIFORNIA | 32. PENNSYLVANIA |
| 4. COLORADO | 33. RHODE ISLAND |
| 5. CONNECTICUT | 34. S. CAROLINA |
| 6. DELAWARE | 35. S. CAROLINA |
| 7. FLORIDA | 36. S. DAKOTA |
| 8. GEORGIA | 37. TEXAS |
| 9. ILLINOIS | 38. VERMONT |
| 10. INDIANA | 39. VIRGINIA |
| 11. IOWA | 40. WASHINGTON |
| 12. KANSAS | 41. WISCONSIN |
| 13. KENTUCKY | 42. WISCONSIN |
| 14. LOUISIANA | 43. WISCONSIN |
| 15. MAINE | 44. NEW MEXICO |
| 16. MASSACHUSETTS | A. GREAT BRITAIN |
| 17. MARYLAND | B. MEXICO |
| 18. MICHIGAN | C. GUATEMALA |
| 19. MINNESOTA | D. ECUADOR |
| 20. MISSISSIPPI | E. COSTA RICA |
| 21. MISSOURI | F. SPAIN |
| 22. MONTANA | G. ARGENTINE REPUBLIC |
| 23. NEBRASKA | H. BRAZIL |
| 24. NEVADA | I. COLOMBIA |
| 25. NEW HAMPSHIRE | J. CHILE |
| 26. NEW JERSEY | |
| 27. NEW YORK | |
| 28. N. CAROLINA | |
| 29. N. CAROLINA | |

ARCHITECTURE AT THE WORLD'S COLUMBIAN EXPOSITION.— II.



DRAWN BY ALBERT RANDOLPH ROSS.
PHILIP MARTINY, SCULPTOR.

Group representing the four continents supporting Horoscope and crowning the corner pavilions of Agricultural Building.

have been produced. Without such appreciation, the work of the architect, although it may be eloquent and imposing enough to give even

IT has already been stated that the main object of these papers is to secure for the great buildings of the Exposition, through an analysis of the evolution of their several designs, an intelligent if not a respectful appreciation, because of the extreme importance of the occasion in the history of American art, and also because of the exceptional circumstances under which the buildings

to the most careless observers a certain indefinite impression of order, beauty, or grandeur, fails to convey to them the most essential part of the ideas which he has in mind to set forth. He needs this popular appreciation, not only as an encouragement, but as a corrective, and that he may bring himself into fuller and more perfect sympathy with the civilization which it is his duty to express.

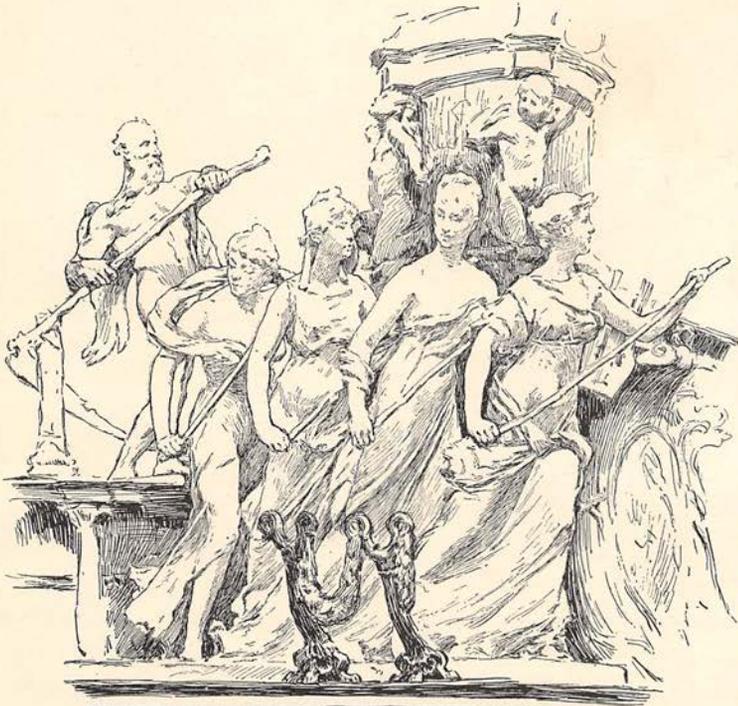
Architecture and music alike have, in their highest developments, clearly defined qualities, which convey a delight of meaning to the capable eye or ear, but which, to the untrained mind, are nothing but inarticulate harmonies of form or sound.

In attempting, in the previous paper, to follow in outline the principles which controlled the designs of the Administration and Machinery buildings, it became evident that, before proceeding with the other buildings, it would be well to state, once for all, that in monumental

designs based upon pure classic formulas, the principle of symmetry—that is, of a balanced correspondence of parts on each side of a center line—must govern the disposition of the masses into which, in order to form an articulate composition, each façade should be divided. The greater the dignity and importance of the building, the more absolute and uncompromising must be the application of this principle. The

which ceremony and state become secondary to considerations of comfort and convenience.

With the exception of the Administration Building, which is a compact, domical composition, like the front of the Invalides, all the larger structures of the Exposition have a great extension of length in comparison to their average height, the former varying from 700 to 1700 feet, and the latter from 40 to 60. The application of the principle of symmetry to these has resulted uniformly in a central pavilion of some sort, and in a corner pavilion of varying importance on each angle of the façades. This remark does not apply to the Transportation and Fisheries buildings, which are not classic in form or intention. Between these pavilions there are intermediate spaces known as curtain-walls, the architectural character of which depends on a continuous repetition of bays, developed from the interior structure, and constituting the characteristic mass of the frontage, to which the three pavilions serve as points of emphasis and relief. But it will be found that this arrangement of the several buildings is not only the result



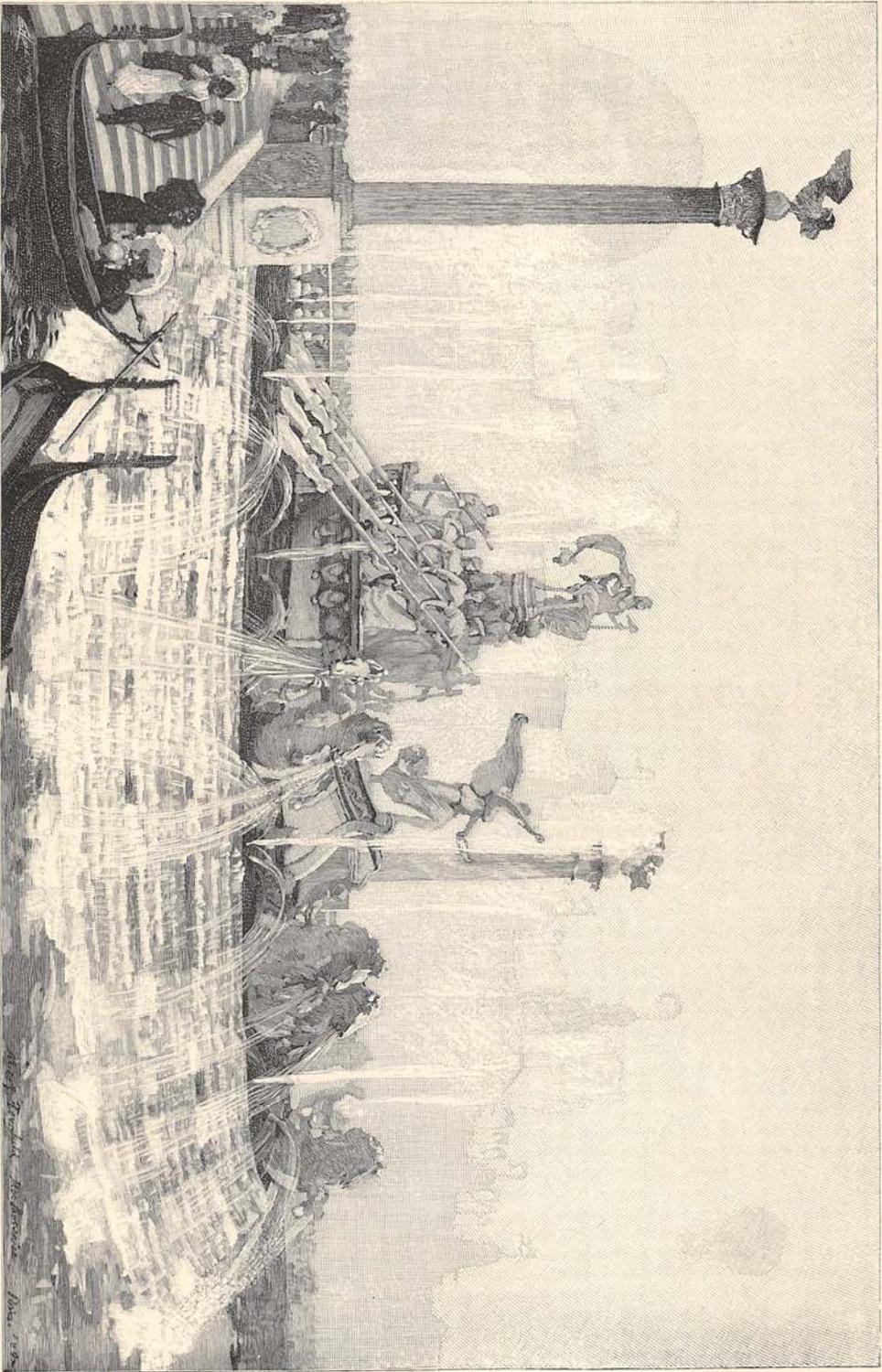
Kempson Cox 1892 - After photograph from unfinished plaster.

DETAIL OF FOUNTAIN BY FREDERICK MACMONNIES.

monument must be evident as the orderly result of forethought, and not as a growth from a succession of unexpected contingencies. It must embody the idea of a harmonious development of structure from beginning to end, so exactly adjusted, and so carefully proportioned in respect to its elements, that nothing can be added to or taken from it without sensibly affecting the composite organism as a whole. The test of the completeness of a classic design resides in its sensitiveness to change—a sensitiveness which becomes more delicate as the design approaches perfection. In fact, symmetry is the visible expression of unity. The moment the correspondence of balanced parts on each side of a center line is disturbed by the introduction on one side of a mass or detail which does not appear on the other, at that moment the design begins to lose somewhat of its unity and to enter the domain of the picturesque, in

of the common observance of an abstract principle of design, but follows from an obvious necessity of the plan in each case, from the mutual relations of neighboring structures, and from considerations of the most convenient ingress and egress.

It will be remembered that the architects of the five buildings surrounding the great court, which have the closest architectural relations, agreed, for the sake of securing a harmonious result, to confine themselves to pure classic forms in their designs, to fix upon 60 feet from the ground as the height of their main cornices, to provide for an open portico or shelter along their whole frontage, and to assume about 25 feet as their module or unit of dimension. We have seen also that one of the results of the fundamental conditions of the plan is the division of the façades respectively by a central pavilion and by corner pavilions, with stretches of cur-

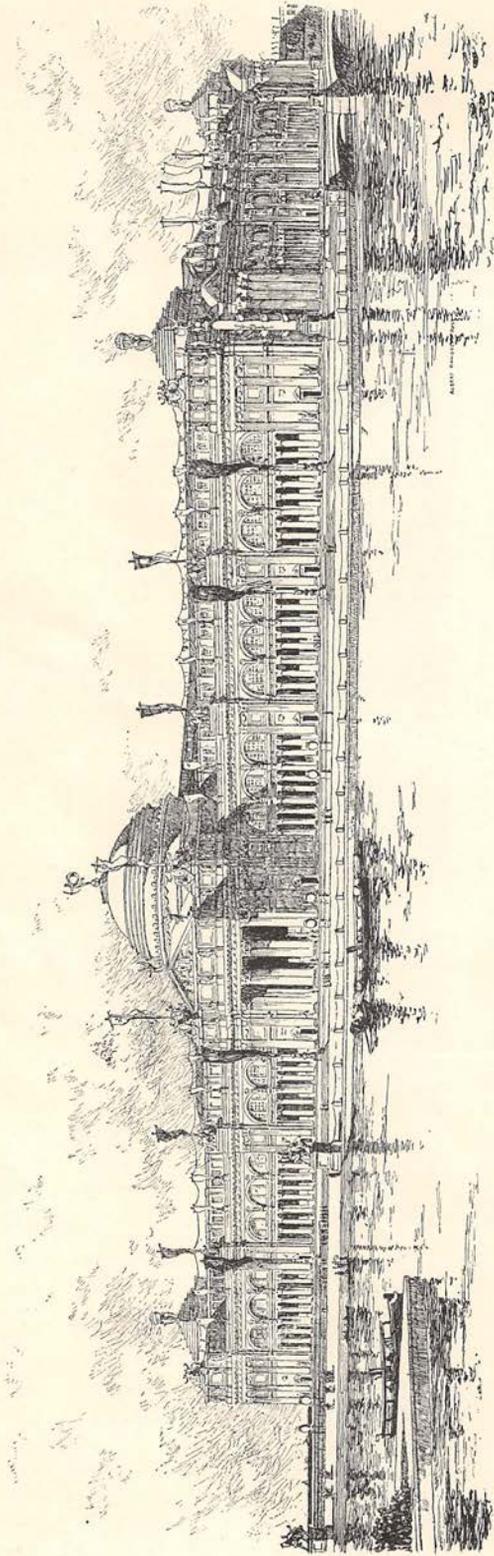


DESIGNED AND MODELLED BY FREDERICK MACONNIE.

DRAWN BY BARRY PARSONS.

ENGRAVED BY E. H. DE LORNE.

FOUNTAIN EMBLEMATIC OF THE TRIUMPHANT PROGRESS OF AMERICA.



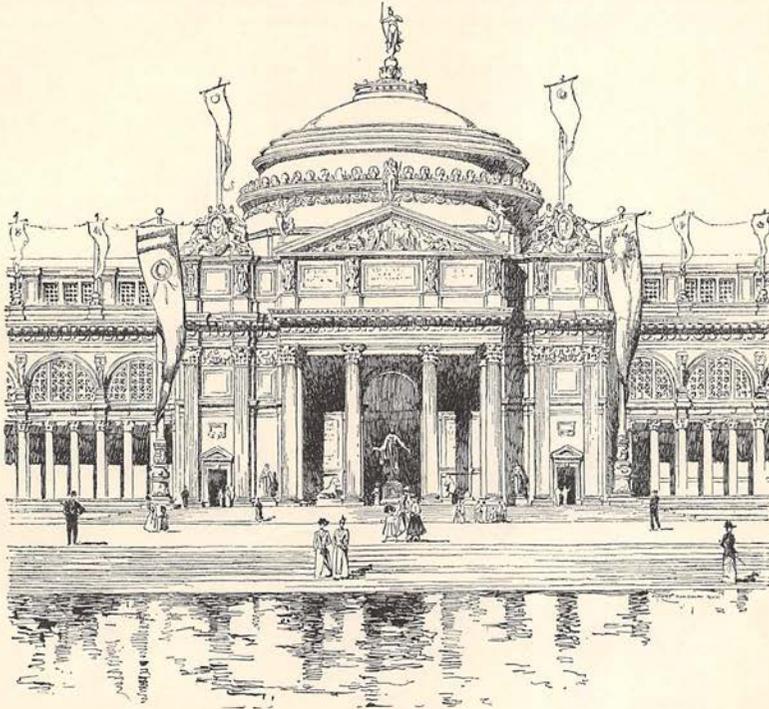
MCKIM, MEAD & WHITE, ARCHTISTS.

AGRICULTURAL BUILDING, NORTH FRONT, SEEN FROM THE GRAND BASIN.

DRAWN BY ALBERT RANDOLPH ROSS.

tain-wall between. Moreover, each of these compositions has submitted to certain compromises for the sake of harmony with its neighbors. Now this stately uniformity of design would have been too serious for an occasion of festivity, if it were not relieved by a certain

son more subtle and sensitive than would be possible had they been at liberty to handle their common theme without definite and arbitrary restrictions of form. Whether the test is one of architecture or poetry (and the two are closely analogous), it seems to compel the



DRAWN BY ALBERT RANDOLPH ROSS.

GREAT CENTRAL PORCH OF AGRICULTURAL BUILDING.

luxury of conventional ornament, sculpture, painting, and decoration in metals, and by a profusion of bright and joyful accessories. We shall now see how this uniformity of scheme, apparently working for a monotony which would be fatiguing, is, by the operation of the personal equation of the architect in each case, and by the adjustment of each building to its especial use, entirely consistent with that individuality of technic, of sentiment, and of expression which constitutes the essential difference between a cold academical composition and a work of art having a definite purpose.

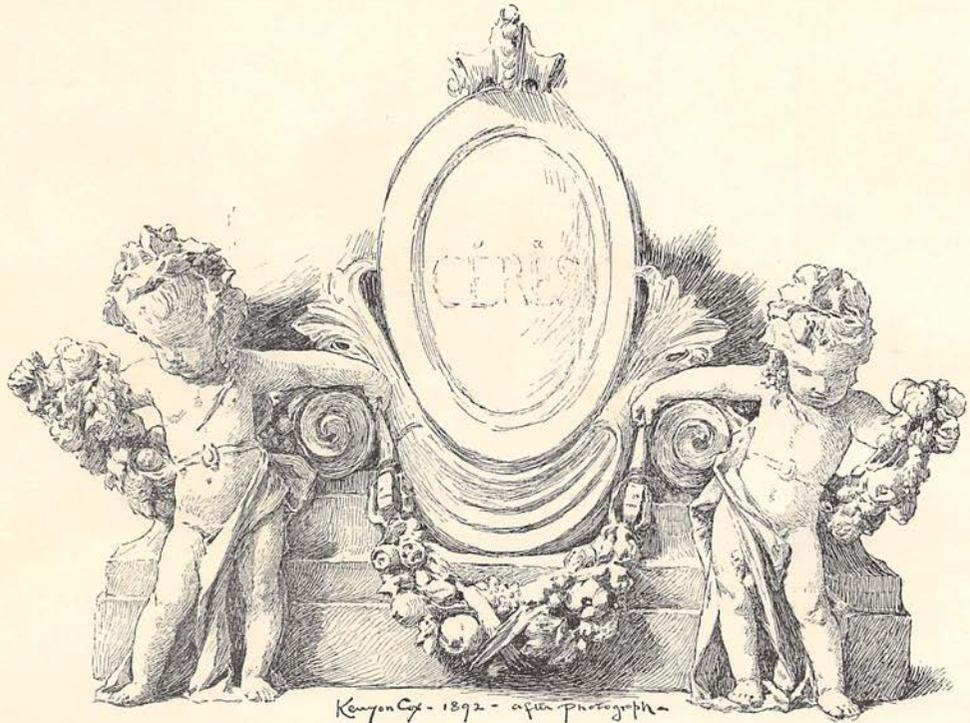
By this apparent identity in general outline and language of form the architects have necessarily been invited to a study of detail and expression far more fastidious than would be easily practicable in dealing with a style less accurately formulated. In somewhat similar manner a dozen trained writers, expressing their thoughts on a similar range of subjects in an established literary form,—in that of the sonnet for example,—would commit themselves by their differences in treatment to a compari-

architect or poet to enter a region, if not of higher thought, then of more delicate study and of finer discrimination in method. Freedom of style, though it is the natural and healthy condition of architecture in our country, and adapts itself more readily to our inventiveness in structure and to the practical exigencies of building, is also a temptation to crude experiments, to *tours de force*, and to surprises of design, such as form the characteristic features of an American city. Under these circumstances, personal idiosyncrasies and accidents of mood or temperament are apt to have an undue influence upon current architecture, and to perpetuate, in monumental form, the caprice of a moment or a passing fashion of design, which, in a year's time, the author himself may be the first to repudiate. It is the aim of our architectural schools not to kill but to correct this abundant vitality, and to direct it into channels of fruitful and rational progress.

A glance at the general plan of the grounds will show that the buildings are separated one from the other by avenues of water or land

sufficiently wide to furnish noble vistas penetrating to the remoter regions of the Park, and to isolate each structure, so that its characteristic mass and details may not be confused by those of its neighbors, but not so wide as to prevent their mutual architectural relations from being clearly evident in a common alignment, and in a common observance of the sys-

department, which we have already discussed. The problem was how to cover this entire area with a building which should have due regard to its relations to the grounds and neighboring buildings; by its divisions should provide for the orderly arrangement and classification of its contents, and for the most convenient and economical structure; and should secure, not



PHILIP MARTINY SCULPTOR

CUPIDS FROM CERES GROUP (AGRICULTURAL BUILDING).

tem of axial lines which controls the location and arrangement of the group as a whole.

The general disposition of masses in these façades being thus defined, the way seems to be prepared for a more intelligent examination of the processes by which the especial architectural character of each building has been evolved.

It will be remembered that the great court of the Exposition is bounded on the south by the two palaces of Machinery and Agriculture, a minor court being provided between them. The latter building has a north frontage on the court and a south frontage toward the Live-Stock department, each 800 feet in length, while its west façade, of 500 feet, looks on the minor court, and its east on the lake. Its area, not including the annexes in the rear, thus covers nearly nine acres and a half, or a space about equal to the main building of the Machinery

only for the first floor, but for an extensive series of galleries, an effective and adequate lighting throughout. This problem must also embrace a due consideration for a division of the façades corresponding to the plan, so that its architectural character should, as far as possible, be developed from the conditions of structure.

The architects, Messrs. McKim, Mead & White of New York, solved this problem by converting their area into a hollow square surrounded continuously by buildings, and by crossing this hollow square in the center with two high naves of equal width, at right angles one to the other and open from floor to roof, each being accompanied on both sides by two-storied aisles, thus forming two clearstories on each roof-slope for lighting the interior space. The four long courts, 80 x 280, left by this arrangement, being needed for exhibition purposes, are severally occupied by three lower

longitudinal aisles, each covered with a double-pitched roof so devised that, by a system of skylights and clear-stories, abundant light should be provided for the area beneath. These three aisles are also in two stories, with an opening in the second story under the center aisle to admit light to the main floor beneath. Thus the entire space of nine acres and a half is covered and lighted, and the galleries furnish about five additional acres of floor space.

This adjustment of the plan is entirely in the interests of the agricultural exposition, with no unnecessary concessions to interior architectural effect. But this effect has nevertheless been obtained by the wide and lofty central naves, which invite the visitors to proceed on the axial lines of the building for a general survey of its contents, without distractions, and by the system of aisles on each hand, which enables them to pursue their investigations in detail with the least possible chance of confusion. The arrangement also facilitates the work of classification, and the whole presents

A mighty maze, but not without a plan.

The *corps du bâtiment* inclosing the area is 96 feet wide on the long sides and 48 feet wide on the shorter sides. Where these come together at the angles of the building they naturally constitute corner pavilions, 48 feet wide on the long fronts and 96 on the short fronts; and where the naves, 95 feet wide, with their attendant aisles, 23½ feet wide, encounter the center of each façade, a central pavilion of about 118 feet results, which, from its connection with the axial line or main avenue, becomes the main porch of that side.

The architects thus found imposed upon each of their four façades the conventional arrangement of a central pavilion and corner pavilions of certain specified dimensions, with curtain-walls between. Under the agreement of the architects of the court structures, a continuous covered ambulatory or portico was required inside the building line, and there was prescribed a height of 60 feet for the main cornice. They considered that the dignity of their theme would be best expressed by the use of a colossal Corinthian order, very richly embellished, as the principal vehicle of architectural expression in their design.



Kenyon Cox - 1892 - from a photograph from original plaster by P. Marling.

ONE OF TWELVE FIGURES HOLDING SIGNS OF THE ZODIAC (AGRICULTURAL BUILDING).

Accordingly they determined to occupy the whole required height with columns or pilasters 50 feet high, without pedestals, and supporting an entablature 10 feet high, the whole resting directly upon the terrace, 40 feet wide, on which their building stands. But the north front, as viewed from the opposite side of the basin, is provided with an effective and majestic stylobate in the face-walls of the two terraces which run parallel with it, the lower one being washed by the waters of the great basin, and the upper being crowned by a balustrade with vases and statues, a rostral column standing at each end. To emphasize this relation of the terraces to the façade, a broad staircase, corresponding in width to the projecting columnar portico of the central pavilion, descends to the water's edge, after the manner of the landings in front of the palaces of Venice. Now it was evident that to extend a colossal order along the whole front, without interruption, would be monotonous and mechanical. It would force a formula—noble and majestic, indeed, but still a formula—into predominance over the more important subject matter of the composition. Therefore they concluded to group their great pilasters at points where the main divisions of the plan would be best illustrated. The central pavilion admitted eight pilasters, and each of the corner pavilions four, on the main front. But this concentration of the order at three points on the long façades, the middle and the ends, gave such long intervals between that the composition became disjointed and straggling. It was clear that the necessary unity could be obtained only by some sort of repetition of the order in these intermediate curtain-walls. The plan was devised with forethought for this emergency, for it provided for a series of subordinate transverse passages, or aisles, across the building, ending in secondary doorways, or vomitories, on the façades, occurring three times in each curtain-wall at equal intervals. These doorways furnish a motive for repetition of the order in two pilasters for each, thus forming smaller pavilions, or, more properly, piers; so that the pilasters occur discontinuously along the frontage in a manner to satisfy at once the practical and the esthetic considerations involved in the problem. This repetition is like the recurrence of a leading motive or theme in a fugue, which is set forth in full at one point and repeated at others by hints of various emphasis. In the architectural composition the main statement, with eight pilasters, occurs very properly in the center; the secondary statement, with four pilasters, at the ends; and the third, of minor importance, with two pilasters, at three intermediate points. Thus, also, the various points of ingress and egress along the façades are illustrated with a varying emphasis proportioned to their varying importance.

But the equal spaces of curtain-wall between these great pilastered pavilions and piers still constitute, in the aggregate, the larger part of the frontage. The spacing of structural interior supports generates a corresponding division of each of these wall-spaces into three equal bays; the necessity of obtaining for the interior as much light as possible suggests the piercing of each bay with a great arch, framed with bronzed grilles for windows; the two-storied division of the interior imposes a horizontal division of these arches by a subordinate entablature on a line with the gallery floors; and to provide, as agreed, for an outside ambulatory within the building lines, the space underneath must be left open, and this entablature is supported in each bay by an open screen of two subordinate columns, behind which the portico required traverses the whole length of each front. In fact, this inferior order of columns constitutes a closely set open colonnade, practically continuous between the greater order of pilasters and columns in the pavilions, giving to the vertical elements of the composition a delicate and refined contrast of harmony and scale hardly possible in a style less highly organized. But these vertical elements are always carefully subordinated to the horizontal lines of the entablatures. In this way the plans and elevations developed together with mutual concessions, and, at the same time, the whole arrangement, with its detail of buttress-like engaged columns, continuous with those of the ambulatory and supporting statues between the arches, follows the conventions of imperial Roman architecture.

Now each pier or buttress and pavilion must have its special treatment in respect to the skyline. From an academical point of view, a fitting culmination for the center of an architectural composition so heroic in size and so full of detail is some form of dome. From a poetical standpoint, an appropriate main vestibule to a structure devoted to an exhibition of agriculture is a temple to Ceres. The conditions of the plan made it possible to realize this idea in a circular domical chamber, 78 feet in diameter and 129 feet high within, treated with the order of the exterior in eight pairs of columns, which surround and enshrine the central statue of the goddess. Her benign and beautiful presence may serve in a brief interval of unconscious influence to bring the distracted minds of the visitors, as they hurry past, into some degree of sympathy with the agricultural collections within. To this vestibule, the design of which is completed and enriched by paintings, is applied a projecting exterior portico of four detached columns, flanked by solid wings, which are treated with pilasters; the whole being surmounted by an attic order, decorated with



PHILIP MARTINY, SCULPTOR.

ENGRAVED BY FRANK FRENCH.

FIGURE OF ABUNDANCE (AGRICULTURAL BUILDING).

winged figures, somewhat like those known as the "Incantada" at Salonica, and a central pediment, peopled with symbolic sculpture, so disposed and grouped as to lead the eye upward to a circular podium or drum, supporting a low, spreading dome, the total effect being somewhat similar to that of the Roman Pantheon. Each buttress along the fronts is crowned with a colossal group, figurative of pastoral or agricultural life, and each of the corner pavilions is roofed with an attic or podium corresponding to that in the central pavilion, supporting a low-stepped pyramid, accompanied at its base by sculptured groups and eagles, and crowned above by a composition of figures holding aloft a globe.

The return walls on the east, toward the Lake, and on the west, toward the minor court between the Agriculture and Machinery buildings, grow without apparent effort from the conditions of the plan, as described. The corner pavilions are here made more important than those of the main front, and the central pavilion is much subordinated, while the intermediate curtain-walls are composed like those of the front, but with only one repetition of the triple-arched bay on each side of the center. The west front responds to its neighbor on the opposite side of the canal with harmonious contrast, and with a certain high-bred courtesy, in which each seems to aid and to receive aid from the other.

In its various combinations, the exterior sculpture, which is the work of Mr. Philip Martiny of New York, is intended to symbolize bucolic labor: the central groups typifying human efforts in agriculture; those next the center showing the horse held in restraint by grooms; and those nearer the outward wings exhibiting the ox, urged forward, dragging the elementary beam-plow of Virgil.

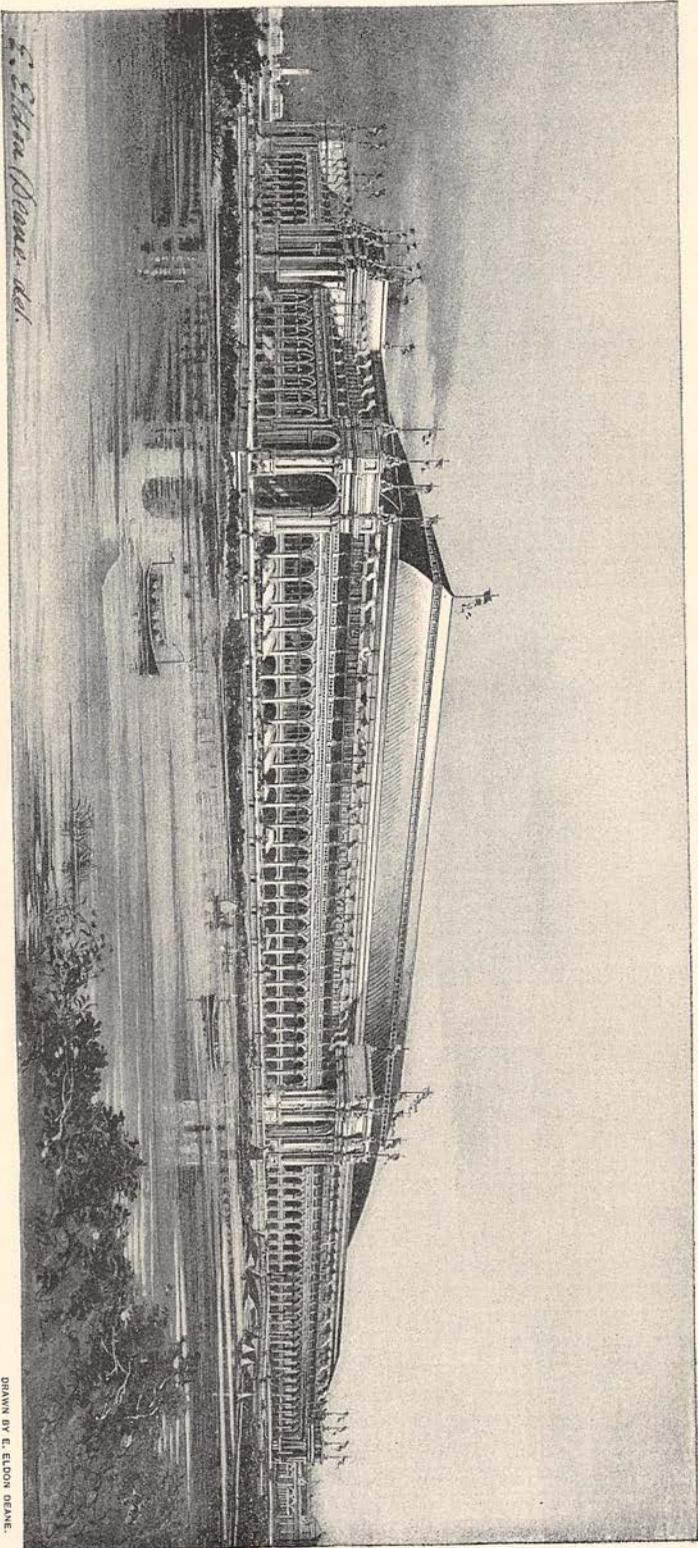
The whole architectural mass may be traced rather to the Palatine Mount than to the influence of Palladio or Vignola, and it presents not only in scale and extent, but in its serious beauty, in its splendor of enrichment and refinement of detail, a model of imperial luxury and pomp, borrowed to adorn the peaceful triumph of the latest of civilizations.

THAT department of the Exposition classified as "Manufactures and the Liberal Arts" embraces so many and such varied industrial interests, that the building to accommodate it must be by far the most spacious in Jackson Park. The thirty acres which were assigned to it, though including an area much larger than that assigned to a single department in any previous Exposition, will need to be carefully husbanded to meet the requirements for space under this head. The site admitted of a building,

in exterior dimensions, 1687 feet long, north and south, and 787 feet in width. Its southern end, forming a part of the inclosure of the great court, was necessarily subjected to the same conditions regarding architectural style and scale as were agreed upon for the other structures around the quadrangle, and these conditions were extended so as to control the other façades. The interposition of an architectural wall nearly 1700 feet long, and but little over 60 feet high, between the lake and the flat district known as the lagoon would have the effect of transforming the whole aspect of the Park as viewed from any point on land or water. The importance of an adequate treatment of this vast scheme was obvious.

Mr. George B. Post of New York, the architect of the building, in considering its general plan, promptly fell upon the scheme of converting its area into a court by surrounding it with a continuous building, and of cutting this court in twain with a central circular structure; thus recalling, but on an immensely larger scale, a much admired disposition of Philibert Delorme in his first project for the palace of the Tuileries as a residence for Catherine de Médicis. But even with such subdivisions the scheme was still so heroic in dimension that no such correspondence as this could be of the slightest avail in furnishing him with types of architectural treatment. He found that he must work in regions quite removed from historical experience. With his assumed module of 25 feet, he found that he could carry around the four sides of his area of thirty acres a building composed of a nave 107 feet 9 inches wide and 114 feet high, covered with a pitched roof with clearstories, and supported on each side by two-storied aisles, or lean-tos, 45 feet wide. This arrangement of plan permitted ready illumination, easy classification, and convenient communication. It left an interior quadrangle 1237 feet long and 337 feet wide. The domical hall in the center of this space was planned to be 260 feet in clear diameter and 160 feet high, surrounded, like the other parts of the building, with two-storied aisles, or lean-tos, 45 feet wide. These circular aisles, compared with the seating space of the Roman Colosseum, would have inclosed an area largely in excess of that great arena. The two courts thus obtained Mr. Post proposed to treat as gardens with fountains and kiosks, or, if more space should be needed for exhibition purposes, to occupy them with a series of covered sheds.

But as the practical needs of this important and comprehensive part of the Exposition became more evident, it was finally concluded to abandon the central dome, and to convert the whole interior court into the largest unencumbered hall ever constructed, by covering it with



GEORGE B. POST, ARCHITECT.

GENERAL VIEW OF BUILDING FOR MANUFACTURES AND THE LIBERAL ARTS.

DRAWN BY E. ELDON DEANE.



PORCH OF MANUFACTURES AND LIBERAL ARTS BUILDING.

DRAWN BY E. ELDON DEANE.

a glazed semicircular roof without columns, supported by arched steel trusses of 387 feet clear span, 50 feet apart, and with a radius of 190 feet, giving an extreme height of 210 feet. This roof was arranged to be hipped at the ends. The much admired truss of Machinery Hall in the last Paris Exposition (the largest constructed for roofing purposes up to that time) is inferior to this in span and is 58 feet lower. It has been proposed to equip this vast hall, containing nearly 500,000 square feet of clear floor-space inside the enveloping building, with seats and a stage for the ceremonies of the inauguration, before adjusting it to its legitimate objects. It was sufficiently evident that the mountainous roof which covered the hall could not fail, from the mere power and weight of its enormous structural mass, to impose upon the scheme of the building, as a work of art, an element unknown in the precedents of monumental architecture.

In studying the most effective architectural treatment of a symmetrical building more than a third of a mile long and almost a sixth of a mile wide, with a height of cornice limited to 60 feet, the architect was confronted by conditions of composition such as perhaps had not occurred before. The natural dispositions of any extended building, which is to be adapted, not to various and different services, like a royal château, with its halls of ceremony, its wings for household convenience, its chapels and galleries, its provisions for dignity and its provisions for comfort, but to a single and well-understood purpose, must be guided by the most convenient and economical structure, and show a distinct unity of thought throughout. This unity is expressed by a mutual dependence of parts. We must at least have some feature of emphasis on the corners, against which the long fronts may stop—a period, as it were, and place of rest; and there is even

greater necessity for pavilions of sufficient importance to give dignity to the entrances. The natural place for these is in the middle of each front, where the visitors may be introduced most conveniently to the great interior space, and receive their first impressions of its grandeur. We have seen how the architects of the Agricultural Building on the opposite side of the court,—where it was understood that everything must be in full dress and on parade, so to speak,—in adopting this natural treatment in their façade, found it necessary, for the sake of variety and movement, to provide between the center and the ends certain regularly disposed, intermediate accentuations, which the eye, in surveying the whole façade, could readily grasp and justify by an instinctive balancing of the masses on each side of the center line. The mind of the observer is flattered by this evidence of art.

Architecture, as compared with nature, has been called a creation of the second order; but this secondary creation must be fundamentally controlled by conditions of structure which, to a greater or less degree, must impose regularity or repetition of parts, as contrasted with the irregularity or picturesqueness which results from the infinite resources and the accidental conditions in nature. Medieval art, though often picturesque in its effects, is subject to these human conditions no less than classic art.

On the one hand the author of these almost interminable façades felt that he could not treat them picturesquely or accidentally without sacrifice of truth and dignity, and, on the other hand, that to break them with frequent pavilions, however subordinate to a preëminent central feature, would fail to procure for them all the advantages of symmetry; because, in a length so great, the mind could not readily discover and, at a glance, compare that correspondence of parts on each side of the center which is essential to effects of this sort. The rule of composition which properly governs a building 500 to 800 feet long and 60 feet high cannot be applied successfully to one two or three times as long and no higher. The architect, therefore, remembering the imposing effects of certain long porticos and aqueducts of Roman structure, had the courage, in this case, to withstand the temptations furnished by the customs of the Renaissance architects in their palaces and other public monuments, and to leave his sky-line and his frontage unbroken by any competition of pavilions save the one in the center and that on each angle of each front. By this severe measure he hoped to make the unity of his design clear to the most casual observer.

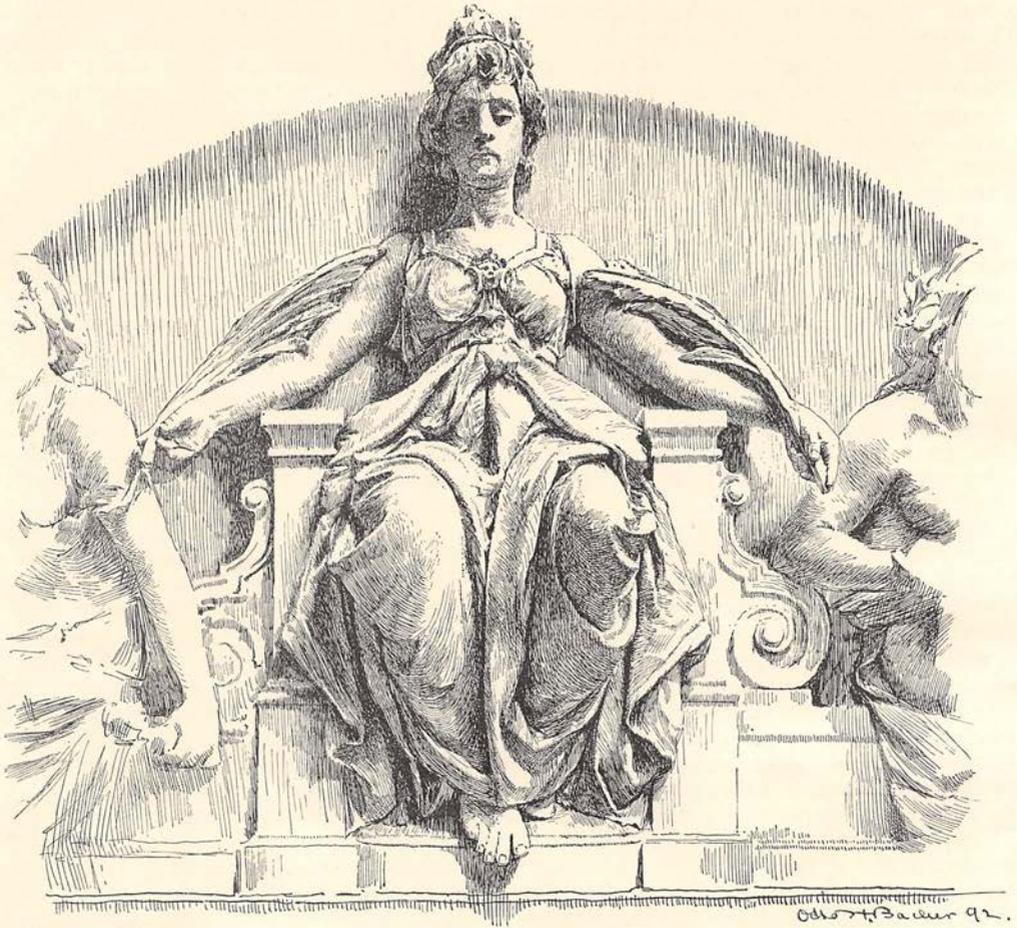
The module or unit of measurement, of 25 feet, with which the architect found it convenient to lay out his plan, communicated to his

elevations a corresponding division of bays, of which 29 occur on each half of the long fronts and 11 on each half of the short fronts. These bays are treated with arches, springing from piers, and each archway embraces two stories. It was anticipated that these long, monotonous, and mechanical perspectives of equal and similar arches would affect the eye like the arcades of the Campagna, and would rather increase than diminish the apparent length of the building; for repetition, even if mechanical, is, humanly speaking, a suggestion of the infinite, and the architect who has the opportunity and self-denial to adopt it frankly, and on a scale so vast, would give even to the most thoughtless and most uncritical minds a memorable impression of architectural majesty and repose.

Now the covered ambulatory, or stoa, which is made a feature of all the court fronts, should, on account of the great length of these long façades, where there is no other natural refuge from the sun, be extended all around the building, but within its lines. The lintel course or decorated belt, which is the exterior development of the floor of the second story in each bay, is supported by an open, flat, segmental arch springing from pier to pier; behind these arches this continuous ambulatory obtains spacious shade. Frequent doors open upon it from the interior. No subordinate architectural order of columns was placed under this lintel course, as was done with singularly happy results in the Agricultural Building, because it was apparent that such an order would not have been in scale with the rest of the design, and would have introduced an element which would have complicated with unnecessary details the careful simplicity of its lines and the studied breadth of its general treatment.

The adoption of a severe classical formula for the building naturally led to the adoption of a common *motif* for the four central pavilions, and another, adapted to its situation, for each of the corner pavilions. These repetitions were encouraged by the fact that all the façades were of equal importance. As these pavilions must be distinctly recognized as the main porches, they must break the monotony with emphasis, or they will not be adequate. Consequently at these points there should be a sudden change in the architectural scheme of the fronts. But the strictly classic ideal does not seem to be favorable to the absolute interruption of all the horizontal lines of frontage by the pavilions; there must be some connection by continuity of lines between them.¹ The Greek

¹ The solution of this continuity, boldly attempted by the architects of the Machinery Building in their central towers, which, as we have noted, interrupt all the lines, constitutes the most remarkable feature of their design. This, as we have said, is contrary to the



KARL BITTER, SCULPTOR.

PART OF GROUP ABOVE MAIN ENTRANCE OF MANUFACTURES AND LIBERAL ARTS BUILDING.

idea of a monumental entrance is a columned propylæum; that of the Romans, who better understood pomp and ceremony, is an arch. The former would be appropriate if the general architectural character of the façades were based upon an order of columns or pilasters; in the present case the latter would more naturally follow.

Thus the architect, by logical process, encountered the idea of inserting in the midst of his arcades the triple triumphal arches of Constantine or Septimius Severus, and of stopping his arcade at the corners with the single arch of Titus or Trajan, the *motif* in both cases being very greatly enlarged from the original in order to fit the greater scale of the building. The architectural connection of the central pavilions with the mass of the structure is established by bringing their two side arches into the same scale as those of the curtain-walls, and by causing the main cornice line to be continued across the central pavilion or pylon as a string-strict classic idea, but in so far as this interruption does not destroy the unity of the composition, it is the suc-

cessful stroke of one who dares to put his fate to the touch, "to gain or lose it all."

detached from the mass of the building, is sufficiently evident in the perspective views of the long fronts. They furnish the only strongly marked vertical lines in the composition, and by contrast suffice to relieve the design from the excessive predominance of its horizontal lines.

It is to be noted that as yet the architectural expression of this building, the development of which we have been following in the natural order of design, has been confined to the exterior closure of a vast interior space. Before it had been happily determined to cover the interior court with a great glazed roof, it was the professional instinct of Mr. Post to indicate externally that the area enveloped by his façades was not empty, but had a magnificent interior central feature in his original circular hall. To this end, and in order that this feature might become evident from afar as an essential element of design, it became necessary to cover it with a dome sufficiently lofty to be seen over the skylines of the inclosing galleries from usual points of view, and to form a crown and finish to the long, low mass of his building. This feature, if executed, would have exceeded any similar structure yet erected; but as it challenged comparison with the dome of the porch of the Exposition, the preëminence of which it was considered desirable to maintain, it was reluctantly abandoned. But the final treatment of the central court as a hall, 1287 x 387 feet in floor area, covered with a semicircular roof, whose longitudinal ridge rises far above the cornice of the façades, at once suggested an entirely different architectural aspect for the building. By the upward succession of cornice-line, 60 feet high, and clearstory-line, 108 feet high, culminating in a central ridge-line, 210 feet high, a pyramidal effect was secured; the low-lying mass at once obtained adequate height; its vast extent was condoned and explained; a dominant expression of unity was conferred upon the composition; the upper outlines of the façades were projected against a colossal roof instead of the empty sky; and the roof itself, wisely left to the majesty of its dimensions and to the simplicity of its structure for architectural effect, enhanced the refinement and purity of the architectural screens below.

Indeed, this design as a whole admirably illustrates the fact that reservation rather than expenditure of force is the secret of noble art. The modern architectural mind is an archæological chaos of ideas inherited from Egypt, from the far East, from Greece and Rome, from the middle ages, and from the Renaissance. Under these circumstances the highest virtue which can be exercised by the educated architect of

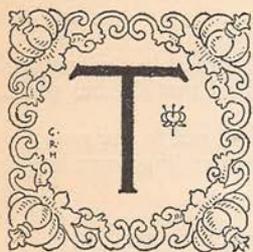
to-day is self-denial in the use of his treasures. He who squanders them in his work betrays his trust, and depraves the art of his time. He who can be refined in the use of the splendid resources furnished by his knowledge of the past, who can be simple in the midst of the temptations to display his wealth, is rendering high service to a civilization which, in the midst of its complications and sophistications, needs the refreshment and chastisement of pure types.

It is evident that within his classic Roman frame Mr. Post has desired, in his detail of decoration, to bring his design into sympathy with modern civilizations; for we shall see that the luxury of Napoleon III. affects the sculpture of his spandrels and panels, and that nearly all the ornament bears traces of the influence of the latest French Renaissance and the last Paris Exposition. Moreover, in order to relieve his design from the serious expression imposed upon it by the grandeur of his leading motives, he makes a very proper concession to the festive and holiday aspect which should pervade the place by planting permanent standards and gonfalons on his triumphal arches, and by decorating his battlements with banner-staffs and bunting.

We have repeatedly stated that these papers do not embody either a description or a criticism, nor yet an apology, but constitute an attempt to explain the architectural development of the Exposition buildings. But it may be proper, before leaving the consideration of the largest of these buildings, to look back upon Mr. Post's immense façades, and to ask whether, if they had been treated with the variety, contrast, and balance of motives customary in the works of the Renaissance, if they had been broken by towers and campaniles, or tormented by gabled pavilions, they would not have presented a somewhat confused and incoherent aspect, wanting in apparent unity of thought, and resembling rather a combination of many buildings of various use than a single building of one use; and further, whether the simplicity of treatment which he has preferred (and which some, not considering its detail and the unusual difficulties of the problem, might call poverty) has not resulted in a composition having architectural qualities which, instead of confusing and puzzling the mind, can be read, understood, and remembered with pleasure. The civilization of our time owes a debt of gratitude to any architect, or to any writer, who, in the midst of the temptations which beset us to force effects of beauty by affectations and mannerisms, dares to make his work at once strong, simple, and elegant.

Henry Van Brunt.

ARCHITECTURE AT THE WORLD'S COLUMBIAN EXPOSITION.— III.

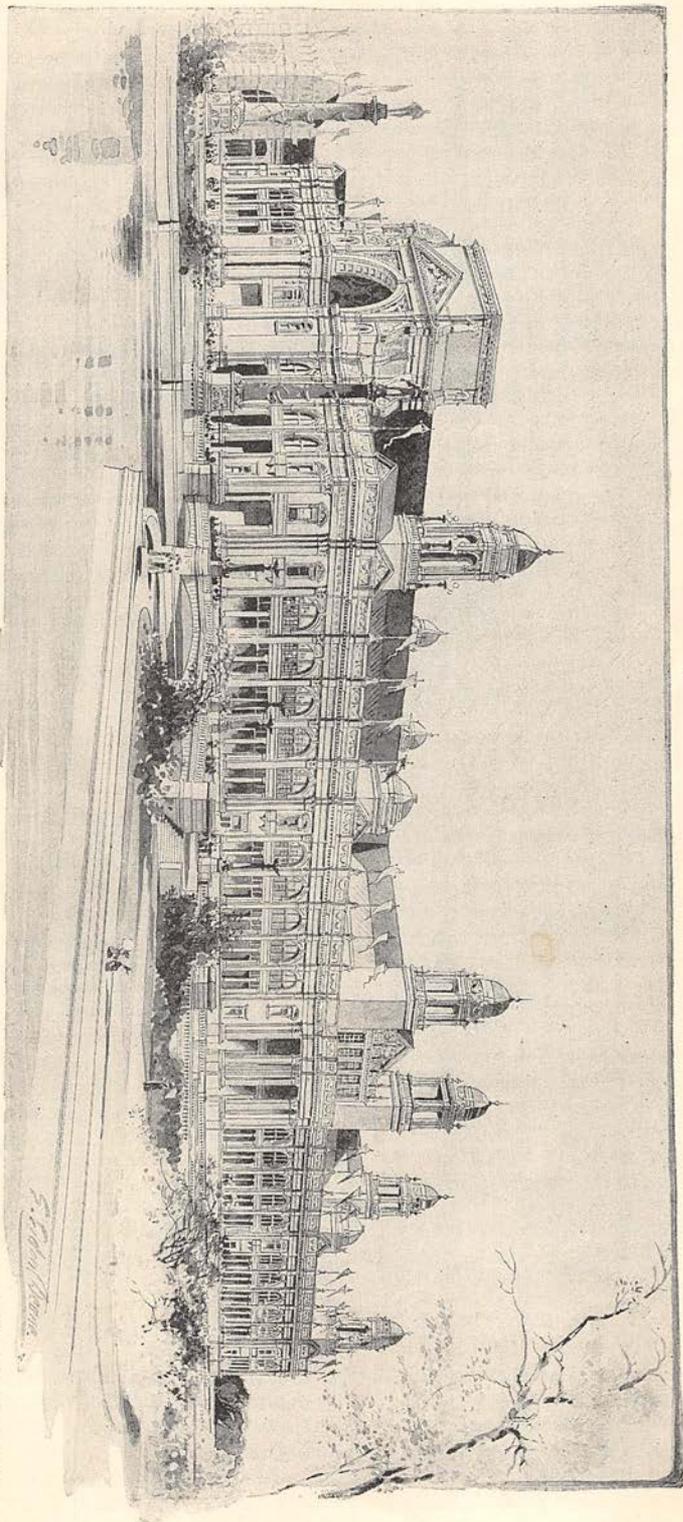


On the building for the department of Electricity was assigned an area 350 feet on the court and 700 feet long, the major axis running north and south. Though peculiarly fortunate in its site, having an important frontage on the lagoon as well as on the court, it was the smallest building of the principal group. It thus became incumbent on its architects, Messrs. Van Brunt & Howe of Kansas City, so to design this building that it should not be overwhelmed by the superior mass of its neighbors, and that, if possible, it might have such characteristics as should at once conceal and justify its inferiority of size; which inferiority, however, is only comparative, the actual area to be occupied being considerably in excess of that covered by the Capitol at Washington. Its purposes seemed to suggest a playful animation of outline, somewhat like that of the early French Renaissance in the châteaux, approaching even the fantastic joyousness of Chambord, combined with a certain delicacy or preciousness of detail, which might legitimately differentiate it from the rest in regard to expression while, in respect to general style and feeling, and in loyalty to scholastic types, it should still belong to the same architectural family.

The area is conveniently divisible into 23-foot squares by two systems of parallel lines crossing at right angles. Upon the intersection of these lines the columns and piers of the exterior and interior are placed. This module of 23 feet, being somewhat less than that adopted for the other buildings, assists in carrying into execution that more delicate scale of design, that nervousness of movement and avoidance of massiveness, which, as we have intimated, seem to be suggested by the idea of electricity. It soon became evident that the space set aside for this department of the Exposition, though covering 4.85 acres, would be insufficient to meet the demands of exhibitors, unless the largest possible amount of floor-space which could be gained within it should be made available to them. This at once suggested a second story of flooring, covering as large a space as the necessary openings for the admission of day-

light from the roof into the central parts of the first story would admit. To obtain the obvious advantages of grand central avenues in both directions, it was clear that the building should be crossed by longitudinal and transverse naves, open from floor to roof and free from columns. The module of 23 feet enters fifteen times into the width of the building. Five of these modules, or 115 feet, are taken for the width of the naves, and they are covered with pitched roofs, supported by steel arched trusses, set 23 feet on centers, and lofty enough to permit a line of clearstory windows to be elevated above the rest of the building, which, for its part, is divided into five aisles on each side of the longitudinal nave, each one module wide, and these are covered with continuous flat roofs, with a series of skylights over the central aisles corresponding with openings in the second floor. Access to these galleries is obtained by grand staircases, one on each side of each of the four main central porches.

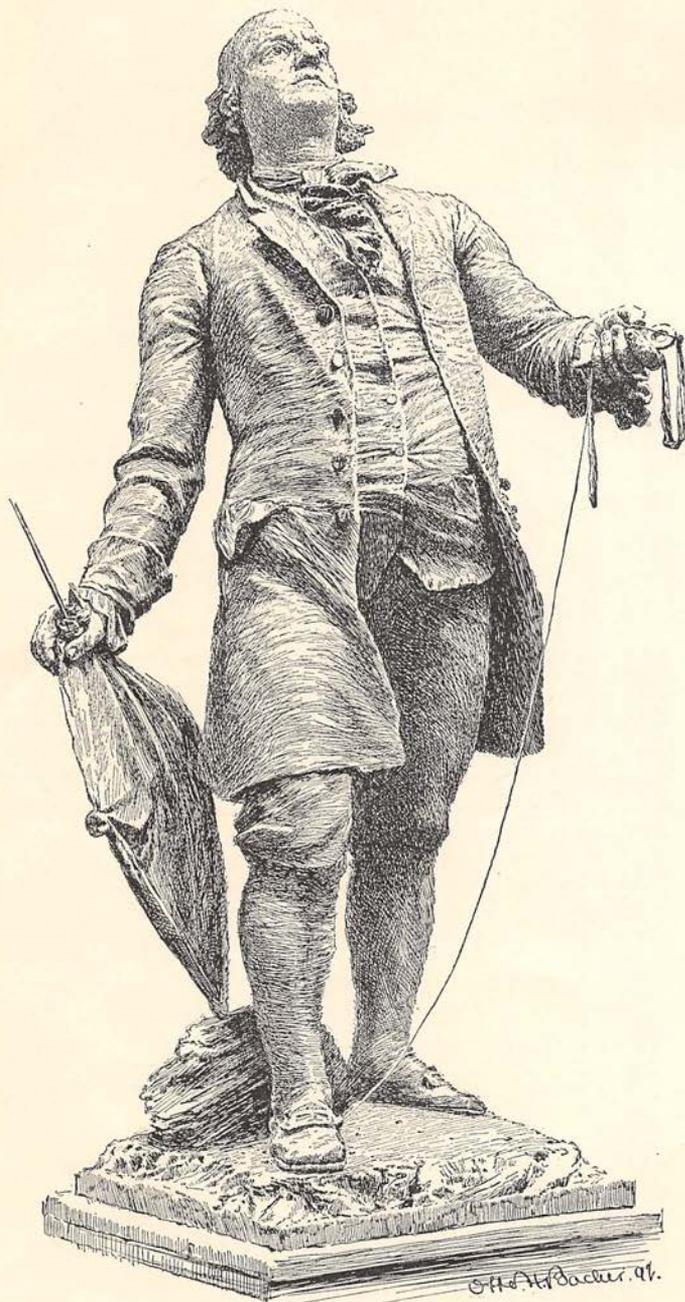
The main exterior architectural expression depends upon these simple primary conditions. Where these high naves abut against the center of each of the four façades, an important entrance pavilion is naturally established. As for the inclosing architectural screen walls around the rest of the building, the interior module of 23 feet naturally produces a corresponding series of divisions into bays, which must be 60 feet high to the cornice for the sake of that unity of style agreed upon for all the court buildings. These screen walls are hardly long enough to permit the arrangement of the bays in groups or large divisions, without by this means drawing attention to that comparative inferiority of size which it appeared to be the obvious duty of the architects to conceal or condone; nor do the conditions of the plan suggest such groups or divisions anywhere except in the center of each front. Each bay, therefore, is made complete in itself, and is so devised as to admit of repetition all around the building, interrupted only by such slight breaks, with variations of *motif*, as are essential to illustrate the plan, to furnish bases for frequent towers, and to prevent the monotony from becoming mechanical and fatiguing, but not of sufficient emphasis to clash with that expression of continuity which is recognized as an important element in noble architecture, and which, in the present case, is an echo of the plan.



DRAWN BY E. ELSON DEANE.

THE ELECTRICITY BUILDING.

VAN BRUNT & HOWE, ARCHITECTS.



CARL ROHL SMITH, SCULPTOR.

STATUE OF BENJAMIN FRANKLIN FOR ELECTRICITY BUILDING.

Now the horizontal line, which is the predominant characteristic of all classical buildings, implies dignity and repose. But the present object is to obtain in some way an expression of brightness and movement. To this end the piers, regularly spaced, 23 feet on centers, along the façades, are treated as boldly projecting pilasters, resting upon a stylobate

8 feet high, which is made continuous to prevent the composition from becoming disjointed, but having the cornice and the paneled attic above the cornice broken around them. Each pilaster, so emphasized and detached, is finished with a pedestal upholding a staff for banners and for a constellation of electric lights, thus carrying the vertical line lightly to the sky, and securing an effect somewhat similar to that of a pinnacled buttress. This order of piers, or pilasters, is adjusted to the proportions and details of the highly enriched Corinthian of Vignola. Between each pair of pilasters the bay is divided horizontally, on the line of the gallery floor, by a subordinate Ionic entablature, supported by two jamb pilasters and by a central column of that order, the space above being treated with an arch deeply embayed. Behind this architectural screen are placed the windows, set in bronze frames. These openings occupy an unusually large proportion of the wall-veil, because of the necessity of throwing abundant light across the five ranges of aisles in both stories. Near each end of the façades this continuity of similar open bays is relieved, or punctuated as it were, by a solid bay of the same width, but of slightly increased projection, pierced with a small window in each story, the upper one having a balcony supported by sculptured brackets. The narrow pavilions thus formed are finished on the attic line with highly enriched pediments, and form the basis of a more emphatic expression of vertical energy by supporting in each case a slender open campanile of the Composite order, rising suddenly from behind the balustrade of a platform, on the corners of which are planted tall candelabra with groups of electric globes. On the long fronts, midway between each end pavilion and the central

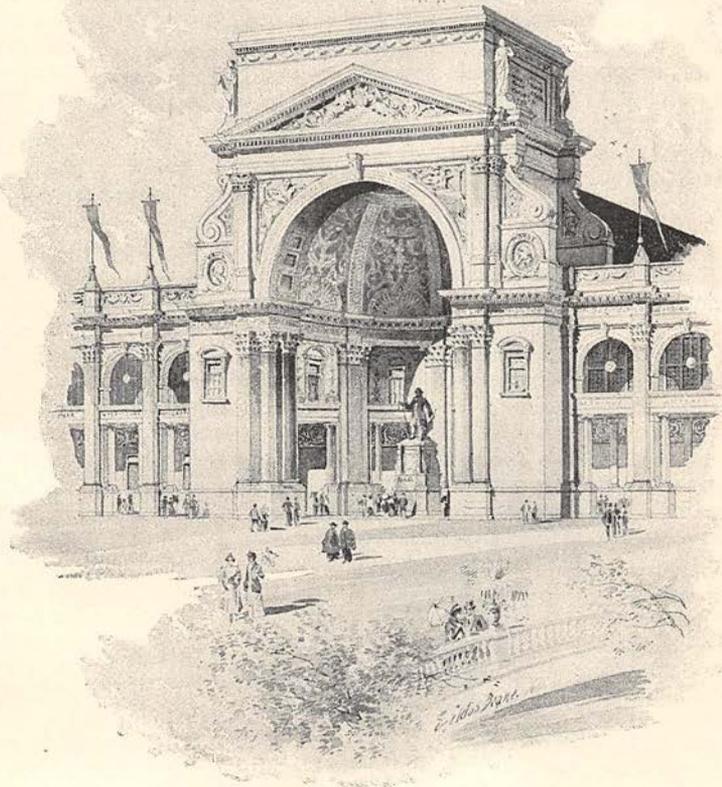
porch, the succession of similar bays is again broken by a postern doorway, set in a narrow intermediate and subordinate pavilion, crowned with a low square dome decorated with eagles.

As we have already intimated, where the transept abuts against the center of the long east and west fronts, an important central pavilion is developed. In pursuance of the scheme of this design, which is to take advantage of every opportunity to emphasize its vertical elements, this pavilion is flanked by two towers, one bay wide and three bays apart. Each of the towers supports an open belvedere, crowned with a high, round attic, decorated with festoons and vases, and roofed with a stilted dome, after the manner of Sir Christopher Wren. Each of these belvederes finishes with a girandole, 195 feet from the ground, furnished with a corona of incandescent lights under a reflecting canopy. Between these towers projects a flat-roofed portico, composed of columns 42 feet high, continuous with the order of Corinthian pilasters of which we have spoken, arranged upon a plan with rounded corners, so that, by the necessary multiplication of breaks and returns in the entablature at the angles, the seri-

ousness of the more classic *motif* might be tempered to the lighter mood to which the architecture of this building is committed. Above is a high Composite attic with windows, set between the towers, and finishing with a balustrade, decorated with obelisks. Twenty-three feet behind this balustrade the gabled end of the transept roof may be seen.

The north front, toward the picturesque lagoon, being, by its position, relieved to a certain extent from strict conformity to the classic ideal, seemed to invite a greater freedom of treatment than was admissible elsewhere. Here, therefore, the order of the façades, after

passing the point of demarcation furnished by the corner pavilions, is made to sweep around two apsidal projections, 115 feet in diameter, between which is recessed the north porch, composed of two towers, similar to those of the east and west porches, flanking a broad central pavilion, pierced with a great arched



DRAWN BY E. ELDON DEANE.

PORCH OF ELECTRICITY BUILDING.

window, corresponding with the arch-lines of the steel trusses in the long nave, and divided by transoms and mullions. The sky-line between these towers is made horizontal, and the spandrel panels of the arch are occupied by gigantic reclining figures typifying Investigation and Discovery. The porch is formed by the Ionic order of the façades, which is extended between the apses in the form of an arcade of five arches supporting a wide terrace or balcony.

Up to this point, for the reasons stated, the design of the Electricity Building is characterized by an emphasis of vertical expression un-

usual in academical architecture, the sky-line being fretted by ten campaniles, varying in height from 154 to 190 feet, and by the four square intermediate domes, which mark the position of the posterns. But, on the south front, it was necessary to make a concession to that spirit of grandeur and ceremony which should prevail around the great court of the Exposition. Accordingly the vertical line, predominant elsewhere in the building as a foil to its long, low, horizontal mass, is here subordinate to the spirit of repose. To this end the campaniles on the corners are set back from the front, but connected with it by gabled pavilions, 23 feet wide, and the principal entrance of the building on this side is treated as a triumphal arch, 60 feet wide and 92 feet high, of which the archivolt springs from the main cornice as an impost, the jambs being formed of coupled full columns of the main order with corresponding pilasters. This arch is crowned with a classic pediment containing an escutcheon, which bears the electromagnet as a symbol of electricity, and is supported on each side by a female figure representing the two principal industries connected with this science—electric lighting and the telegraph. Above, in contrast with the somewhat fantastic movement of the sky-lines elsewhere, rises a solid elevated attic, forming a severe horizontal outline against the sky. This central mass is buttressed on each side by great consoles, supporting emblematic statues and resting on pedestals, continuous with the clearstory of the nave, and embellished with medallions of Morse and Vail, the American discoverers of the electric telegraph. The most famous and most cherished association of America with the history of the science of electricity is the discovery of the electric properties of lightning by Franklin. The architects determined, therefore, that a statue of the patriot-philosopher should stand under this great arch, and that to him the main porch on the court should be dedicated. This work was intrusted to the Danish-American sculptor, Mr. Carl Rohl Smith, whose conception of the subject is happily realized in a spirited figure, 15 feet high, representing Franklin as the philosopher, with the historic kite and key, observing the storm-clouds. This noble statue is elevated on a high pedestal in the center of the porch, and behind and over it is formed a colossal niche, of which the triumphal arch is the frame, covered with a half dome or conch, divided by ribs, and profusely enriched with bas-reliefs, recalling, in general aspect, the much admired hemicycle or belvedere in the court of the Vatican palace, and, in detail, the characteristic stucco embellishments in the vaults of the Villa Madama. Around its curved walls is carried the great order of the building,

with grouped pilasters. On the main frieze of this niche is written the famous epigram of Turgot in honor of Franklin:

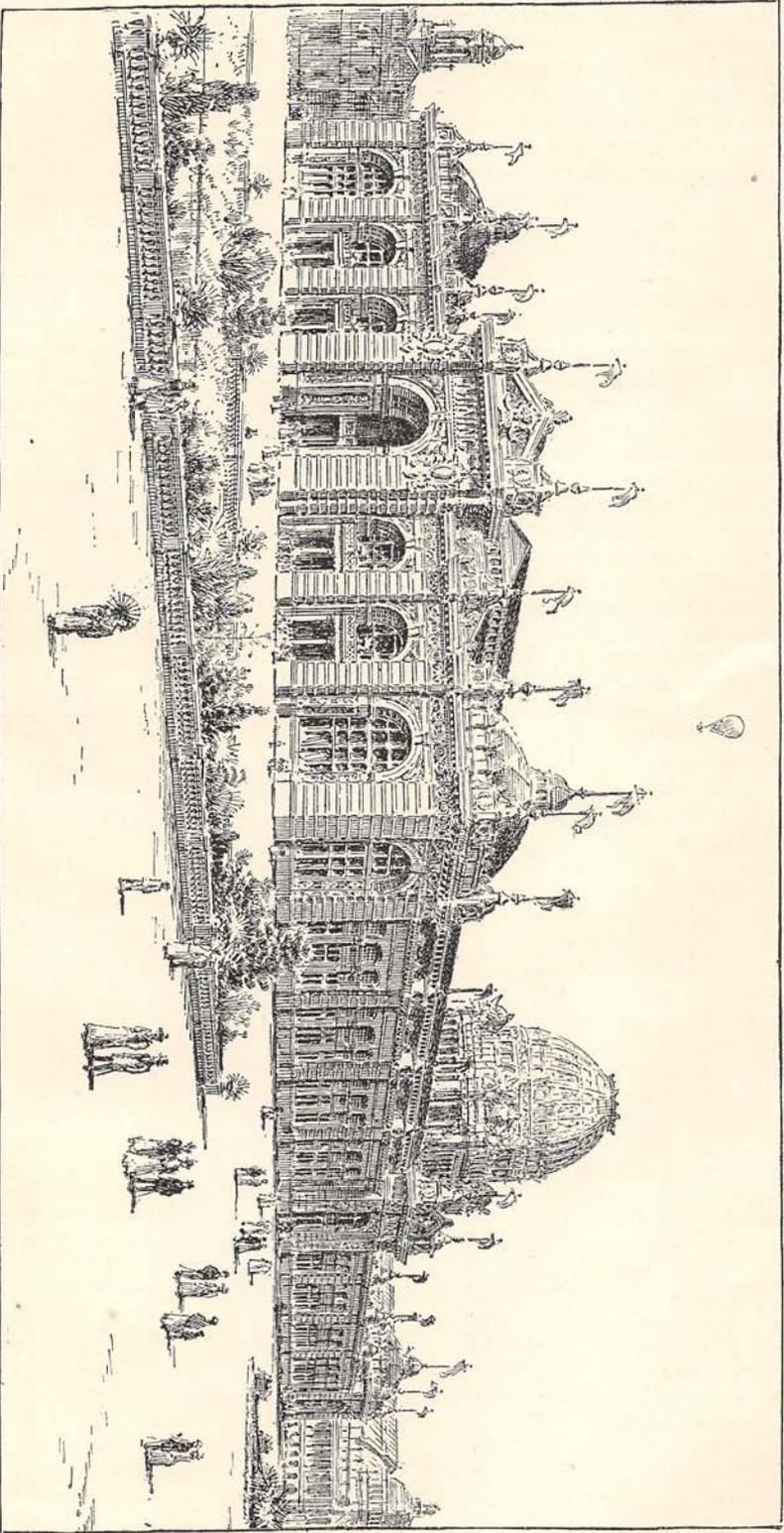
ERIPUIT COELO FULMEN SCEPTRUMQUE
TYRANNIS.

In the five bays of the niche are the main doorways, three of which, in the back, open into the central nave; the other two, toward the front, give access to an open ambulatory or portico, which forms the first story of the court frontage of the building. To this portico the subordinate Ionic order of the façades is arranged to form a screen, with two detached columns in each bay. Upon the frieze of this order, where it occurs in the hemicycle, appear the names of the most famous deceased Americans connected with electricity: Henry, Morse, Franklin, Page, and Davenport; while outside, upon the same frieze, in alphabetical order all around the building, are the names of sixty-six great electricians of all ages and countries, whose names have passed into history. The fame of living electricians must rest upon their displays within the structure.

So far as practicable, the decorations of this building are devised to suggest its uses, the conventional embellishments of the orders being varied by the frequent recurrence of the electromagnet and lamp, and the recesses of the hemicycle and porticos being enriched with color. It is intended also to illuminate and emblazon the architectural features at night with an electric display of unprecedented interest and magnitude.

The architectural modeling of this building was done under a contract with the Phillipson Decorative Company of Chicago, the sculpture of the main pediment being from the hand of Mr. Richard Bock of Chicago.

THE suggestion which has been made that that part of the Electricity Building toward the lagoon would permit of a freer treatment, by reason of the more natural conditions in the landscape of that region as compared with the artificial character of the court, has a much larger and more important application. All the buildings which we have been considering, because they formed a distinct group, and inclosed an area where art was everything and nature nothing, were for obvious reasons developed according to classic formulas. It seemed proper that, in this entrance-court of the World's Exposition, the world should be received with a formal and stately courtesy, illustrated and made intelligible by an architecture which is the peculiar expression and result of the highest civilizations of history. It was like the use of the Latin language, which, by monumental



DRAWN BY C. A. VANDERHOOF.

FROM A DRAWING BY E. ELTON DEANE.

S. S. BEVAN, ARCHITECT.

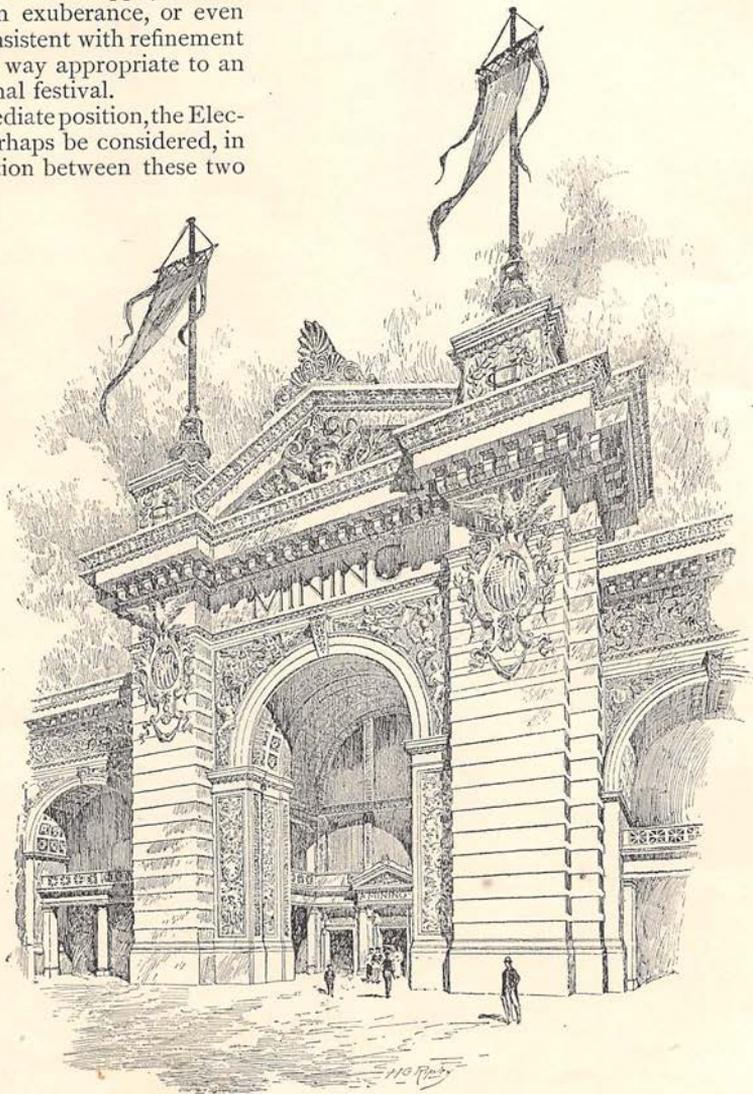
MINES AND MINING BUILDING.

usage, lends dignity to modern inscriptions, and, by tradition, embalms the liturgical service of the Roman Catholic Church. For reasons equally obvious, the other buildings, which are mainly in charge of the local architects, and which are to be placed in a region where natural conditions are intended to prevail, might receive a development much less restricted in regard to style, and, by following more romantic lines, might be more happily adjusted to their surroundings. These surroundings invite picturesqueness, freedom — qualities peculiarly grateful to American genius, which is naturally impatient of authority and discipline. But we think it will be seen that the architects of Chicago have known how to express these qualities without that license which unhappily is also American; yet with an exuberance, or even joyousness, entirely consistent with refinement of feeling, and in every way appropriate to an occasion of high national festival.

Because of its intermediate position, the Electricity Building may perhaps be considered, in some respects, a transition between these two extremes of architectural thought. At all events, in its sister building, that of Mines and Mining, which occupies a site next west of the Electricity Building, lies parallel with it, and is of nearly the same dimensions, the architect, Mr. S. S. Beman of Chicago, has made a frank departure from the pure-classic tradition, exhibiting an adaptation of form to use, of means to ends, in entire conformity with the practical spirit, without caprice, and without sacrifice of any essential quality of art. The contrast between these two buildings clearly illustrates how even the conventional forms of architecture may be so handled as to express a fundamental difference of sentiment, corresponding to the difference of occupation.

Mr. Beman's plan

for the Mining Building is included within construction-lines giving an extreme length of 700 feet and an extreme width of 350, and he has found it convenient, for reasons hereafter to be explained, to establish 21½ feet as a general module of dimension in laying out his construction. The general scheme of an interior the greater part of which is to be occupied by masses of classified ores, by heavy mining appliances of all kinds, and other bulky exhibits requiring large space and considerable clear height, should provide for a wide, central, open area as little encumbered by columns as possible. Thus the preliminary consideration of this problem seemed to point directly to a study of construction. The roofing of large



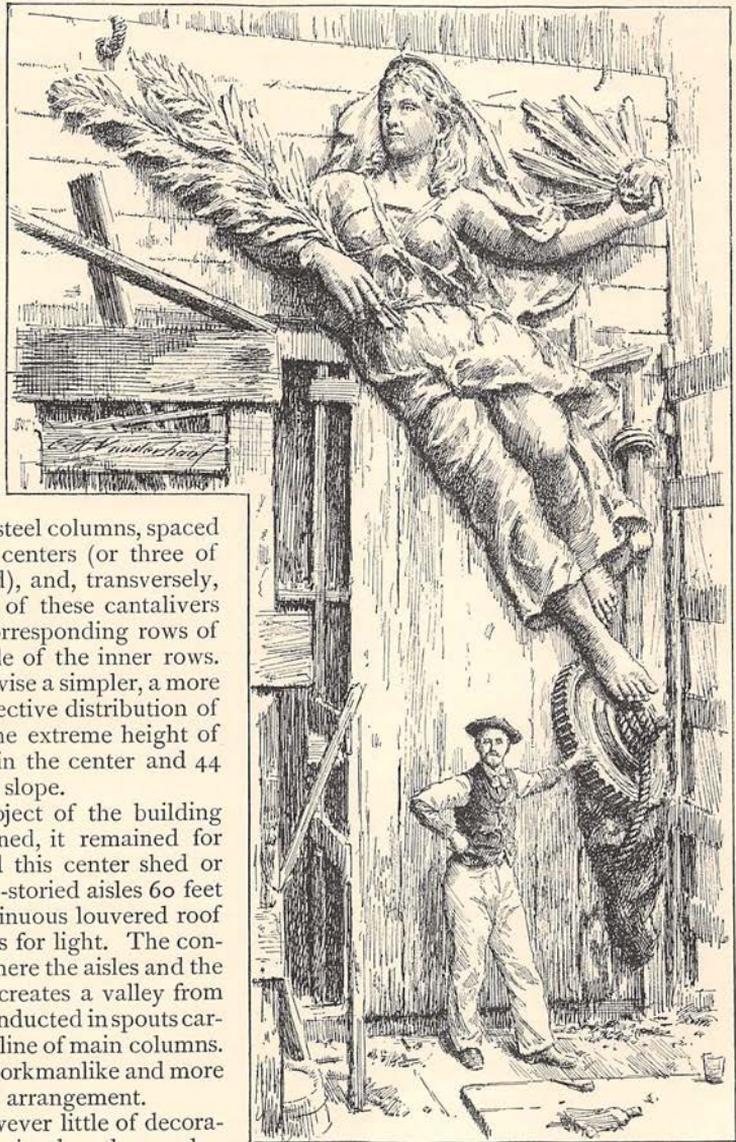
DRAWN BY H. G. RIPLEY.

SOUTH FORECH OF MINES BUILDING.

spaces under similar conditions for the Pullman Company had prepared Mr. Beman to apply a valuable practical experience to the conditions here presented, the result of which was that he was enabled to roof in an area 230 feet wide by 580 feet long (60 feet inside his boundaries all around) by the use of a very light and elegant system of cantaliver trusses, supporting a longitudinal central louver with clearstory lights, and bearing upon two rows of steel columns, spaced lengthwise $64\frac{1}{2}$ feet on centers (or three of the modules above noted), and, transversely, 115 feet; the outer ends of these cantalivers being anchored to two corresponding rows of columns $57\frac{1}{2}$ feet outside of the inner rows. It would be difficult to devise a simpler, a more economical, or a more effective distribution of constructive features. The extreme height of this shed-roof is 94 feet in the center and 44 feet at the bottom of the slope.

The main practical object of the building being thus happily attained, it remained for the architect to surround this center shed or nave with a system of two-storied aisles 60 feet wide, covered with a continuous louvered roof provided with clearstories for light. The conjunction of roof-slopes, where the aisles and the central nave are joined, creates a valley from which the water can be conducted in spouts carried down with the outer line of main columns. Nothing could be more workmanlike and more practical than this whole arrangement.

However much or however little of decorative character may be permitted on the envelop or inclosure of a building of this sort, it cannot be elevated into the domain of architecture unless this inclosure is developed rationally from the essential conditions of structure behind it, and is in some way made expressive of its uses. Moreover, in the present case it is essential that it should be brought, as a whole, into the great architectural family of which it is to form a part, by any concession or adjustment that may be found most convenient. At the outset it would seem that the uses of the building, the comparatively coarse and rough character of the exhibit within, require a massive treatment of the exterior, and that the architectural language employed should in general be such as to express this idea, as it is capable of expressing every



DRAWN BY C. A. VANDERHOOF.

RICHARD W. BOCK, SCULPTOR.

STATUE OF "GODDESS OF FORTUNE."

sentiment, however various, desirable to be conveyed in building as a fine art. It naturally follows that the unusual distribution of the interior supports of the roof structure, $64\frac{1}{2}$ feet on centers, should be expressed in the architectural scheme of the exterior on the sides by a corresponding distribution of piers, and that these piers should be made massive, as if constructed with heavy rusticated masonry laid up in marked horizontal courses. In order to give additional emphasis to these expressive buttresses of strength, the whole entablature or cornice of the building is broken around them, and they are surmounted by decorated pedestals or so-

cles supporting banner-staffs. Considerations of proportion give to these piers a width of 10 feet. It also follows logically that the wide bays between these great piers are divided into three segmentally arched divisions of one module each, corresponding to the spacing of the minor supports of the gallery floor; which, in its turn, compels the establishment of a horizontal paneled division in each of these arched divisions, thus forming the first- and second-story window-openings needed for the proper illumination of the building. In all their divisions and subdivisions, therefore, these bays are developed from the structure by growth, and not forced upon it by caprice.

The necessity of bringing the north and south ends of the design into a common scale of height with the court buildings, at the points where comparison is challenged between them, suggests the raising of the main cornice here to a level 11 feet higher than that established on the long fronts by structural conditions. These ends are thus converted into distinct façades of seven great bays, the two corner bays and the central bay in each becoming marked as pavilions, the former being 60 feet wide, to correspond with the width of the inclosing galleries behind them, and the latter, which, from considerations of proportion, grows into a width of 80 feet, becoming the main portal of the building. In all cases the massive and buttress-like character of the piers is insisted on, and, in order to preserve the unity of the design, each constitutes the pedestal of a banner-staff, thus conferring the conventional holiday aspect on a sky-line which might otherwise appear too serious and severe for association with the other buildings of the group. The larger scale of the north and south fronts and their more monumental character have suggested the occupation of each of these seven bays by a great arch, those on the corner pavilions being

closed with windows, and the intermediate arches being open with a two-storied loggia behind; but in the central bay the idea of the portal compels the raising of its cornice, the crowning of it with a highly decorated frontispiece in pedimental form, and a marked increase in width, height, and depth of the arch, which is not divided by the loggia of the second story. The superior height and development of this feature also seems to mask the glazed gable-end of the great roof of the central hall; which, however, may be seen in perspective 60 feet behind the line of frontage. The corner bays are furnished with visible low domical roofs supporting circular lanterns. In order to obtain a necessary amalgamation between the monumental masses which form the ends of the building and the long inferior curtain-wall with its nine bays on the east and west sides, it is found necessary in the central bay of these sides to establish a proportionate distribution of masses by repeating in it the motive of the corner bays with their higher entablature, and by crowning it with a pediment, treating the archway as a subordinate entrance or exit in the middle of the long fronts.

Mr. Beman has not attempted to follow the historical styles with precision. Indeed, the logical development of his façades has necessarily conferred upon them a proper modern character. We, however, may see here the influence of the example of the great modillion cornices of the Italian palaces of the sixteenth century, and much other Italian detail of the best eras, mingled with some of the elegant license of the modern Renaissance of France; and in the treatment of the balconies of his loggia, and of the Doric order which upholds them, we may discover a return to the Rome of the Cæsars. The sculpturesque modeling of this building was executed in the ateliers of the Phillipson Decorative Company of Chicago.

Henry Van Brunt.



CENTRAL PEDIMENT OF AGRICULTURAL BUILDING.

LARKIN G. MEAD SCULPTOR.



ALICE RIDEOUT, SCULPTOR.

PEDIMENT FOR WOMEN'S BUILDING.

DRAWN BY A. BRENNAN.

ARCHITECTURE AT THE WORLD'S COLUMBIAN EXPOSITION.—IV.

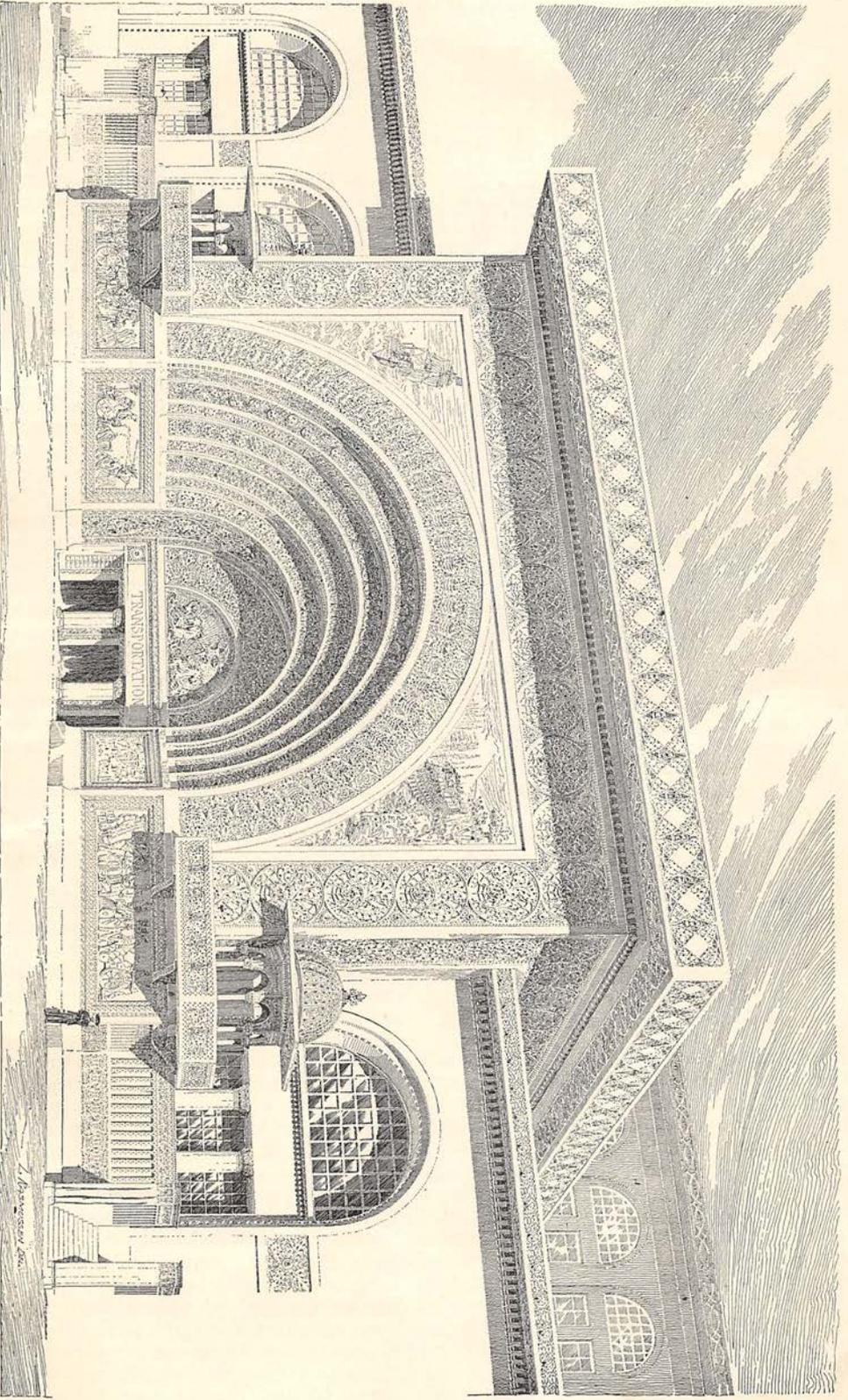


THE site of the Transportation Department lies next west of the Mines and Mining Building, and in necessary and convenient proximity to the railroads. In this case the specific character of the exhibit must dictate even more absolutely the practical plan of the structure which is to accommodate it. A very large and characteristic part of this exhibit must be locomotive engines, and other specimens of railroad rolling-stock. In laying out a system of installation for these, it was found more convenient to arrange the rails at right angles to the length of the building, and to space them 16 feet on centers, in order to allow sufficient room for circulation between them. Two pairs of rails, so spaced, to each bay gave a width of 32 feet, which thus became the constant module of dimension and the common divisor of the plan; indeed, this factor proved the basis of the whole architectural scheme. If it had been a few feet more or less, we should have had a different building. In fact, as is apparent in the analyses of all these designs, the unit of dimension must exercise an influence over architectural compositions analogous to that of the various terms of *tempo*, from *largo* or *adagio* to *allegro*, in their relation to music. The area at the disposal of the architects, Messrs. Adler & Sullivan of Chicago, permitted this divisor to enter thirty times into the length and eight times into the width of their building, which thus became 960 feet long by 256 feet wide, with a triangular area lying westward between the building and the park boundaries, whereon could be located all such annex buildings as might be required to accommodate the rougher rolling-stock, and such other exhibits as could not find place in the main building.

In studying the roofing and lighting of this space, it was found convenient to set aside three of these modules or divisors for the width of a

lofty longitudinal central nave, which should be open to its whole height to accommodate those exhibits requiring considerable vertical space (such as aerial devices and elevators); and two modules and a half on each side for two-storied aisles, where road vehicles, and all other means of light transportation by land or water, could be arranged and classified. Each aisle, as well as the nave, is furnished with double pitched roofs and skylights, and the nave is carried high enough to permit the introduction of two ranges of clearstory windows, of which the lower are circular. It was the purpose of the architects to treat this double clearstory with decorative detail; but considerations of economy have deprived us of much of this interesting interior effect. Studies, however, have been made for the occupation of the triforium wall-space beneath these windows by a broad painted frieze, extending quite around the nave, and setting forth poetically the history of transportation from archaic to modern times. For reasons which will presently appear, it was consistent with their scheme to finish these roofs at the ends with hips, and not with gables.

In considering, in outline, how these great buildings have assumed definite architectural shape, we have been anxious to show that they have grown from practical conditions by logical or reasonable processes, and are not the result of mere personal idiosyncrasies, imposing upon the work favorite formulas of design, which have no essential relations to these conditions. Nevertheless, these buildings, being, in their principles of growth, problems of art and not of mathematics or mere engineering, each has been capable of many widely differing artistic solutions, through equally rational processes, from that which it has actually received, just as the same idea would necessarily be expressed by half a dozen masters of literature in half a dozen different ways, or as the same theme would be treated by several musical composers in several harmonic ways, according to the personal equation or the accident of mood of the master



DRAWN BY L. RASMUSSEN.

GOLDEN DOORWAY, TRANSPORTATION BUILDING.

ADLER & SULLIVAN, ARCHITECTS.



JOHN J. BOYLE, SCULPTOR.

DRAWN BY H. D. NICHOLS.

FIGURE OF BRAKEMAN, TRANSPORTATION BUILDING.

in each case. The architect uses his conventional historic forms as the poet uses his conventional historic words; both forms and words have come down to us, modified and enriched by the generations of mankind through which they have passed, and for this reason there is often a deeper significance in them than is patent to the multitude. Architectural formulas, in their various developments through centuries of usage, have become symbols of the genius of nations; no architect can adapt them intelligently and successfully to his work unless his mind has been saturated with these inner meanings, and unless he has learned to respect the language which he uses. The harmonious combination which he may be able to make of these

forms, and his applications of them to his composition, may be simply correct, because free from errors of architectural grammar or rhetoric; or they may be brilliant, because they are also original without caprice; surprising without evidence of effort; poetic, because of his inner light. The degrees of success range from correctness to brilliancy, and the varieties are infinite.

Now the work of Adler & Sullivan in this Transportation Building is widely different from that which they would have produced had they been placed under those restrictions which, for the reasons stated, were voluntarily and properly assumed by the architects of the Court. The former were free to use any language of form fitted to express the purposes of their building, and they were under no other limitations than those furnished by minds educated and trained in art. In endeavoring to show, therefore, how their work took shape, we shall, in this as in other cases,—carefully avoiding the attitude of criticism, which would be premature and improper,—proceed not as if the methods of development were exact and positive in a scientific sense, and recognizing that there cannot be any single, final, and only possible solution to a problem of art. No true artist ever wrote Q. E. D. under his project.

The general plan and method of accommodation being accepted, we are now in position to see how they will affect the architectural expression of the interior. We imagine the architects reasoning as follows:

It is our purpose to confer upon an object of utility an expression of fitness and beauty—to utter truth, not only with correctness, but with the grace of poetic diction. In the first place, therefore, let us inclose the structure which we have developed with a wall having merely functions of usefulness. In piercing this wall for the necessary windows, let us make one large opening to correspond with each of the 32-foot bays established by our module of dimension; but let us not make these openings so wide as to narrow the piers between them and thus to convert what we intend to be a wall into a colonnade or arcade. Let us preserve the idea of a wall-surface by keeping our piers wide, and by finishing our openings with arches so that the spandrel surfaces between may be added to the area of repose. But in making the window-openings high enough for the practical purpose of lighting the interior, we have left only a narrow and weak wall-surface over them. In order to remedy this defect, and to bring our wall to a height which will not be low when compared with that of our neighbors, we venture to build it 10 feet higher than is constructionally necessary, so that it shall reach a total height of 53 feet, thus forming a screen to mask the aisle-roofs behind. Now,

for the necessary protection and shadow to the plain surface of our wall, let us place upon it a boldly overhanging coping. To give dignity and apparent stability to the closure which we are considering, we then find it necessary to make our wall thick and massive, and these qualities must be illustrated in the treatment of the jambs of our openings. If the jambs are cut through at right angles, we shall make an inadequate and ineffective use of this quality of thickness or massiveness of wall; on the other hand, we shall increase the apparent depth of wall, and draw attention to it, by splaying the jambs with a series of right-angled returns, thus engendering in each opening a nest of diminishing arches, and, as it were, easing off the wall-surface at these points, as was done by the Romanesque and Gothic builders. We have already arranged that our long front shall be thirty bays long, and our end fronts eight bays long. But one of these bays must occur in the center of each front for the sake of the entrances; this will leave a half-bay at the corners. The result of this is that we have a wider pier at the ends, and by this simple device give a natural pause to the succession of arches on each front at the corners, without resorting for this purpose to the conventional end-pavilions, for which our plan does not offer sufficient excuse.

But the frontage which our wall-surface has thus developed, though entirely reasonable, is low, monotonous, and mechanical in its effect. The first difficulty, in its relation to the architectural composition as a whole, we may readily remedy by exaggerating the height of our central nave, so that, from ordinary points of view, it shall be seen to disengage itself well from the ridges of the aisle-roofs which encompass it, and thus form a part of the exterior architecture. To each bay of the upper part of the clearstory, thus elevated, we give two arches, corresponding in character to the single arch in the façade, though properly smaller in scale, and, by the same reasoning, we find it essential to raise these clearstory walls higher than the eaves of the nave-roof, and to crown them with a second overhanging coping.

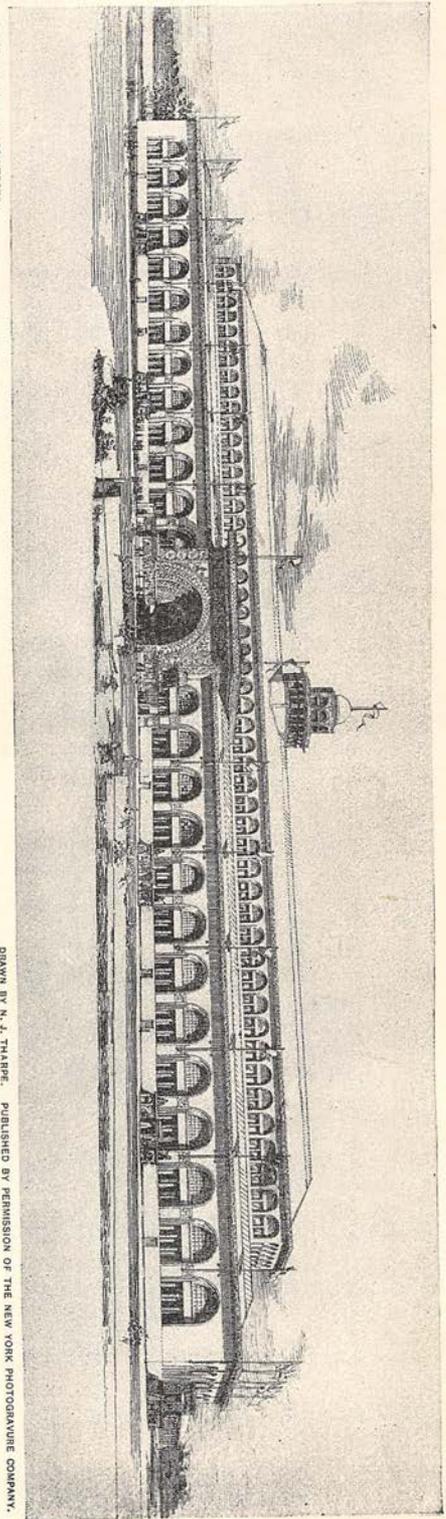
We have thus designed a series of wall-surfaces in what seems to us a perfectly logical manner, but, as yet, with no projections whatever to break their monotony,—no pilasters, no string-courses, no base, no moldings of any sort, and no cornice, in the usual sense,—only a blank flat wall, pierced with deep arched openings, and protected by a boldly overhanging coping, square and uncompromising.

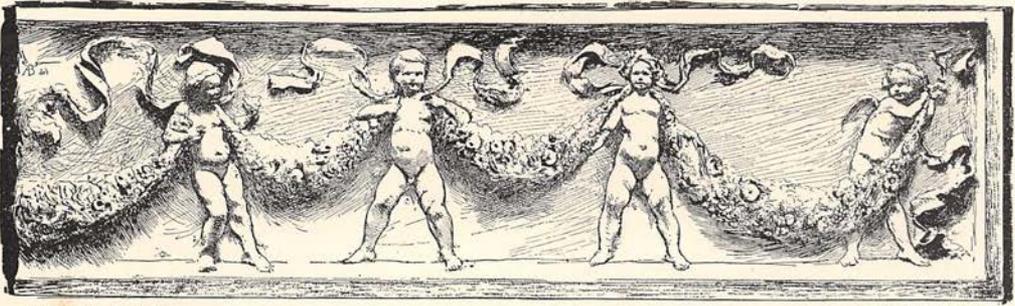
Now shall we make a concession to convention, and attempt to illustrate structure and use symbolically by applying projecting architectural features to our flat wall-surfaces after

ADLER & SULLIVAN, ARCHITECTS.

GENERAL VIEW OF TRANSPORTATION BUILDING.

DRAWN BY N. J. THAYER. PUBLISHED BY PERMISSION OF THE NEW YORK PHOTOGRAPHER COMPANY.





LOREDO TAFT, SCULPTOR.

PORTION OF FRIEZE, HORTICULTURAL HALL.

DRAWN BY A. BRENNAN.

academical fashion and according to Renaissance motives, thereby saying what we have to say in diplomatic language, as it were, using forms which have obtained dignity and significance because of their association with the history of civilization, of which, indeed, they are a part; or rather shall we make this flat wall-surface itself the basis of expression, avoiding words and phrases of Latin origin, and, as was done by the Saracens in the Alhambra, who worked, as we are now working, in a plastic substance, which invited molding beneath the surface rather than carving above the surface—shall we decorate these flat surfaces with repeating superficial patterns? By the latter process we may, where we require, make our planes of construction beautiful without losing

any of the advantages of simplicity and repose, which we are striving to secure by following rational methods. In treatments of this sort the example of Oriental nations is full of instruction, and we know the rich results obtained in this manner, not only by the Moors of Spain, but by Mohammedan art in the mosques at Cairo, and by Indian art in the tombs of Agra. We shall thus get architectural effects of light and shade, not by delicate playing with the complicated shadows and half-lights of pilasters, porticos, and molded entablatures, as in classic art, nor by the bolder *chiaroscuro* obtained by the buttresses, panels, and corbel-tables of medieval art, but by breaking the broadly staring sunlight on our smooth wall-surfaces with the broad black shadows of our coping, with the sharper and finer shade-lines obtained by recessing the window-reveals in a series of narrow planes, and with the regular spotted effects resulting from our spaces of superficial arabesque or fretwork. These wall-surfaces also invite a treatment by contrasts of color in masses or diapers, after the Oriental manner, thus giving opportunity for effects of festivity, which, however, need not derogate from the massiveness and breadth which seem most consistent with the fundamental character of our building.

It is a recognized principle of composition that a mass may be simplified, or even impoverished, for the sake of emphasizing by contrast a certain highly decorated point of interest. This principle seems especially applicable to our present case, because the purposes of our building do not call for an embellishment which would be appropriate in the zenana of an Indian palace, or in the tomb of an Oriental princess. The architectural virtue to be exercised in our case is self-denial rather than generosity. In the mass of our façades, therefore, we should use our facile means of decoration with great prudence, doing no more than may be necessary to make our wall respected as a work of art.

The west or rear side of our building will be completely occupied and masked by annexes; the north and south ends are so situated as

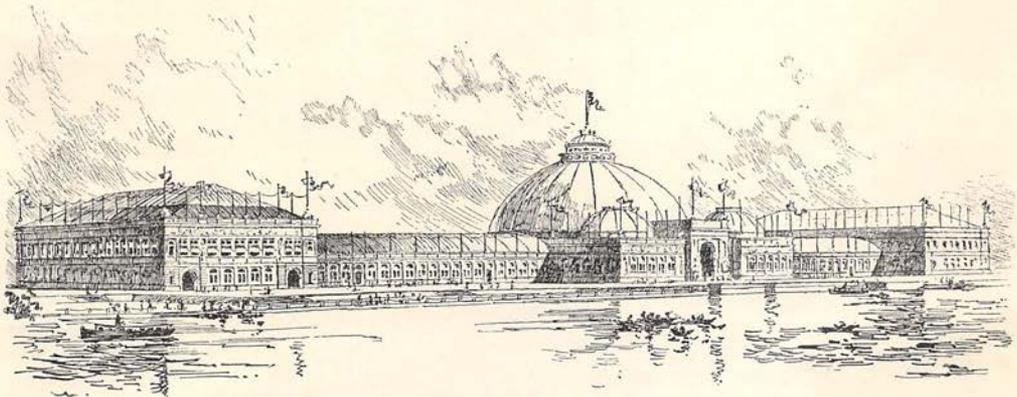


DRAWN BY A. BRENNAN.

BIT OF ORNAMENT, TRANSPORTATION BUILDING.

to make the necessary entrances at these points very subordinate: but the center of the east front, toward the Lagoon and opposite the west center of the Liberal Arts Building, must be the main portal of our design. This feature, therefore, may very properly constitute that point of architectural emphasis of which we have spoken, and to which the rest of this façade must be little more than a preparation or foil. The most majestic feature in the best art of the Mogul emperors, as in the closure of the great mosque at Delhi, or in the Taj-Mehal at Agra, is the porch. It is a flat, square-topped, projecting wall-face, pierced with a lofty pointed arch, forming the opening of

doorway. We may cover the entire superficial area of this pavilion with a delicate embroidery of arabesques and bas-reliefs — its fronts, its returns, its recessed archways, the wall-screen which closes the opening at the back, the face and soffit of its coping, its impost, and its stylobate. We will make the whole fretted mass splendid with gilding, so that this main entrance shall be known as the "Golden Doorway." The pavilion interrupts and discontinues every horizontal line in the edifice, so that we must depend upon a sparse echo of this embroidery on our long wall-faces to bring the composition together and to secure its unity of effect. We will therefore content ourselves



W. L. B. JENNEY & W. B. MUNDIE, ARCHITECTS.

DRAWN BY ALBERT RANDOLPH ROSS. PUBLISHED BY PERMISSION OF THE NEW YORK PHOTOGRAPY COMPANY.

GENERAL VIEW OF HORTICULTURAL HALL.

a deep square niche, and profusely decorated with borders and spandrel panels of arabesque, and with inscriptions in inlay and superficial sculpture. It has no cornice, and frequently is finished with a parapet of lacework. Instructed by a study of these Oriental masterpieces, we may adjust them to our present use with but few modifications. The rigid, square, projecting mass, with its great arched opening, the profuse superficial decoration, and even the light characteristic kiosks or pagodas which accompanied the original, may all be reproduced here; but in order to amalgamate the whole with the work which we have already developed, it must finish with a similar bold overhanging brow, the arch must be low and round, that it may occupy a proportionate space in the face of our pavilion, and its opening must diminish inward in a succession of lessening arches in the Romanesque manner (Romanesque and Saracenic art having a common parentage at Byzantium), until the opening is reduced to dimensions practicable for a

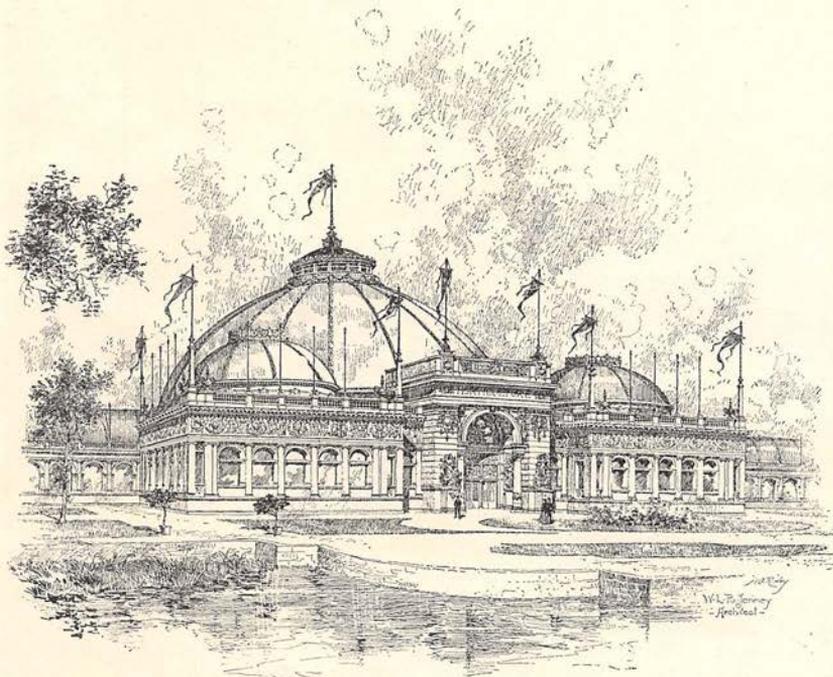
with its use on the piers at the point where our arches spring, and on the under side of the coping. Practically the rest is left in repose to offset the splendor of the center. But in order to give a degree of movement to the hard square outlines of the pavilion, and to secure somewhat of a pyramidal effect, we support it on each side with terraces and balconies on a level with the impost of the arch, and accessible by outside stairs, and on each terrace we build a light kiosk against the pavilion in the manner of the Mogul architects. By this somewhat playful device we hope to secure for our building an aspect of festivity more appropriate to the place and occasion than would be obtained if we were content to leave its lines all severely adjusted to rational conditions of design. In like manner, and with the same object of conferring points of interest on the long plain line of frontage, we may venture to open four small exit doors, two on each side of the central portal, with decorated architraves, and flanked by pedestals against the adjoining piers

to support groups of typical statuary. The end entrances may be constructed with low, square-topped, projecting pavilions, highly enriched, and flanked by terraces and staircases as in the front. In the center of the nave provision is made for a competitive exhibition of transportation by elevators. These are arranged in a group around a cylindrical core, and give access, by bridges across the nave, to the second floor and to a great terrace over the central portal, and connect with observatory balconies which surround a central lantern. This is the culminating feature of the design; it is highly decorated, and completes the exterior.

We have already stated that the decoration concentrated at various points on the Trans-

in the history of the world—the new birth of the mind, the revival of learning, the reformation in religious, political, and social life, which made modern civilization possible. These conventionalities, based upon ancient example, and highly organized by the discipline of the schools, are the symbols of this civilization. Such work as we see in the architectural system of the building which we have just been studying in outline may, in comparison, be considered romantic or barbaric (using the term in no derogatory sense, but as defining a condition of design outside the pale of classic authority), a product hardly less of invention than of convention, developing from within outward, and taking forms less consciously affected by his-

torical precedent. This assumption of freedom in the hands of uneducated men becomes license and disorder; in the hands of men of training, but without principles, it becomes insubordination, and results in clever work of mere swagger and audacity, a manifestation of personal idiosyncrasy, more or less brilliant and amusing perhaps, but corrupting and unfruitful. With knowledge, but without genius or imagination, it becomes



DRAWN BY H. G. RIPLEY.

CENTRAL DOME AND PORCH OF HORTICULTURAL HALL.

portation Building is composed of arabesques. These are mostly foliations, more or less based upon regularly recurring geometrical systems, but following nature in varieties of form and principles of growth. At certain important points these arabesques are frames to figure-subjects in relief, illustrating in allegorical fashion the objects of the building. Properly to complement what we have here supposed the architects themselves might say regarding the genesis of this design, it seems desirable to add a few words of general statement and wider application.

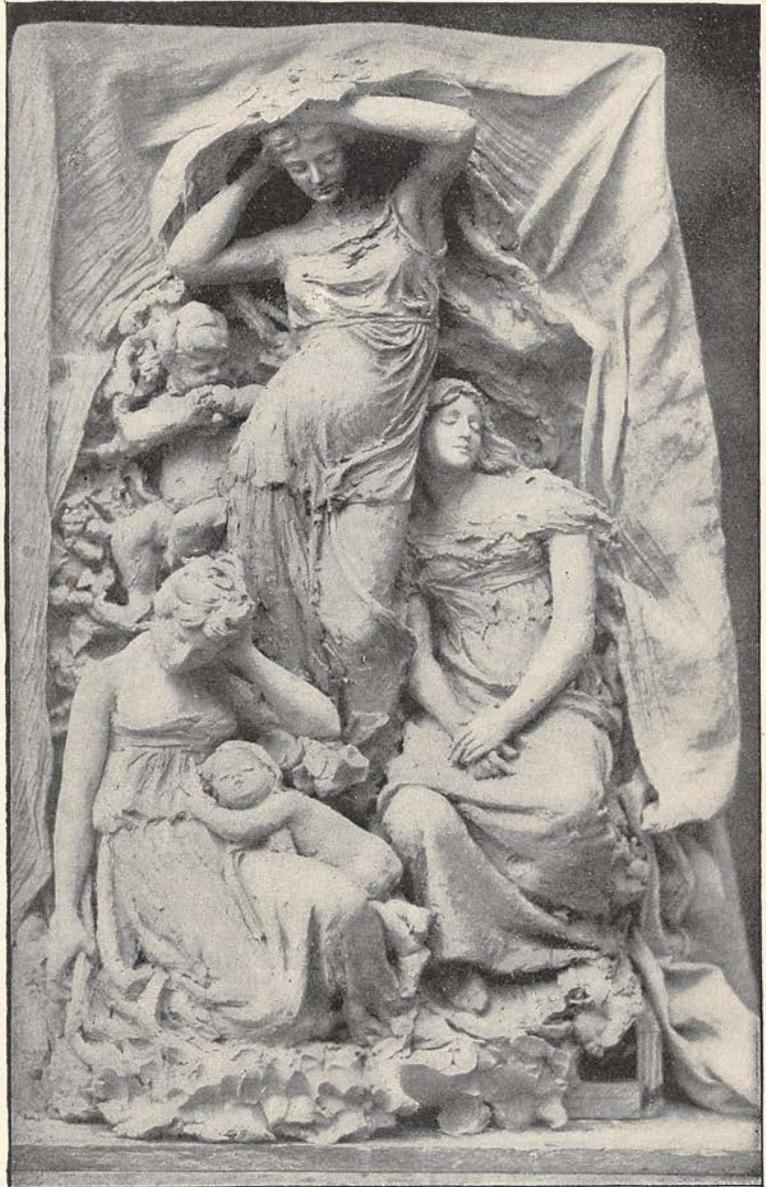
The exact and scholarly conventionalities of the Court buildings recall the most brilliant era

merely archaeological: but under favorable circumstances this romanticism may rise into a region of purity, sobriety, and elegance hardly inferior to that occupied for more than twenty centuries (allowing for the medieval interruption) by classic art. Into this region of difficult access the accomplished architects of the Transportation Building are seeking to enter with a fine, courageous spirit of duty, and the evidences of their work, not only on the Exhibition grounds, but more conspicuously in the Auditorium of Chicago, and elsewhere, are sufficient to indicate that somewhere perhaps in this dangerous field there may be a regeneration for the art of our time and country—not a re-

vival of forms, but an establishing of principles, instructed rather than controlled by a spirit out of the inexhaustible past.

It is eminently fitting that in this exposition of national thought in architecture, our characteristic spirit of eager inquiry, of independent and intelligent experiment, should have the fullest illustration. If our late studies in Byzantine Romanesque and Saracenic art may seem to the foreign critic merely empirical, we may be able to show that in some instances they have been carried far enough to exercise a fructifying influence in the development of style in this country, and to infuse new blood into an art which, in the hands of the graduates of our schools of design, may be in danger of becoming scholastic or exotic, and of developing forms far removed from the uses and sympathies of modern life. In fact, it is not from loyalty to ancient formulas of beauty, not from revivals or correct archæological repetitions, that the true regeneration of modern architecture must come, but from the application to modern necessities and modern structure of the principles which controlled the evolution of the pure historical styles.

MESSRS. W. L. B. Jenney & W. B. Mundie of Chicago, architects of the Horticultural Building, have been able to occupy the beautiful site at their disposal with a magnificent frontage of 1000 feet, facing the Lagoon, the ornamental gardens and parterres of the floral department



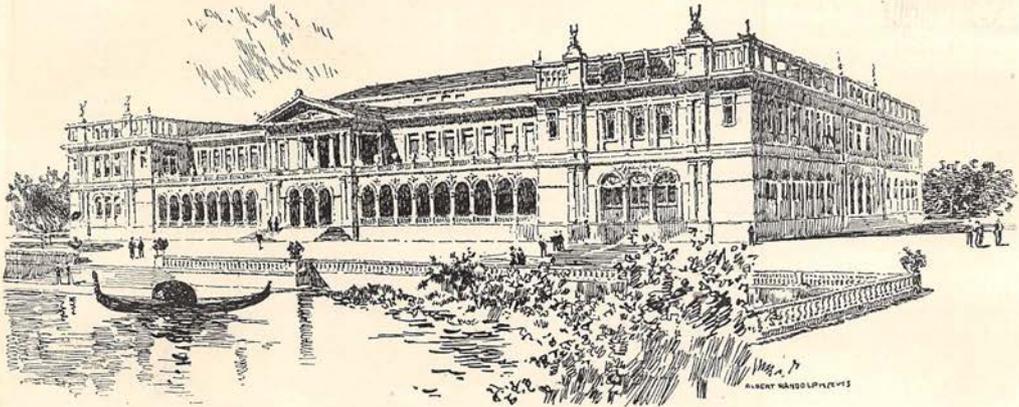
LOREDO TAFT, SCULPTOR.

SLEEP OF THE FLOWERS, HORTICULTURAL HALL.

stretching broadly between this long façade and the waterside. The extreme depth of their building-site is about 250 feet. It was evident to the architects that a building for the cultivation and exposition of growing plants must be based upon what has been found by experience to be the best form for a garden greenhouse or conservatory. The architecture of such a structure must therefore include, as a fundamental feature of design, a series of light one-storied galleries with glazed roofs, from 50 to 70 feet wide, so arranged upon the site as to

inclose garden courts, which would have all desirable sunlight, because practical conditions do not permit these surrounding galleries to exceed $22\frac{1}{2}$ feet in height. As this height is only about one third that of the other buildings, and as it is necessary that the architectural mass must in some way be brought into proper relation to them, it became apparent to the architects that from the point of view of composition there should be pavilions at the north and south

possible from the main porch. A third pavilion was thus introduced in the center of the building. As a matter of convenience as well as of structure, the architects divided their galleries into bays of $24\frac{1}{2}$ feet, which dimension they assumed as the module or unit of their plan. Thirty-one of these modules entered into the length of their building between the end pavilions, leaving for each of these pavilions a width of 118 feet. By experiment they found that the largest



SOPHIA HAYDEN, ARCHITECT.

DRAWN BY ALBERT RANDOLPH ROSS. PUBLISHED BY PERMISSION OF THE NEW YORK PHOTOGRVURE COMPANY.

WOMEN'S BUILDING.

ends, where they approach nearest to their neighbors, and where comparisons must be instinctively forced upon the beholder, and that these pavilions should hardly be less than 50 feet high. Of course this height suggested two stories, in which could be accommodated not only collections and models illustrative of botany and horticulture, but spacious and attractive restaurants overlooking the gardens. Upon the first story of $21\frac{1}{2}$ feet, therefore, there is constructed in these pavilions another still higher. Thus we have an outline of a building composed of two-storied pavilions at each end of the site, connected by two long, low ranges of one-storied glazed galleries, with an open court between them. But for practical as well as for architectural reasons it is necessary to break this interminable stretch of low galleries with an important and highly decorated central feature. The architects had to accommodate under cover not growing shrubs only, but full tropical tree-growths with grotto effects and fountains. This suggested a much higher but still characteristic feature of greenhouse architecture — a glazed, wide-spreading dome, made as large as the available space would permit, but not so high as to overwhelm the one-storied galleries. This dome naturally took its place in the center, and, as it was to constitute the most imposing feature, interior as well as exterior, it had to be entered as directly as

dome which architectural considerations would permit must not exceed 180 feet in diameter. They placed, therefore, a glazed domical hall of these dimensions in the center of a two-storied substructure of square plan, of about nine modules, with a projecting frontispiece toward the Lagoon in three parts, of which the central is the portal, the others being crowned by low domes occupying the corners of the square and buttressing the larger central dome.

By a mutual adjustment of the parts thus outlined a definite architectural scheme was obtained, composed of two two-storied end pavilions, 118 feet wide and 250 feet deep, connected in the rear by a continuous one-storied glazed gallery, 50 feet wide and $759\frac{1}{2}$ feet long, against the center of which was placed a great domical pavilion, about 220 feet square, faced with a highly enriched pylon. A second and more important longitudinal gallery, with glazed arched roofs, parallel with the first and 73 feet wide, forming the curtain-walls of the main façade, connected the center with the end pavilions, thus inclosing two garden-courts, 90 feet wide and 270 feet long.

As for the exterior, the architects are committed to a long, low façade, of which the curtain-walls are only $22\frac{1}{2}$ feet high, crowned with a 3-foot balustrade. The expression of their central dome, therefore, must be correspondingly low in proportion to its height; considerations

of architectural conformity must be forced into harmony with considerations of practical convenience and use. The vertical section of this dome is accordingly made semicircular, and the center from which the semicircle is struck is on a level with the gallery or second story surrounding the dome, and thus only about 24 feet from the floor, giving a total height of only 114 feet to a dome 180 feet in diameter. So far as the interior is concerned, this proportion is admirable; but the depressed exterior effect of this great glazed dome is partly remedied by a drum or podium, which is established above the flat roof of the square substructure forming the base of the dome, and which is high enough to be seen from ordinary points of view, and also by a highly enriched crown or lantern which surmounts the dome itself. The lower glazed domes, which crowd against its base on the corners, effectually support its outlines, and assist them to spring from the façade with grace and elegance, and without too sudden transitions. The curved sky-lines are also aided by the segmental form of the glazed roofs of the galleries on each hand. The transparent character of this immense ball and the airy lightness of its structure remove it from comparison with the substantial fabrics of the domes that elsewhere in the fields of the Exposition rise with more monumental aspiration. It has a quality of fleeting and iridescent beauty, and seems to be blown like a bubble.

In their decorative scheme the architects preferred to follow Venetian Renaissance models, and they applied to the curtain-walls of their long front galleries a correct Ionic order with pilasters, dividing the frontage into bays corresponding to those of the interior, each being occupied by a glazed arched window, reducing the wall-surfaces to the smallest areas consistent with classic traditions, as in the orangeries of Versailles. This order is continued around the end pavilions; but as the architects were compelled to erect upon this a second story 3 feet higher than that upon which it was placed, to enable their building to compare properly with its neighbors in regard to height, they treated their upper order, which is also Ionic, with an exaggerated frieze 6 feet high, giving an area for decoration, which they richly filled with Cupids, garlands, and festoons, abundantly testifying to the joyous and gentle character of the objects to which the building is dedicated. In these pavilions they were wisely led by the example of Sansovino in the Library of St. Mark on the Piazzetta, Venice, and the arrangement also of crowning balustrades and finials, characteristic of this elegant monument, evidently had a strong influence on the present composition.

The portal is a lofty triumphal arch with a re-

cessed vestibule, decorated with statuary, and in the character of its profuse embellishments of sculpture recalling the work of modern Paris; but in the two square pavilions, crowned with their subordinate domes, flanking the portal, the Venetian motives are again taken up. The Ionic order again appears here, but is on a larger scale than that of the long curtain-walls, and its entablature has a frieze broader even than that of the corner pavilions, and it is enriched with the exuberant but elegant playfulness which the Italian masters knew so well how to employ in the service of their paganized princes.

Seen from whatever point of view, no one can doubt the purposes of this building, and though its architecture has been gaily attuned to a much lighter mood than would be proper to its more serious companions, it does not forget the dignity and grace which belong to it as a work of art.

The decorative modeling and sculpture of this building are the work of Mr. Loredó Taft of Chicago.

THE first point of interest connected with the Women's Pavilion resides in the fact that it is the product of a national competition of designs among women. An architectural composition, like any other work of art, is always more or less sensitive to the personal qualities of the designer. Consequently, in examining the works of the successful competitor in this case, there is an irresistible impulse to look for the distinctive characteristics in which the feminine instinct may have betrayed itself. Miss Sophia G. Hayden of Boston is a graduate of the architectural school of the Massachusetts Institute of Technology in that city, and the composition by which she was fortunate enough to win this coveted prize has all the marks of a first-class school problem, intelligently studied according to academical methods, and may fairly stand in this national exposition of architecture as a good example of the sort of training given in our best professional schools. As such, it is proper that it should take its place with the other architectural works in Jackson Park, and it is eminently proper that the exposition of woman's work should be housed in a building in which a certain delicacy and elegance of general treatment, a smaller limit of dimension, a finer scale of detail, and a certain quality of sentiment, which might be designated, in no derogatory sense, as graceful timidity or gentleness, combined however with evident technical knowledge, at once differentiate it from its colossal neighbors, and reveal the sex of its author.

The manner in which the plan of the Women's Pavilion has been conceived and laid out requires but little concession of criticism in favor

of inexperience. In this structure it was intended to accommodate a general exposition of woman's work, whether industrial, artistic, educational, or social. It was to include departments for reform work and charity organizations, a model hospital and kindergarten, a retrospective exhibition, one or more assembly-rooms of various sizes, with libraries, parlors, committee-rooms, and offices. These various services were to be provided for within an area 400 feet long northward by 200 feet wide, lying next north of the Horticultural Building, and in the axis of the Midway Pleasance. These general dimensions, and the comparatively small scale of the building, suggested 10 feet as a module of proportion, and upon this basis it was found convenient to develop the plan and organize the elevations.

The differing and somewhat undefined uses to which the building was to be devoted seemed to require a series of connected rooms of various sizes, all subordinated to a great hall or *salle des pas perdus* of architectural character. Certainly, enough of these subordinate apartments were required to make at least two stories necessary. With reference to lighting, circulation, and economy of space, evidently the most convenient and the simplest way of adjusting the plan was to place the great hall in the middle, to free it from columns, to build it high enough to receive light through clearstory windows, and to envelop it with a lower two-storied structure forming the four façades of the building. From the floor of this hall a convenient communication could be established with the minor halls and offices around it, so that the whole first story could be utilized. In the second story it was apparent that the necessary intercommunication could be effectively provided by surrounding the open central area of the hall by a system of corridors, which should also serve as galleries overlooking the hall, after the manner of an arcade or cloister around an Italian cortile. In order to obtain adequate area for them, this enveloping series of rooms should not exceed 80 feet in depth, and should borrow all the light possible to be obtained from the central hall, or their illumination by daylight would be seriously imperiled.

The exterior expression is evolved from these conditions. The other buildings of the Exposition covering much more extensive areas without any great superiority of mass vertically, their architects have generally found it necessary to emphasize the vertical lines as offsets to the horizontal, and to include two or more stories in one colossal order, thus bringing the architectural scheme into scale with the vastness of the structure. On account of the comparatively small extent and scale of this building, it did not seem to require any such emphasis of ver-

tical lines, and therefore it was proper to permit the two stories to be frankly expressed in its architecture. The architect found that the strong horizontal lines thus created in the façades could be adjusted harmoniously by making the first-story order 21 feet, and the second 23 feet high, the whole resting on a continuous 5-foot stylobate or basement, thus giving about 50 feet as the height of the outer walls. In establishing the general vertical divisions of the main front, Miss Hayden naturally followed the conventional system of a central frontispiece with a pavilion at each end, connected by recessed curtain-walls. The depth of the suites of rooms on the north and south fronts conferred on the end pavilions a width of 80 feet, or eight modules. Over the low roofs of the enveloping suites the clearstory and roof of the lofty central hall should assert themselves as essential features of the exterior. We thus have a frontage fairly blocked out.

In this way the building is massed after the manner of the villas of the Italian Renaissance, and to this school the design is naturally indebted for those details on which the character of the design as a work of art must largely depend. From this point the architect probably developed the work somewhat as follows:

The first story of the curtain-walls between the central and end pavilions must be brought forward nearly to the face of the pavilions to form an exterior portico or ambulatory, its roof serving as a balcony or terrace to the recessed second story. This first story of the curtain-walls she treated as an Italian arcade in 10-foot bays without columns or pilasters, surmounted by a balustrade, while upon the second she imposed a full order of pilasters rather suggested by, than strictly following, Corinthian precedents, with windows between, all adjusted in scale to the almost domestic proportions of the rooms within. The central entrance should take not less than three arches similar to those of the arcade, and should be surmounted by a colonnade of the order adopted for the second story, inclosing a loggia connected with the balcony or terrace to which we have referred, the whole being flanked on each side by a space of solid wall decorated with coupled pilasters on each story, and surmounted by a pediment developed from the main cornice. Practically the same treatment may be repeated on the front face of the two end pavilions, but without the pediment, and also on the side entrances, which, however, should not have a pediment, as that would bring them into competition with the main entrance, and cannot have a loggia, because of the interior conditions of plan. The colonnade must therefore be replaced by a corresponding range of pilasters. But these side entrances may be distinguished by a low

attic, constituting, for this part of the building, a third story of small rooms, opening on each side on roof-gardens, which should extend over the end pavilions, surrounded by an open screen formed of an order of light Ionic columns, with caryatids over the loggia below, all after the manner not unusual in the terraced gardens of Italian palaces. The central hall is $67\frac{1}{2}$ feet wide by nearly 200 feet long, and attains an exterior height of 64 feet.

Under the circumstances explained, the design is rather lyric than epic in character, and it takes its proper place on the Exposition grounds

with a certain modest grace of manner not inappropriate to its uses and to its authorship.

After an extremely vigorous and hardly contested competition among sculptors of the gentler sex throughout the Union, the sculpture of the main pediment, and of the typical groups surmounting the open screen around the roof-gardens, was awarded to Miss Alice Rideout, of San Francisco. It is needless to say that the subjects are emblematic of woman's great work in the world, and that criticism will be glad to recognize in these compositions all the noble and poetic qualities of art which they aim to set forth.

Henry Van Brunt.

THE SUNSET THRUSH.

IS it a dream? The day is done —
 The long, warm, fragrant summer day;
 Afar beyond the hills the sun
 In purple splendor sinks away;
 The cows stand waiting by the bars;
 The firefly lights her floating spark,
 While here and there the first large stars
 Look out, impatient for the dark;
 A group of children saunter slow
 Toward home, with laugh and sportive
 word,
 One pausing, as she hears the low
 Clear prelude of an unseen bird —
 "Sweet — sweet — sweet —
 Sorrowful — sorrowful — sorrowful!"

Ah, hist! that sudden music-gush
 Makes all the harkening woodland still, —
 It is the vesper of the thrush, —
 And all the child's quick pulses thrill.

Forgotten in her heedless hand
 The half-filled berry-basket swings;
 What cares she that the merry band
 Pass on and leave her there? He sings!

Sings as a seraph, shut from heaven
 And vainly seeking ingress there,
 Might pour upon the listening even
 His love, and longing, and despair —
 "Sweet — sweet — sweet —
 Sorrowful — sorrowful — sorrowful!"

Deep in the wood, whose giant pines
 Tower dark against the western sky,
 While sunset's last faint crimson shines,
 He trills his marvelous ecstasy;
 With soul and sense entranced, she hears
 The wondrous pathos of his strain,
 While from her eyes unconscious tears
 Fall softly, born of tenderest pain.

What cares the rapt and dreaming child
 That duskier shadows gather round?
 She only feels that flood of wild
 Melodious, melancholy sound —
 "Sweet — sweet — sweet —
 Sorrowful — sorrowful — sorrowful!"

Down from immeasurable heights
 The clear notes drop like crystal rain,
 The echo of all lost delights,
 All youth's high hopes, all hidden
 pain,

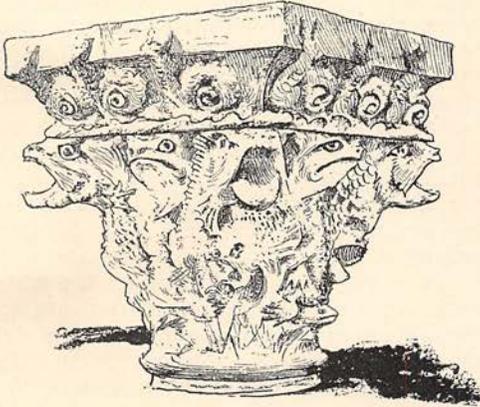
All love's soft music, heard no more,
 But dreamed of and remembered long —
 Ah, how can mortal bird outpour
 Such human heart-break in a song?

What can he know of lonely years,
 Of idols only raised to fall,
 Of broken faith, and secret tears?
 And yet his strain repeats them all —
 "Sweet — sweet — sweet —
 Sorrowful — sorrowful — sorrowful!"

Ah, still amid Maine's darkling pines,
 Lofty, mysterious, remote,
 While sunset's last faint crimson shines,
 The thrush's resonant echoes float;
 And she, the child of long ago,
 Who listened till the west grew gray,
 Has learned, in later days, to know
 The mystic meaning of his lay;
 And often still, in waking dreams
 Of youth's lost summer-times, she hears
 Again that thrilling song, which seems
 The voice of dead and buried years —
 "Sweet — sweet — sweet —
 Sorrowful — sorrowful — sorrowful!"

Elizabeth Akers.

ARCHITECTURE AT THE WORLD'S COLUMBIAN EXPOSITION.—V.



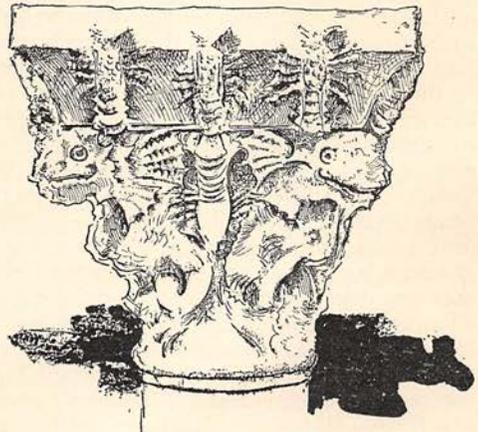
DRAWN BY A. BRENNAN. JOSEPH RICHTER, SCULPTOR.
CAPITAL FOR FISHERIES BUILDING.

THE visitor, approaching from the south the district which lies between the northern and central divisions of the park, at the point where the apparently capricious and accidental windings of the Lagoon find their northern connection with the lake, will presently catch glimpses of certain long stretches of roof, gaily broken by towers and decorated belvederes, rising above the skirting shrubbery and wood-growth of the shores, and suggesting the hidden luxuries of a "stately pleasure house," decreed by some Kubla Khan of Oriental romance. As he advances nearer, he will discover that this romantic pleasanee is accessible from the south by a bridge spanning the waters of the canal, or estuary, connecting the Lagoon with the lake, the architectural masses will become coherent and symmetrical, and finally he will learn from unmistakable characteristics that the Fisheries Pavilion lies before him. This pavilion is set in the axis of the Liberal Arts Building extended northward, and between the two buildings in the same axis rise the masses of the great structure built by the United States for the Government exposition.

Apparently the architect, Mr. Henry Ives Cobb of Chicago, in preparing his preliminary studies for this interesting exhibit, finally arrived at the conclusion that, in respect to his plan, its general form must be largely controlled by its adjustment to the shape and limited area of the irregular stretch of shore which he was to occupy with his water-front, and, in respect to his elevations, that they should rather affect

playfulness than formality in outline, so that they might be in more natural relations with their environment; at the same time, the connection established by the main axial line between his building and those composing the Court, the proper classification and arrangement of the collections which he was to accommodate, and the dignity and importance of the task assigned him, seemed to impose a symmetrical treatment both on plan and elevation. In this case it was the good fortune of the architect to have to deal with a department of the Exposition which invited a treatment almost as characteristic as that of the Horticultural department, which had the type of the glazed conservatory as its point of departure. Marine life seemed to suggest to the architectural mind types of form nearly as marked, while all the other great buildings had to be based more or less on the conventional idea of a palace or office of state, depending rather on their details of decoration than on their general features of structure to indicate the purposes for which they were built. This statement is especially applicable to the formal Renaissance buildings around the Court; but even those outside of the Court, like the Mines and Transportation pavilions, which were more free to adopt forms characteristic of service, could hardly confess their objects so clearly as the two buildings which we have noted.

The architect found that his site would be most conveniently occupied by a compact mass



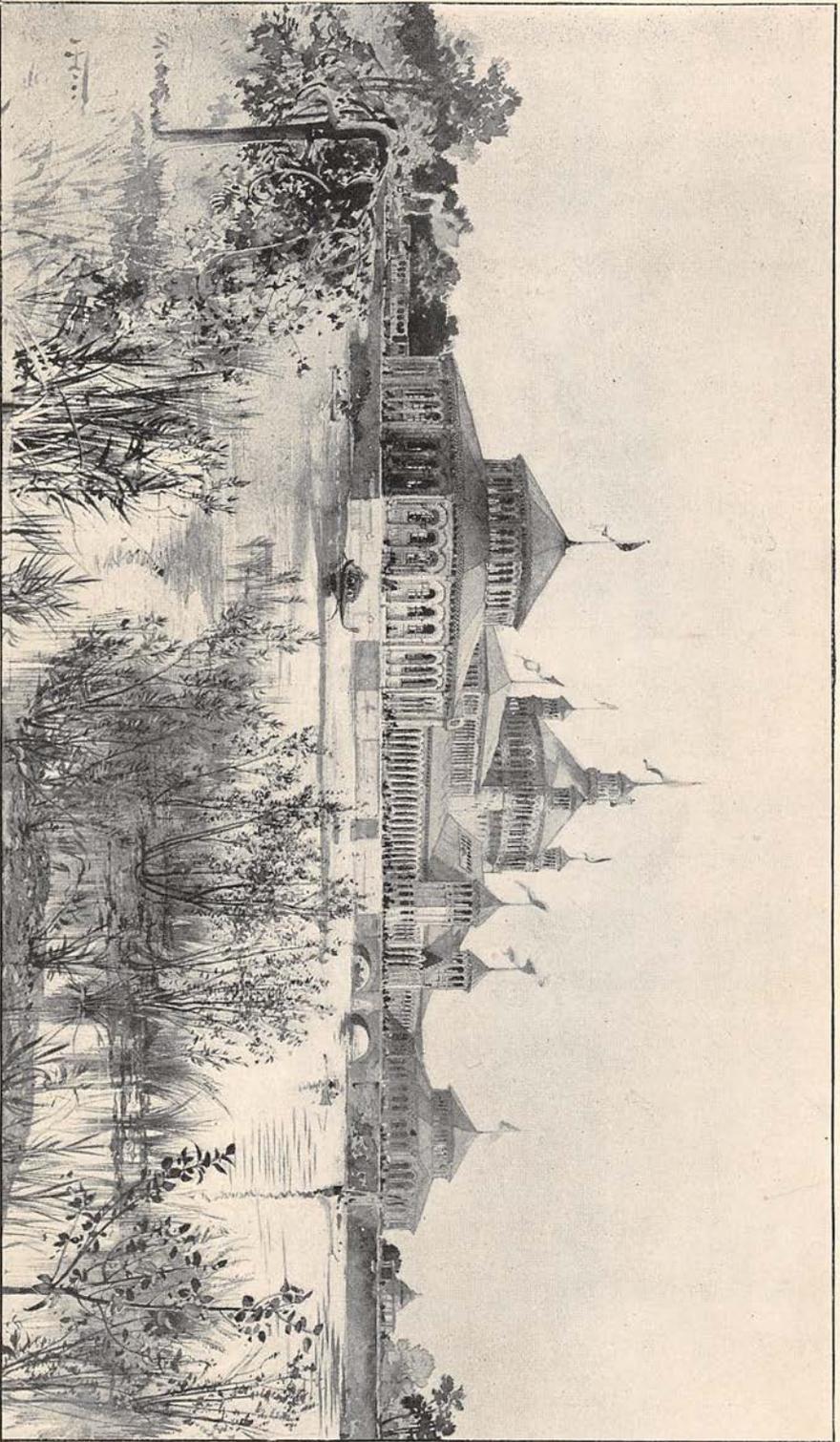
DRAWN BY A. BRENNAN. JOSEPH RICHTER, SCULPTOR.
CAPITAL FOR FISHERIES BUILDING.

of building hardly larger than 365 feet in length by 165 feet in width; but as this was insufficient for his exhibition, he set aside two distinctive divisions, the aquarial and the angling pavilions, to be accommodated in separate pavilions, connected with the ends of the main structure by one-storied corridors, so curved forward in plan that the main frontage should seem to be set back between the two smaller buildings. Thus arranged, the main façade faces southward toward the Government Building, and, being closely connected with the shoreline of the estuary, the whole pile assumes the characteristics of a marine pavilion.

Mr. Cobb found that the most convenient unit of dimension in his construction was 20 feet, and, following the simplest and most obvious arrangement for lighting the interior spaces, he planned to provide for a lofty central hall illuminated by a range of clearstory windows and surrounded by lean-tos, or aisles. To the width of this hall he gave four of his units or modules (80 feet), and to the length fourteen (280 feet), thus leaving for the width of his surrounding aisle, or lean-to, two modules, or 40 feet. The entire area found practicable for the main building was in this way fully occupied. A very characteristic feature was imposed upon his exterior forms by the fact that, unlike the other buildings, two full stories were not required in order to obtain the requisite floor-area. Allowing only one module for the height of his aisle-story, he obtained for the outside walls, including a stylobate, or basement, of $3\frac{1}{2}$ feet, a height limited to 24 feet. This frontage, exceptionally low in comparison with the large area of the building, made it necessary to give to the roofs a pitch sufficiently steep to bring them into the design, and to make them important features in the composition as a whole. A proportionate height for the clearstory walls was found by experiment to be 14 feet, and above this the upper roofs, sloping at the same angle as those below, reached a total height of 65 feet from the floor. In this natural way the exterior expression of the building, distinguishing it from all the other structures of the Exposition, became one of roofs and clearstories. The area in the triforium space under the slope of the aisle roofs being required for exhibition purposes, access to it is obtained by projecting the floor of the triforium, or half second story, into the nave area far enough to form a gallery, or balcony, all around on that level, approached by staircases grouped near the center of the building. The architect thus obtained a mass of building composed of a comparatively low wall, from which roofs sloped steeply to a central ridge, interrupted only by the clearstory of the nave. The conditions clearly demanded an important

culminating feature. This he obtained by erecting in the center of his nave a great circular tower, of which the diameter is equal to the whole width of the nave (80 feet), and by providing it with polygonal turrets at the corners to mask the awkwardness occasioned by the passing of a round tower through the slopes of the nave roof. These turrets he arranged to contain staircases, by which access is obtained to an exterior and interior gallery, or balcony, boldly projecting at the level of the apex of the nave roof. Above this he established a high clearstory stage still accompanied by the polygonal towers, and, following the roof-motive of his design, he covered his rounded tower with a steep conical roof, crowned with an upper balcony and a delicate belvedere, which he repeated on a lower level in finishing his four polygonal turrets. The total height thus obtained is 150 feet. To provide for the main entrances it remained to project transepts 80 feet wide from the tower to the center of the long fronts and thence 40 feet outside the walls of the aisles. These transepts preserved the lowness of effect characteristic of the rest of the buildings, by continuing around them the aisle walls, and covering them with pitched roofs without clearstories. The fronts of these transepts are flanked by low polygonal barbican towers belonging to the same family as those already mentioned.

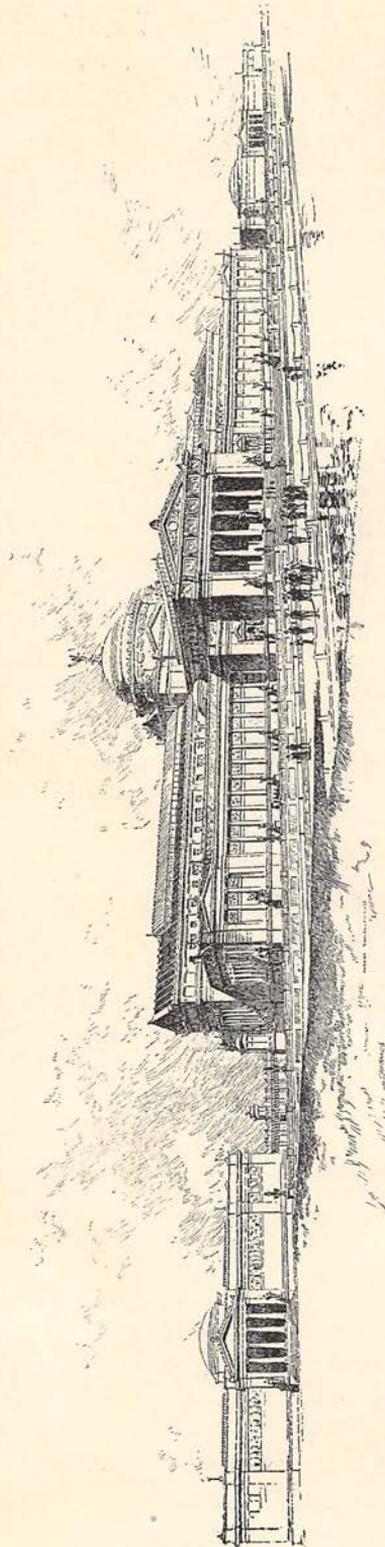
The architectural character of the two separate pavilions is fixed by the results of the study of the unusual conditions involved in providing for the department of aquaria, to which that on the right of the main building is devoted. The fortunate outcome of this study is a polygonal building 60 feet in diameter and 67 feet high, with a windowed clearstory, all arranged in plan and elevation like an Italian baptistery or English chapter-house, with a glass-roofed aisle 37 feet wide, carried around it in the form of a lean-to, exactly as in the main building. A fountain is provided in the circular central hall, which opens into the aisle by an arcade. The aisle is divided into three concentric divisions forming annular spaces encompassing the circular chamber. Of these the middle one is made a vaulted passage, with a groined ceiling supported by columns and arches, corresponding to those separating the central circular chamber from the aisles. The other two annular spaces on each side of this passage are occupied by the aquarial tanks. All these arches on both sides of the passage and in the central chamber are glazed from top to bottom with transparent glass, the lower eight feet, with polished plate, forming the walls of the aquaria, the rest with decorative glass stained with marine tones. In these aquaria the architect has provided for the display of salt-water



HENRY IVES COBB, ARCHITECT.

GENERAL VIEW OF FISHERIES PAVILION.

DRAWN BY HENRY FENN.



CHARLES B. ATWOOD, ARCHITECT.

FINE ARTS BUILDING.

DRAWN BY ALBERT RANDOLPH ROSS, BY PERMISSION N. Y. PHOTOGRAPHER CO.

and fresh-water fishes and every form of marine life. The only light which will reach the vaulted passage will pass through the glazed walls of the tanks, and the visitor, in making the circuit of the building through this passage, will seem to be walking dry beneath the water, with all the secrets of the great deep betrayed to him on each hand, according to the systems in use in some of the greater marine museums in the Old World.

The angling pavilion on the other side naturally assumes the same exterior character, and both closely follow the motives of the greater building, which are based very frankly on Southern Romanesque, the outer walls everywhere being formed with a continuous open arcade, the round stilted arches of which are supported on small round columns coupled in the thickness of the wall, as in a cloister. There are three of these arches to each 20-foot bay. Between the coupled columns passes a continuous perforated balustrade, and the building is inclosed by a glazed screen behind this arcade and clear of it. The treatment of the clearstory walls corresponds to this, but with five arches to each bay, and the great clearstory of the tower has a loftier and richer arrangement of arches with grouped jamb-shafts, mullion-shafts, and Romanesque tracery. All the cornices are corbeled according to the style. The Romanesque arcade appears also as the decorative feature of all the belvederes and towers. The only variation made in this arcade treatment to give dignity to the main entrance is to advance slightly from the face of the transept a highly decorated triplet of larger arches covered with a gable, whose outline the architect has enriched with crockets in the form of fishes. The tympanum inclosed by the gable will be occupied by a bas-relief representation of the most heroic business done by fishermen on the great deep—the capture of a whale. Very properly Mr. Cobb has borrowed from marine life the decorative details of his capitals and of the columnar shafts of his porches, and there is nothing in the familiar but inexhaustible range of conventional Romanesque ornament, as applied to this building,

But doth suffer a sea-change
Into something rich and strange.

Fishes in every form, crabs, lobsters, water-snakes, frogs, shells, and the infinite algæ of the great deep, are grouped to decorate capital and corbel, but always so massed as to preserve the characteristic outlines and functions of the architectural members. Under the immediate direction of the architect, Mr. Joseph Richter of Chicago has in this way composed from sixty to eighty models of capitals, corbels, and shaft

ornaments, each differing from the other in the idea which it conveys, but all loyal to the conventional type. The Romanesque of southern France and northern Spain, even in the religious buildings, is distinguished by a semi-barbaric humor expressed in grotesque and caricature. There is therefore no unnecessary audacity of imagination in the playful treatment of the details of the Fisheries Pavilion; it not only brings it into harmony with the spirit of the style, but serves to make it joyous and festive without loss of dignity, grace, and fitness.

The whole building shows clearly enough how the modern architect can, on the one hand, use precedent with loyal intelligence, but without being enslaved by it; and on the other, how, when occasion requires, he can be original without going through the superfluous and dangerous process of inventing a new language in which to express himself, as is the custom with the unlettered and the untrained.

AFTER much controversy and many changes of plan and site, the department of Fine Arts found its most appropriate position near the middle of the northern division of the park, surrounded by the smaller pavilions which are to form the headquarters of the several State commissions, and by those to be erected by foreign governments.

This building, the design of which was prepared by Charles B. Atwood, the designer-in-chief in the Bureau of Construction, was practically confined by conditions of site and cost to a frontage of 500 feet, facing north and south, and to a depth of 320 feet, with opportunities for lateral extension by detached wings, connected with the main structure by galleries of communication. It was to be strictly fire-proof, and on this account was carefully isolated. Through this isolation it was freed from the necessity of submitting to concessions for the sake of harmony with neighboring buildings, so that, surrounded by ample grounds dedicated to art, its form and character as a symmetrical monument could be freely developed.

In formulating the plan, it was found convenient to adopt a decimal module of proportion. In the beginning it was evident that the scheme



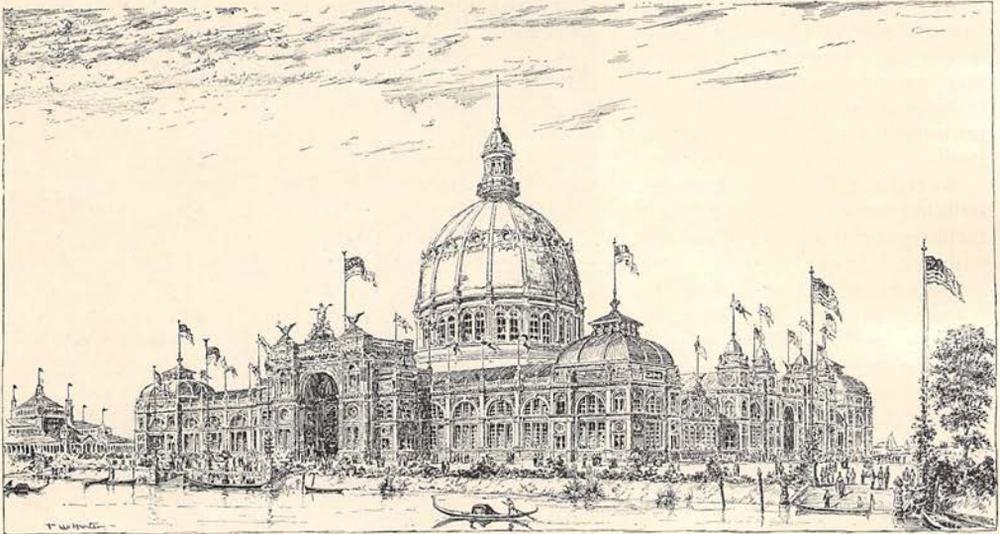
DRAWN BY ALEXANDER SANDIER.

AN INTERIOR VIEW OF THE DOME OF FINE ARTS BUILDING.

would be fundamentally affected by the fact that the area was to be occupied, not by one great hall with continuous floor-space, as was the case with all the industrial buildings, but by a series of halls or chambers; and that of these there must be two divisions, one set devoted to the exposition of sculpture and the plastic arts, requiring conditions of area, shape, height, and lighting different from the other set, which had to be arranged for the accommodation of paintings, drawings, and engravings. The former called for ample uninterrupted floor-space, indefinite height, light from above so diffused as to avoid, as far as possible, conflicts of shadows and confusion of reflections, and, in general, a largeness and nobility of aspect entirely consistent with monumental architecture in its highest sense. On the other hand, the galleries of chambers for the exposition of

paintings and drawings needed not to be more than 30 feet in width, and demanded clear wall-spaces not more than 20 feet high, with coved ceilings raising the ceiling skylights 10 feet higher, so that the wall-surfaces might have

plan, pierced in the axes of the central halls with lofty arched openings, thus dividing the supporting walls into four masses of masonry, so disposed as to give passageway between nave and transepts outside of these piers, to



W. J. EDBROOKE, SUPERVISING ARCHITECT, TREASURY DEPARTMENT.

DRAWN BY F. LEO HUNTER.

UNITED STATES GOVERNMENT BUILDING.

noshadows. A decorative or architectural treatment was not invited. The halls of sculpture, therefore, being the widest, highest, longest, and most architectural, were the arteries of the system, to which all the other members, being lower, smaller, and simpler or more purely utilitarian, had to be distinctly subordinate. The architect, therefore, placed the former in the main axes of his plan, arranging them in the form of a central longitudinal nave, 500 feet long, 100 feet wide, and 64 feet high to the cornice, crossed in the center by a transept 340 feet long, and of the same width and height. These he provided with skylights and clear-story, and with a wide balcony, giving circulation around the entire system at a higher level, and accommodation for bas-reliefs and minor objects of the fictile arts, while the larger works of sculpture and modeling were to occupy the main-floor areas. The outer ends of nave and transept in the center of each façade naturally became porches with vestibules of noble preparation and ceremony. It was also inevitable that the culmination of interest externally and internally should be in the center of the building at the crossing of the great halls. In the hands of the architect this feature took the form of a noble domical chamber, 155 feet high externally and 128 feet high internally, with a diameter of 72 feet. This dome he supported on a massive substructure of octagonal

avoid the necessity of making this central hall a thoroughfare. Still further to dignify it as a place which should be not a mere passageway between adjoining halls, but where the more conspicuous objects should be gathered for especial honor, as in the tribune of the Uffizi Palace, he placed two columns of his main order in each opening, supporting an entablature across it on the line of the impost, with statues above, as was often done in the Roman baths and basilicas, so as to form an open screen. By this great central feature the sculpture-halls are divided into two long and two short courts.

Doors on the sides of the longer courts give access to the ends of a series of twenty-four picture-galleries, which are made of the standard height and width of 30 feet, and 60 feet long, thus affording for each gallery about 2500 feet of wall-space available for hanging, this being a convenient unit for dividing the collection into groups according to character or nationality. At the outer ends of these transverse galleries, opposite doors open into larger longitudinal intercepting galleries, about 40 feet wide, forming the envelop of the building. At one end these longitudinal galleries communicate with the shorter or transverse courts of sculpture, and, at the other, with corner pavilions, 50 feet square. In this manner nearly 100,000 square feet of hanging-space are ob-

tained in a series of communicating galleries, so contrived as to facilitate classification, and the parallelogram of the plan is completed, becoming compact, articulate, and orderly, justifiable by considerations of circulation, economy of space, convenience, and construction, and, as we shall presently discover, leading directly to a symmetrical disposition of exterior masses, which will compose architecturally with dignity and elegance, and without the necessity of having forced upon them any feature of importance not already suggested by the structure itself.

As regards the exterior, the objects of this building seemed very clearly to invite a monumental expression, set forth in terms connected with the evolution of the highest civilizations in history, associated with the greatest triumphs of art, established by the usages of the greatest masters, and formulated by the schools and academies of all nations. It was necessary that it should be pure, formal, and stately, entirely free from caprice or playfulness, refined by scrupulous elegance of detail, and enriched by every device of decorative sculpture which could be consistently recalled from historic art, so that, when completed, it should be fit to enshrine the figures and groups in marble and bronze, the paintings in oil, water-color, and fresco, the carvings in ivory, wood, and marble, the bas-reliefs, engravings, etchings, and drawings, by which the century is taking its rank in history. It is evident that any design not strictly ordained by academic principles and practice, any design indebted to semibarbaric or romantic precedents, impressed with personal idiosyncrasies, or in any way experimental, would, under the circumstances, be out of harmony with the purposes of the building. Indeed, the building itself should be in sympathy with its contents, and as nearly all dogmas of modern art are more or less directly derived through pagan, Christian, or Renaissance experience from classic models, it was evident that the shrine which was to contain them, if Greek in character, would respond to every mood and principle of artistic expression.

The scheme of this building, as already outlined in plan developed in block-elevation, is an extensive parallelogram of flat-roofed sky-lighted buildings, about 47 feet high, raised upon a continuous basement 9 feet high, and emphasized at the corners by projecting pavilions 50 feet square and of the same height as the rest; while, above this low-lying mass, the clear-stories and roofs of the central, longitudinal, and transverse courts clearly detach themselves in long level sky-lines, generating in the middle of each façade some form of boldly projecting entrance-porch, and, at the crossing of the courts in the middle of the plan, culminating in a domi-

cal feature, which must be made about 155 feet high from the ground in order to be adequate to its functions.

Of course the arrangement of plan in any building, however utilitarian, when developed in elevation, is capable of some degree of architectural expression, either symmetrical or picturesque, as the conditions may invite; and this expression must be based upon considerations of structure and usage. Thus, even the most uncompromising of structural forms, as a grain elevator, or a block of commercial buildings, by decorative treatment may be elevated into a work of art without impairing any of its characteristic functions of utility. But, in laying out his scheme, the architect cannot but mentally anticipate its ultimate appearance when built, and naturally prefers those alternative arrangements of plan which are most capable of architectural effect. So in the present building, Mr. Atwood, in composing his plan, did not permit himself to be embarrassed by unnecessary difficulties in exterior expression through want of prudent foresight. It was hardly by accident, therefore, that the combination of masses which we have seen taking shape lent themselves to what might be called a Renaissance development of pure Greek forms. In considering the conversion of these prosaic masses of utility into the poetry of art, the architect assumed as his key-note the beautiful Ionic of the portico of Athena Polias in the Erechtheum, as suggesting a degree of refinement and elegance of detail less redundant but more exact than the Corinthian of the Choragic monument of Lysicrates, less chaste and severe than the Doric of the Parthenon, but happily combining the qualities of both. Unlike any of the buildings which we have been considering, no light is derived through the outer walls (these being the walls of picture-galleries), which, therefore, structurally must be left plain. To obtain a play of light and shadow upon these windowless surfaces, and to make them interesting, the architect, following the Greek method of placing in front of the plain cella walls of the temples a screen, or peristyle, established an Ionic colonnade about 8 feet from his walls, composed of columns 27 feet high, set 10 feet on centers, and resting on the basement, or stylobate, of which we have spoken. Thus a continuous loggia, or sheltered ambulatory, is formed, extending between the bold projection of the central porch on each front and the slighter projection of the corner pavilions, giving to the long curtain-walls a decoration entirely classic in character.

The main entrance in the center of each long front is architecturally distinguished by what is technically known as a *tetrastyle portico in antis*, that is, a portico of four great Ionic columns, 40½ feet high, set between two three-quarter

columns built into the jambs of a great opening pierced in the projecting outer wall of the sculpture-court, thus forming an open screen in front of a deep vestibule. This portico is approached by a noble flight of steps with a statue of Minerva in the center thereof, and over this portico is placed an attic, of which the pilasters, corresponding to the columns below, are faced with caryatid figures or telamones, 14 feet high, like those in the clearstory of the Greek temple at Agrigentum, thus bringing the upper cornice of the portico to a height of 73 feet, the whole attic being continuous with the clearstory of the courts, and securing an important bond of architectural unity for the composition. This portico is finished with an enriched pediment, which serves as the decorative expression on the façade of the pitched roof of the courts. Just above the point where these court-roofs abut against the square substructure of the central dome a simpler form of pediment is repeated, this being the external development of the interior columnar entrances to the central domical hall or tribune, to which we have already referred. Above these pediments the square substructure of the central feature finishes with a cornice and crest, preparatory to the round drum and low dome which crown the whole mass. A corresponding but inferior portico, with only two columns *in antis*, is established for the center of the end façades.

The marked predominance on the principal fronts of a boldly projecting portico 73 feet high (representing the courts), while on each side of the portico are long stretches of colonnades only 56 feet high (representing the picture-galleries), was found to be too great, giving a transition too sudden from high to low. This difficulty of composition the architect ingeniously remedied by flanking the mass of this portico with two pavilions of intermediate projection about 30 feet wide, to correspond with the divisions of the plan. These pavilions he made of the same height as the galleries, and faced them with small caryatid blank porticos, suggested by that of the Erechtheum. Behind these pavilions, in the four internal angles formed at the junction of the longitudinal and transverse courts, are circular staircases, giving access to the system of balconies around these courts. The domes covering these staircases are so developed externally as to perform a similar service of preparation at the corners of the square substructure of the great central dome. The corner pavilions the architect decorated with flat pedimented porticos, and the light iron colonnettes supporting the interior balconies and the roofs of the courts are modeled after suggestions in the painted architecture on the walls of Pompeii.

It is a part of the scheme to make the numerous statues, friezes, and other decorations,

in the round and in relief, replicas of the greatest masterpieces of Greek and Renaissance art, so that the building itself shall be a museum, not of historical sculpture only, but of painting.

It is fortunate that the opportunity of presenting in this building a monument which internally and externally should be a specimen of serious and elegant academic architecture has been improved in a manner so scholarly and so loyal to traditions. We present this composition in geometrical elevation and plan, so that the eye may at once perceive how exterior and interior have grown together, the former becoming an architectural expression of the latter, and the latter yielding no point of convenience or economy to adjust itself to any preconceived theory of design. The whole is an artistic organism, delicately poised, in which use and beauty find themselves in a condition of perfect harmony.

There is no building on the grounds which we should more regret to see destroyed at the conclusion of the Exposition than this beautiful monument. Its essential structure is, as we have seen, fire-proof; only its porticos, its peristyles, and its exterior decorative details are temporary. These could be so readily replaced by permanent construction in the same form, that the architects of all the buildings hope it may be permitted to remain as the most appropriate and worthy memorial of the Exposition of 1893.

We have seen that the Fisheries Pavilion, with its tentacle-like arms, is closely nested in the indentations of the northern margin of the estuary which connects the waters of the Lagoon with the lake. On the opposite side of this estuary is the northern or water front of the United States Government Pavilion, the longitudinal axis of which, extended northward, passes through the center of the Fisheries Pavilion, and, extended southward, forms also the longitudinal axis of the immense palace of Manufactures and the Liberal Arts.

By this axial system the group of buildings on the lake-side is architecturally allied with the main groups around the great basin and its connecting canals, the Transportation Building, on the shoreward side of the Lagoon, having corresponding relations with them. The largest and most important structures of the Exposition thus have a mutual correspondence, which is of the utmost value in the expression of dignity and purpose. The other great pavilions (the Horticultural, the Woman's, the Illinois State, and the Art buildings) are ranged with the lines of city avenues and streets on another axial system. But this divergence of lines is masked by the interposition of the Lagoon, with its wooded and winding shores.

In the Government Building the departments of War, Agriculture, and the Interior, and the National Museum required each a space of about 20,000 feet; while the National Fisheries Commission, the Post-office, and the departments of State, Justice, and the Treasury, with the other public offices, each demanded spaces varying from 18,000 to 1600 feet. These departments combined demanded about 148,000 feet of floor-space, with considerable additional accommodation for offices of administration, and special collections in galleries. These considerations dictated for the building a length of 420 feet on the axial line, to which we have referred, and a width of 350. The naval exhibit is to be held in a separate structure, built in the lake, east of the National Building, on the exact model of a first-class modern armored battle-ship, fully equipped and manned, lying alongside a mole extended from the shore. The level area between the building and the lake provides outside accommodation for a model marine hospital, for the apparatus and daily exercise of a life-saving station, for a naval observatory, for the experimental plantation and irrigation exhibit of the Agricultural Department, and for the parade-ground of an encampment of United States troops. The Lighthouse Board has its exhibit at the end of the pier of which we have spoken.

For the main building of the Government exhibit the supervising architect of the Treasury Department, Mr. W. J. Edbrooke, conceived a structure occupying the entire area of which we have spoken in such a manner as to obtain a vast uninterrupted hall, in which whatever subdivisions might be required should be effected by partitions having no structural significance. By six ranges of columns set 25 feet on centers he secured support for seven parallel longitudinal aisles, each 50 feet wide, of which four, including the outer aisles, are high, with pitched or gabled roofs, and the other three, alternating with these, are low with segmentally arched roofs, over which the high aisles obtain a well-distributed light throughout the interior by a range of clearstory windows. These longitudinal aisles are crossed transversely in the center by a higher transept, consisting of a nave, or main hall, 40 feet wide, flanked by double 20-foot aisles.

From a decorative point of view, it was evident that a lofty central, culminating feature must be introduced, of sufficient importance to confer peculiar distinction upon an architectural composition which must stand among the other buildings of the Exposition as an adequate representative of national dignity. The architect, therefore, built in the center of this

complex of longitudinal and transverse roofs a dome 120 feet in diameter and 25 feet high from the floor, so that it should dominate the wide-spreading and comparatively low-lying mass of the building from every point of view. Below the roofs this domical structure appears in the middle of the great hall as a central octagonal tribune, or chamber, of which each side, 50 feet wide, is pierced by an arch; above the roof it assumes the form of a sixteen-sided drum, or podium, decorated on each face with an order of coupled arched windows between pilasters, from which spring the ribs of a dome 78 feet high, embellished by lucarnes. A lofty lantern completes the upward movement of the sky-lines, and a corbeled, aerial balcony is introduced as the base of the lantern to give animation and lightness to this most sensitive part of the design.

The architectural character of the inclosing walls of the building must of course depend upon the skill with which the architect has made use of the suggestions of the general plan. The requisite height for a great hall 420 by 350 feet, with galleries across the north and south ends and in the aisles of the transept, gives 45½ feet as the general height of the façades, above which is placed a balustrade to mask the roof-system. We have seen that the loftiest part of this roof-system is in the transept. This feature compels recognition in the central pavilions of the long east and west fronts, which become the principal portals of the building. Each of these pavilions is composed of five members or divisions, corresponding in position and width to the transept and its two aisles on each side. The three central divisions are carried 30½ feet, and the two outer divisions 6 feet, higher than the main cornice. All finish with level sky-lines, but the three middle divisions are crowned, the central one by a typical group of figures, and the other two by national eagles mounted on octagonal pedestals. The idea of the portal is adequately expressed by a central arch, occupying the whole width of the transept, and springing from the level of the main cornice of the building, which is continued across all the pavilions as a string-course.

The structure and dimensions of the outer longitudinal aisles developed in elevation produce a curtain-wall in four 25-foot bays, coincident with the spacing of the columns within, each bay being treated with a great arched window, divided horizontally by a transom or string-course, corresponding with the level of the interior galleries and continued all around the façades. These bays are separated by buttress-piers of slight projection, and on each angle of the building a corner pavilion, 50 feet square, covered with a low square dome, is nat-

urally evolved from the conditions of the plan. Each front of these corner pavilions has a glazed arched opening set between two narrow subordinate pavilions. On the north and south fronts the gable-ends of the longitudinal aisles produce an architectural composition wherein the three central aisles are expressed in a boldly projecting triple entrance-pylon, carefully subordinated to the main entrances on the east and west fronts, the outer aisles in two corner pavilions, and the intermediate lower aisles in a correspondingly depressed frontage 50 feet wide, covered with an ornamented segmental gable, following the roof-lines. Thus it will be seen that the main features of the façades are the direct decorative or architectural expression of the plan, and the design, as a composition of masses, is articulate and reasonable.

The Government architectural office, which designs and constructs more great buildings than any ten private architectural offices in the world, can accomplish its prodigious work only by traditions which are the result of organization and discipline. These traditions have assumed form, more or less definite, under the administration of a succession of supervising architects, who, having found it physically impossible to give to each of the forty or fifty public monuments always simultaneously developing under their charge the study and thought necessary to a work of art, have been constrained to establish formulas of design by which, with the assistance of intelligent and trained subordinates, work might be produced which, if necessarily cold and conventional, should at least be orderly and have the merit of correctness. The characteristics of most of our national buildings may be explained by the conditions under which they have been designed, and therefore no one thinks of regarding them—as the corresponding structures in other civilized nations are regarded—as the highest and most deliberate expressions of national genius in architecture. They are big, costly, and, for the most part, soundly built of the most perfect materials, and with the best workmanship; but with some few exceptions, it has been practically impossible for them to exhibit those qualities of refinement, beauty, and fitness which can come only from special artistic study, and from that sort of inspiration which results from taking pains. They represent our talent for organization, but not our talent for art. The efforts of the American Institute of Architects to obtain legislation whereby the designs for Government buildings may, by direct selection, or by some adequate and just method of competition, be thrown into the hands of the best architects of the country—as is the case among other civilized nations—should, for these reasons, have the warm sympathy

and coöperation of all who desire to see this great nation take its proper rank in the history of architecture. Until this is done, our national monuments will continue to be significant rather of our wealth than of our art.

The present architect of the Treasury Department, handicapped, as he is, by prodigious preoccupations and responsibilities, is to be congratulated on what he has been able to accomplish in the architectural outlines of the Government Building. We have seen that its main features are coördinate in plan and elevation; that a well-ordered project has been outlined with every proper regard for symmetry, for lighting, for economical structure, and for the due relation of important to inferior parts; and that as a whole the masses are well balanced. The design is based on Renaissance formulas, but, in respect to detail, when compared with the other buildings of the Exposition in the same style, it will be found to have the true Government stamp. The mind of the master has dictated successfully the general scheme, but the detail, in its facile but crude invention, in its profuse but unimaginative use of conventional phrases and symbols, betrays the fact that it has been developed officially and without the benefit of the master's honest and patient study. The fruits of such study, in the designs of most of the other buildings, which unavoidably challenge comparison with it, are visible in their intelligent respect for historical precedent, and in their knowledge of its proper use in the evolution of modern work, in the refinement and purity of their lines, in the clearness and delicacy of their expression, in their reserve of power, and in the fastidious conscience which has patiently chastened and corrected, has been prodigal of labor in rejecting and amending, and has thus made the work sensitive, elegant, and scholarly. The design of these buildings developed slowly in what Matthew Arnold would call an atmosphere of "sweetness and light." In fact, the organized division of labor in the office of the Government architect must of necessity be fundamentally inimical to the cultivation of true artistic feeling. The work which has resulted, with some few notable exceptions perhaps, constitutes a class by itself, peculiarly mechanical and automatic in character, and, for the most part, destitute of that sort of interest which comes from individuality of expression, and from studious adaptation to conditions of use, site, climate, materials, and environment. This official administration of design, whereby the public work is turned off with the most businesslike expedition, has played no unimportant part in the creation or encouragement of a certain architectural vernacular in our country, through the baneful imitations of untrained architects in private

practice. This vernacular will continue to be a reproach to us until the true artist has had opportunity to express himself in our public monuments with the same deliberation which he has shown, and is showing, in his private work, and thus to create a school for a more healthy cultivation of style. Whatever qualities of individuality may have characterized and given interest to the private work of the Government architects, before and after they have taken upon themselves the burden of this office, these qualities have almost invariably disappeared while under the powerful influence of the Government system. These gentlemen have been like the Greek artists, who lost their peculiar and delicate power when they became the servants of Roman masters. They have been compelled to content themselves with the show and not the substance of art, and to acknowledge as their own a succession of cold and formal official monuments, in which the smallest amount of design has to do the largest service by unimaginative but costly repetitions, and which differ one from the other only by reason of the amount of the appropriation in each case, and, to a certain extent, because of the difference in their requirements, not according to the personal quality of the architect who has given to them the respectability of his name. He has laid aside his function as an artist, and has become a creature of politics, of administration, of classifications, and of formalisms.

If our Government could place the designing of its buildings in the hands of architects

who have proved their ability to do justice to such great opportunities for professional distinction, the art of architecture would not only receive the encouragement which is due to it from one of the most enlightened nations of the world, but our public monuments would at last adequately express our civilization. In England, in France, in Germany, and, indeed, in all the great European countries, the public buildings are their highest and most characteristic efforts in art. It is the ambition of every architect to make himself worthy to be employed upon them. They constitute the great prizes of the profession. We cross the Atlantic to see the cities which they have made beautiful. In our own country enough of treasure has been appropriated for national buildings, and spent on them, to make our cities equally noble and attractive. But under the present system these opportunities have been worse than lost; for they have encouraged an unnecessary extravagance of expenditure without adequate return, and they offer no higher type to be accepted as the expression of our civilization than respectable conventionality and organized commonplace.

If the suggestive contrasts of quality in the buildings of the Exposition should serve no higher purpose than as an object-lesson to our legislators, teaching them that their responsibilities in respect to our national architecture are not properly discharged by maintaining a costly architectural pageant in Washington, the unsubstantial pageant of Jackson Park will not have been in vain.

Henry Van Brunt.



THALASSA.

O BEST beloved, give me of thy rest!
 If I might lay my worn and aching frame
 Along the hollow of thy mighty hand,
 Where now thy pliant fingers grip the land,
 Or feel the snow-white summits of thy breast,
 Fair as the three-formed huntress maiden's fame,
 Rock slow beneath me, slow and deep and strong,
 Keeping the rhythm of that old cradle-song
 The morning stars sang to the infant world —
 Then would the lids of sleep drop down unfurled,
 And I should slumber in enchanted ease
 Between thy serrated infinities,
 As on the airy bosom of the west
 Sleeps yonder star, a nursling of the skies.
 Thalassa! thou art the incarnate rest;
 In thy great heart immortal stillness lies.

W. J. Henderson.