

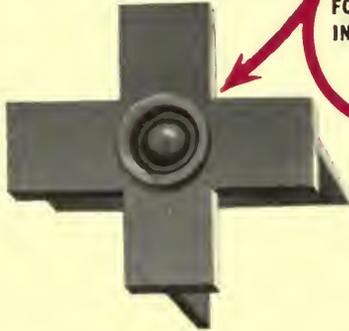
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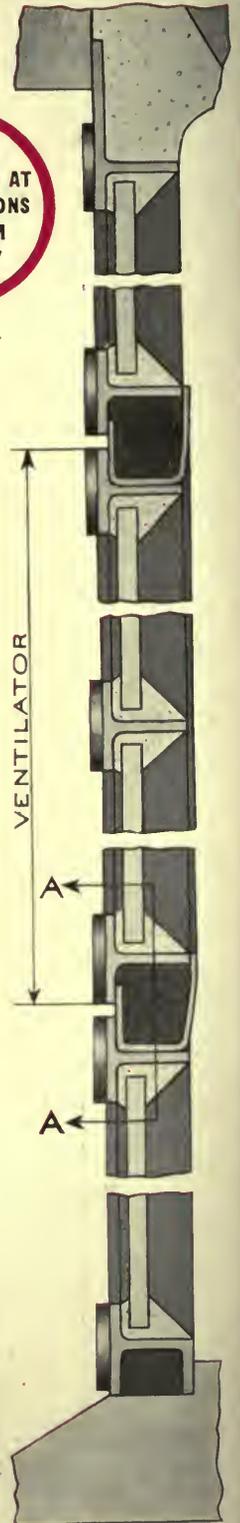
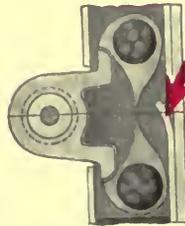


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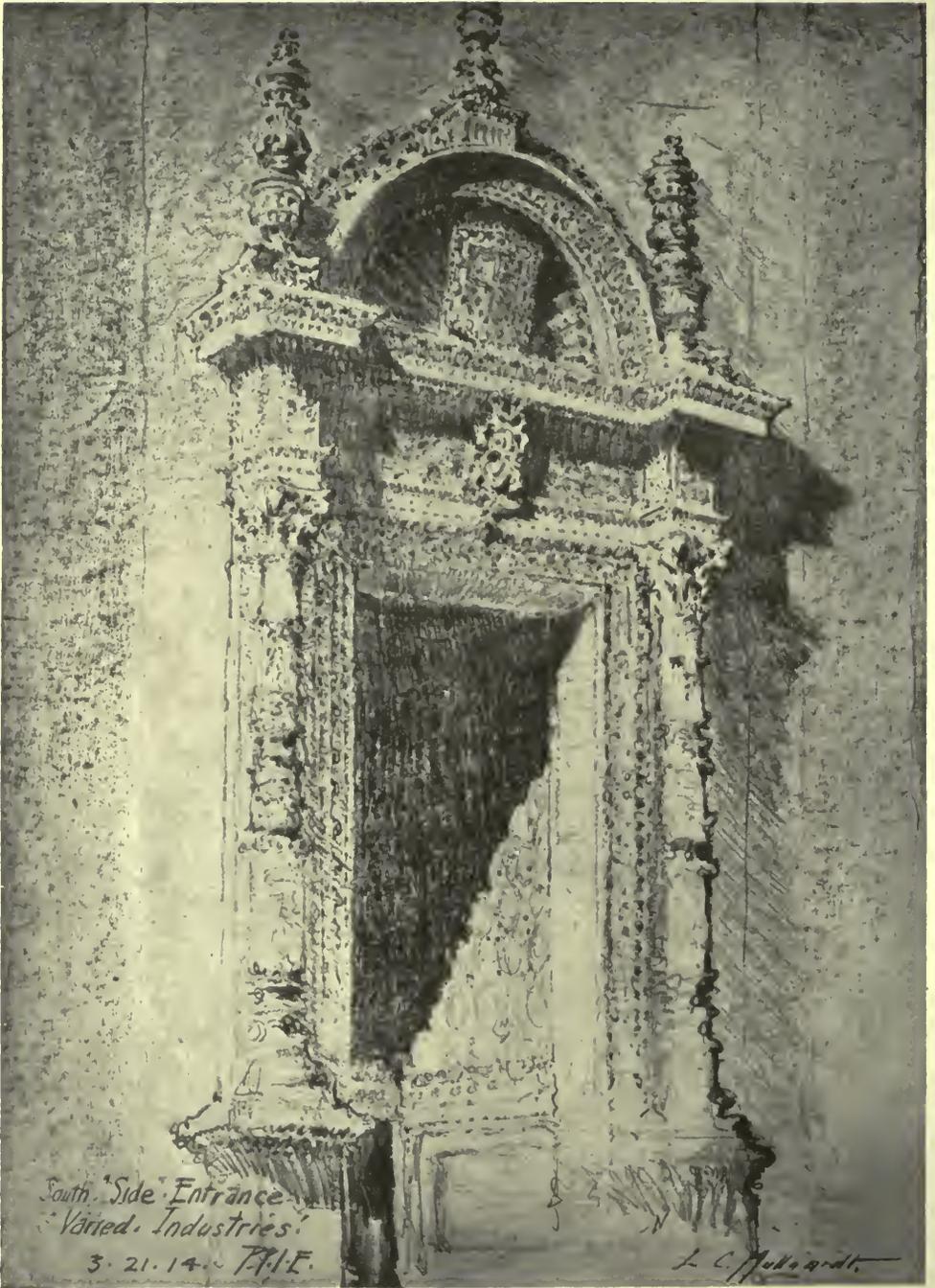
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SIDE AISLE ENTRANCE TO PALACE OF VARI-
ED INDUSTRIES—PANAMA-PACIFIC EXPO-
SITION. BLISS & FAVILLE, ARCHITECTS.

THE ARCHITECTURAL RECORD

MARCH, 1915

VOLUME XXXVII



NUMBER III

The PANAMA-PACIFIC EXPOSITION AT SAN FRANCISCO

By *Louis C. Mullgardt*

INTERNATIONAL expositions are invariably founded on historical events of great importance to nations. Philadelphia's Exposition in 1876 celebrated the one hundredth anniversary of the founding of the Republic. Chicago's Exposition in 1892 celebrated the four hundredth anniversary of the discovery of America. St. Louis's Exposition in 1904 celebrated the one hundredth anniversary of the purchase of the Louisiana Territory from Spain.

All of the foregoing celebrations were related to past epochs. San Francisco's Exposition celebrates the beginning of a new epoch following the advent of the greatest engineering accomplishment in history. It celebrates the first establishment of a direct belt connection between the Atlantic and Pacific Oceans, whereby a passage by water, through the middle of the Western Hemisphere, near the line of the Equator, is secured for all time

and all peoples. It celebrates the advent of an entirely new around-the-world route and a direct system of intercommunication between nations. It is the road which leads to a better understanding and makes for enduring peace, world progress and amity between nations.

Fulfillment of San Francisco's laudable desire to hold this international exposition was made possible only through a vigorous fight waged in Washington for a period of six months or more with its worthy Southern opponent, New Orleans. It is fair to assume that San Francisco's success was largely due to added valor acquired through surmounting the desponding trials of devastation by fire in 1906, only five years prior to launching the herculean task of raising the sinews necessary for this international exposition, amounting to seventeen million dollars. This amount was subscribed in a remarkably short time

within the State of California and without the customary governmental assistance accorded previous international expositions.

The principal feature of the Philadelphia Exposition was its Crystal Palace. Chicago similarly had its wonderful Court of Honor, quadrangular in shape, formed by the surrounding exhibit palaces. St. Louis's monumental feature was the great Cascade surmounted by Festival Hall. San Francisco's Exposition is mainly distinctive in its general plan.

Unlike other expositions, the simple plan of housing the department exhibits has been accomplished in a manner that seems commonplace when compared with the planning of a residential palace that is surrounded with gardens, arborium, music pavilion, galleries, play yards and visitors' cottages.

The eight centrally grouped palaces—Education, Food Products, Agriculture, Liberal Arts, Manufacture, Transportation, Mines and Metallurgy, and Varied Industries—including the main tower, the courts and the connecting longitudinal and lateral avenues, together form a homogeneous unit as compact and correlated as are the various departments of a residential palace.

The east and west terminations of this colossal unit are flanked by Machinery Hall and the Palace of Fine Arts, and the secondary lateral axes point to Festival Hall and the Palace of Horticulture.

These twelve subdivisions constitute the principal housed exhibit departments. The departments of Foreign Countries, the States, Aviation and Military Maneuvering Fields, the Race Course and Live Stock Barns are beyond the extreme west end of the principal exhibit palaces. The amusement section is at the extreme east end. The exposition palaces form the central link which connects all sections together continuously.

The ideal, fascinating site which the exposition occupies has had the greatest influence in the development of the general plan—the great feature of this exposition.

It is well worth noting that the selection of this harbor view site caused the

inhabitants of San Francisco all the anguish that self-constituted factions within an energetic community could produce and encounter. Lake Merced, Golden Gate Park, Lincoln Park, the Water Front and Harbor View each had enthusiastic adherents and opponents.

Chicago wisely placed its exposition in the undeveloped and uncultivated lake shore sands of Jackson Park, which subsequently became a great garden playground of the people.

St. Louis unwisely placed its exposition in highly cultivated Forest Park, thereby causing the destruction of years of natural growth and cultivated park land, now and forever wasted. St. Louis made the additional mistake of placing a permanent Gallery of Fine Arts in Forest Park, where it is about as inaccessible to the people as if it were of primary importance to have it so.

San Francisco narrowly escaped making a similar mistake by destroying its renowned Golden Gate Park, which has taken forty years to develop out of wind-swept sand dunes.

Golden Gate Park was seemingly the one glorious spot in the city and county of San Francisco upon which the majority of the public had its eye focused as the most suitable of all sites for the exposition. Had it not been for the wisdom and sagacity exercised by those who were empowered to conduct the selection of a site along safer and saner channels, San Francisco would now have an exposition where Golden Gate Park is, but it would no longer have Golden Gate Park.

The natural geographical condition of the undeveloped site so wisely selected may be better understood by referring to the accompanying illustrations. The major portion of the site where the great palaces now stand was inundated with salt water about twenty-five feet in depth. This artificial lake was separated from the Bay of San Francisco by a substantial sea wall built of riprap and old building stones discarded from buildings destroyed in the fire of 1906. East Lake was filled by means of pumping dredgers, which did service for several months pumping silt from the bay whilst

the architects and engineers were engaged in the preparation of working drawings and the landscape engineer established the location of his stock of trees and plants throughout the State preparatory to subsequent shipment when required in accordance with the landscape plans prepared by the architects.

The Director of Works was the first official appointed by the President of the Exposition to provide for the physical construction.

In the fall of 1911 the President of the Exposition requested the San Francisco Chapter of the American Institute of Architects to submit a list of twelve names chosen from its ranks. From this list the President of the Exposition agreed, with certain reservation, to elect five architects to constitute a council. About one month after the first Architectural Council had been appointed three of its five members resigned. In January, 1912, three additional San Francisco architects were chosen, this time without reference to the chapter, also three architects from New York City. Subsequently one additional architect from Los Angeles was selected; these nine architects constituted the permanent Architectural Commission.

An architectural drafting department was immediately established in the downtown exposition office building, where preliminary planning was carried on under the guidance of members of the Architectural Commission with the primary object of developing the best general plan obtainable. Daily conferences were held by the commission for the purpose of analyzing every conceivable scheme which might lead to a correct solution of the general plan. Every previous exposition plan was made the subject of special inquiry by the commission. These daily meetings also provided for many conferences with the local heads of the Government Weather Bureau; with the Government military officials in charge of the Presidio and Fort Mason, lying to the west and east ends, as to manner and extent permissible when infringing upon their convenience; with the landscape gardener as to maximum possibilities in securing suitable

trees and plants such as would and would not withstand the rigors of the trade winds; with the transportation officials in reference to establishing prompt new facilities for shipment of materials to the premises and rapid passenger transportation by land and by water; and finally, with the State harbor officials relative to tides and currents—it had at one time been considered wise to establish a more extensive still water basin along the water front of the exposition grounds for smaller craft than was finally agreed upon.

The Architectural Commission carefully tabulated all available data on every subject affecting the general plan. Every conceivable scheme was drawn out by the draftsmen and analyzed by the commission. This process continued until the date set for the first conference of the entire Architectural Commission, in February, 1912. After a week's conference the present court plan was enthusiastically adopted by the Architectural Commission. Immediately thereafter various parts constituting the central body of the exposition plan were assigned to the individual members of the commission by unanimous agreement of its members.

At the second meeting of the Architectural Commission, in August, 1912, preliminary studies were submitted by all the members, each dealing with the particular part of the general plan assigned at the February conference.

In December, 1912, the third and final meeting of the entire commission took place to consider and adopt the preliminary drawings made on the basis of understandings had at the previous conferences. Immediately thereafter the Board of Directors of the Panama-Pacific International Exposition unanimously adopted the recommendations and designs submitted to it by the Architectural Commission with authority to proceed with the working drawings. Shortly thereafter a contract was entered into for the filling and grading preparatory for the pile foundations required, over eighty per cent. of the entire area covered by the exposition palaces.

Almost simultaneously with the working drawings the construction drawings



PLAN OF EXPOSITION GROUNDS, SHOWING THE RELATION BETWEEN THE

were prepared. The timber floor substructures and underfloors were placed upon the piles before the superstructures were erected.

The chiefs of the Sculpture Department, Department of Color and Decoration and Landscape Engineering were selected by the Architectural Commission at its second meeting and attended its conferences and collaborated with it constantly.

At the third meeting of the Architectural Commission the Department of Travertine Texture was established. The Architectural Commission thereby created a new element in exposition designing. This element of texture has given an added interest in the final result which is invaluable to an exposition and will forever be regarded indispensable in similar work.

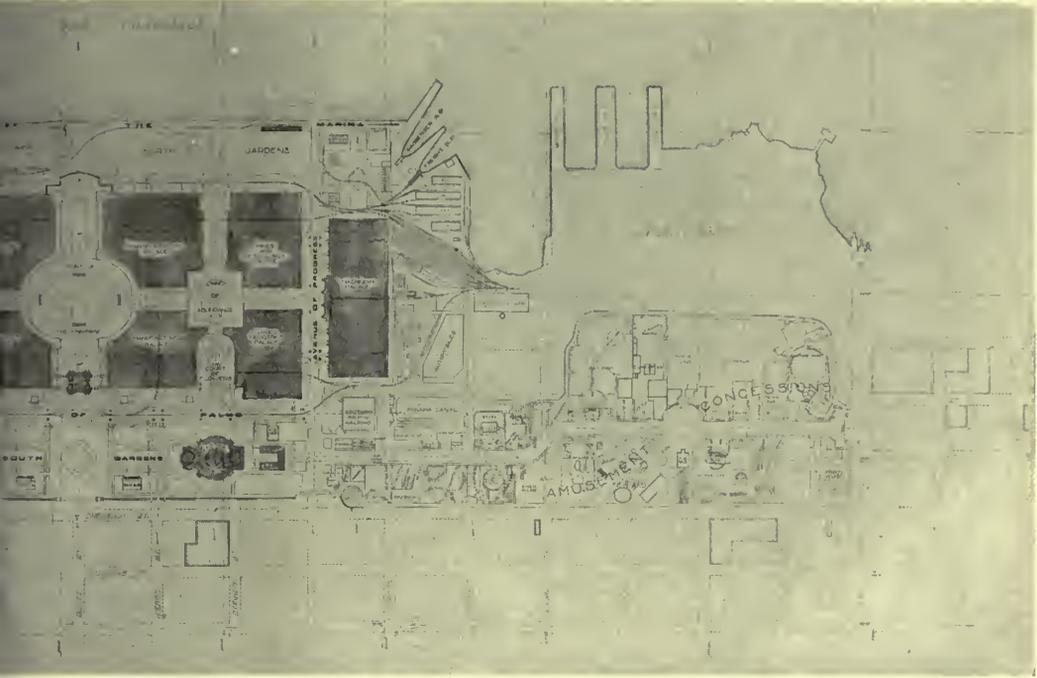
The filling and grading, piling and foundations, sewers and drains, tracks and roadways, ferry slips and piers, enclosures and workshops, exhibit palaces and courts were separately contracted for between the Division of Works and private contracting concerns.

For the convenience of the contractors, also to facilitate the work and for economic reasons, the Exposition Company assumed the purchase of all dimension lumber and plastic material direct from the forests and mills, and delivered the same on the grounds to the contractors by water and by rail at minimum cost.

The roadways and walks are built of asphaltum on a broken stone and gravel foundation.

Extensive railroad yards for the delivery of building materials and exhibits were provided at the east end of the exposition grounds. Under Fort Mason the first tunnel was constructed expressly for the purpose of establishing direct railway facilities into the exposition grounds. Three parallel lines were laid longitudinally alongside and others through the palaces so that railway shipments are made to the nearest points of delivery.

Visitors to the exposition grounds have for the past year been afforded the convenience of public and private automobile service over the main avenues of the exposition grounds. Similar service



RIES OF THE EXPOSITION AND THE ADJACENT STREETS OF SAN FRANCISCO.

will be established throughout the exposition year. An intermural system along the water front has also been established. In addition to this there will be wheel chairs, jinrikishas and other similar small conveyances to enable visitors to traverse every part of the grounds and palaces on wheels.

Ferry slips have been established near the north end of Machinery Palace. The protected bay inlet north of the Fine Arts Building is designed for smaller pleasure craft. People residing along the shores of San Francisco Bay may approach the exposition direct by water.

Special electric street car facilities have been established by the City of San Francisco along the south line of the exposition grounds, with tributaries leading from the west, south and east ends of the city. The exposition being situated centrally on the north shore line and within twenty minutes' walk of the business centers, makes it accessible to the greatest number of probable visitors.

Its location affords voyagers by sea coming from the Orient or from north, south or through the Panama Canal,

a first view from aboard ship, after coming through the Golden Gate.

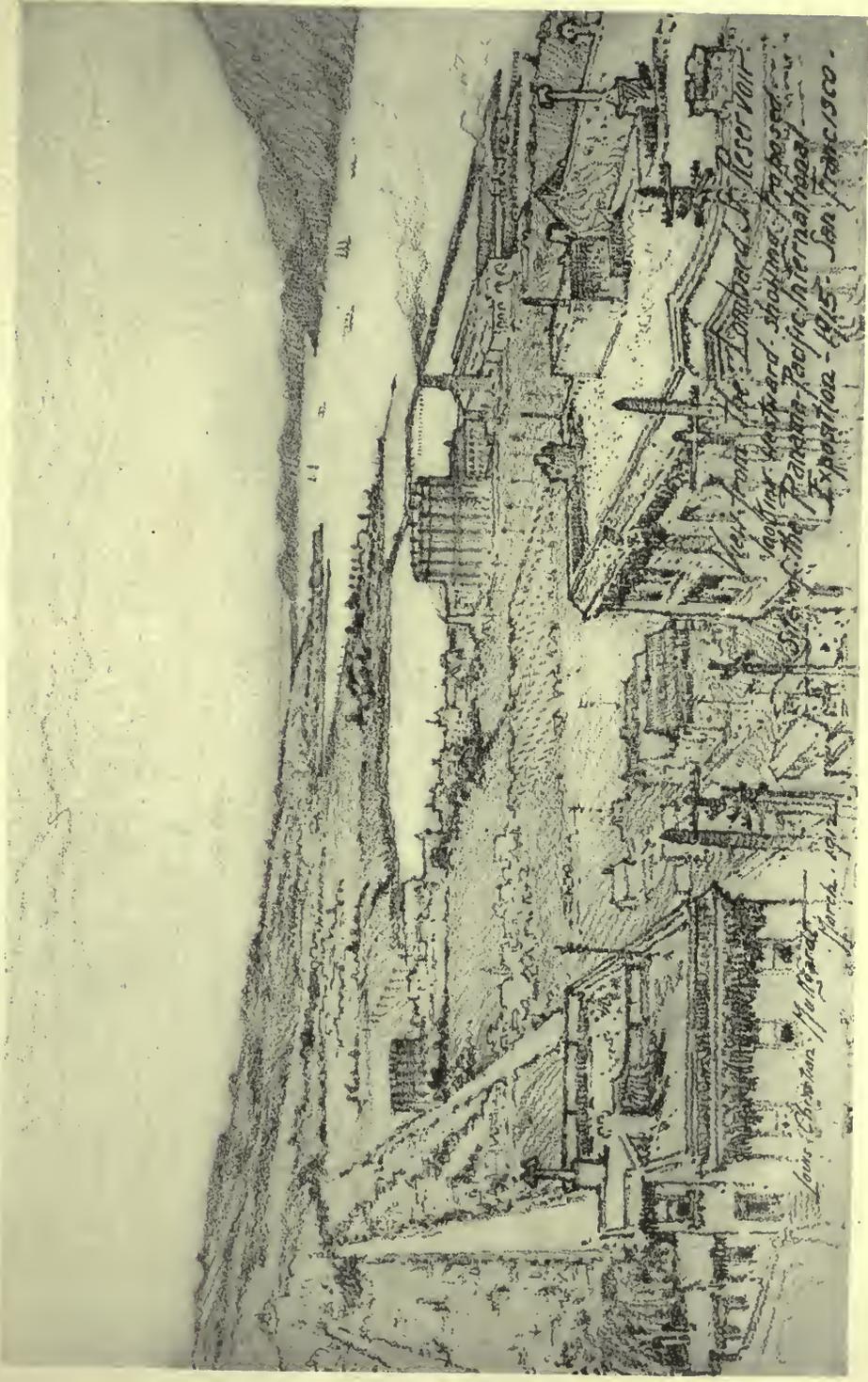
A permanent Auditorium has been built in the New Civic Center, costing one million dollars. This money was appropriated out of the five million dollars subscribed by the City of San Francisco to the exposition general fund. This Auditorium has a seating capacity of twelve thousand and is complete and inaugurated.

The artificial lighting of the exposition is largely concealed. There will be no electric bulbs visible within the area occupied by the exposition palaces. Electric scintillators will be extensively used.

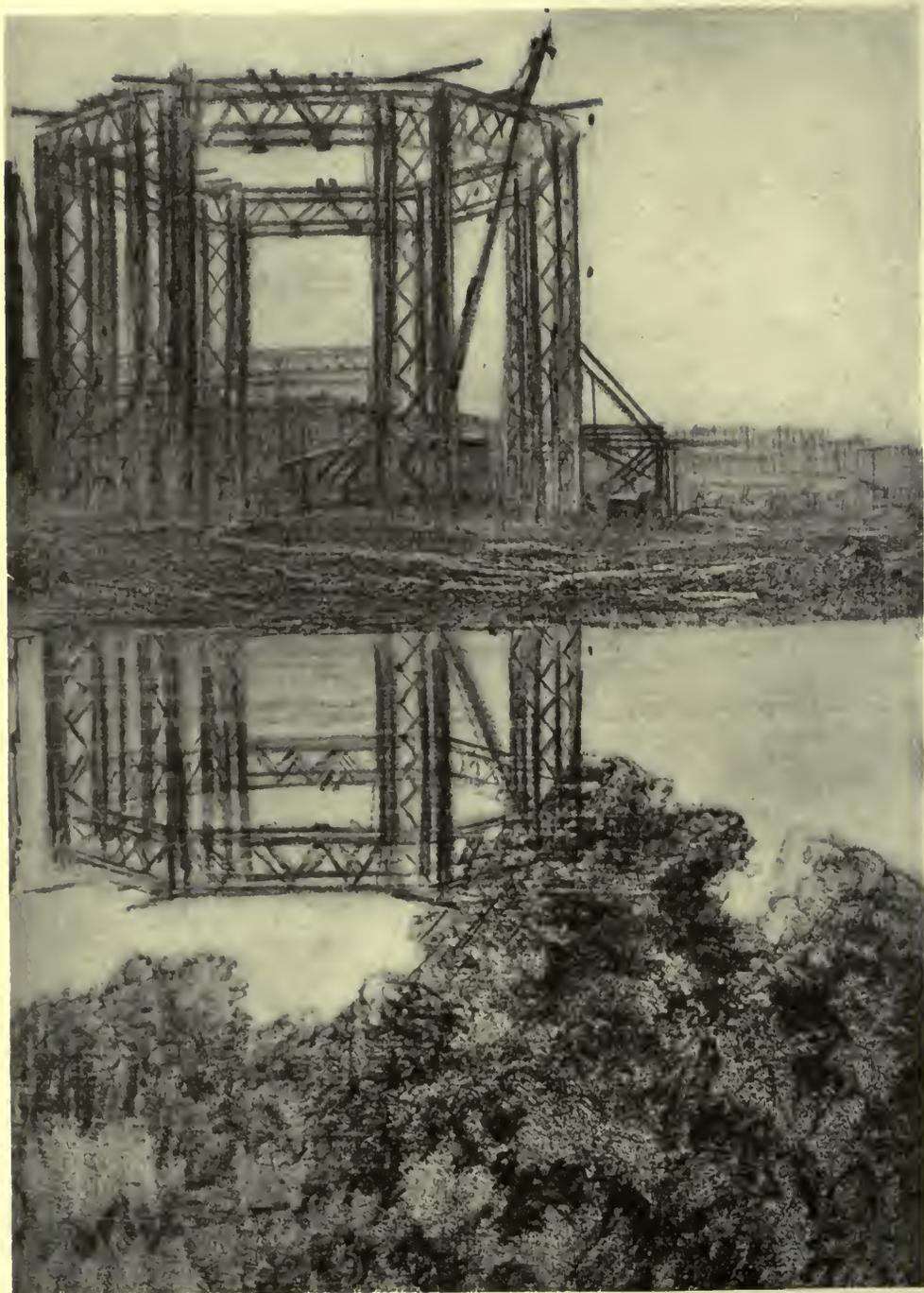
The total area occupied by the exposition consists of flat land. The built up hills of the city form a crescent background from east to west, establishing an amphitheatre facing the bay. The entire composition is visible from the hill-tops and from the water. It is within easy walking distance of the most thickly populated surrounding hills, which in their blue-grey atmosphere give added luster and scale to the colorful composition.



SKETCH OF THE EXPOSITION GROUNDS,
MARCH, 1913, SHOWING ONE YEAR'S PROGRESS.



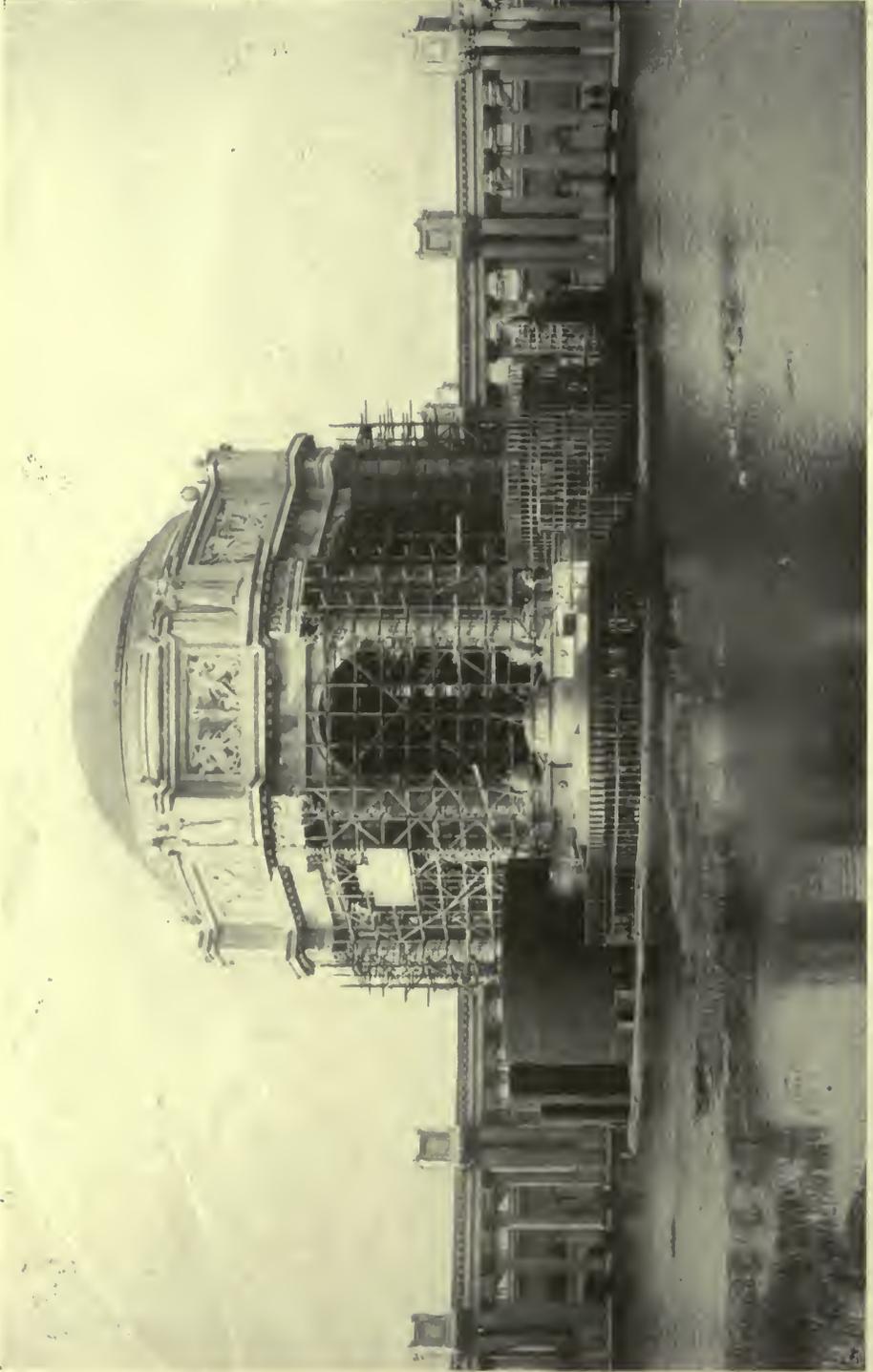
EXPOSITION GROUNDS, MARCH, 1912, BEFORE THE FILLING OF EAST LAKE, BEHIND THE LARGE GAS TANK, WAS BEGUN. TO THE RIGHT IS THE BAY OF SAN FRANCISCO; TO THE WEST, THE GOVERNMENT MILITARY RESERVATION. THE GOLDEN GATE AND THE PACIFIC OCEAN ARE BEYOND.



SKETCH OF THE CONSTRUCTION FOR THE CENTRAL DOME OF THE PALACE OF FINE ARTS, APRIL, 1914. DESIGNED BY THE ENGINEERING DEPARTMENT OF THE PANAMA-PACIFIC EXPOSITION. BERNARD MAYBECK, ARCHITECT.



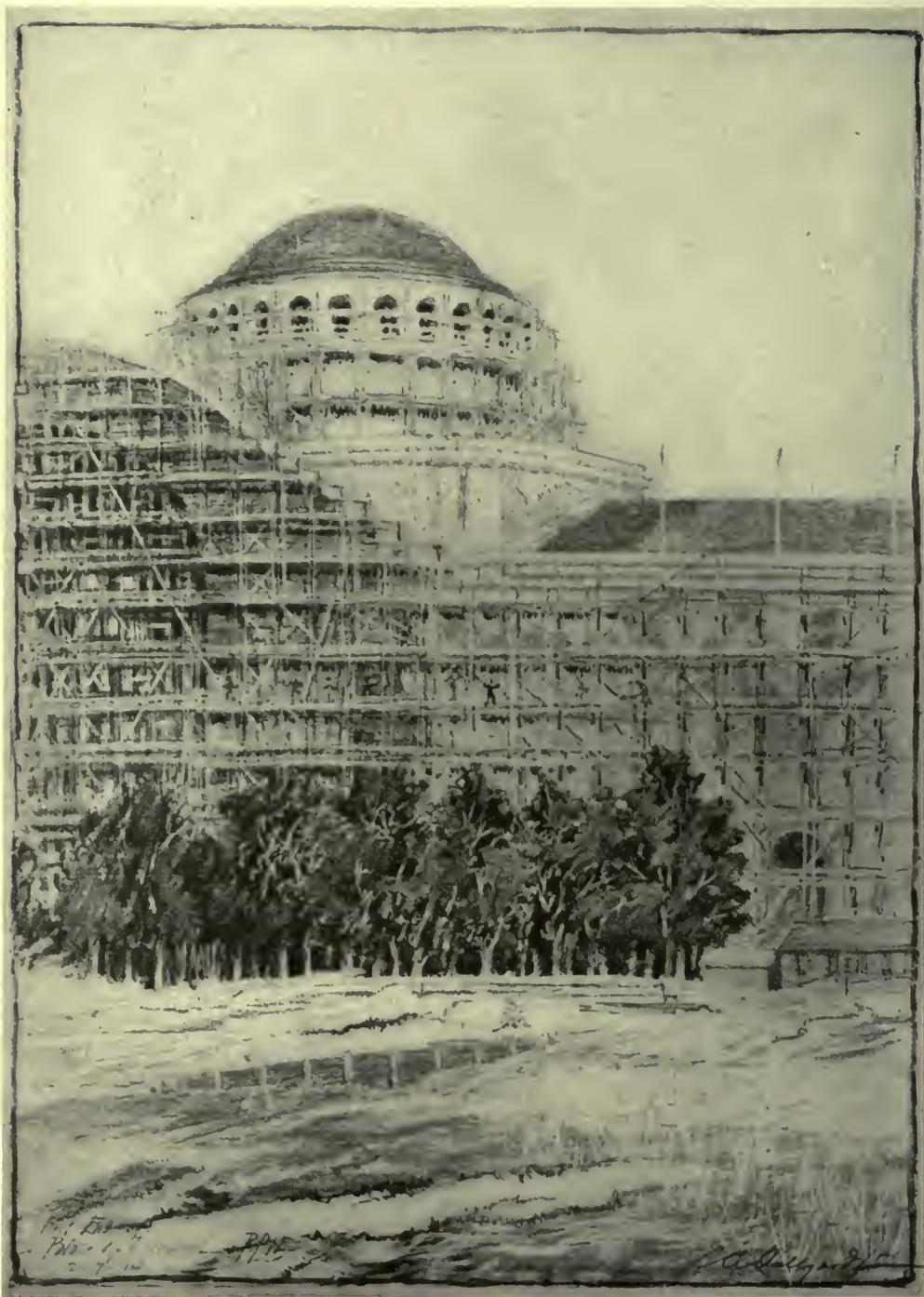
AEROPLANE VIEW FROM THE NORTHWEST. PHOTOGRAPHED BY GABRIEL MOULIN, DECEMBER, 1914.



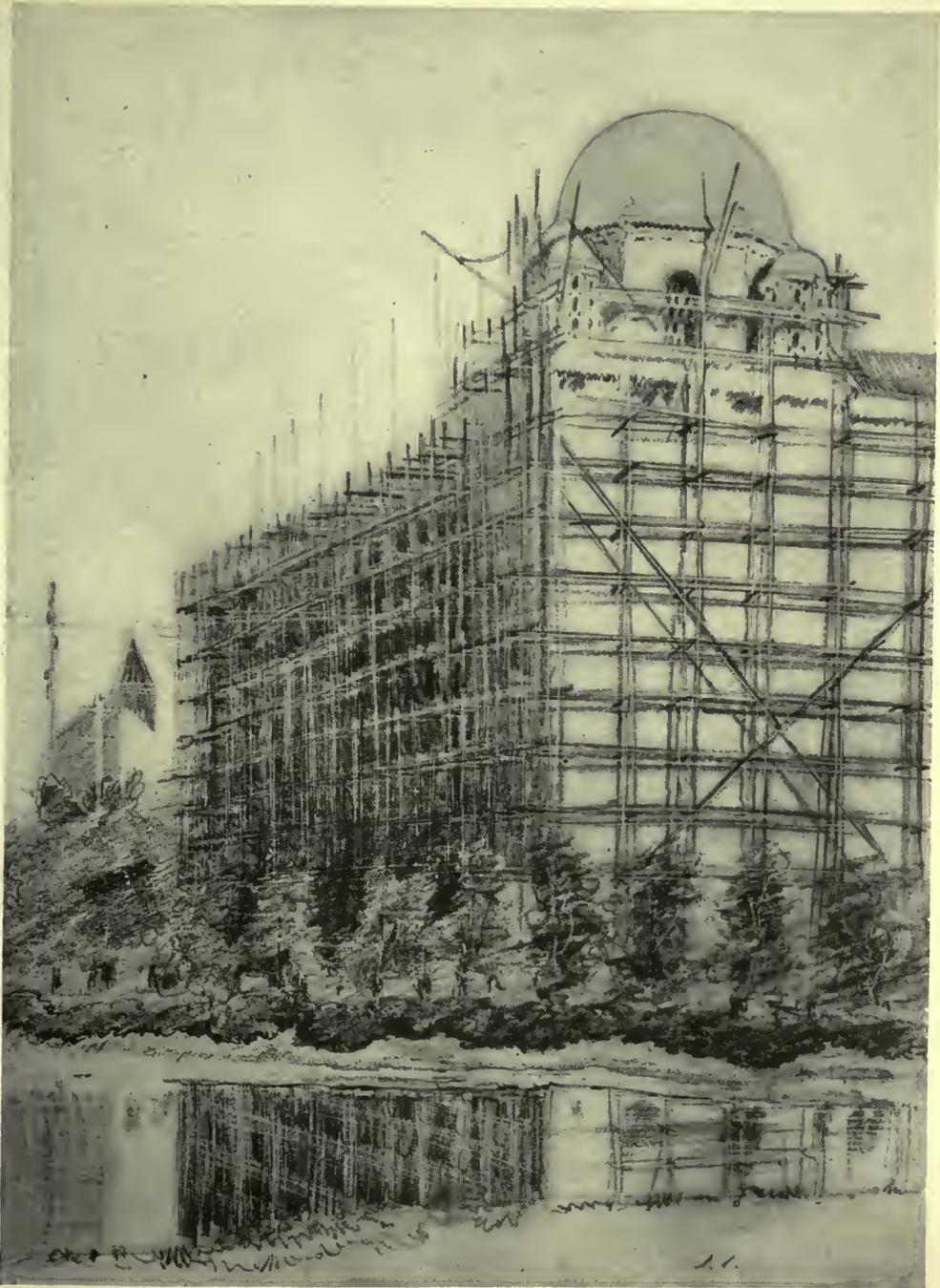
VIEW OF THE CENTRAL DOME OF THE PALACE
OF FINE ARTS AS IT APPEARED IN DECEMBER,
1914. BERNARD MAYBECK, ARCHITECT.



THE PERISTYLE TO THE LEFT OF THE CENTRAL
DOME OF THE PALACE OF FINE ARTS. BERNARD
MAYBECK, ARCHITECT. PHOTOGRAPHED AT
NIGHT BY FRANCIS BRUGUIERE, DECEMBER, 1914.



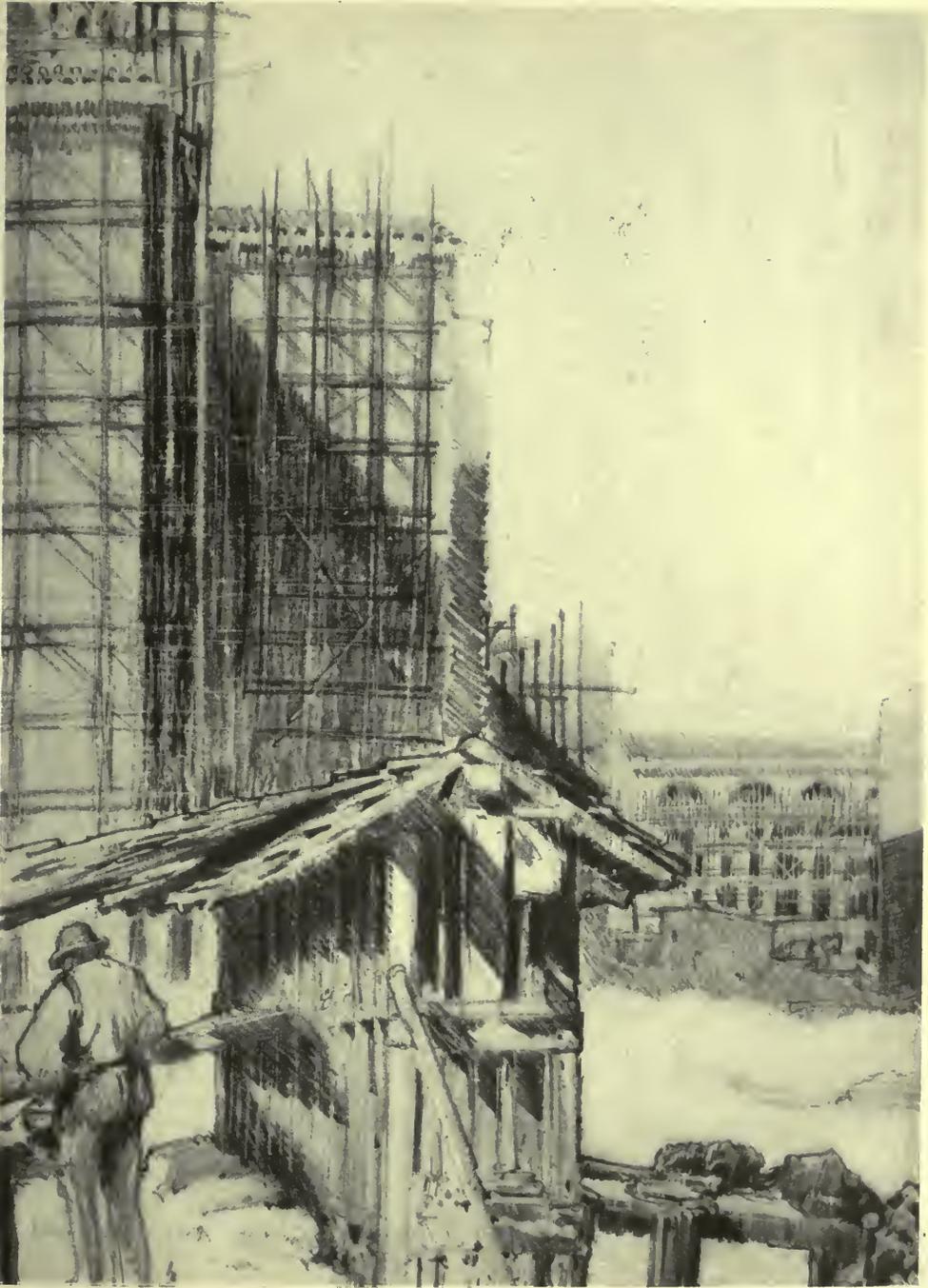
SKETCH OF THE WEST END AND TYPICAL DOME OF THE PALACE OF EDUCATION, FEBRUARY, 1914, BEFORE SCAFFOLDING WAS REMOVED. BLISS & FAVILLE, ARCHITECTS.



SKETCH OF TYPICAL CORNER PAVILION AND PERIMETER
WALLS OF THE PALACE OF EDUCATION, MARCH 1914,
BEFORE SCAFFOLDING WAS REMOVED. THE MINI-
MUM HEIGHT OF ALL EXPOSITION WALLS IS SIXTY-FIVE
FEET. BLISS & FAVILLE, ARCHITECTS.



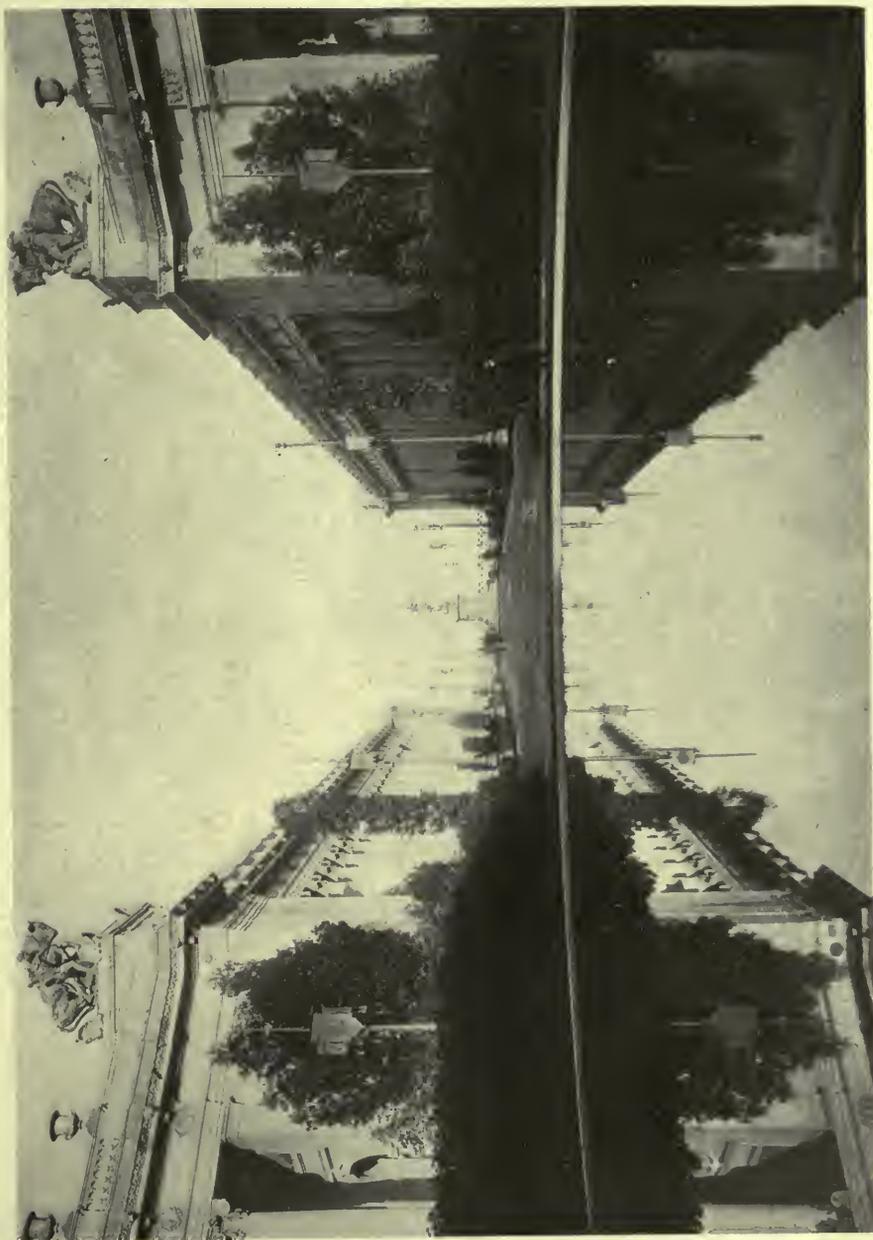
THE COURT OF PALMS, GEORGE W. KELHAM, ARCHITECT, WITH THE PALACE OF HORTICULTURE TO THE SOUTH, BAKEWELL & BROWN, ARCHITECTS.



SKETCH OF PRELIMINARY CONSTRUCTION AROUND THE
COURT OF PALMS, MARCH, 1914. DESIGNED BY THE
ENGINEERING DEPARTMENT OF THE PANAMA-PACIFIC
EXPOSITION. GEORGE W. KELHAM, ARCHITECT.

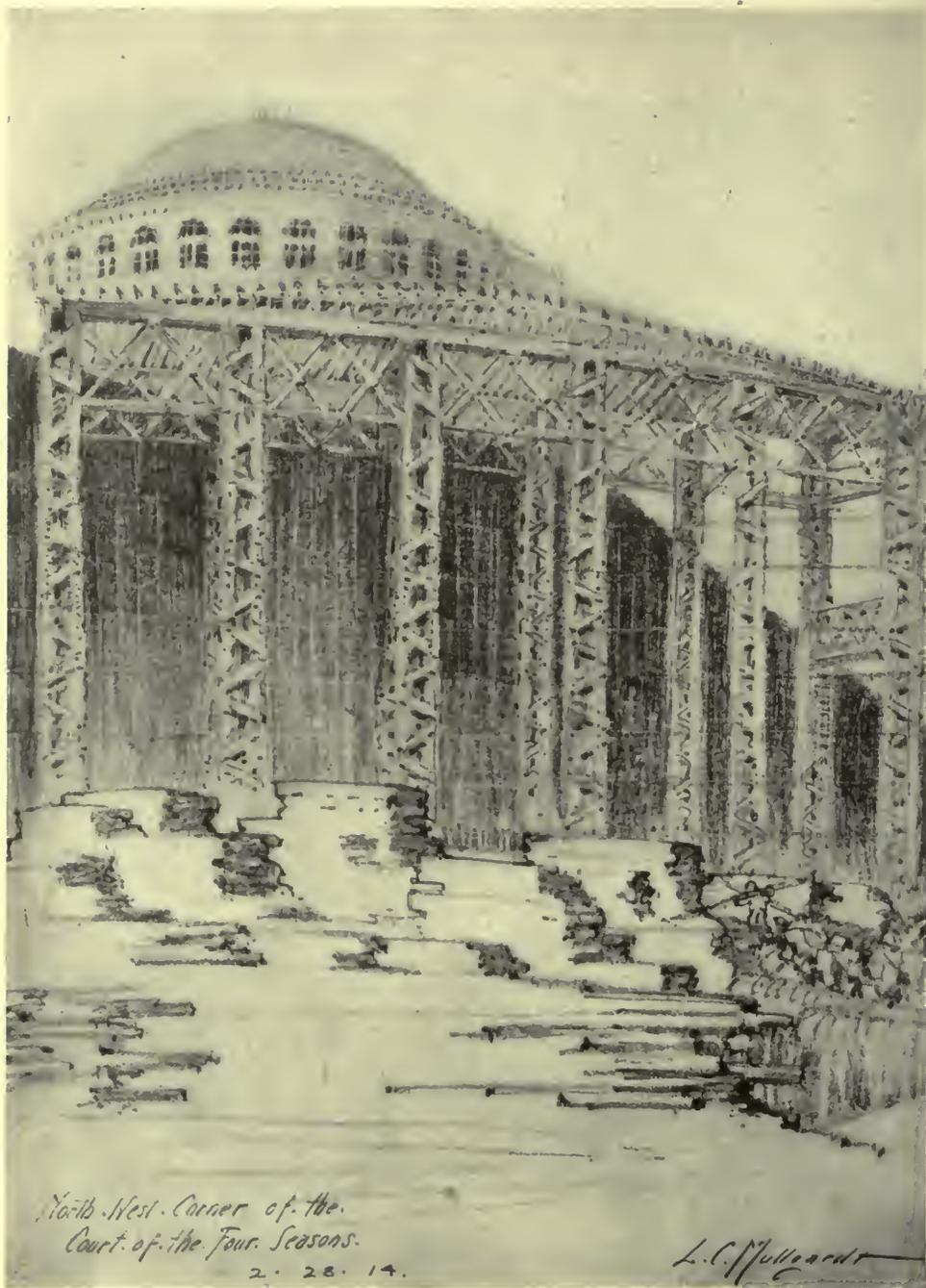


THE GREAT NICHE, OVER ONE HUNDRED FEET HIGH, AT THE SOUTH
END OF THE OCTAGONAL COURT OF FOUR SEASONS AND FLANKED
BY ALCOVES BACK OF PERISTYLES CONTAINING STATUES SYM-
BOLIZING THE SEASONS. HENRY BACON, ARCHITECT.

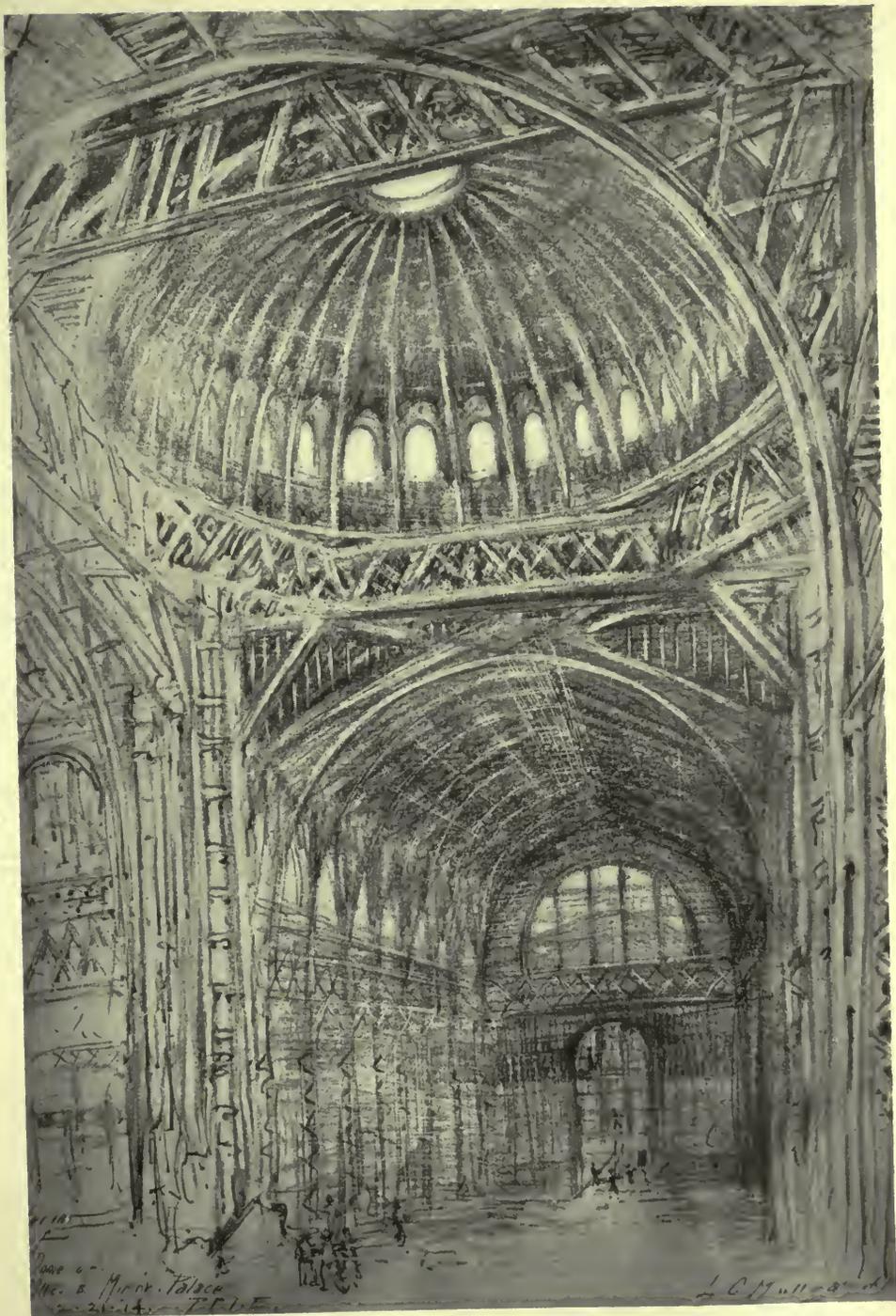


COURT OF FOUR SEASONS ACROSS CIRCULAR POOL, LOOKING NORTH TOWARD THE BAY OF SAN FRANCISCO. HENRY BACON, ARCHITECT. THE AVERAGE GRADE OF THE EXPOSITION IS ONLY FIVE FEET ABOVE THE MEAN SEA LEVEL. A PERFECT VIEW OF SHIPS PASSING THE LOWER END OF THIS COURT IS OBTAINED. BEYOND ARE THE MARIN COUNTY HILLS, AVERAGING OVER 1000 FEET IN HEIGHT.

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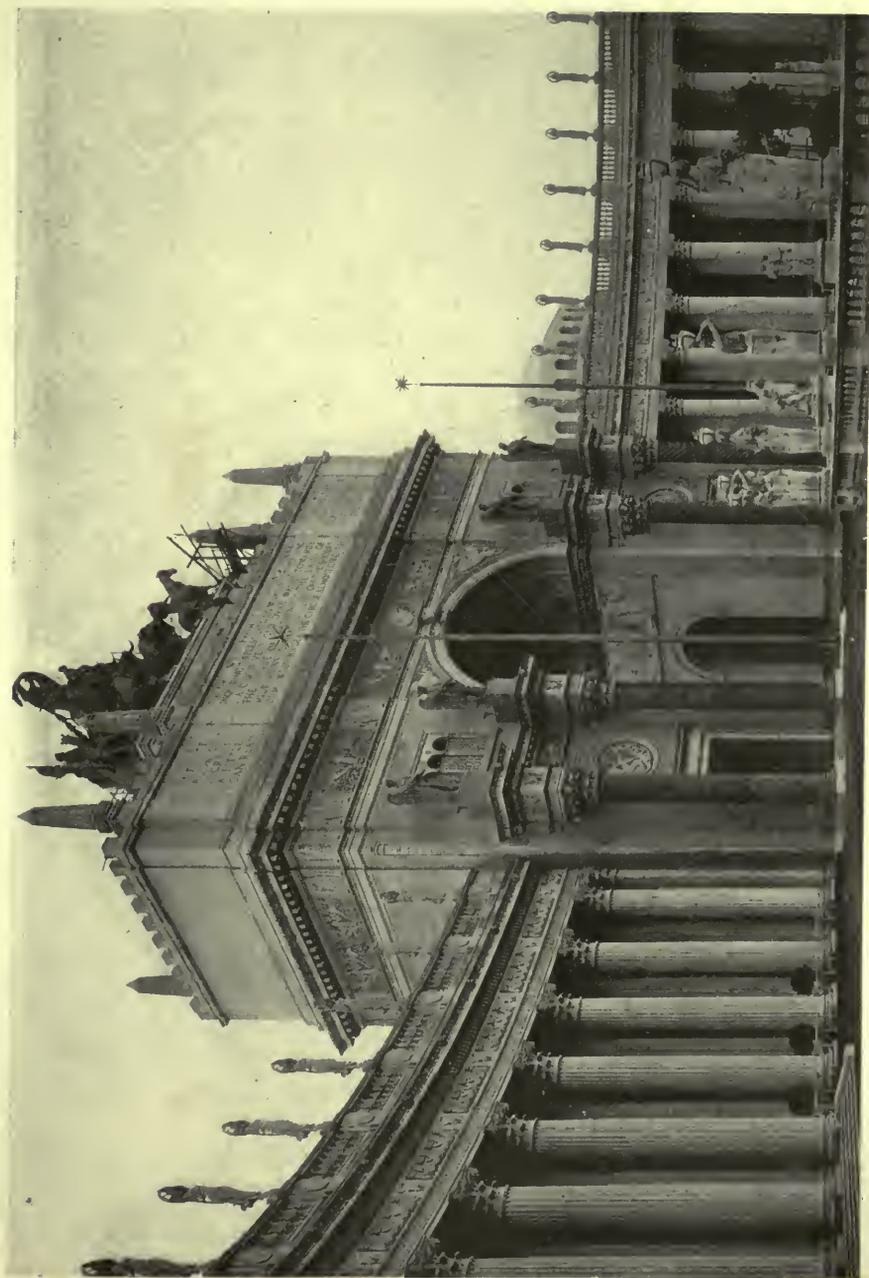
SKETCH SHOWING CONSTRUCTION IN THE NORTHWEST CORNER OF THE COURT OF FOUR SEASONS, FEBRUARY, 1914. DESIGNED BY THE ENGINEERING DEPARTMENT OF THE PANAMA-PACIFIC EXPOSITION. HENRY BACON, ARCHITECT. DOME OF THE PALACE OF FOOD PRODUCTS IN THE DISTANCE. BLISS & FAVILLE, ARCHITECTS.



SKETCH OF TYPICAL INTERIOR CONSTRUCTION OF THE EIGHT DOMES AS DESIGNED BY THE ENGINEERING DEPARTMENT OF THE PANAMA-PACIFIC EXPOSITION. BLISS & FAVILLE, ARCHITECTS.



VIEW FROM DOME OF FESTIVAL HALL, SHOWING TOWER OF JEWELS IN RELATION TO EXPOSITION PALACES AND SOUTH GARDENS. PHOTOGRAPHED NOVEMBER, 1914, BEFORE SCAFFOLDING WAS REMOVED. CARRÈRE & HASTINGS, ARCHITECTS.

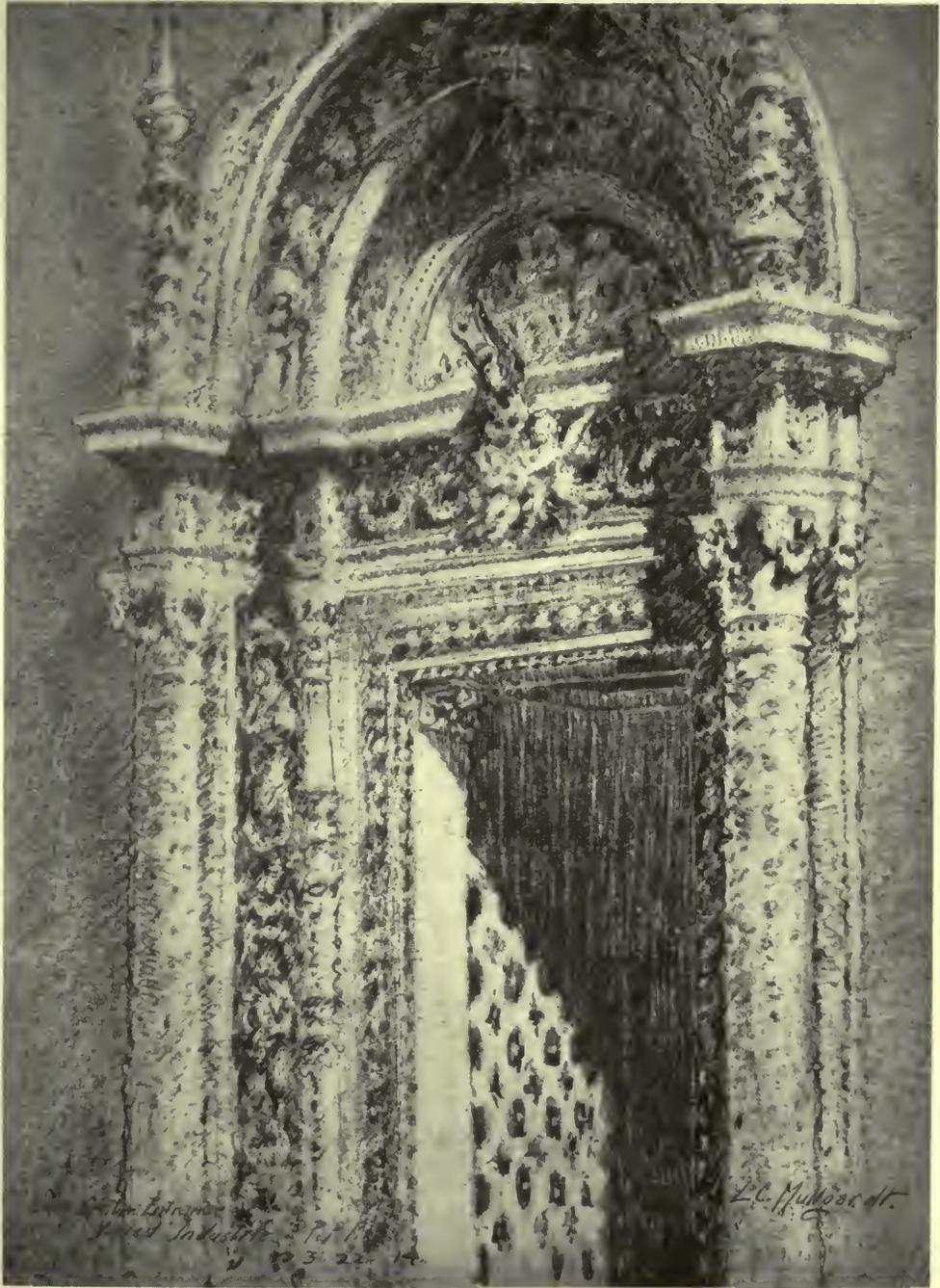


ARCH OF THE WEST, IN THE COURT OF THE UNIVERSE. THIS COURT IS OVAL IN PLAN AND HAS AN AVENUE FLANKED BY A COLONNADE REACHING TO THE BAY, SIMILAR TO THE TWO OTHER INTERIOR COURTS. PHOTOGRAPHED DECEMBER, 1914. McKIM, MEAD & WHITE, ARCHITECTS.



NIGHT SCENE SHOWING SOUTHEAST CORNER PAVILION IN COURT OF THE UNIVERSE, AS SEEN BETWEEN THE SCAFFOLDING OF THE GREAT ARCH OF THE TOWER OF JEWELS. PHOTOGRAPHED DECEMBER, 1914, BY FRANCIS BRUGUIERE. MCKIM, MEAD & WHITE, ARCHITECTS.

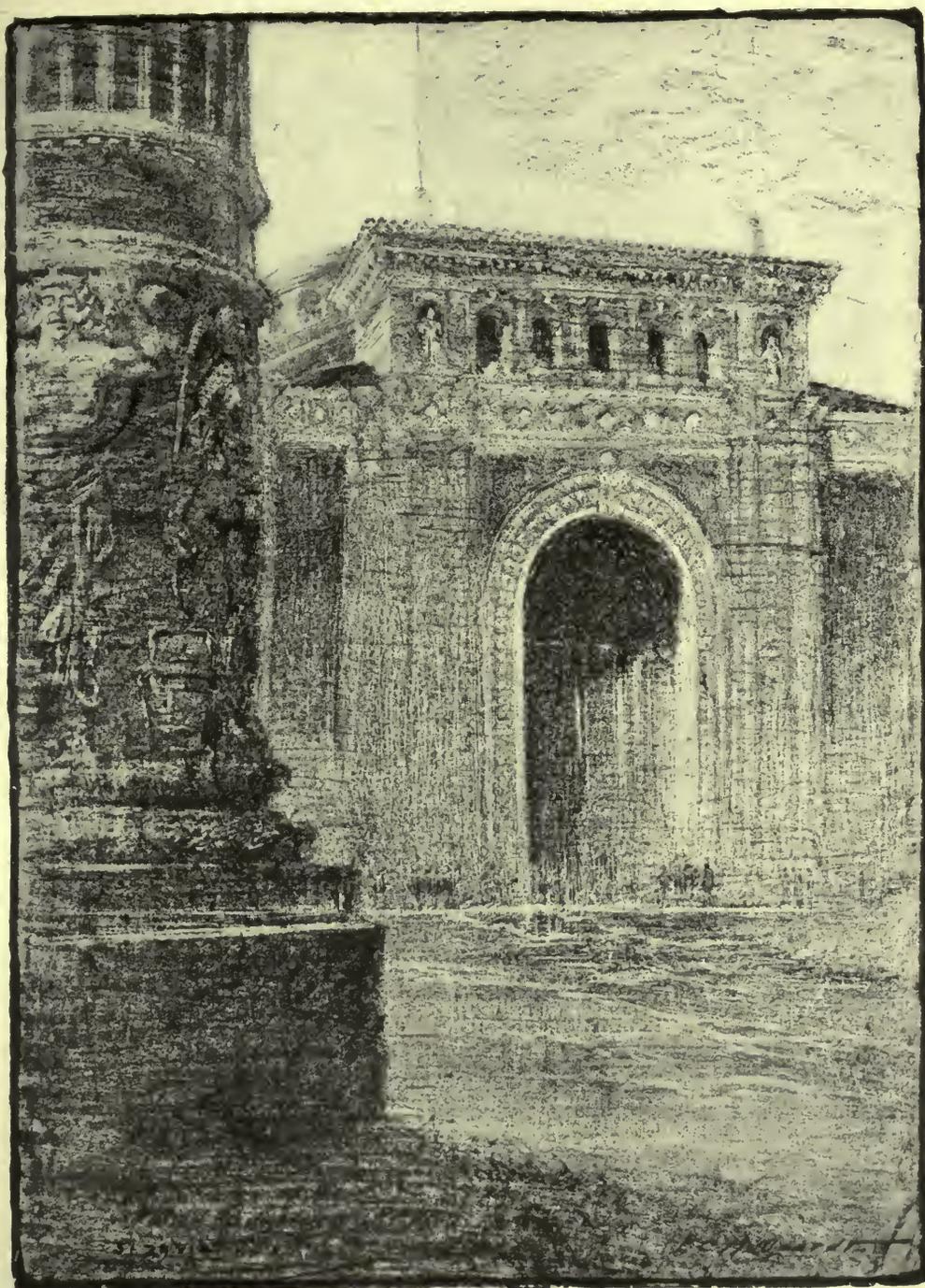
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SKETCH OF CENTRAL SOUTH ENTRANCE TO
PALACE OF VARIED INDUSTRIES, MARCH,
1914. BLISS & FAVILLE, ARCHITECTS.



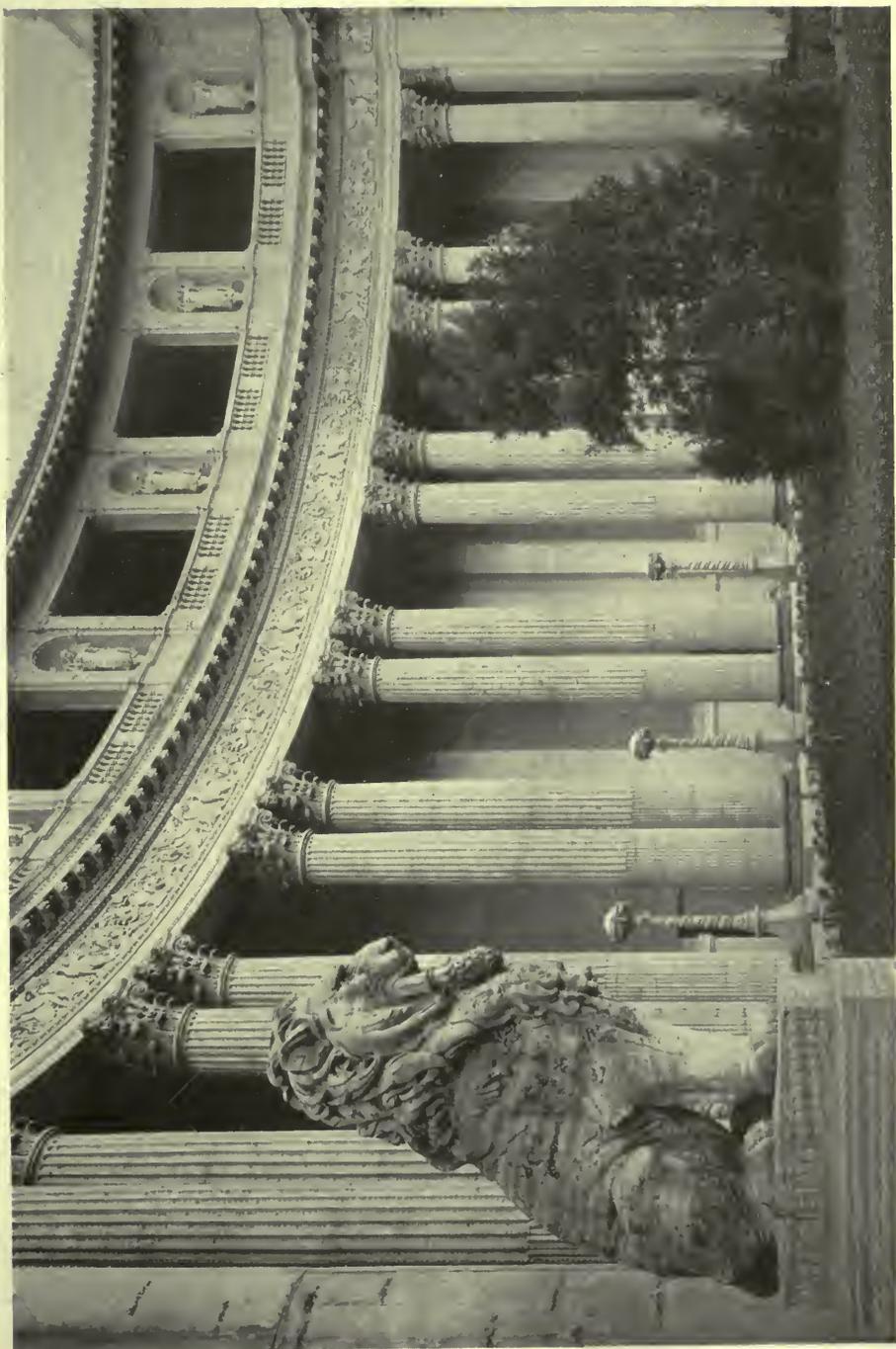
TYPICAL NORTH ENTRANCES OF THE PALACES OF FOOD PRODUCTS, AGRICULTURE, TRANSPORTATION AND MINES AND METALLURGY. PHOTOGRAPHED NOVEMBER, 1914. BLISS & FAVILLE, ARCHITECTS.



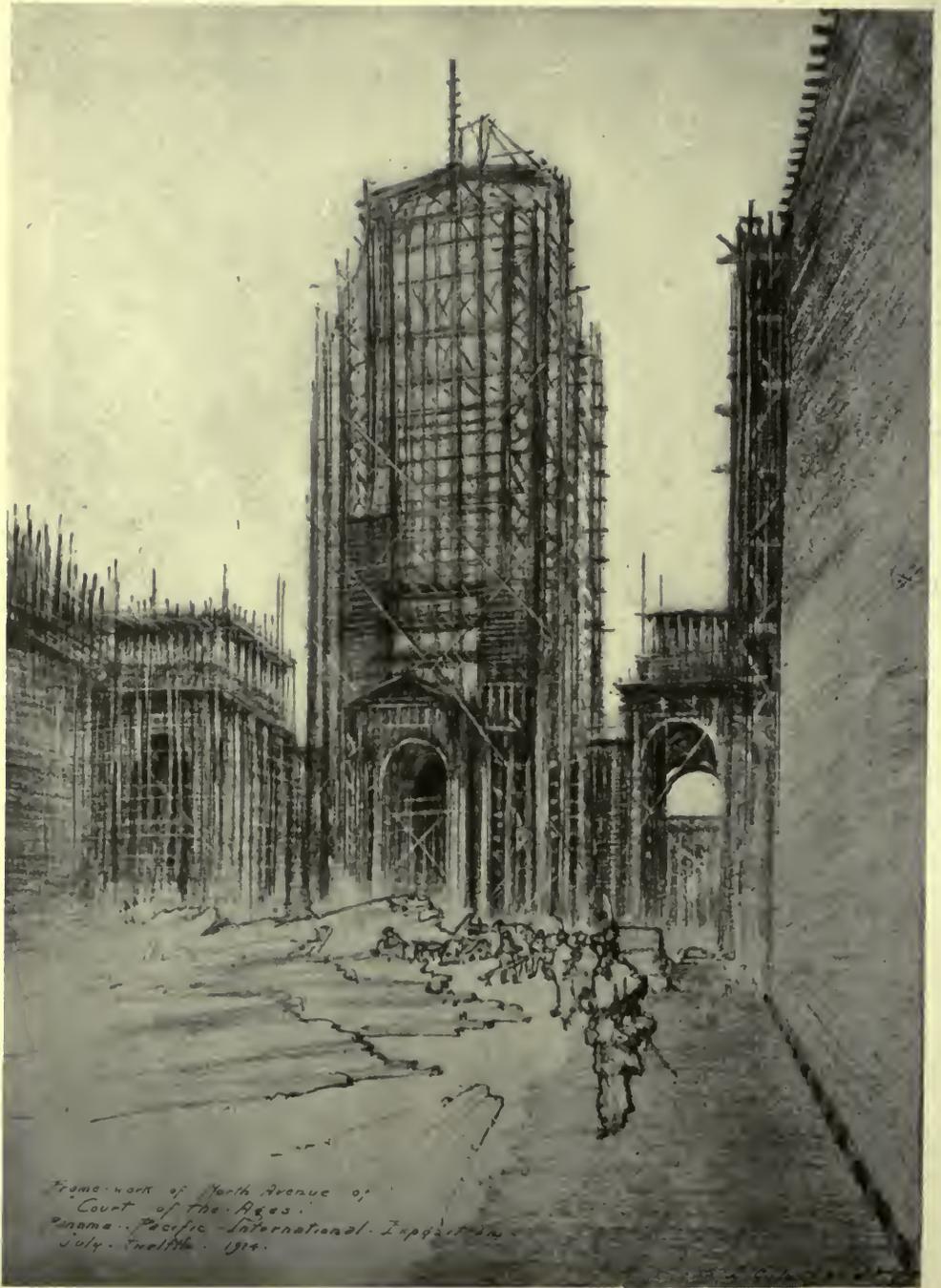
SKETCH OF EAST ENTRANCE TO PALACE OF
VARIED INDUSTRIES ON A RAINY DAY,
MARCH, 1914. BLISS & FAVILLE, ARCHITECTS.



AVENUE OF PALMS LOOKING SOUTH, SHOWING WALL AND ENTRANCES TO THE PALACE OF VARIED INDUSTRIES IN THE FOREGROUND. BLISS & FAVILLE, ARCHITECTS. TOWERS FLANKING COURT OF FLOWERS AND COURT OF PALMS. GEORGE W. KELHAM, ARCHITECT. TOWER OF JEWELS, CARRERE & HASTINGS, ARCHITECTS. TRANSPLANTING OF PALMS AND OTHER GROWTH, JOHN McLAREN, LANDSCAPE ENGINEER. PHOTOGRAPHED DECEMBER, 1914.



COLONNADE AND UPPER LOGGIAS OF THE COURT OF FLOWERS,
GEORGE W. KELHAM, ARCHITECT. PHOTOGRAPHED DECEMBER, 1914.

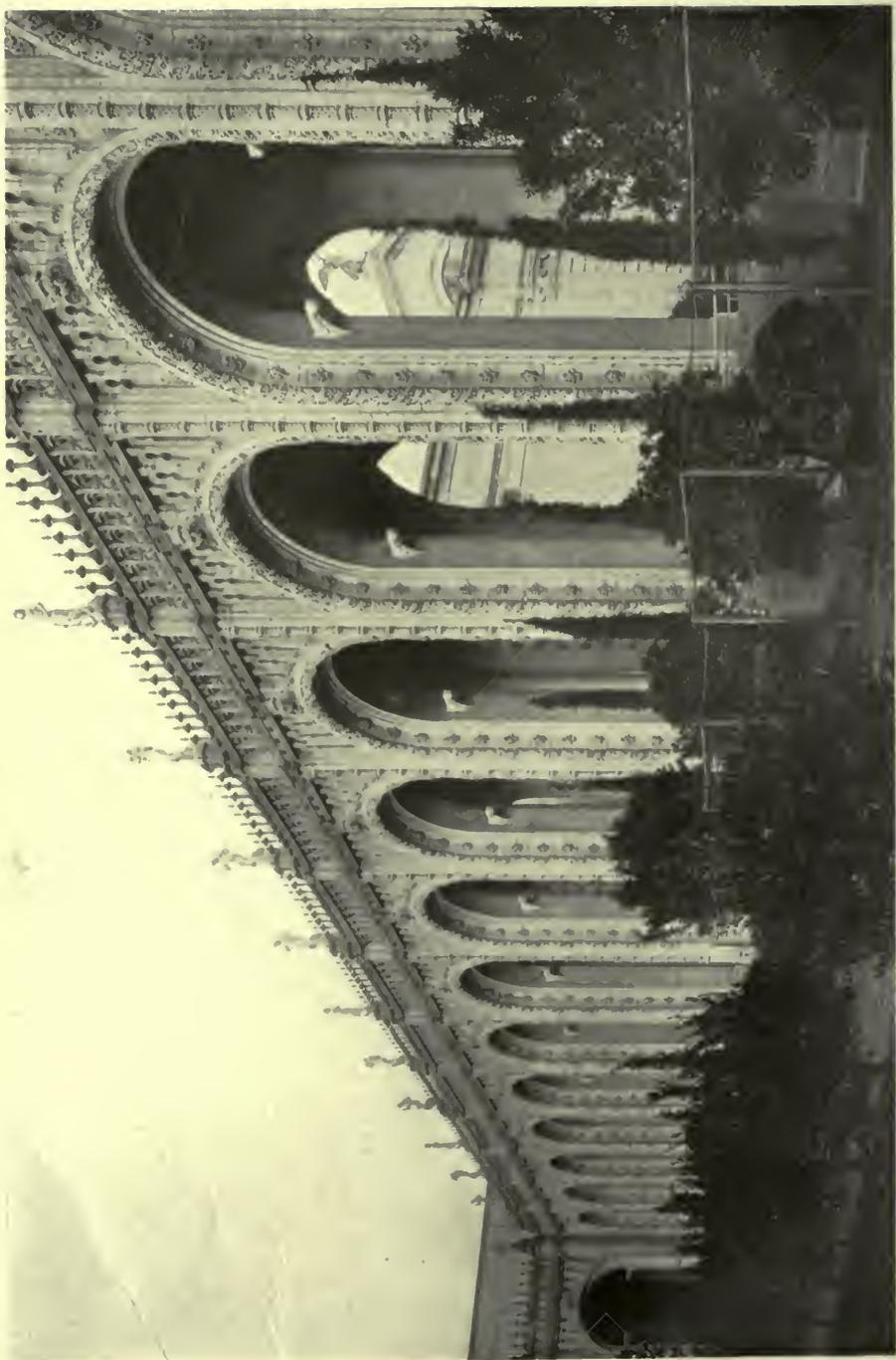


Frame-work of North Avenue of
Court of the Ages.
Panama-Pacific International Exposition
July, Twelfth, 1914.

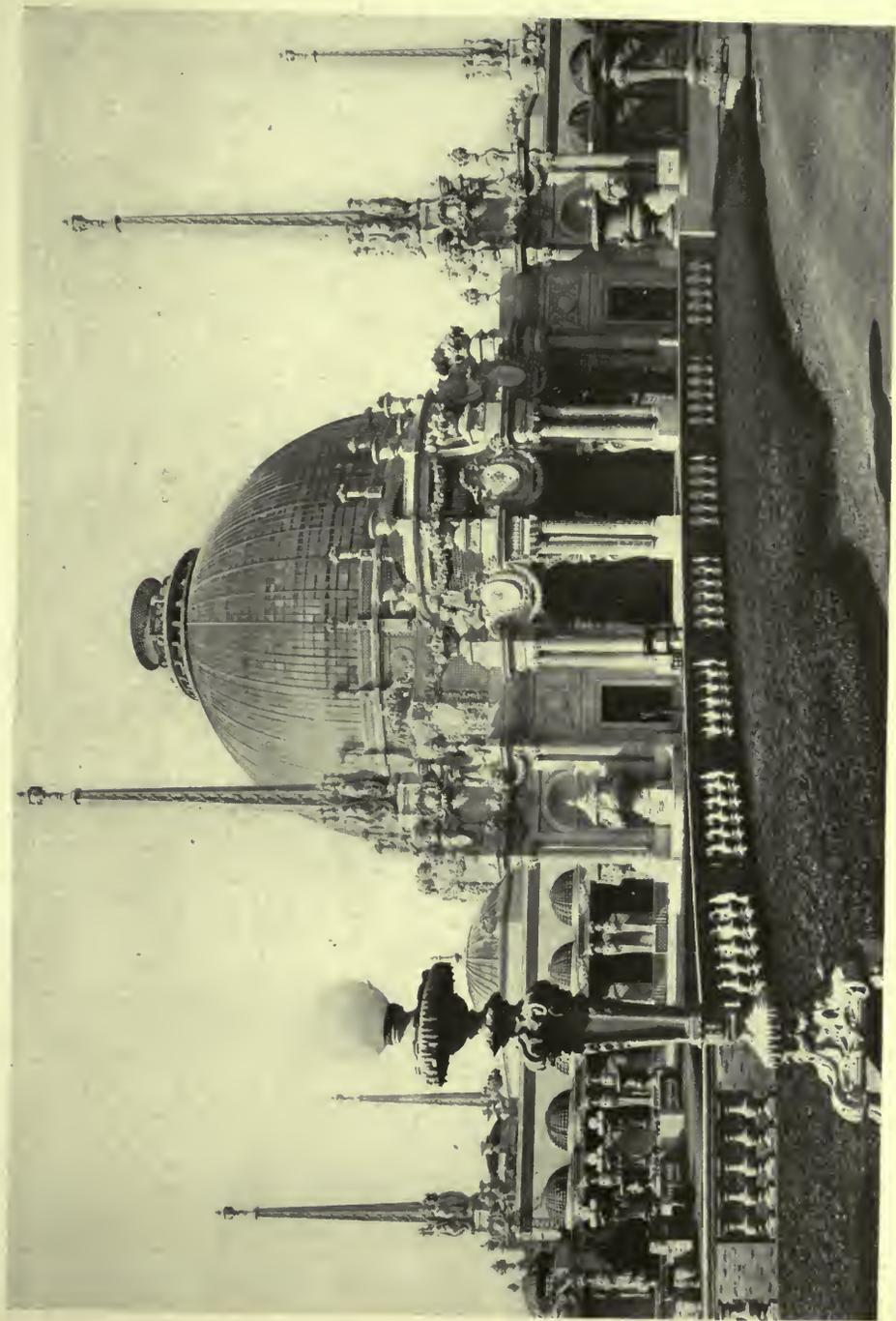
SKETCH SHOWING FRAMEWORK OF NORTH AVENUE OF THE COURT OF ABUNDANCE. DESIGNED BY THE ENGINEERING DEPARTMENT OF THE PANAMA-PACIFIC EXPOSITION. LOUIS CHRISTIAN MULLGARDT, ARCHITECT.



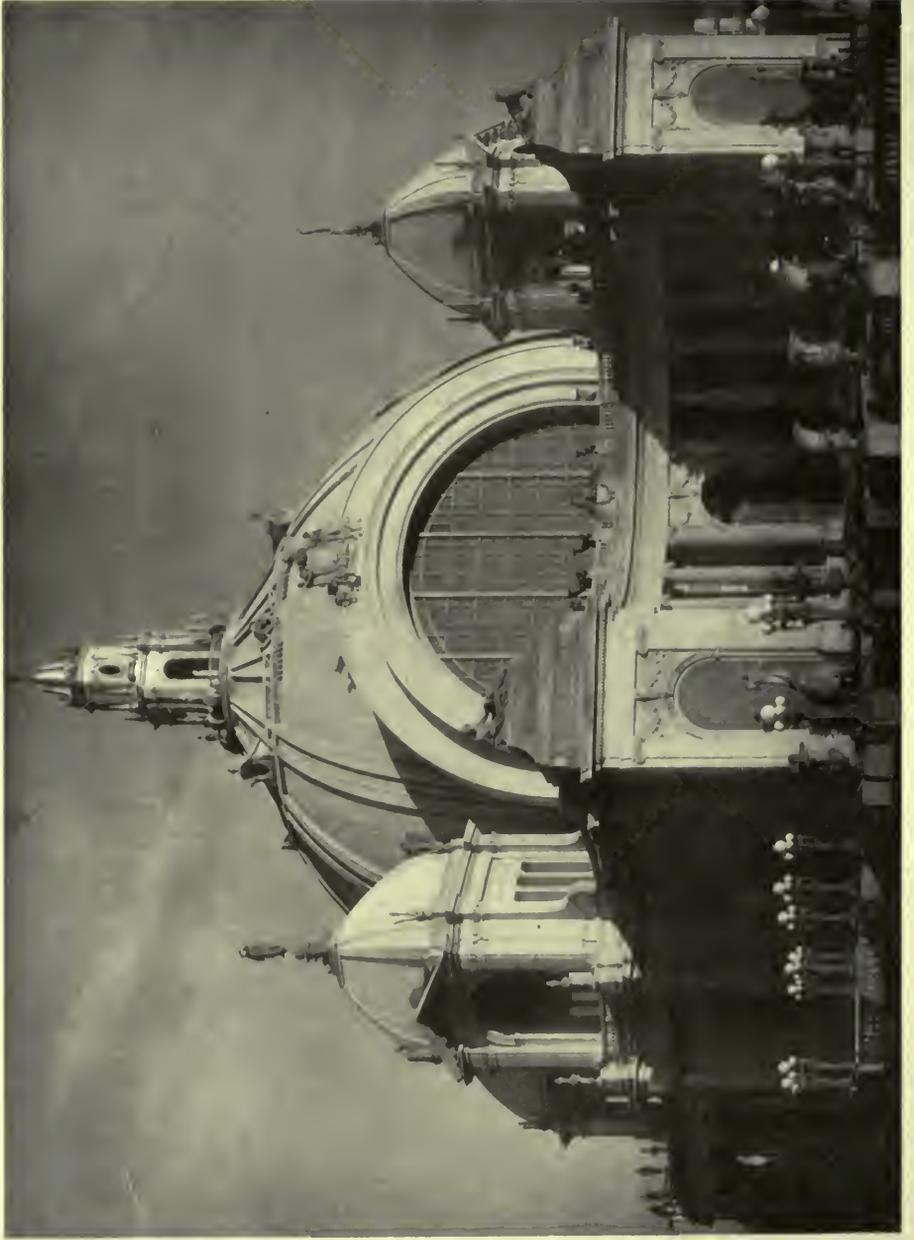
SOUTHWEST VIEW OF CHIMES TOWER
OF THE COURT OF ABUNDANCE.
LOUIS CHRISTIAN MULLGARDT, ARCHITECT.



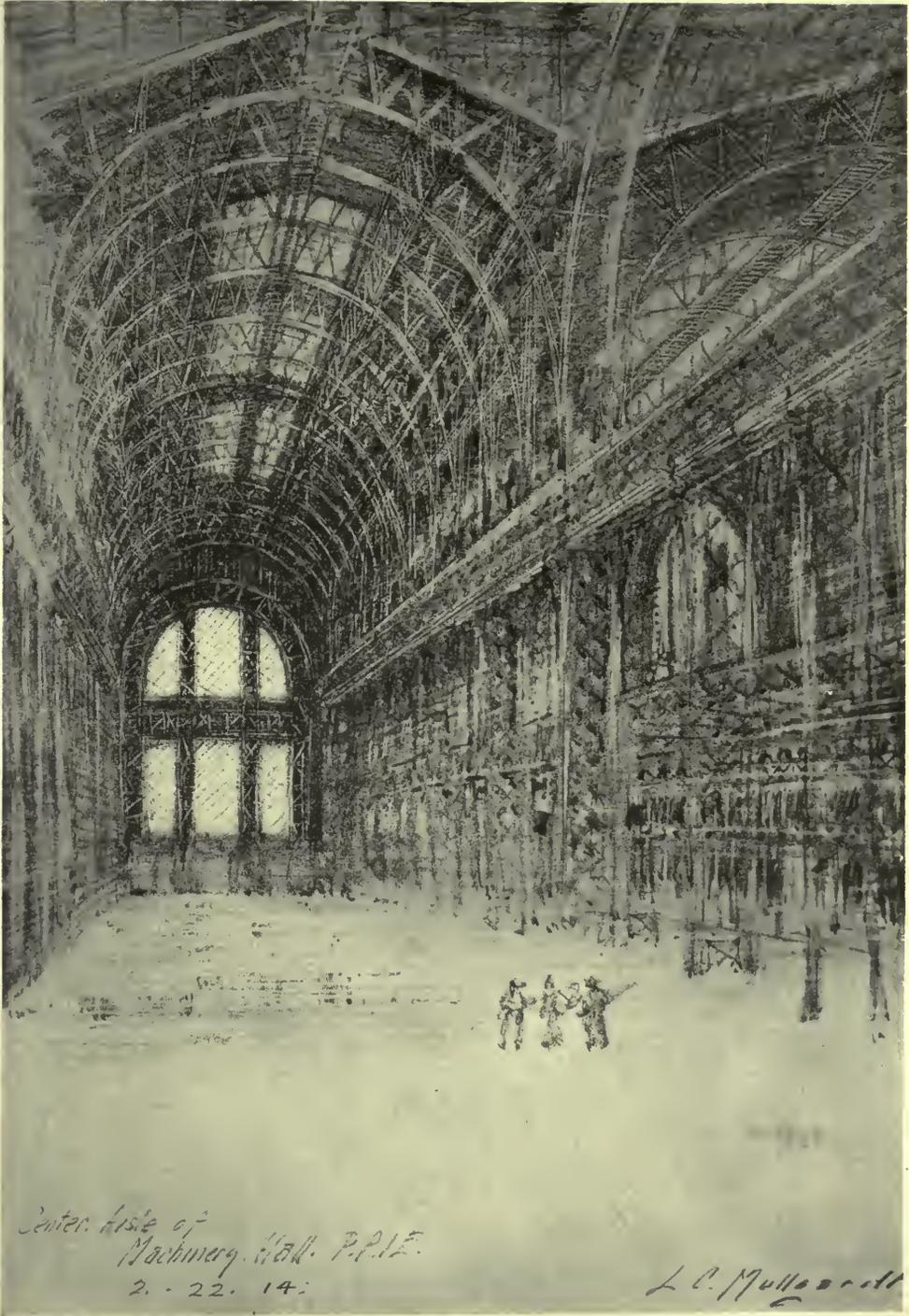
VIEW OF CLOISTER, COURT OF ABUNDANCE.
LOUIS CHRISTIAN MULLGARDT, ARCHITECT.



VIEW OF PALACE OF HORTICULTURE, DECEMBER, 1914. BAKEWELL & BROWN, ARCHITECTS.



FESTIVAL HALL, AS SEEN FROM THE NORTH-
WEST. ROBERT DAVID FARQUHAR, ARCHITECT.



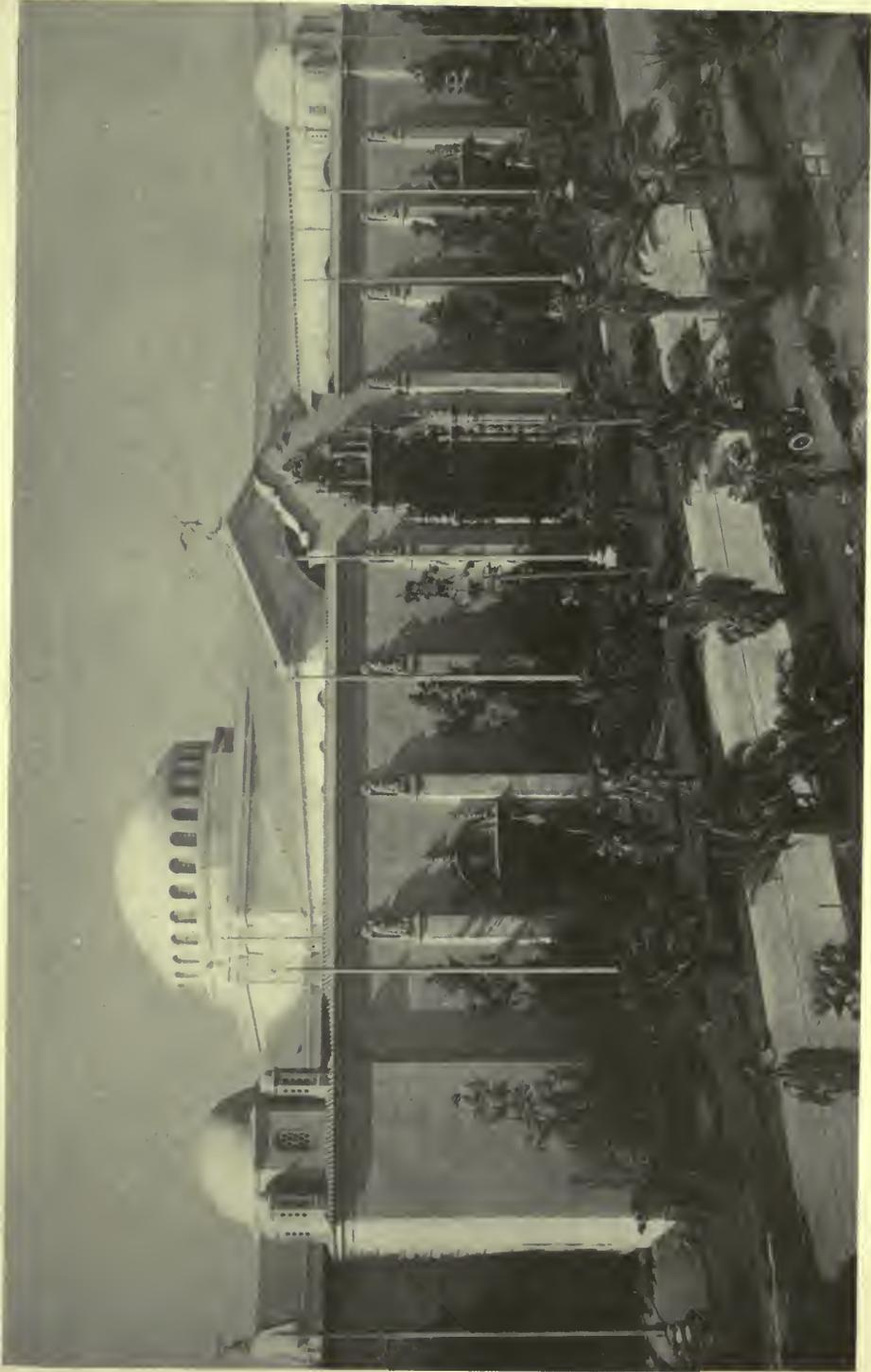
Center aisle of
Machinery Hall. P.P.E.
2. 22. 14.

L. C. Muller

SKETCH SHOWING INTERIOR CONSTRUCTION OF PALACE OF MACHINERY, FEBRUARY, 1914. DESIGNED BY THE ENGINEERING DEPARTMENT OF THE PANAMA-PACIFIC EXPOSITION. WARD & BLOHM, ARCHITECTS.



CENTRAL PORTION OF THE WEST
FACADE OF THE PALACE OF MACHIN-
ERY. WARD & BLOHM, ARCHITECTS.



PALACE OF VARIED INDUSTRIES, AS SEEN FROM THE SOUTH GARDENS—PANAMA-PACIFIC EXPOSITION. ONE OF EIGHT EXHIBIT BUILDINGS FORMING A RECTANGLE, OF WHICH FOUR FACE SAN FRANCISCO HARBOR AND FOUR FACE THE SOUTH GARDENS.



A CORNER PAVILION IN THE COURT OF THE
UNIVERSE — PANAMA-PACIFIC EXPOSITION.
McKIM, MEAD & WHITE, ARCHITECTS.



FOUR DRAWINGS
OF THE
PANAMA-PACIFIC
INTERNATIONAL
EXPOSITION

By

JACK MANLEY ROSÉ





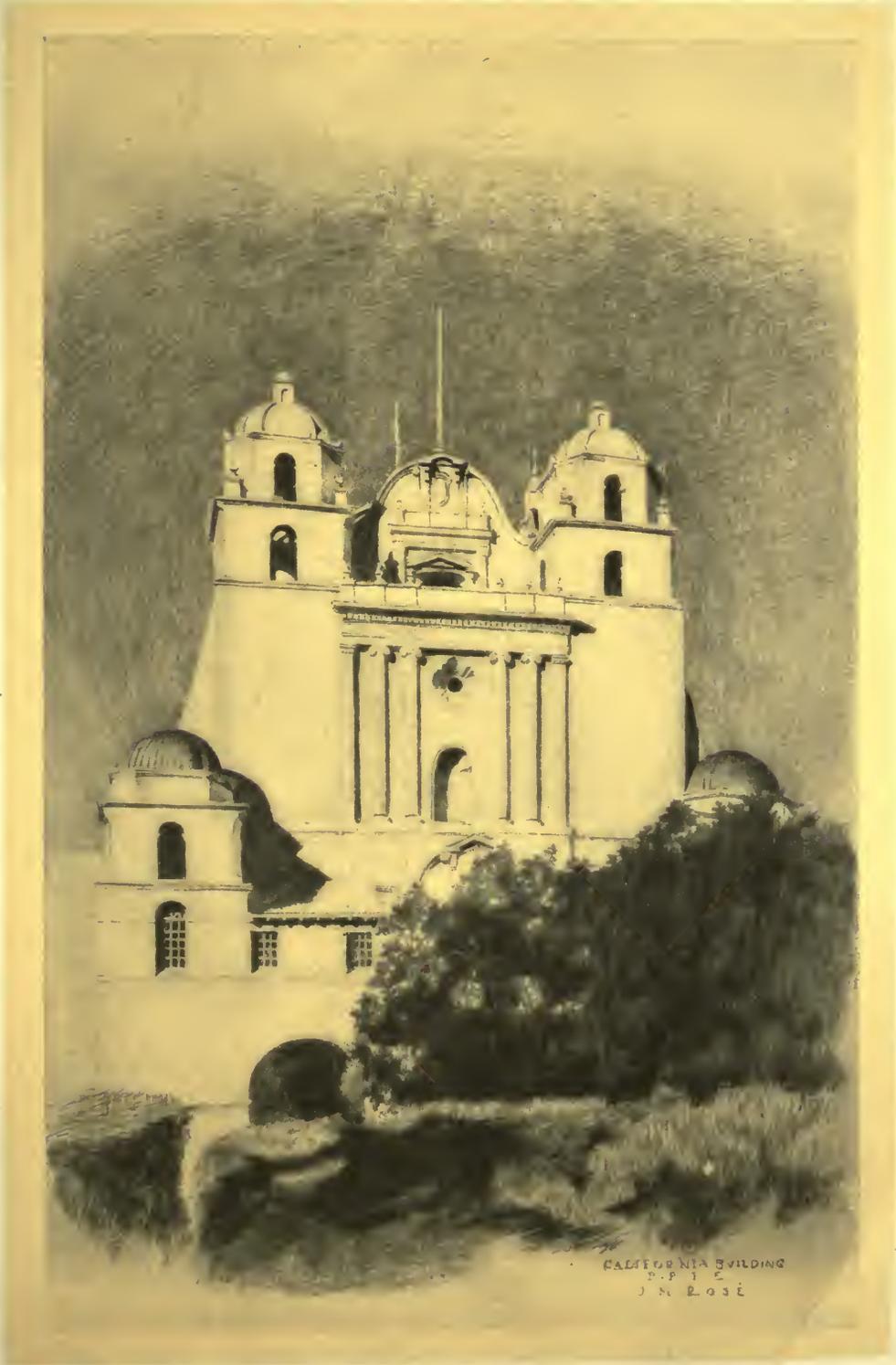
ARCH OF THE
BATTLE OF TEWKESBURY
J. M. R. 1862





BOSTON
THE COURT OF
FOUR SEASONS
1872
J. M. ROSE





CALIFORNIA BUILDING
D. P. I. E.
J. N. ROSE



INDIA
2.
M. 2016

TRINITY LUTHERAN CHURCH AKRON, OHIO

J. W. C. CORBUSIER, ARCHITECT



By I T Frary



THE congregation of the Trinity Lutheran Church of Akron, Ohio, a congregation of moderate size, found itself under the necessity of providing a new place of worship; and having decided, by means of a competition, upon an architect whose ideas seemed in accord with its own, gave him a free hand to develop an edifice suited to its needs and to the requirements of the ritual of the Lutheran Church.

The architect chosen was Mr. J. W. C. Corbusier, then of the firm of Page and Corbusier, but now practicing alone. Mr. Corbusier received his architectural training in the ateliers of Paris and the offices of New York, yet he was never mastered by the spirit of Classicism with which he was surrounded; instead there gripped him an almost religious zeal for the traditions of the Gothic period. The bulk of his professional work, however, has been, as it were by the irony of fate, carried out along Classic lines, a fact that has served to intensify the ardor with which he has undertaken ecclesiastical commissions.

In the case of the Trinity Lutheran Church, he saw an opportunity to demonstrate the feasibility of building a small church edifice adapted to present-day requirements, but possessing the dignity and churchly feeling peculiar to the great Gothic structures of the past. With this idea in mind he personally designed and superintended the entire structure.

As the plans grew, the appreciation of the people grew also and the finished structure embodies a completeness of equipment far beyond the original plans. This increase did not mean the addition of unnecessary enrichment and useless accessories. It simply meant raising the standard of quality in materials and

workmanship and the introduction of features whose omission would probably mean expensive alterations later. The only point on which a captious critic might find fault would be with the use of artificial instead of cut stone. This question was not decided, however, until after thorough tests had been made of the materials, which demonstrated that the artificial was harder and more impervious to moisture than the natural product. The consequent saving in cost made possible the use of tracery and ornamental detail to an extent which would otherwise have been out of the question. An excellent modeller, working in accord with and under the constant supervision of the architect, succeeded in producing a sympathetic quality in the detail which one expects to find only in structures which have been mellowed by time. The intangible refinements found in the old work have been studied so carefully and the more evident factors of proportion and massing have been handled so skillfully that, despite its actual newness and smallness, the church possesses to an unusual degree the air of dignity, repose and age which constitute the charm of the Gothic cathedrals.

The front conveys a satisfying impression of massiveness and delicacy. The great buttresses which flank the doorway melt upward into twin towers and produce a fine sense of unity and stability. The severity of their dark brickwork is softened by contrast with the light stone trimmings and they frame in, like a picture, the grouping of portal and windows for whose delicate lace-like detail they form an excellent foil. Crowning all and pulling the composition together, the rich, light detail of turrets



REAR VIEW—TRINITY LUTHERAN CHURCH, AKRON, OHIO.
J. W. C. Corbusier, Architect.

and gable lends an air of exquisite delicacy to the whole.

The brick used is dark and irregular in color, rough in texture, and has much the effect of that found in the fifteenth century houses of England. The stonework has the warm grey tone of Bedford limestone.

The ground upon which the building stands slopes downward from the front. At the extreme back an archway on the lower level gives access to an open cloister leading to the Sunday School wing, which forms an L with the main block and walls in the back of the level lot, which may at some future time become a cloister garth, but which at present is occupied by an old residence utilized as the parsonage.

Passing through the front doorway, whose detail merits study, one enters the narthex, which is enclosed by a rich oak screen of open glazed tracery and carries above it a gallery. At the right a portion of this space is partitioned off for a processional room, which is connected by a winding stairway with the

robing room in the basement. In the processional room is a small organ and up in the tower, well above the gallery level, the echo organ speaks through a lancet opening in the front wall. The narthex, with its low, dark beamed ceiling, emphasizes the lightness of the soaring, clustered columns and the vaulted ceiling of the nave. This contrast produces a startling effect of height and spaciousness, which is enhanced by the rich light from the truly remarkable glass which is rapidly taking the place of temporary glazing. Shallow transepts also tend to increase the effect of spaciousness.

The transepts are occupied by galleries, open below, but otherwise having practically the same detail as the one above the narthex. The warm dark color of the oak woodwork gives a pleasing contrast to the grey of walls and masonry, while a restrained use of gold and color adds a desirable accent. Tracery is much in evidence throughout the woodwork, but otherwise carving has been used sparingly, chiefly in the form of symbolic



TRINITY LUTHERAN CHURCH.
AKRON, OHIO. J. W. C.
CORBUSIER, ARCHITECT.



SIDE VIEW—TRINITY LUTHERAN
CHURCH, AKRON, OHIO. J.
W. C. CORBUSIER, ARCHITECT.



NARTHEX SIDE ENTRANCE—TRINITY
LUTHERAN CHURCH, AKRON, OHIO.
J. W. C. CORBUSIER, ARCHITECT.



LOOKING TOWARD SUNDAY SCHOOL ENTRANCE—TRINITY LUTHERAN CHURCH, AKRON, OHIO.
J. W. C. Corbusier, Architect.

emblems, which are everywhere to be seen in woodwork, glass and masonry. The pulpit has nine shields bearing gold symbols of the Passion of the Saviour. Luther's crest appears in color and gold upon shields which enrich the gallery fronts. The chancel is lighted by seven lancet windows, symbolizing the seven original churches; the three center ones contain representations of the Nativity, the Passion and the Ascension; the other four are of a purely geometrical character. The large windows of the clerestory are divided into three sections, symbolizing the Trinity.

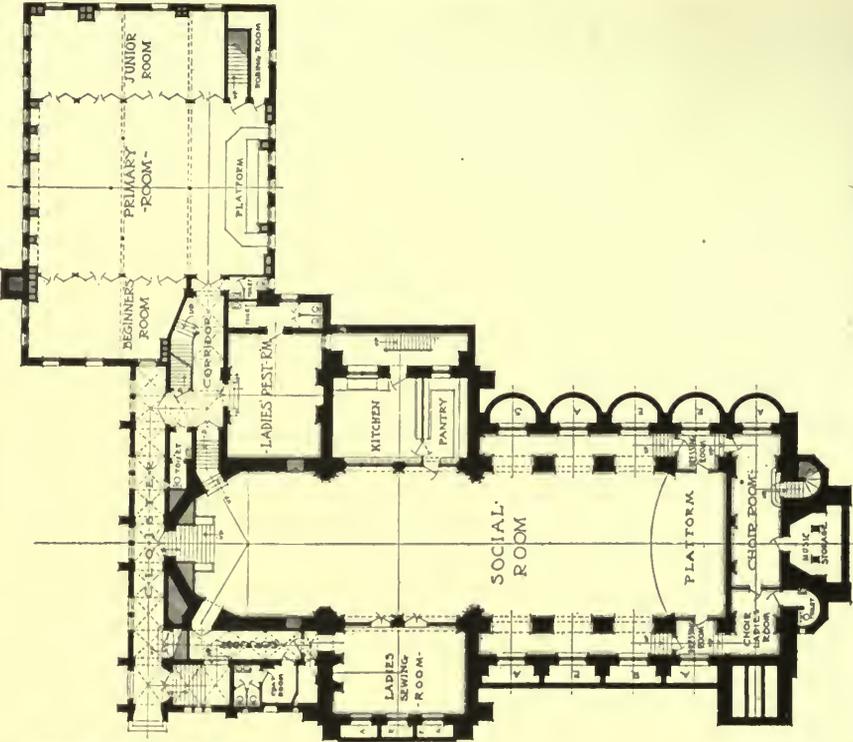
The great aim in view in designing the glass was to produce the rich tone found in the thirteenth century glass of the old cathedrals. It was also definitely determined that there should be no large figures or other features which would by their size dwarf the whole or make unduly prominent any portion of it; neither should any masses of color be permitted to dominate the scheme. This did not mean the elimination of pattern or the use of a mere kaleidoscopic mass-

ing of bits of colored glass, but the careful building up of well studied pattern, with such restraint that, though filled with pictured symbolism, it would at first sight suggest only a rich glow of jeweled light. The completed windows show a remarkable fidelity to the spirit of the original studies. There are figures and emblems innumerable, all forming component parts of a well-studied and evident plan of ornament. Medallions give a needed accent to the scroll work and other ornament; the tiny figures which have been used unstintedly show great fidelity in drawing; in fact, painstaking skill is evident in every detail. Yet in striving for these minute perfections, the greater thing, the true function of the window, has not been forgotten; and when one steps back to get the general effect, the little details are forgotten and one is conscious only of a great glow of scintillating color, filled with the sparkle and fire of jewels.

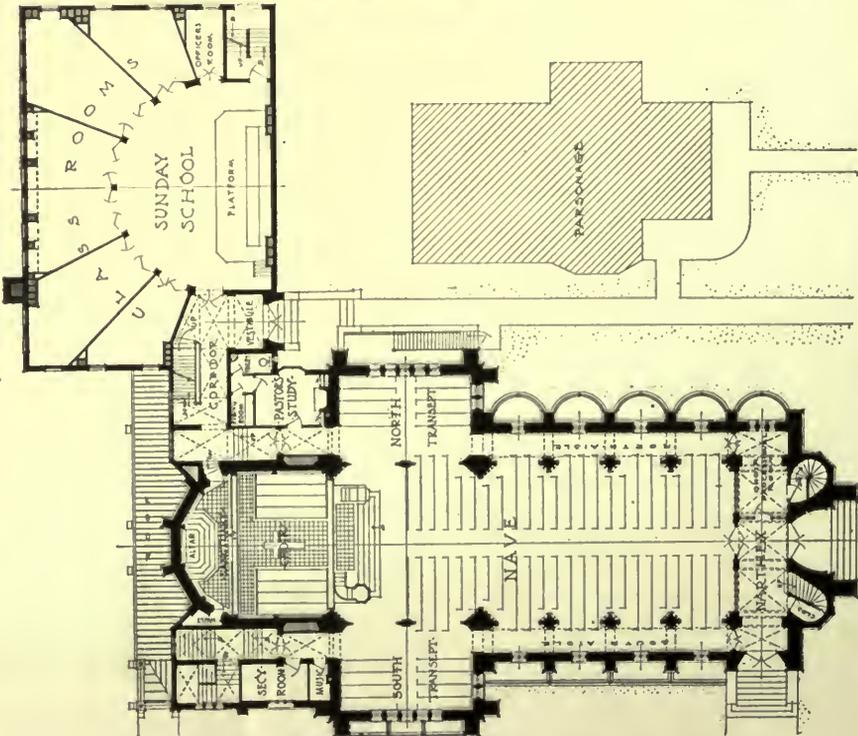
The altar and reredos of artificial Caen stone, with their light color and delicacy of detail, give a pleasing relief to the



SUNDAY SCHOOL ENTRANCE—TRINITY
LUTHERAN CHURCH, AKRON, OHIO.
J. W. C. CORBUSIER, ARCHITECT.



BASEMENT FLOOR PLAN—TRINITY LUTHERAN CHURCH, AKRON, OHIO.



GROUND FLOOR PLAN—TRINITY LUTHERAN CHURCH, AKRON, OHIO.



DETAIL OF TRANSEPT—TRINITY LU-
THERAN CHURCH, AKRON, OHIO.
J. W. C. CORBUSIER, ARCHITECT.



VIEW TOWARD CHANCEL—TRINITY LUTHERAN CHURCH, AKRON, OHIO.
J. W. C. Corbusier, Architect.

sombreness of the chancel, whose plain oak wainscot rises to the gallery level. Five figures are being carved for the niches in the reredos, the middle one being the figure of the Saviour, the other four representing the four Evangelists. The technical inspiration for these figures is to be drawn from the best work of the Middle Ages, and when completed they are to be enriched with gold and color, and antiqued.

The divided organ is placed on either side of the chancel, lancet openings from both chancel and transepts being filled with plain pipes, no provision having as yet been made for a decorative organ front.

The metal work throughout the church deserves especial mention. Lighting fixtures, locks, hinges, in fact all exposed metal work, were designed by the architect; and here again is illustrated the fidelity with which the spirit of the Gothic style has been preserved. The iron shows the handiwork of the smith,

not the founder nor the machinist, for a glance makes evident the fact that this work was hammered out on the anvil and not cast in a foundry or cut on a machine. As a relief from the possible monotony of the dark metal, bits of gold enrichment have been introduced here and there, but so toned down in color as to appear but a touch of accent and not a jarring spot of brightness.

An inspection of the accompanying plans will show a well studied arrangement of accommodation for the various branches of parish activity. As yet but little provision has been made for "institutional work," but sufficient ground space is available for future extension along this line.

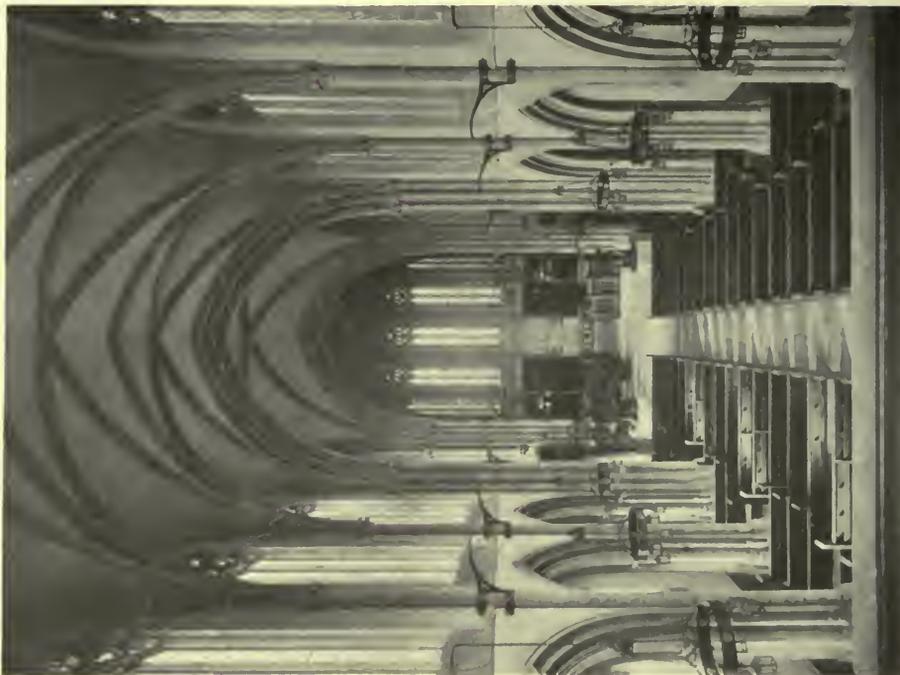
In the basement, beneath the church proper, is the large social room, which will be utilized for entertainments, suppers and various social gatherings. This has an exceptionally high ceiling for a basement room, is unobstructed by piers or columns and as it has a seating capac-



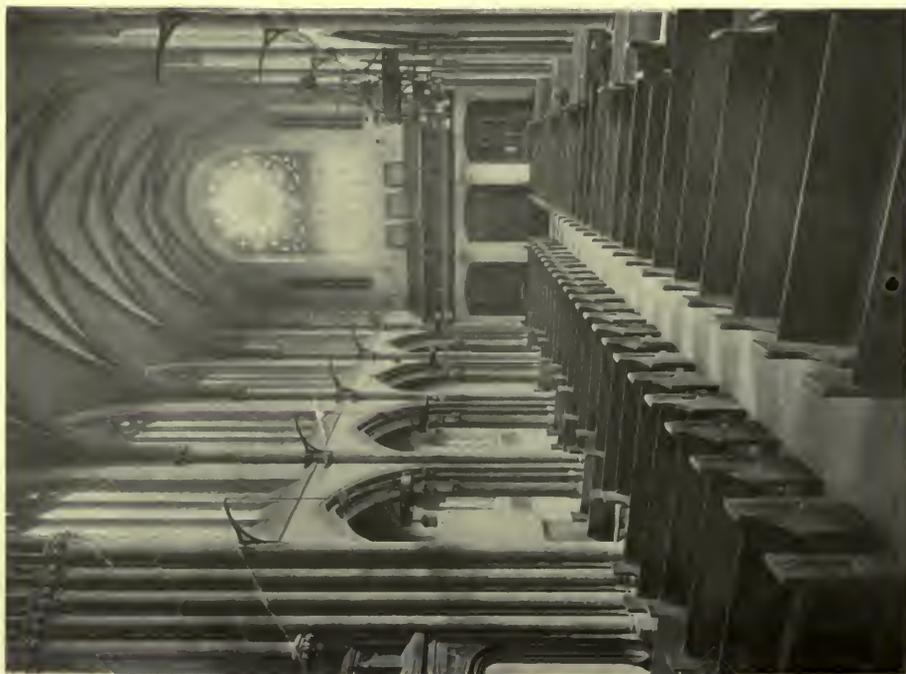
NARTHEX SCREEN—TRINITY LUTHERAN CHURCH, AKRON, OHIO.
J. W. C. Corbusier, Architect.



NARTHEX—TRINITY LUTHERAN CHURCH, AKRON, OHIO.
J. W. C. Corbusier, Architect.



FROM NARTHEX GALLERY—TRINITY LUTHERAN CHURCH,
AKRON, OHIO.



VIEW TOWARDS NARTHEX—TRINITY LUTHERAN CHURCH,
AKRON, OHIO.



DETAIL OF ALTAR—TRINITY LUTHERAN CHURCH,
AKRON, OHIO.



LOOKING TOWARDS PULPIT—TRINITY LUTHERAN CHURCH,
AKRON, OHIO.



MAIN SUNDAY SCHOOL ROOM—TRINITY
LUTHERAN CHURCH, AKRON, OHIO.
J. W. C. CORBUSIER, ARCHITECT.

ity nearly equal to that of the church above, it renders unnecessary the use of the latter for any except devotional purposes. An elevated platform makes ample provision for concerts and other entertainments and is adjoined by two dressing rooms, in connection with which the choir robing room can be pressed into service when necessary. The space beneath the platform is enclosed by doors, behind which are stored the folding banquet tables and surplus chairs. These rest upon light trucks, by means of which they may be readily wheeled to any part of the room.

The adjoining kitchen and pantry are exceptionally well ventilated and lighted because of the high ceilings and the large windows which open into areaways. Service to the dining room is simplified by sliding panels in the partition, through which the dishes are passed across a counter to the waiters.

As the rooms devoted to the various societies open from the social room, all the business and social life is centered in this part of the building, access to which is gained from the cloister in the rear.

The wing occupied by the Sunday School is entered from two levels, the main room from the front, the primary room from the lower level of the cloister.

Thus, although the primary department is on the floor below the main room, the slope of the lot makes it possible for both to have entrances on the ground level and to have outside light. No attempt has been made in this wing to produce architectural effect; but, instead, comfort and convenience have been sought after. The main room has a balcony, which is divided into class rooms, as is also the space beneath. These rooms are so arranged in plan as to focus on the center of the rostrum, thus affording an unobstructed view of the speaker from every seat in the room.

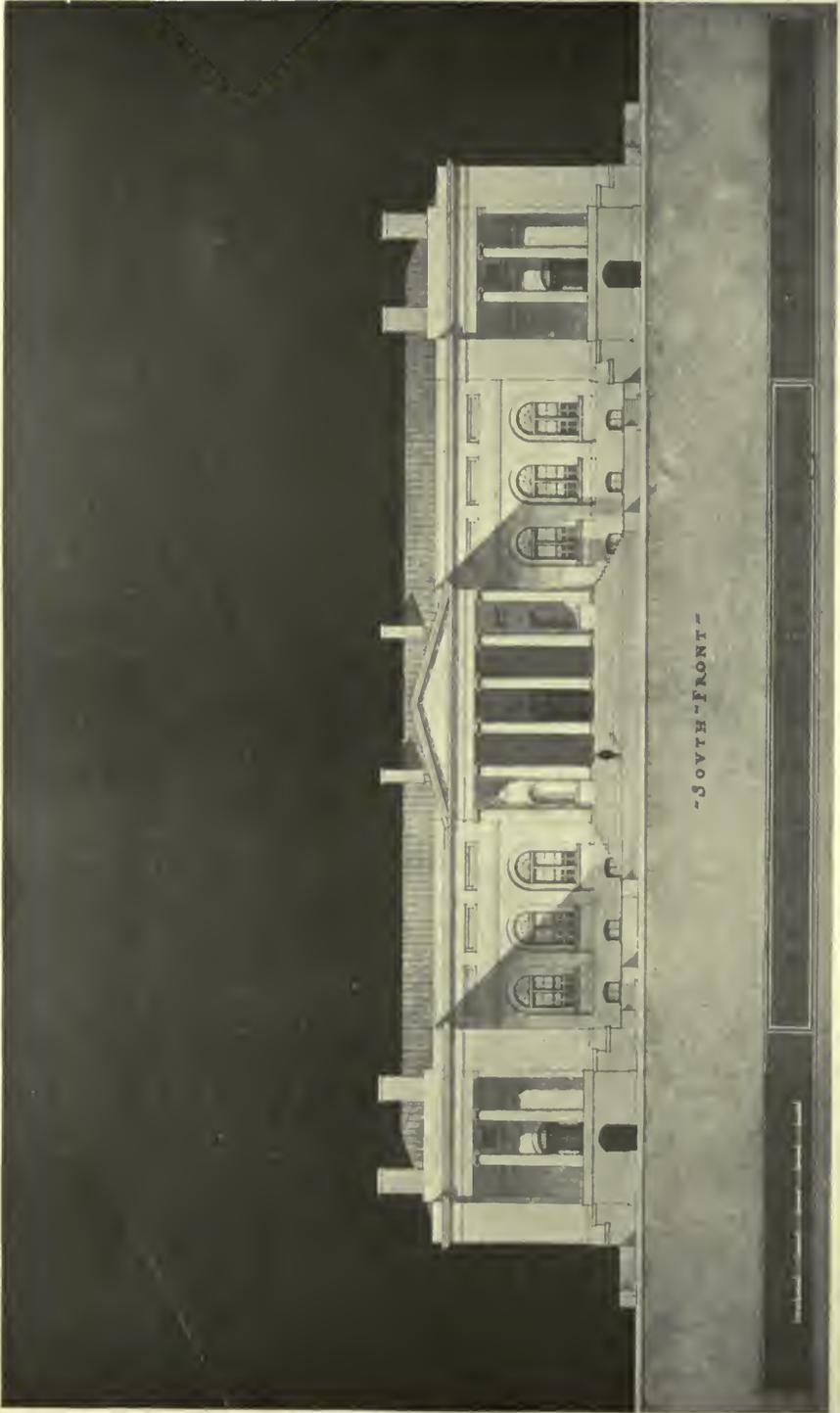
It will be seen that all the various departments of church activity are adequately provided for and in such a way as to insure privacy for each. Thus, the devotional services of the church proper, the social and business functions of the different societies, and the educational work of the Sunday School may all be carried on simultaneously without interfering with one another, and yet all are so housed as

to have convenient inter-communication.

Taken as a whole, Trinity Lutheran Church is an interesting example of the progress that is being made and the interest that is being taken in developing higher ideals in ecclesiastical architecture.



SOUTH SIDE AISLE—TRINITY LUTHERAN CHURCH, AKRON, OHIO.



THE OLD CITY HALL, NOW KNOWN AS THE COURT HOUSE, WASHINGTON, D. C. BEGUN IN 1820 AND FINISHED IN 1849. GEORGE HADFIELD, ARCHITECT.



THE OLD CITY HALL, WASHINGTON, D. C.

The

OLD CITY HALL WASHINGTON, D. C.

By H. F. Cunningham

ABOUT the middle of the year 1795 President Washington and Dr. Thornton, author of the accepted design for the Capitol Building, became dissatisfied with the Frenchman, Hallet, who had been employed as superintendent of construction, and cast about for some one to take his place. John Trumbull, the artist, was then in London and, hearing of the vacancy, wrote Thornton, urging the appointment of George Hadfield, a young British architect who had "cut quite a caper" at the Royal British Academy of Art about that time, having won all the prizes at the Academy for excellence of architecture. Benjamin West, President of the Royal Academy, strongly recommended Hadfield, expressing himself as convinced that he possessed a more thorough knowledge of civil architecture than any other young man in England.

Hadfield was accordingly appointed to the vacancy on October 15, 1795, his salary to be \$1,400 per annum, plus his traveling expenses to America. The Capitol Building was then scarcely started, Hallet having done nothing but some excavating and a few foundations, most

of which were later removed as unnecessary.

Shortly after taking up his work Hadfield thought it advisable to suggest certain changes in the design of the building, among other things recommending the addition of an attic story to the design as accepted. The Commissioners in charge of the work had, however, become dissatisfied with Hallet by reason of his wanting to make changes in the design and were not open to suggestions. Learning of their rejection of his recommendations, Hadfield promptly gave the three months' notice required by his contract and was ready to quit; but finding the Commissioners willing to accept his resignation, he withdrew it and was continued on the work, with the express stipulation that he was "engaged to superintend the execution of the plan without alteration."

Things seem to have gone right smoothly with him for a time, until 1798, when, on May 10, he was notified that his resignation would be acceptable, to take effect three months from that date, but without waiting for the three months to elapse, he resigned forthwith. The trou-



VIEW ACROSS FORECOURT--THE OLD CITY HALL, WASHINGTON, D. C.

ble this time was that he refused to surrender his drawings for the Federal Executive Offices, then building (demolished many years ago to make room for the Treasury and State, War and Navy Department Buildings). James Hoban, architect of the President's House, was then engaged to succeed Hadfield on the Capitol work, and was paid Hadfield's salary in addition to the \$1,400 a year he already received for his work on the President's House.

Hadfield then engaged in private practice in the new city and remained there until his death, in 1826. He designed in the course of his practice several public and private buildings that we can positively attribute to him and possibly several others whose authorship is not so definitely known. Among the buildings of which we are certain he was the author are the Federal Offices above referred to, the Mausoleum for the Van Ness family, still standing in Oak Hill Cemetery in Georgetown, and the City Hall, now occupied by the United States Courts of the District of Columbia, and illustrated herewith. The Van Ness Tomb is a gem of refinement and pro-

portion, and it is difficult to imagine a more satisfactory solution of the problem. There is a very beautiful urn at the top of it and all the details are most delicate and pleasing. Like Palladio, Hadfield was compelled to work in the cheapest and most easily gotten materials; and this lovely tomb, like the Court House, is sadly in need of repair.

I think we should not be far wrong in attributing the group of buildings built on Analostan Island for the Mason family to Hadfield, as well as several other private houses in the city which are still standing and occupied. Certainly no one else, unless it were Dr. Thornton, could have produced anything so well proportioned and so exquisitely detailed as the Mason house, and all Dr. Thornton's works are pretty definitely known.

The City Hall was begun in 1820, the first part built being the central part with its Greek Ionic portico. The east wing was finished in 1826, the year of its author's death, and the west wing not until 1849. During this rather long period of construction the building was, according to an early writer, "a veritable ruin."

In 1871 the building was made over to

the Federal Government and has since that time housed the District Courts. The offices of the U. S. District Attorney, the U. S. Marshal, the Register of Wills and Recorder of Deeds are also quartered in it. The District Jail was formerly located directly behind the City Hall, and there were in connection with it a number of underground cells, which are said to have been quite undesirable places in which to spend one's days. The building has been the scene of a number of famous trials, among them that of Guiteau, the murderer of President Garfield.

The City Hall, or Court House, as it is now always called, furnishes a notable example of the possibility of achieving a perfectly satisfactory building without the use of any ornament whatever. The architect relied entirely upon proportion and correct detail in this case, as he did in all the examples of his work that we know, and the result is most admirable. The interiors are almost barn-like in their absolute simplicity, and this is a source of much criticism on the part of its present occupants. Those who have to use

the building are endeavoring to have Congress provide what they consider more suitable quarters, and several schemes have been brought forward, among them the refacing of the building with limestone or the replacing of it with a wholly new structure. In either event the city would lose a most notable example of early American architecture. The building is of brick, stuccoed, with the architectural members, columns and the like of sandstone, the whole being painted white. The situation is most agreeable, the building being set in a large park, with an adequate approach and a sufficient clear space all around.

There has been so little money appropriated for its maintenance for some time past that certain parts, especially on the exterior, are badly in need of repair, some of the stone members having disintegrated through lack of paint, and the stucco having peeled off in many places. The entire restoration of the building is, however, quite possible and should not prove very expensive; and it is to be hoped that there will be found a willingness on the part of those in authority to



SOUTH ELEVATION OF WEST WING, SHOWING ANNEX IN BACKGROUND—THE OLD CITY HALL, WASHINGTON, D. C.



WEST ELEVATION OF WEST WING—THE OLD CITY HALL, WASHINGTON, D. C.

appropriate without further delay sufficient funds to undertake it.

There are some interesting comments on Mr. Hadfield to be found in the correspondence of his contemporaries, a few of which follow:

The Commissioners in charge of the building of the new city write, in 1797, that "Hadfield has drawn the plan of all the public offices to be erected in the City of Washington, and which have met with the approbation of the President and the several Departments for which they are intended;" and again in 1798, after he had resigned, "We believe Mr. Hadfield to be a young man of taste but we have found him extremely deficient in practical knowledge as an architect."

This latter criticism would seem to be rather disproved by such of his work as we know today, as well as by the following extract from a letter written by the artist Trumbull after Hadfield's death: "His services were soon dispensed with,

not because his knowledge was not eminent, but because his integrity compelled him to say that parts of the original plan could not be executed. Poor Hadfield languished many years in obscurity in Washington, where, however, toward the close of his life, he had the opportunity of erecting a noble monument to himself in the City Hall, a beautiful building in which is no waste of space or materials."

Latrobe, the famous architect, later connected with the Capitol work, wrote to Hadfield urging him to prove his authorship of certain parts of the design for the Capitol and thus lighten "the load of calumny with which you have been treated," but Hadfield never laid claim to any portion of the design as his own.

In concluding the foregoing brief sketch, the present writer wishes to express his indebtedness to the very interesting "History of the Capitol" by Mr. Glenn Brown, F. A. I. A., for many of the facts relative to Hadfield's work.

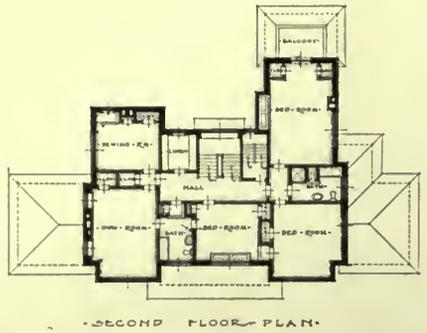
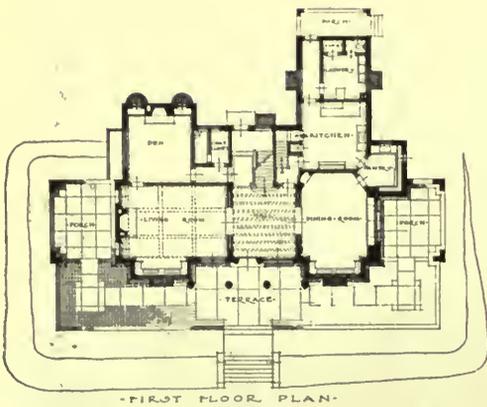


RESIDENCE OF W. PARK MOORE,
ESQ., ELKINS PARK, PA. HEA-
COCK & HOKANSON, ARCHITECTS.

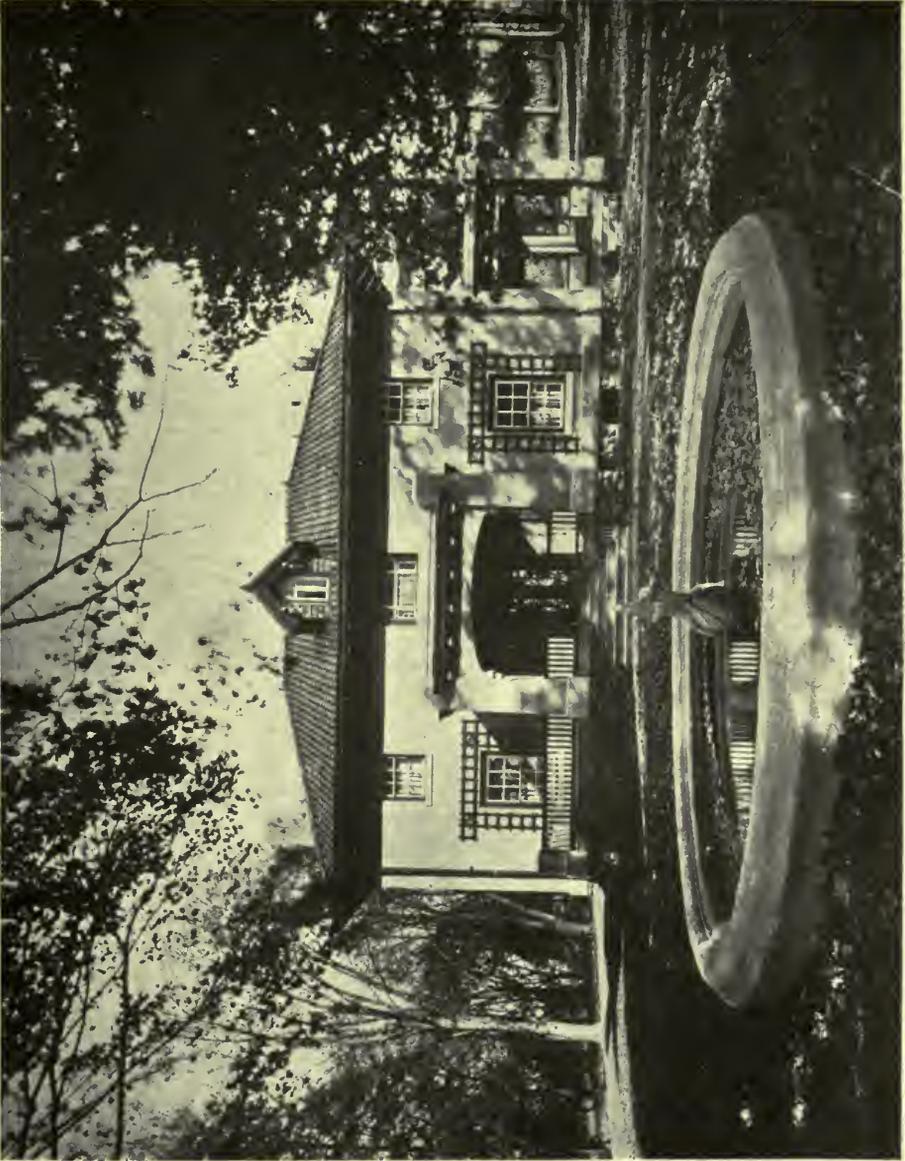
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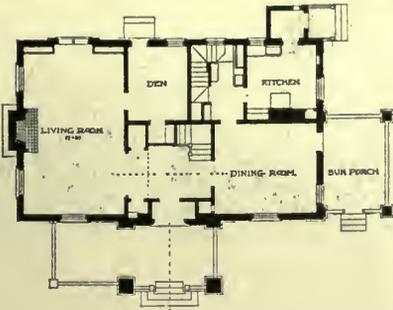
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ESQ., ELKINS PARK, PA. HEA-
COCK & HOKANSON, ARCHITECTS.



RESIDENCE OF W. PARK MOORE,
ESQ., ELKINS PARK, PA. HEA-
COCK & HOKANSON, ARCHITECTS.



RESIDENCE OF LAWRENCE
MILLER, ESQ., ELMSFORD, N. Y.
JOHN C. MOORE, ARCHITECT.





NEW POST OFFICE, WASHINGTON, D. C.
Graham, Burnham & Co., Architects.



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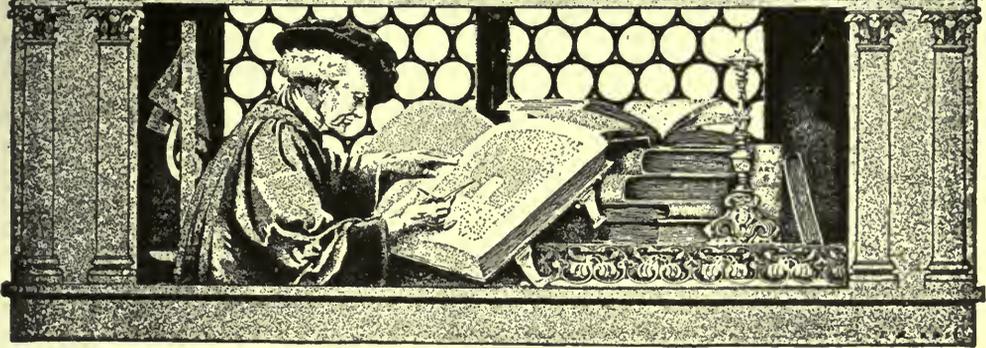


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BOOKS FROM UNIVERSITY PRESSES

By RICHARD FRANZ BACH

Curator, School of Architecture, Columbia University

PART I.

WHERE there is no state supervision of the publication of learned and eminently useful works which in themselves are not sufficiently well supported by public interest or financial subsidy, it is well for the universities of the country to take it upon themselves to guarantee that certain undertakings, especially archæological researches and phenomenal scientific advances, often too little known or of too slight monetary promise to be handled by publishing firms, shall in proper form see the light. In Germany, Austria and France many such contributions to human knowledge are fathered by the respective governments, sometimes by schools of fine arts or by altruistic societies. In England, especially, the institutions of this country have found their prototypes for the establishment of presses under the control of prominent universities, notably at Oxford and Cambridge. In the United States a number of such presses have latterly come into being, the finest, no doubt, at Yale, Harvard, Princeton and Columbia. From the standpoint of architecture and the arts the first three mentioned have already produced excellent

volumes, while Columbia has under way extensive plans for the installation of the machinery of reproduction and the handling of its own printing entirely within campus limits. In other fields, not requiring the expensive means for making highly finished illustrations, all of these institutions, not to mention the Universities of Chicago and Pennsylvania, have published extended series of authoritative books; as, for instance, in the departments of history or of philology.

By far the best volume which has thus far been issued by the university presses, both for intrinsic value and for book-making skill, is that by William Henry Goodyear, entitled *Greek Refinements; Studies in Temperamental Architecture* (Yale University Press, New Haven, Conn.; quarto, pp. xx—227, indices; \$10). This is a new and complete restatement of the matter of constructive curvatures as applied to Greek building, and it is intended to become—we are grateful to learn—the first volume in a series, of which the second will concern the medieval aspect of the subject. Mr. Goodyear has achieved new laurels with this work for several reasons; and not

the least of these is that he has provided us with a compact modern interpretation of a much-discussed but scholastically neglected phase of antique beauty, which has hitherto appeared only in widely disseminated articles in the periodicals by Mr. Goodyear himself, in the frequently ill-humored attacks upon his theories and proofs in foreign journals, and finally in English books over sixty years old and not suitable for general use because of their weight, size and specialized mode of treatment. The new volume is a "summary, but systematic and readable, account" of a subject, which in this guise takes on a fresh life and vivid interest, although it has in the past often been visited with voluntary ignorance; and we can assure its author that the general appreciation of his researches, until now but grudgingly accepted by those who could best profit by them, will not be long outstanding. No doubt he will reap his greatest harvest in the schools, where the format of the volume will commend it as a standard library work.

In order that the correct definition and application of the term "refinements" may be properly construed, let us first quote the author's words, on page 3, to the effect that ". . . they are purposed departures from the supposedly geometric regularity of the horizontal and perpendicular lines in the Greek temples, and from the presumed mathematical equality of their apparently corresponding dimensions and spaces." And here we have, in the present reviewer's opinion, a fair estimate of the chief reason for the continued incredulity aroused in many, even avowedly professional and learned circles, when the matter of intentional curvature has been broached. It is seen in Mr. Goodyear's express and well-advised use of "supposedly," "presumed" and "apparently." Out of suppositions and presumptions the mind creates a mirage, an ideal, or a superstition; surely it can, by the same token, also create a wrong impression—especially when the erstwhile disconcerting science of optics, inaccurate knowledge of ancient life, ability and constructive methods, and a generally befogged understanding of the meaning of Greek life in relation to art are also called

into play. First impressions are often lasting, though they may be based on thin air, hearsay or an inborn opinionative inclination. Again, although men of high standing made public the first notice of Greek temple curvatures, no such extravagant reports had been penned by Stuart and Revett or Lord Elgin, who had with their scaffoldings climbed to all parts of the Parthenon. Vitruvius himself, whose writing had been architectural gospel for centuries, had a careful passage concerning the construction of curves in elevation; yet the 1812 translation of his book, edited by Wilkins, contained an explicit footnote to the effect that "they were probably never actually employed." For these reasons, coupled with a consistent unwillingness on the part of readers, writers and students to test authors' statements by the monuments themselves, Mr. Goodyear has fought down a host of opponents in whose inkpots his findings had accomplished an unwonted confusion. By dint of archeologic conviction, a doughty spirit and a sheaf of wholesome facts, he has at last succeeded in establishing the refinements as essential members in the art and science of Greek building, and his efforts may be said to culminate in the present volume, a capstone for his whole fabric.

Those who still cavil at the structural intention and artistic value of refinements in building may be said to stand at the gate of an architectural Samaria. They jeered at the "glamor of crooked building." The deflections were so slight that they were not observed unless sighted for, and those who mocked had done no sighting; what is more, they wilfully ignored the fact that measurements and observations of the masonry itself had led the pioneers in this field to make their declarations. They then relied upon the fallibility of the mason's eye, until it was demonstrated that "the degree of error which may have arisen from inaccuracy of workmanship in the Parthenon," *i. e.*, between the breadths of the east and west fronts, was .022 of an inch, or one-fiftieth of an inch in 101 feet. This matter of the quality of Greek masonry had, furthermore, been set at rest by Stuart, who showed that the finely ground stones of

the steps in the stylobate of the Parthenon, which are laid without mortar, had by what the chemist and physicist call molecular attraction, practically grown together. What is more, those who came to scoff were not loath to admit the existence of an inward leaning of columns and of vertical faces of architrave and frieze, a forward leaning of antæ, vertical cornice faces, fronts of abaci, acroteria and antefixæ, and a leaning toward each other of door-jambs; and they were fully assured that the columns and capitals of the Parthenon were of differing sizes (the maximum variation being two and one-quarter inches), that intercolumniations varied and that metopes were not of uniform width. These were facts, incontrovertible and accepted only because substantiated by measurements; yet similar truths in different guise and similarly vouched for by measurements, even by photographs, were met with ridicule when described as curves in plan or curves in elevation. These are the master curves, for they demand the maximum building skill and the most refined æsthetic sense.

Mr. Goodyear disposes finally of a number of erroneous theories which have cluttered the progress of study in this field and have obscured or misled non-professional students, who were guided only by the cursory notices in art histories and text-books. Among these incorrect assumptions is the supposition that Greek refinements "were designed as optical corrections of optical effects of irregularity," *e. g.*, the upper horizontal curve (in the entablature) as a correction of the alleged optical effect of a downward sagging in absolutely straight lines of similar length similarly placed. This is controverted by the fact that the optical theory involved has not received the indorsement of a single expert in optics, although men of the stamp of Hauck and Thiersch have devoted their energies to a solution of the problem; furthermore, it is controverted by recent investigations of inward curves in plan at Cori, Pæstum and Egæta, which show that "it is exactly an optical effect of sagging downward which is actually produced by these concave curves in plan, as far as the upper horizontal

lines are concerned"; and finally it is set at naught by a principle in the elements of perspective, by virtue of which "lines above the level of the eye, and especially on near approach, curve downward toward the extremities and not toward the center." Another explanation hopelessly beside the mark was that based upon the opinion that Greek buildings were destined to be seen from fixed points of view. This cannot, of course, hold water in face of the extended excavations at Olympia, Delphi and other centers, for each spectator would require a municipal map of progress through these cities, with marked points of accent, so that he might be assured of a proper point of view in accordance with that intended by the architects of the buildings.

Yet Mr. Goodyear does not ignore the human possibility that such curvatures might be modulations (1) "designed to please the eye by avoiding the inartistic effects which attend formal monotony;" (2) "intended to suggest and accent desirable effects," or (3) "intended to avoid unpleasant effects." These three possibilities are illustrated in order (1) by the horizontal curvature; (2) by the "convergence and inward leaning of the main perpendicular lines, which gives an effect of solidity and strength;" and (3) by the decreasing intercolumniations between angle columns and the concomitant "variations in the metope widths."

Let us consider briefly the history of exploration in regard to Greek refinements. To begin with, none of these deflections from geometric regularity were known through publications before 1838. In 1836 horizontal curvatures in the Parthenon were first noticed by Joseph Hoffer, the court architect of the contemporary Bavarian king of Greece, and in 1838 he published his observations, together with a goodly number of measurements, in the *Wiener Bauzeitung*. At about the same time and, no doubt, independently, John Pennethorne observed the same curvatures in the Parthenon, not to mention others in the Theseion and the Athenian Propylæa; but only after a study of the directions given by Vitruvius and a journey to Egypt (in 1833), where he found other curves in plan in the tem-

ple of Medinet Habu. Pennethorne's investigations found form in a pamphlet privately circulated in 1844 and in a folio volume published in 1878 entitled *Geometry and Optics of the Ancients*. The task of investigation in this field was next undertaken by Francis Cranmer Penrose, its chief apostle before Mr. Goodyear, and whose results were published in 1851 under the title *An Investigation of the Principles of Athenian Architecture*. This was up to the time of the publication of the volume under discussion the best and most general work in the field, but its bulky proportions and specialist's point of view precluded its general usefulness. We can safely say that the ægis has now been transferred to new shoulders. Nor has Mr. Goodyear's advocacy of the æsthetic quality of these deflections been the joyful path of a bringer of welcome news; for he has shared the fate of every prophet, being, in the nature of things, without honor in his own country. The author's studies date from 1868, when he learned his first steps in this direction from Carl Friedrichs of the Berlin Museum, and were propagated and widened in scope by suggestions found in Förster, Burckhardt and Ruskin to include similar deflections in Italo-Byzantine and Italian-Romanesque buildings. After several years of study, extending to 1874, the researches were discontinued until 1895, when were begun the deep studies which have since that time, thanks to Mr. Goodyear's unflagging zeal, gradually gathered to themselves a definite form and reality in the minds of men, professional and others, so that the Greek refinements now constitute an undeniable and accepted factor in the Greek constructive system.

It is noteworthy that at the very beginning of these discoveries Hoffer's account gives due credit for the æsthetic as well as the structural value of his findings. For instance, he says: "In modern times great porticos, of at least equally large dimensions, have been built, and yet we have not been able to achieve the same satisfactory effect . . . we find then that the Greeks were not content to build their temples according to narrow rules or according to such a canon as Vitruvius,

or the modern architects, endeavor to establish, but that everything was with them a matter of feeling. They had the feeling, which was encouraged by their high culture and their happy climate, that straight lines have a cramped and stiff effect (*einen beengenden und starren Eindruck*).” In this connection Mr. Goodyear's subtitle, *Studies in Temperamental Architecture*, should be noted, and also his statement, on page 68, that “. . . the classic horizontal curvatures were temperamental refinements inspired by the sentiment of beauty and by artistic preference, and not by a desire to exaggerate by optical correction the formalism, stiffness and rigidity of straight lines.” And it is interesting to trace in the writings of other art historians of note a similar intentional avoidance of any theory of pure optics and a decided insistence upon the temperamental quality as *raison d'être* for the Greek refinements. Witness Kugler's opinion that the desired result was “an effect of breathing life”; or Schnaase's, “a feeling of life inspired the whole building”; or Burckhardt's, “These (curves) are the expression of the same feeling which . . . everywhere sought to give to apparently mathematical forms the pulsation of a living organism.” Similar passages of generally identical content may be found in Michaelis, Boutmy, Choisy, Anderson, Spiers, Percy Gardner and Ruskin.

An interesting section of Mr. Goodyear's book is that concerning the universality of the use of horizontal refinements, and another is that concerning the method of construction of horizontal curves in temple platforms. After reading an account with such a sharp focus as that contained in the present volume, it is not difficult to assume that these plan and elevation deflections were of universal application. The reverse is demonstrated by the author and the reason for the absence of curves in certain cases is found in the necessary economy of labor and of money practiced when buildings were erected in times of national stress. This reason would not, of course, affect stylobate deflections, but chiefly the subsequently necessary grinding of the beds of the lower column drums to give them

the proper position and inward inclination under the conditions of a curved base. Temples without horizontal curves are the Erechtheion at Athens, built eight years after the completion of the Parthenon, the temple of Nike Apteros, also on the Acropolis and likewise of the fifth century B. C., the temple at Phigaleia, of which the architects of the Parthenon were also the authors, the temples at Aegina and at Rhamnus, both the Zeus and the Hera temples at Olympia, and the sixth century Greek Basilica at Pæstum in southern Italy.

There are therefore a number of important buildings in which refinements of the horizontal type at least do not play any part at all. Apart from the possible reason above stated, there may be one other important cause for the omission of such deflections, namely, the desire of the architect in question. Says Mr. Goodyear on page 115: "How did the introduction of these various Greek devices actually come about, as a matter of fact? Common sense would lead us to suppose that, aside from Egyptian influence or example in the matter of curves, and perhaps also in other directions, the introduction of the Greek refinements was gradual, tentative, and experimental, and that it was also temperamental, and controlled by the susceptibilities and sensitiveness of the individual architect. Only this point of view could explain the variations in the measurements for the same refinement in different buildings." We have, therefore, a free and spontaneous and, better yet, individual interpretation in the execution of Greek refinements; they are not only tolerated but obviously intentional and really a part of design as we understand it. And this is a new contribution toward the proper definition of that much maltreated descriptive adjective, *classic*.

The matter of the method of laying stereobate or stylobate stones in order to obtain the desired curvature is made clear by the author's reference to Emile Burnouf's explanation, dated as long ago as 1875, of Vitruvius' directions concerning the use of *scamilli impares*, or unequal sighting projections (*scamillus* is best translated by the French word *nivelette*).

The *scamilli* on the individual blocks were of varying sizes, graded according to position—shorter on the middle blocks, taller on those in the extremities of the stylobate—and by sighting properly along their points, the calculated curvature was readily obtained. It is obvious that a similar method would also be feasible for setting out curves in plan.

In order to make his book sufficiently inclusive, Mr. Goodyear also devotes a section to vertical inclinations in Greek temples; notably the inward lean of the columns (pointed out by Donaldson in 1829), with the consequent diagonal inclination of the corner shafts, the forward leaning of antæ, the entasis (which has been published only since 1810) and the diminution of columnar diameters. A thoroughly illuminating chapter is that on "Asymmetric dimensions in Greek temples," wherein is adequately set forth that formal regularity was not the "desirable ideal of classic architecture." In this connection is discussed the Hera Temple at Olympia, with its heterogeneous columns which, according to Dörpfeld, superseded original timber shafts in the order of their decay and therefore illustrate a number of successive phases in the treatment of column and capital. These discrepancies are seen in a new light when discussed in the same paragraph with similar variations at Selinus, in Temple G; nor are we yet satisfied with any explanations thus far advanced in regard to Greek indulgence on this head; for obviously, according to Durm, "it did not offend the Greek sense of beauty to allow columns of quite unlike form in the same building side by side." An amazing example of such disparity of column diameters is seen at Syracuse in Ortygia, where in the sixth century Apollo Temple the two remaining "monolithic angle columns, on the same front, differ by a foot (thirty cm.) in diameter." From Mr. Goodyear's instructive chapter on the many Greek asymmetries, those in plan dimensions, spacing and diameter of columns, and others, we may, then, select the following concise statement of the case: "The fact thus stands out in bold relief that both systematic and unsystematic irregularities are found in the same Greek

temples." And this is followed by the promise of a subsequent volume on the curvatures in buildings of a later date; therefore we obtain a foothold and parallel for demonstrations in later volumes of these studies that the existence of unsystematic irregularities of dimension in a given medieval cathedral, does not preclude or discredit the existence of systematic irregularities in the same cathedral. This gives us no little food for thought by way of anticipation; we eagerly await the study of the medieval refinements, for these have been made the target of the most virulent attacks in the past.

Finally we heartily congratulate Mr. Goodyear upon this notable volume, its scholarly and efficient arrangement, and its sterling subject matter. For purposes of demonstration and suitable reference an appendix is added to each chapter; the footnotes are lettered and appendix sections are indicated in the body of the text by numbers. There is also an index of authorities with page references, and an analyzed index of subject matter. The book is a fine example of American ideals in typography and illustration, as well as of the exacting standard of the Yale University Press.

OLD PHILADELPHIA.

WE have in our Atlantic Seaboard States a wealth of worthy architectural remains from the eighteenth century, and all too few of them are widely known. Many of these old buildings are in places difficult to reach and there is no accessible or accurate record of the details and features that give them their peculiar charm. Year by year the ancient structures grow less in number and with the demolition of each one we suffer an irreparable loss to our heritage which is only mitigated in some degree by the possession of accurate measurements and drawings.

The authors of *Old Philadelphia Colonial Details** have reaped in a fat field,

*Old Philadelphia Colonial Details. Measured and Drawn by Joseph Patterson Sims and Charles Willing. New York: Architectural Book Publishing Co., \$10.

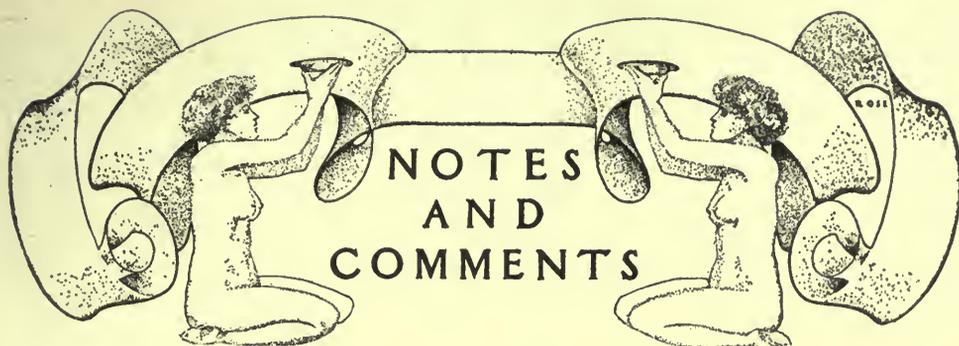
for Philadelphia and the neighboring country offer an abundance of valuable architectural material that has scarcely been touched. Of the fifty odd large folio plates, drawn chiefly at three-fourths inch scale or else in full size, thirteen are devoted to Hope Lodge, built in 1723 and an excellent example of early Georgian work. Seven plates are given to Graeme Park, Horsham, built in 1722 by Sir William Keith. Graeme Park, owing to its location, is difficult to reach and, as the house presents one of the finest examples of early Georgian panelling, and moulding details, one wishes that even more space might have been bestowed upon it. Cliveden in Germantown also has seven plates. To the State House (Independence Hall) are given five plates, the south elevations being from measurements made by Messrs. Brockie and Hastings.

Three city houses, 338 Spruce Street; the Stocker house, 402 South Front Street, and the Bishop White house at Front and Pine Streets, have respectively three, four and three plates. Those of the Stocker house, built about 1768, are particularly interesting because they show the beginnings of Adam influence in American work. The rest of the plates are taken up with various details, including the panelled side of the parlor at Whitby Hall, some interesting pieces of exterior ironwork along the river front and doors and mantels from the King of Prussia Inn (now demolished) in Germantown.

It is to be regretted that the word "Colonial" in the title is somewhat misleading, for the work illustrated is all Georgian and there is not a single piece that is truly Colonial. In a book of such excellent purpose and, in the main, creditable execution, it is unfortunate that such a concession should have been made to popular laxity in the application of the terms "Colonial" and "Georgian."

It is distinctly gratifying to note the large share of attention that has been given to mouldings and to the faithful presentation of their profiles.

H. D. E.



The First Garden City in France.

After six years of construction France has opened her first garden city, at Draveil, near the gates of Paris. No doubt another period of even greater length will pass before the whole work of plantation, laying out of streets, and sanitation is completed, not to mention the erection of some five or six hundred dwellings, of which but fifty are now standing. France at last feels acutely the need for proper building facilities to provide a solution for the problems of city crowding and inadequate housing, although both England and Germany have these many years set her a consistently praiseworthy example, with tangible results in the form of greater health and lower mortality. It is surely time that a nation threatened by the ominous shadow of a falling birth rate should give attention to the greater care of children. It is for these that the garden city will offer the greatest benefits in the way of normal growth and physical efficiency, which are invariably an asset to the nation at large.

Ingenious Repairs to Strasburg Cathedral.

For six or seven years the Germans have been at work preparing new uniform concrete foundations for one of the 142 metre spires of Strasburg Cathedral. The undertaking would not have been completed until 1917, but has now, of course, been indefinitely postponed. The method of carrying out the necessary repairs is of the utmost interest. A complete circle of concrete piles was sunk around the base of the spire and their heads bound together by a concrete crown. The earth around these piles was saturated

by hydraulic pressure with a thin cement, or "milk of cement." Another concrete unit or "collar" was prepared to form a base for the tower itself, and between this and the previously mentioned concrete crown the actual work of support during operations was done by twelve powerful jacks. After the whole weight of the tower has been brought to rest upon these provisional foundations, the old stone under-structure will be removed and superseded by an immense "thimble" of concrete which is destined to serve as the final foundation. The whole work will cost not less than \$500,000.

An Exposition of Art for Children.

The exposition entitled "L'Art pour l'Enfance," recently held in the Galliera Museum in Paris, succeeded in assembling a most remarkable collection of works in a rather unusual field. The exhibits were extremely various in nature, including pictures of children, historic children's costumes, peasant toys, books, nursery decorations, and other artistic efforts, and it was a revelation to the casual visitor to note how large a part children play in the modern artistic world. The court of the museum was filled with play-houses of various types, exhibited by the Paris department stores; houses varying from the architecture of the thatched Breton cabin to that of the trellised arbor. In the main hall toys vied in interest with portraits of children, illustrated children's books and quaint costumes of the eighteenth century. But the exhibits in the long gallery at the rear were, perhaps, the most interesting of all. Here a number of small sections were divided off to show attempts at nursery decoration. One of these compartments, with



CHILD'S ROOM BY MISS JESSIE KING—EXPOSITION DE L'ART POUR L'ENFANCE.

white walls and cream-colored furniture, was the work of Miss Lloyd; the English, it seems, excel in this form of art. The high dado around the room was white, with light blue dots, surmounted by a frieze of gray, decorated with conventional flowers in natural colors. The insets in the furniture were of yellow rattan, with colored pictures of animals to add an additional note of gaiety. Another nursery interior, by Miss Jessie King, of Glasgow, was almost entirely in blue and white, and its air of brightness and cleanliness delighted all the mothers who visited the exposition. The blue walls and white-painted woodwork and furniture were relieved by designs in gay colors, green and yellow predominating.

The floor was a dark gray, the curtains light blue. This room had a large window, with insets of colored glass, whose light tones added animation to the general effect without greatly reducing the amount of sunlight admitted to the nursery. The room contained, in addition to its ingenious built-in cupboards and window seat, and the usual table and chairs, a most charming dolls' house, designed in the style of the room, and a remarkable hobby-horse, this latter being the work of Mlle. Isabelle de Nolde.

In the same gallery, ranged along the opposite wall, were the delightful toys designed by André Hellé, the well-known humorist. Here we have a procession of cut-out wooden toys, representing the King (Louis XIV, to judge by the costumes of his following) on the way to the war. This type of wooden toys, of which Hellé and



WOODEN TOYS BY ANDRE HELLE—EXPOSITION DE L'ART POUR L'ENFANCE.

Canau d'Ache have produced such excellent examples, is one that deserves a great degree of popularity. Because of the simplicity of the construction, excellent designs are possible at small expense, and surely these vigorous silhouettes, with their bright colors, should appeal more highly to the imagination of the child than the stuffed horses and woolly lambs of our own less fortunate infancy. Hellé exhibited also, in addition to his wooden toys,

pages from his books for children, illustrated in much the same spirit, wall-papers for nurseries, and other similar designs, but the toys seem to have the widest appeal. Wooden toys of the same type have met with considerable

success in Germany, and there seems no reason why America should offer a less promising field for a similar experiment.

The Hotel Biron a National Monument.

The Hotel Biron, after many vicissitudes, will at last find a permanent owner in the French government. The building is one of lasting beauty and a fine example of the manner of Jacques Gabriel, from whose designs it was erected in 1730. It is now to become a "national monument" and a depository for the Musée Rodin, in which will be exhibited Greek and Egyptian collections owned by the great sculptor, as well as much of his personal work. The establishment of this museum but slightly antedates that founded by the same artist in London.



GIRL'S ROOM BY MISS LLOYD—EXPOSITION DE L'ART POUR L'ENFANCE.