

THE ARCHITECTURAL RECORD

for May
1916



Published in New York
.35¢ a Copy \$3.00 a Year



Precisely as you see it—Hot Water,
instantly and *economically*—available
at every faucet in the house

Awarded Highest Honors
Panama-Pacific Exposition 10
months' continuous service

The **HOFFMAN**

Instantaneous Water Heater

Embodies:

SIMPLICITY—With 50% fewer working parts than any other water heater on the market.

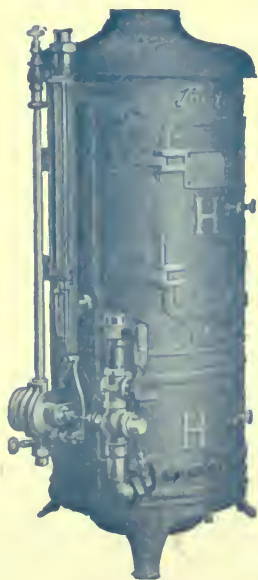
ECONOMY—both initial and operative. Costs less than any other heater of recognized quality because we manufacture under our own patent rights. Hoffman prices do not include royalties.

EFFICIENCY—recognized and acknowledged. Awarded the **highest** honors at the Panama-Pacific Exposition following 10 months' continuous service in the Fair buildings.

See *SWEET'S CATALOGUE*—Pages 1300-1302

Catalog showing equipment for buildings of all sizes sent upon request.

The Hoffman Heater Co.
LORAIN, OHIO





| | |
|---|------|
| COVER — A COLONIAL DOORWAY | Page |
| THE Y. M. C. A. COLLEGE IN CHICAGO. Emery Stanford Hall, Architect By Peter B. Wight | 395 |
| GOthic ARCHITECTURE AND ITS CRITIGS. Part II. The Definition of Gothic " " " " " " " " " " " " | 419 |
| By A. D. F. Hamlin | |
| AN ARCHITECTURE OF DEMOGRACY. Three Recent Examples from the Work of Louis H. Sullivan " " " " " " " " " " " " | 436 |
| By A. N. Rebori | |
| PORTFOLIO OF CURRENT ARCHITECTURE " " " " " " " " " " " " | 466 |
| THE NEW YORK CITY HALL. Part II. The Work of Restoration " " " " " " | 474 |
| By Charles G. May | |
| THE ARCHITECT'S LIBRARY: The Famous Iron Work of Spain, By Marrion Wilcox; A Manual on Lighting, By R. F. Bach " " " " " " " " " " " " | 491 |
| NOTES AND COMMENTS " " " " " " " " " " " " | 495 |

Editor: MICHAEL A. MIKKELSEN.

Contributing Editor: HERBERT CROLY

Advertising Manager: AUSTIN L. BLACK

Yearly Subscription—United States \$3.00
—Foreign \$4.00—Single Copies 35 centsEntered May 22, 1902, as Second
Class Matter, at New York, N. Y.Copyright 1916 by The Architectural
Record Company—All Rights Reserved

PUBLISHED MONTHLY BY

THE ARCHITECTURAL RECORD COMPANY

115-119 WEST FORTIETH STREET, NEW YORK

F. T. MILLER, President

W. D. HADSELL, Vice-President



WEST LOBBY ON FIRST FLOOR, SHOWING DOOR INTO
NATATORIUM ON THE RIGHT AND ENTRANCE TO SOCIAL
ROOM IN THE CENTER—Y. M. C. A. COLLEGE, CHICAGO.

395

THE ARCHITECTURAL RECORD

VOLUME XXXIX



NUMBER V

MAY, 1916

The Y M C A COLLEGE
IN CHICAGO
EMERY STANFORD HALL, ARCHITECT
BY PETER B WIGHT



To find a new building, the first of its kind, planned as the result of an infinite amount of study and patient investigation covering a number of years; designed with due regard to its artistic effect, and in a spirit of independence of the influence of architectural precedents; executed with the best materials obtainable; handled by skilled workmen, in whose labor neither undue extravagance nor enforced parsimony has been practiced, and built for a noble, righteous and enlightened purpose, is seldom the fortune of an architectural critic and raconteur. Such I believe to be the qualities of the new Young Men's Christian Association College recently completed and dedicated to its high Christian purpose last December. It is located in the

Hyde Park district of the city of Chicago, which is in the south division of that city, between Jackson Park on the east and Washington Park on the west, only three blocks north of the University of Chicago, and, most important, in what has always been a prohibition district. Its site is an entire city block, bounded by Fifty-third Street on the north, Fifty-fourth Street on the south, Drexel Avenue on the west (on which is the main entrance to the campus), and Ingleside Avenue on the east. The numbered streets in this part of the city are not always continuous. A section of Fifty-third Street from Washington Park at Cottage Grove Avenue, two blocks west, abuts the west side of the campus near its center, where the main entrance gate

is located. The campus is 470 feet long from north to south and 220 feet wide. The new building is on the north end and will occupy 220 by 175 feet when the east wing or dormitory is completed, leaving a quadrangle in the center, open to the south, 110 by 135 feet. The remainder of the ground is a park for athletic games, which are part of the curriculum of the College.

The objects and purposes of this building are such as have never before been realized in an architect's design, and when laid before the architect, Emery Stanford Hall, engaged his attention for three years until his perfected drawings had been completed. The Young Men's Christian College is not part of that great organization known as the Young Men's Christian Association, whose buildings may be found in every important city in America and in many others throughout the world. It is an independent organization, but intimately related to it; and that whose new building is here illustrated is only the second one ever organized in this or any country. The first organization is in Springfield, Mass., and its buildings are on the pavilion plan; that is, while its origin is earlier than this one, it uses a number of buildings covering a large area of ground and is not located in the heart of a great city as this is. Therefore, this building is the first of its kind ever erected in which all the departments are comprised within one structure, though some of them are duplicated in its summer school where it was originally organized at Lake Geneva, Wisconsin. This is still retained and some of the departments are transferred to it during the summer months. There it is conducted as an encampment, though there are few permanent buildings on the site.

But the *raison d'être* for the organization of these two great institutions must first be made clear, though it might be inferred from their names. They were organized to educate and practically train the officers and principal employees for 788 Y. M. C. Associations throughout this country and abroad, with a membership of 625,000, and controlling property to the value of \$88,000,000. But wherein

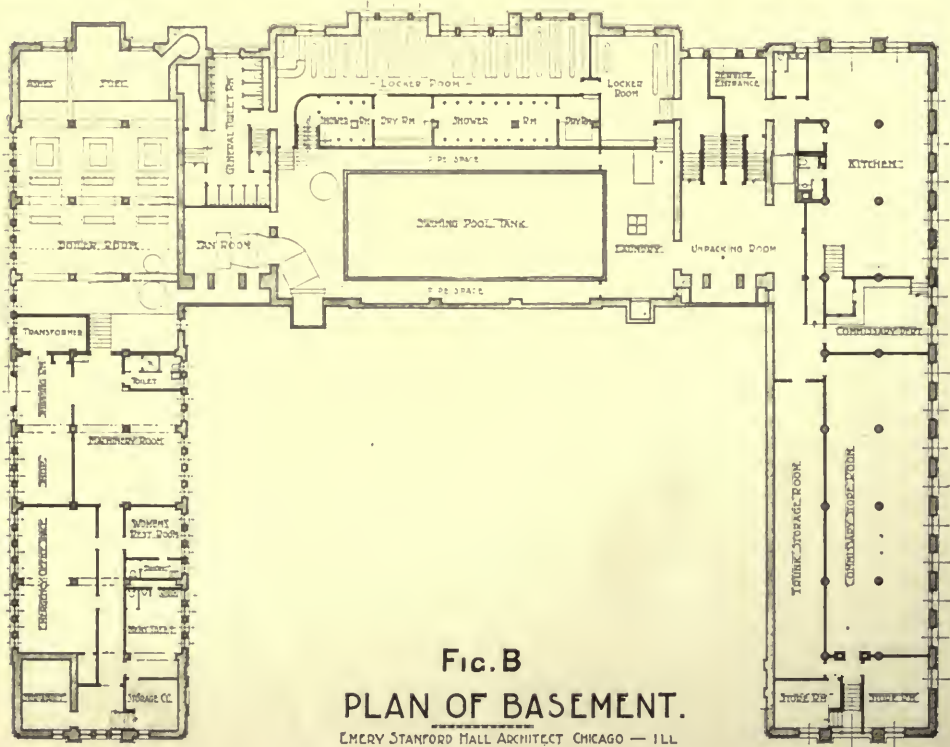
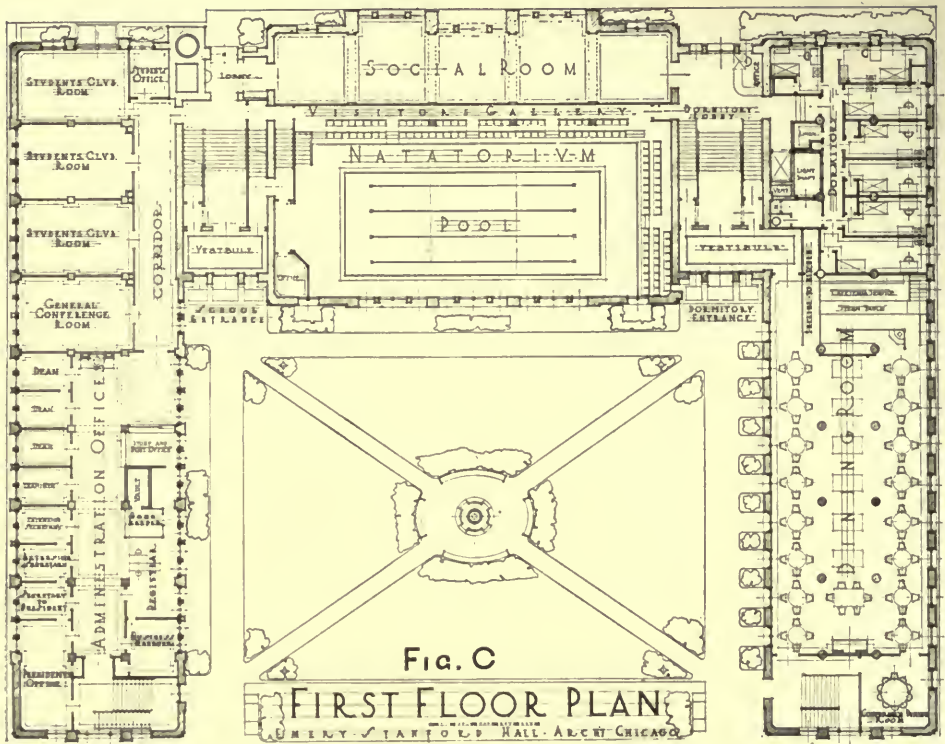
they differ from all other educational institutions is that graduates from these colleges, with degrees conferred and certificates of competence for all the administrative and educational positions in the Associations, go out upon the world, not to look for a job, but with assured positions for life waiting for them in hundreds of places. The colleges are the technical training agencies of all the Associations for preparing their employees for efficient service. Three distinct dominant motives prevail—physical efficiency, intellectual and vocational efficiency and moral and religious efficiency. Probably no college provides for the training of body, mind and heart with more even balance than does the Association College.

A Training School was first suggested in 1890, and on June 27th of that year was incorporated. Its work was done both at Geneva and in the building of the Y. M. C. A. at Chicago. In November, 1913, its name was changed to that which it now bears. Ground was broken for the Chicago building October 16, 1914, and it was dedicated December 1, 1915, after many delays caused by labor strikes.

The proposed buildings were first taken up for discussion with the architect in December, 1910, and an outline of tentative requirements submitted. This was before a location had been selected, and was while the College was occupying, for all except its summer sessions, rented quarters located in the Association Building, Chicago. The College, as has been said, has always operated a plant of its own for its summer sessions, located at the north end of Lake Geneva in Walworth County, Wisconsin, not far from Williams Bay Post Office.

Mr. Hall has explained to me the considerations that affected him in laying out the plan of the building in the following words, which clearly state the reasons for what he has done:

"From the very beginning, owing to limited funds available, the fundamental considerations in design have been to secure the maximum of convenience, stability and ease of maintenance at the minimum of cost. Nothing was to be in-



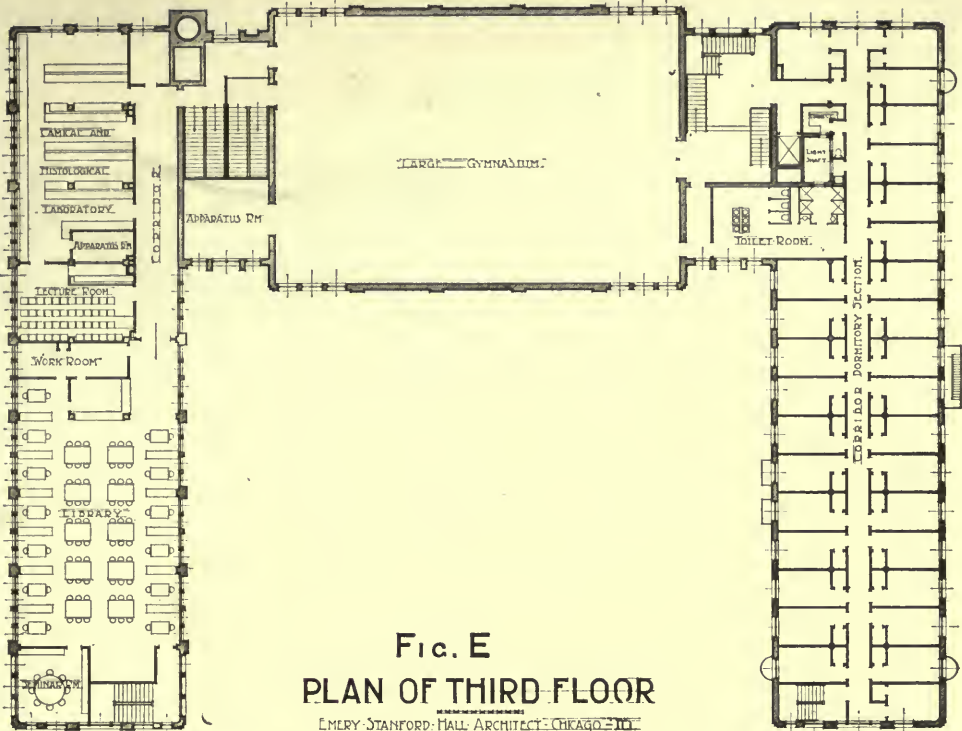


FIG. E
 PLAN OF THIRD FLOOR

EMERY-STANFORD HALL ARCHITECT-CHICAGO ILL.

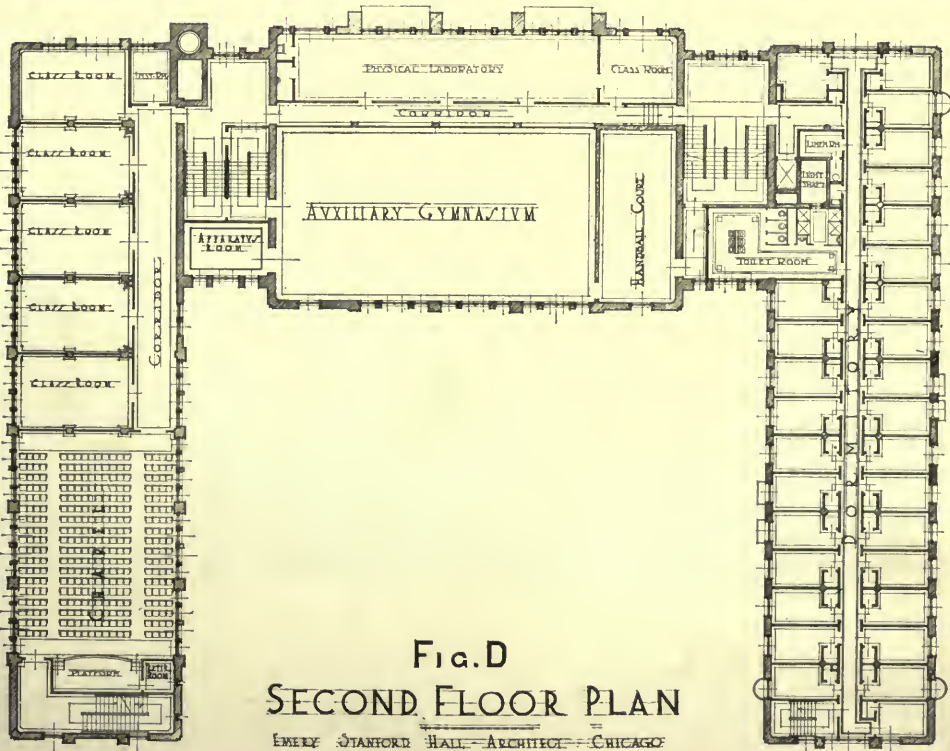


FIG. D
 SECOND FLOOR PLAN

EMERY-STANFORD HALL ARCHITECT-CHICAGO



FIG. 2. ENTRANCE GATE TO QUADRANGLE FROM DREX-
EL AVENUE, OPPOSITE FIFTY-THIRD STREET, NEAR
UNIVERSITY CITY, PHILADELPHIA.

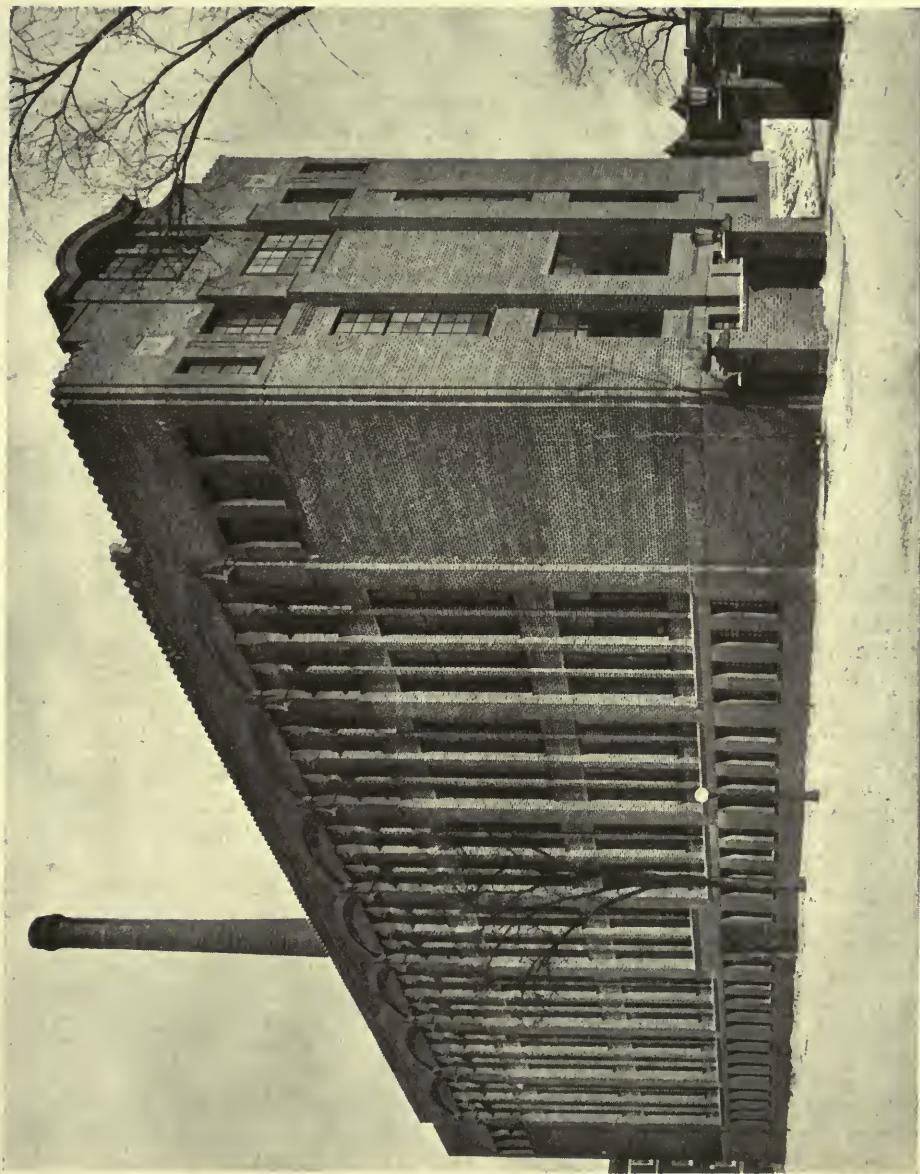


FIG. 1. VIEW OF DREXEL AVENUE SIDE
AND ENTRANCE GATEWAY FROM SOUTH.
WEST.—Y. M. C. A. COLLEGE, CHICAGO.

incorporated in the design that was not enduring, and the essential functions of the building were to be provided for so as to secure the highest degree of efficiency, the best separation of functions and the most convenient relation between parts. It was soon seen that the problem divided itself into three rather distinct and widely diversified requirements. First: There was the Department of Class Room Instruction, including recitation rooms, laboratories, lecture rooms and the Department of Administration; all of which required the maximum of light and quiet. Then there was the Department of Physical Education, which required natatorium, gymnasiums and physiological laboratories. Then there was the Department of Residence, including the dormitories, dining room, kitchen, etc.

"Of necessity the Department of Physical Education during operation was likely to produce a great deal of noise, which would interfere seriously with the Department of Class Room Instruction, or the necessary use of the Department of Residence for studies. These requirements suggested the arrangement of plan which placed the Department of Class Room Instruction and Administration in a single section with its principal rooms facing on Drexel Avenue, and with corridors between this Department and the stair tower separating the Department of Physical Education from the Department of Class Room Instruction, thus completely isolating the class rooms and offices from the noise and confusion incident to the operation of the Department of Physical Education. And as a matter of balance and separating the Department of Residence from the Department of Physical Education, the Department of Residence was placed in an east wing of corresponding size to the west wing containing the Department of Class Room Instruction. In the matter of design it was attempted to express uses to which the various departments are put, by the handling of the exterior. For this reason the west wing was made extremely plain, consisting merely of a series of narrow brick piers separating windows so as to give the maximum of glass opening and so as to

reveal from the exterior the fact that this entire section was used for assemblage purposes.

"A study of the natatorium problem made it clear that one of the most important essentials for such a room was an ample supply of sunlight. For this reason this room was placed on the south side of the central section, and located on the ground floor level, so that the room was flooded with sunlight from the south through prismatic glass windows. As it was desired to avoid exterior steps, and as drainage conditions required that the natatorium should drain naturally into the sewers without the use of pumps, the central forecourt was raised in grade about five feet above the street grade, thus adding a desirable landscape feature and affording a means of disposal for the earth taken from the excavations, materially reducing the cost for this portion of the work, and requiring neither the purchase of filling nor the cartage away and disposal of earth. This arrangement gives the basement of the building ample window space on the street elevations. Originally it was planned to have a corridor running through the central section of the building to connect the two wings. This was arranged for the north side of the natatorium. After further study it was decided that by widening this corridor and adding two projecting bays it might serve for the purpose of connecting the two outer wings of the building and at the same time act as a social or lounging room adjunct to the residential section of the building, and yet be available for social purposes on special occasions, when the administrative offices and club rooms could all be connected together and the dining room on the ground floor of the residential section used in such a way as to make practical the use of the entire main floor of the building for large social gatherings."

The second floor of the central section contains the small gymnasium, approximately 42 feet by 72 feet, for teaching special gymnasium work, and illustrative of the character of work which may be done in small gymnasiums, such as are usually provided in the smaller associations. A physiological laboratory

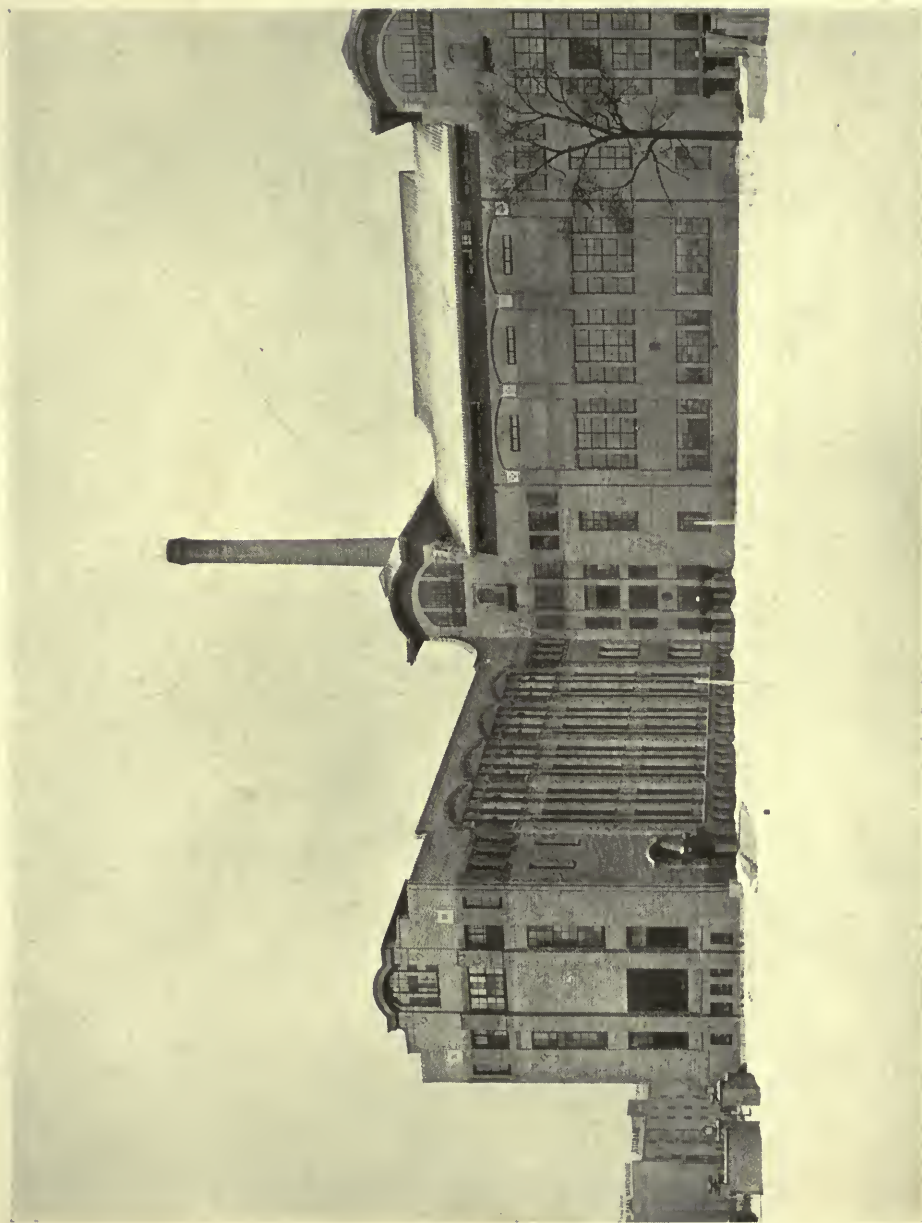


FIG. 3. GENERAL VIEW FROM ATHLETIC
FIELD-Y. M. C. A. COLLEGE, CHICAGO.



FIG. 4. WEST TOWER AND PRINCIPAL ENTRANCE FOR STUDENTS—Y. M. C. A. COLLEGE, CHICAGO.



FIG. 5. DETAIL OF ENTRANCE FOR STUDENTS—Y. M. C. A. COLLEGE, CHICAGO.

room, approximately 50 feet by 90 feet, is provided in this story, with floor at a higher level on account of not requiring such a high ceiling, and with north light, best suited to microscopic work; this room being intended for the use of microscopic research and the study of the physiology of exercise. The third floor, together with a gallery on the fourth floor level, contains the main gymnasium, occupying the entire area of the central section. This gymnasium was arranged so that it may be divided into two smaller gymnasiums by the use of a net in the center of the room, for special games. A peculiar feature of this gymnasium is its lighting by the means of a large north saw-tooth skylight, thus making it possible to flood the room with natural light and yet avoid shadows which are so objectionable in playing indoor ball games, and also making the light especially easy to the eyes. It was the original intention in the design of trusses for the support of the roof over this room to allow the steel structural parts to be exposed, but it was found that owing to a late ruling of the Building Department of the City of Chicago all members would have to be fire-proofed, and so they were fire-proofed by covering with metal lath and Portland cement plaster, built up in thickness to comply with the requirements of the city ordinances. It will be seen from the illustrations that sufficient open space is left in these trusses so as not to interfere with the effectiveness of the lighting.*

The east section of the building when completed is to contain a dining room with its floor on a level with the forecourt terrace, and French windows opening on to the terrace; this room being entered from the east tower vestibule, and securing the necessary ceiling height for such a room by extending from the ground up to the ceiling of the first story of this section; so that in the north end of the east section the kitchen is placed on the street level and above the kitchen is placed a series of low story dormitories; there being an incline leading from the kitchen up to the dining room floor level.

The three upper floors of the east section are to be devoted entirely to dormitory rooms; this section of the building will contain one hundred dormitory and study rooms.

It will be noted that the east section is to contain four stories, while the west section only contains three stories, and yet the outline of the two sections is similar, the difference being on account of the heights of stories.

The difficulty in the handling of a design of such diversified story heights and room area has been overcome by building two stair towers between the sections and running the stairs parallel to the sections, thus making landings on two levels on each side of the stairs, which, with a little juggling, makes it possible to enter from one side of the stair into the dormitory section containing stories for dormitory rooms about nine feet in height; or into the central section containing stories about twenty-two feet in height, out of the same stair tower. The same arrangement also works out for the west stair tower between the Physical Education Department and the Class Room section.

It was expected that the development of the work would soon require a dissecting laboratory, but such a department is ordinarily rather odoriferous and quite objectionable when contiguous to other parts of a building. Arrangements were therefore made for such a laboratory lighted with skylights and small windows underneath the roof of the west tower, forming a room approximately 20 feet by 40 feet, completely isolated from the rest of the building. A corresponding room in the east tower will be used as an overflow dormitory.

In the exterior design of the central section, a great problem to provide the maximum of window space in the natatorium and small gymnasium, and practically eliminate window space, except small ventilators, for the large gymnasium on the third floor, was solved. To eliminate the apparent overloading of light stories and solid wall without openings on upper stories, brick buttress piers with deep reveals were used, and brick



FIG. 6. CENTRAL, OR GYMNASIUM SECTION, FROM ROOF OF WEST WING—Y. M. C. A. COLLEGE, CHICAGO.

panel work, worked out in patterns, is inserted under segmental arches spanning from pier to pier.

In the east section it is intended to express the nature of its occupancy, consisting of small rooms, by the use of simple, single openings in the brickwork, spanned with plain segmental arches.

The problem of adequately tying together in one building sections of such diversified use and purpose has been solved by making the base of the building up to the level of the main floor of a smooth, round cornered, dark paving brick, with horizontal joints raked out and the vertical joints made flush, cutting the windows and doors through this base course at the various levels re-

quired to meet interior conditions, thus forming a band around the base of the building by means of color. Then the shaft of the building, extending from the base up to the third story window sills of the class room section, is faced with a complete kiln range of rough texture or wire-cut brick. A band course forming the window sills of the third story windows and the piers between the third story windows is formed entirely around the building of smooth red brick. Above this point the kiln range rough texture brick are used up to the band course underneath the coping, except that these brick are laid up in Flemish bond. All rough color brick are laid with joints of natural color lime

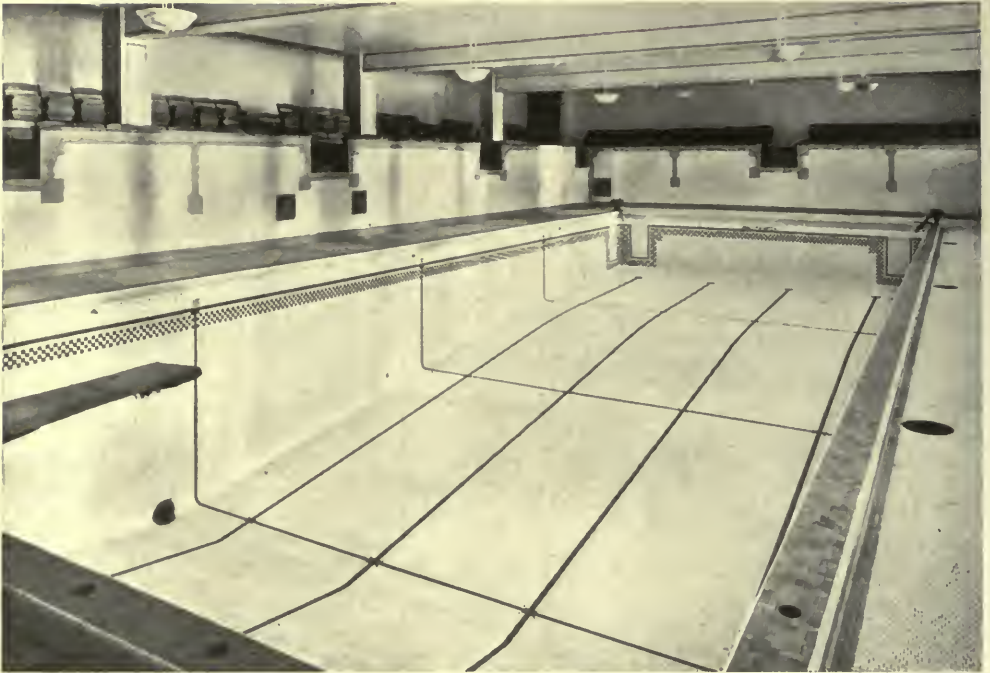


FIG. 8. SWIMMING POOL BASEMENT IN ATHLETIC SECTION—Y. M. C. A. COLLEGE, CHICAGO.

and torpedo sand mortar, ranging from $\frac{5}{8}$ inch to $\frac{3}{4}$ inch in thickness, cut flush, so as to make a rough joint.

The walls of the west section are coped with green Spanish tile terra cotta coping corresponding with the color of the Spanish tile roof of the central section. Roofs of the towers and central section are extended over the wall about five feet, so as to form a wide overhanging cornice, which is to protect ventilators to the rooms located in the top stories of the towers and gymnasium section, allowing these windows to remain open during stormy weather. The soffits of these overhanging roofs are finished with rough cast Portland cement stucco. The two principal entrances, one located in the east tower between the dormitory section and the gymnasium section, and the other located in the west tower between the class room section and the gymnasium section, while sufficiently symmetrical to satisfy the eye, are quite diverse in actual arrangement due to structural and plan requirements. (See Fig. 5.) Both are finished with rough red brick

trimming and coarse stucco walls. The lower portion of the vestibules and stair halls up to the second landing is lined with a low wainscoting or dado consisting of a brick "soldier" course, a course of "quarry" tile and a brick row-lock top course. Panels here and there are worked in with special designs in tile. (See Frontispiece.)

Thought has been given to provision for further growth, it being contemplated that sections corresponding to the east and west wings may be erected on the southeast and southwest corners of the lot, with possibly a low one-story assembly hall between the two, so as to not cut off the sunlight from the south, and with a tower for administrative purposes located at the head of Fifty-third Street, facing Washington Park and the nearest approach to transportation on Cottage Grove Avenue. The intention is that all student entrances to the building shall be from the quadrangle, thus facilitating supervision, and that all service entrances to the building shall be from the streets, thus entirely eliminating service from the quadrangle.



FIG. 10. SOCIAL ROOM ON FIRST FLOOR; MIDDLE SECTION, WITH LIGHT FROM NORTH SIDE-Y. M. C. A. COLLEGE, CHICAGO.



FIG. 11. VESTIBULE OF ENTRANCE TO DORMITORY SECTION AT EAST END OF GYMNASIUM SECTION—Y. M. C. A. COLLEGE, CHICAGO.

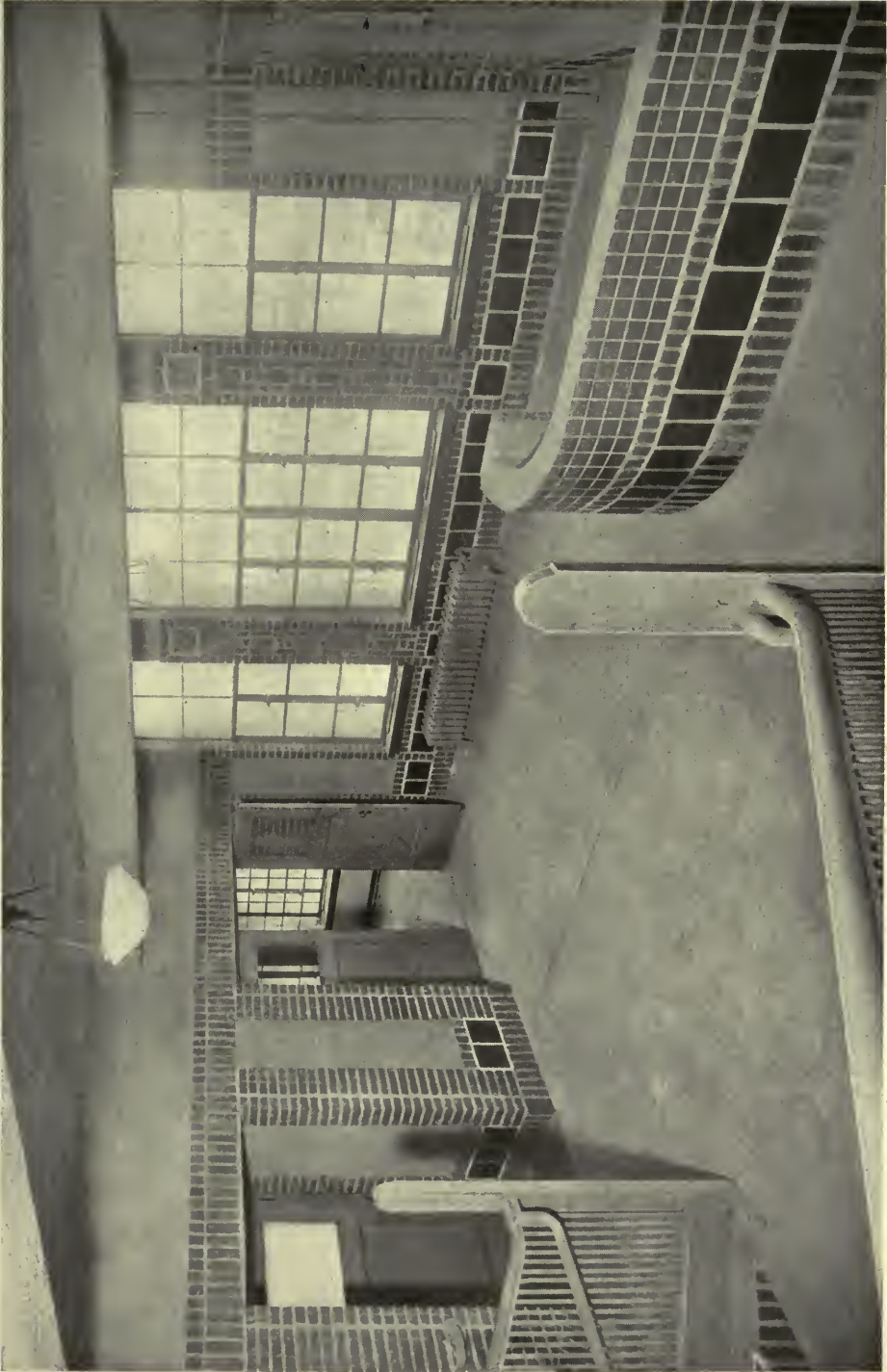


FIG. 12. EAST LOBBY ON FIRST STORY OF MAIN BUILDING AT FOOT OF STAIRWAY, SHOWING ENTRANCE TO VISITORS' GALLERY IN NAT. ATORIUM AT THE LEFT, TO SOCIAL ROOM IN THE CENTER, AND UNFINISHED COUNTER ON THE RIGHT—Y. M. C. A. COLLEGE, CHICAGO.



FIG. 13. LOBBY FOR GENERAL OFFICES, LOOK-
ING NORTH—Y. M. C. A. COLLEGE, CHICAGO.



FIG. 14. DRINKING FOUNTAIN AT NORTH END OF GENERAL OFFICE LOBBY. Y. M. C. A. COLLEGE, CHICAGO.



FIG. 17. MAIN GYMNASIUM ON THIRD FLOOR, CENTER SECTION, SHOWING ILLUMINATION THROUGH NORTH SKYLIGHT, THUS AVOIDING SHADOWS; STEEL TRUSSES FIREPROOFED WITH CONCRETE—Y. M. C. A. COLLEGE, CHICAGO.

The mechanical plant which serves this building is of necessity complicated, on account of diversified demands, plumbing, heating and ventilating being very important items.

In general, all class rooms, club rooms, and the natatorium are provided with mechanical ventilation separate and distinct from the heating system, air being forced into the rooms just above the floor and at the outer wall in the corners of the rooms at a temperature slightly above 70 degrees and exhausted from the rooms near the ceiling and on the walls between the rooms and corridors, the corridor ceilings being furred down so as to make provision for ventilating ducts. The air intake is located in an area on the outside of the building opening into the quadrangle, which is surrounded with shrubbery so as to secure air as free as possible from dust. The air entering the building passes over tempering coils and then down through a fan. It is driven to various parts of the building where required, making use of

a vertical pipe shaft next to the smoke stack. Foul air is collected through ducts from the various corridor ceilings, carried to the pipe shaft beside the smoke flue and up to the top of the tower, where it is exhausted by means of a ventilating fan. Both ducts are in the same shaft.

An interesting feature of the plumbing installation is the manner of heating and filtering the water for the natatorium tank. The arrangement of valving in pipes is such that water may be taken direct from the city main into the tank, or through the filter into the tank, or through the circulating pump and filter into the tank, or through the heater and filter into the tank, or from the waste outlet of the tank through the circulating pump, the heater and the filter and back into the tank; it being planned to keep the water in constant circulation by means of the circulating pump and to maintain its temperature constant by passing it through the heater or by-pass, regulated by means of an automatic tem-



FIG. 15. CHAPEL AND SECTION ROOM ON SECOND FLOOR OF WEST SECTION, SHOWING REINFORCED CONCRETE GIRDERS IN CEILING WITH SPAN OF THIRTY-EIGHT FEET—Y. M. C. A. COLLEGE, CHICAGO.



FIG. 16. LIBRARY ON THIRD FLOOR OF WEST BUILDING, SHOWING PLAIN REINFORCED BEAMS WITHOUT DECORATIVE MOULDINGS, SPAN THIRTY-EIGHT FEET—Y. M. C. A. COLLEGE, CHICAGO.



FIG. 18. GENERAL VIEW, FROM THE NORTH-
WEST-Y. M. C. A. COLLEGE, CHICAGO.

perature regulator, and keep the water perfectly clean and pure at all times by constantly circulating through the filter, thereby constantly refiltering.

Water pressure, which is not sufficient in the city mains to furnish adequate supply in the upper stories, is maintained by means of a steam pump and a pressure tank located in the basement. Pipes for different uses are painted different colors to make distinction easy.

Fire protection at a minimum of cost is provided by provision for yoking together a battery of four of the steam pumps which ordinarily serve for other purposes, thus making available the combined power of these pumps and the reserve storage of water contained in the swimming tank.

Provision is made against scalding in the battery of shower rooms by placing an automatic regulator on the hot water supply of these rooms to regulate the temperature so that it cannot be raised to the scalding point; and also an attempt has been made to eliminate the evil effects of varying pressure by making the water supply pipes to these showers largely in excess in capacity over the maximum demand that could be made if all showers were used at the same time.

In the construction of this building, not only have means been provided for extinguishing a possible fire, but all the materials that have been effective in the best fireproof structures have been used. For structural purposes steel columns have been used in the walls where they have to support girders or trusses of long span, while reinforced concrete columns have been used in brick piers where practicable. Some of the girders up to a span of 38 feet are of reinforced concrete (see Fig. 16), while others, as, for instance, those under the gymnasiums, are of built up steel protected by hollow tile. Generally the floors are constructed with concrete slabs and tension bars, with hollow tile fillers. Everywhere the floors are finished with cement or tile, except in the two gymnasiums, where they are of hard wood. Only such woodwork as has been absolutely necessary has been used for the inside finish and doors, all of which are of red gum. The whole build-

ing therefore is not only fire-resisting, but incombustible as far as possible. All interior walls where possible are of brick and a minimum of hollow tile partitions has been used. All plastering is directly on brick or hollow tile.

It is time now for the reader to make a tour through this remarkable building aided by the illustration, not the least of which are the ground plans made from the architect's drawings. In Plan A we have the layout of the entire property bounded by four streets, and it is seen that the main entrance is through the gateway opposite to the short section of Fifty-third Street running from Cottage Grove Avenue to Drexel Avenue. A block plan of the building only is shown. Plan B of the basement, Plan C of the first floor, Plan D of the second floor, and Plan E of the third floor follow in natural succession. It is not thought necessary to give any more floor plans. But it must be borne in mind that the dormitory section has not yet been erected. The remainder of the building is complete for its purposes without it, because it will not increase the capacity of the building for educational purposes. It will simply be a greater convenience to the students, who are now obliged to live outside of the grounds. The main division wall which bounds the east side of the eastern stairway hall has been temporarily built with hollow tile through to its intersection with the south wall of the middle building. The plans tell their own story without further description.

We approach the grounds from the west on Fifty-third Street and first see only the west wing, shown in Fig. 1, which is devoted solely to administration and instruction other than physical culture and athletics. We enter the campus through the gate (Fig. 2), and, walking to the center, turn to the left and see the entire building from the inside as far as completed (Fig. 3). We then retrace our steps to the concrete walk leading up to the west tower and principal entrance for students (Fig. 4). Fig. 5 is a near view of this entrance, showing in detail the brickwork, steel doors and marquises sheltering them. Figure

6 is a near view showing the south wall of the central or gymnasium section of the building, which is entirely devoted to practical instruction in physical culture. This also shows in detail the method of handling the decorative brickwork and buttress construction of this wall. Having entered at the west entrance and ascended a few steps, we are in the west lobby on the first floor (Frontispiece). The door to the natatorium is on the right and the entrance to the social room is seen through the arch. This shows the general finish of all the halls, all the angles being built of brick and the walls plastered on brick or tile with rough cement. Figure 8 is a general view of the swimming pool when drained off. This occupies part of the basement and first floor. It is entirely lined with tiles or cement and the floors are paved with "non-slip" tiles. The spectators' gallery is on the left. A stairway leads from the swimming pool to the dressing rooms, in which "non-slip" tiles have been used also wherever the stairs are touched by the bathers' feet. We can pass from the west to the east side of the swimming pool through the social room (Fig. 10), which is not yet furnished. It is the general amusement room for the whole institution, though in addition there are several special club rooms for students and professors. This leads us through a lobby (Fig. 12) to the east stairway and east vestibule (Fig. 11). Here again we find some carefully planned ornamental brickwork. This entrance and the connecting stairway will be mainly used after the construction of the dormitory section. We may now retrace our steps westward through the social room to the west wing,

passing the drinking fountain at an angle in the hallway shown in Figure 14, and turning to the left we are in the lobby for the General Office (Fig. 13), with the public office on the right and offices and club rooms on the left. South of this there is an additional stairway and an entrance from the grounds at a point nearest to the entrance gate.

On the second floor are the auxiliary gymnasium and handball court, which are not illustrated, also the chapel and lecture room at the south end of the west wing (Fig. 15), which has a special stairway connecting with the entrance last mentioned. On the third floor is the library (Fig. 16) at the south end of the west building, and the great gymnasium, 63 by 94 feet (Fig. 17), occupies the whole width of the main central building and up to the roof over the steel trusses. There are also fourth and fifth stories and some rooms in the towers, still higher, for purposes for which the limits of this article forbid more extended description. When leaving we will retrace our steps to the gateway, and, turning to the north, walk up Drexel Avenue beyond the northwest corner of the grounds, and, turning around, we have the view shown in Figure 18, which takes in the whole range of buildings from the outside. The north front as far as completed covers a length of 180 feet, and exhibits a diversified arrangement of windows and buttresses, each provided to fulfill its own function, but all combined in a picturesque but harmonious group. "But," some will ask, "how about the architecture?" Mr. Hall has left out the architecture and made his building a work of art.

Gothic Architecture and Its Critics

By A. D. F. Hamlin

Part I The Definition of Gothic

DURING the past fifty years the popular appreciation of Gothic architecture among readers of English has been chiefly shaped and directed by less than a dozen critics. Leaving out of account the earlier exponents of medieval architecture enumerated in the preceding article of this series*—Britton, Pugin and Rickman—the list of widely-read and influential Gothicists would include Ruskin, the transcendentalist; Fergusson, the historian of styles; Parker, the popularizer of Gothic details, and Bond and Prior among more recent writers, in England; and Moore, Sturgis and Porter among Americans. To these we must add the Frenchman, Viollet-le-Duc, who not only through translations of his books, but more directly through his monumental *Dictionnaire raisonné de l'architecture française*, profoundly affected the criticism of Gothic architecture in all countries. I leave out of account in this list the distinguished company of French and German, Dutch, Italian and Spanish specialists, who have contributed a large proportion of the scientific literature of the subject, because they are "caviare to the general." The results of their labors have been, in part at least, transmitted to us through the more modern of our English and American writers.

It was not until the second half of the nineteenth century was well along that any real appreciation of the true nature and significance of Gothic architecture became at all general. English writers generally, with the exception of Willis, saw in it little more than a particular set of architectural details associated with a remarkable development of religious buildings. Its dignity, beauty and flexibility were impressive; to copy or imitate its forms would, it was thought, reform modern architecture. Its

history was merely the record of successive modifications of its details, showing evidence of development, culmination and decline; and Rickman's division into the three periods of Early English, Decorated and Perpendicular Gothic, was universally accepted as logical and sufficient. So, indeed, it is, within proper limits, and so is almost any division one may make into periods, within proper limits. But these chronological divisions came to be regarded as so many distinct styles, each with its own complete set of forms, its own arches, moldings, traceries, doorways, windows, piers and ornaments, precisely as set forth by Rickman in 1817.

The result of this conception was to start students and critics upon a wholly mistaken track. Attention was concentrated on details and shapes; the source and origin of these forms, the logic of their development and use, the whole inner content and philosophy of the style, were lost sight of. A false and rigid grammar of Gothic forms, almost as precise and formal as the Italian interpretations of the Vitruvian canons of Roman architecture, came into being. The purists allowed only certain moldings to be used with crockets or capitals of a given period, unless the whole design were, indeed, in one of the "transitional" styles which they had to create, to account for what would not allow itself to be crowded into the convenient three pigeon-holes established by Rickman. They failed to understand that the history of medieval architecture is that of a never-ceasing movement: an onward flow like that of a river; a vital history like that of a tree, ever changing through early growth, maturity and decay.

For purposes of convenience the geographer may divide the Hudson River into three or five or twenty

*The Architectural Record, April, 1916.

sections, but he cannot cut up its waters; he cannot hold them fixed in his divisions; he cannot arrest their flow. So for purposes of convenience I can divide the current of Gothic architecture into three divisions; I can specify certain features as conspicuous in each, as the geographer can specify the environing topography and the shape of the river bed in each section of the Hudson. But these divisions will be arbitrary, made for convenience of discussion and study and corresponding to nothing fundamental in the movement of the architectural current, which flowed on, incessantly changing under the pressure of those ever changing vital forces—social, religious, political, economic—which shaped its early germination, its full flowering and its decline. These period-divisions and style-classifications made to serve our convenience became tyrants to fetter the student and designer. "Those dreary wrestlings with moldings and traceries, which were still insisted on twenty-five years ago, taught us nothing of the true magnificence of Gothic architecture, of its audacity of construction, of the charm of its caprice on the one hand, of its real strength of purpose and stark architectural quality on the other."* The style-periods and period-styles were made the criteria of all Gothic design everywhere, and in so recent a book as Grant Allen's *Belgium, Its Cities*, the author is constantly characterizing the Flemish Gothic by the English terms invented by Rickman, giving the wholly false impression that the two styles developed in precisely the same way.

Edmund Sharpe recognized the inadequacy of Rickman's division and proposed seven periods instead of four.† But the details of the progressive English development refuse to be crowded into those divisions. Moldings and traceries did not always change *pari passu*; constructive advance was not parallel with decorative progress; the developments of one region were often years in advance of those elsewhere: the whole movement of the art was fluid,

here advancing, there retarded, affected by a hundred diverse influences. The periods are convenient and useful only within carefully observed limits; far more rational is the proposal lately made by various English writers and architects to abandon all the old nomenclature and refer to buildings by their dates and by specific characterization and comparison.

II.

An unfortunate result of the early insistence on periods was, as has been already noted, to confirm the habit of regarding architecture as a matter of details. It was upon these that the chief attention was centered, and mainly upon decorative and not structural details. The nature of architecture itself was fundamentally misconceived. "Architecture," says Rickman on the first page of the *Attempt to Discriminate the Styles*, "may be said to treat of the planning and erection of edifices which are composed and embellished after two principal modes; first, the Antique or Grecian; secondly, the English or Gothic." Ruskin's *Seven Lamps* opens with this definition: "Architecture is the art which so disposes and adorns the edifices raised by man for whatsoever uses, that the sight of them contributes to his mental health, power and pleasure;" that is, Ruskin conceived the building as being first erected, and then ornamented. That this was really his idea is shown later on, when he again defines it as the art "which * * * impresses on its" (the building's) "form certain characters venerable or beautiful, but otherwise unnecessary." "If to the stone facing of that bastion be added an unnecessary feature, as a cable molding, *that* is architecture." "Architecture concerns itself only with those characters of an edifice which are above and beyond its common use." In the Addenda to Lectures I and II delivered at Edinboro' and published in 1854, he observes that "ornamentation is the principal part of architecture." "No person who is not a great sculptor or painter can be an architect. If he is not a sculptor or painter he can only be a *builder*." As late as 1893 William

*Blomfield, "The Mistress Art," p. 192 (London, Edw. Arnold, 1908).

†Edmund Sharpe, "Seven Period of English Architecture" (London, 1851).



FIG. 1. ABBEY OF VÉZELAY, FRANCE, ROMANESQUE FORMS OF GOTHIC BUTTRESS AND TOWER DESIGN.

Morris "stated as an axiom that 'architecture is the art of ornamental building.' 'A true architectural work' he says 'is a building duly provided with all necessary furniture, decorated with all due ornament.' To the men of this school a building without ornament, but perfect in scale and proportion and fitness for its purpose, would hardly have ranked as architecture."^{*}

The conception of architecture as the art which includes planning and construction and decoration all three as means to the end of producing a beautiful building—decoration or ornamentation being the least essential of the three—seems hardly to have entered the minds of either English or American critics until comparatively recent years; earlier, indeed, in America than in England. There is no discussion of planning, certainly none of artistic planning, and but little of construction, in the great majority of English works of the nineteenth century on Gothic architecture. Rickman discusses the period-styles under these heads and in this order: Doors, windows, arches, piers, buttresses, tablets, niches and ornamental arches or panels, ornamental carvings, steeples, battlements, roofs, fronts and porches! Vaulting is not even mentioned, nor plans, nor construction, nor the technique of the masonry. The order of the topics appears to be quite accidental, with no suggestion of logical sequence. The works of the Pugins, father and son, are chiefly occupied with details. Ruskin thought the structural principles of Gothic architecture so simple that a schoolboy could master them in less time than he takes to learn a game, and with less mental effort. Fergusson, who published his *Handbook* in 1857, and his *History of Architecture* some years later, came nearer to grasping the structural significance of Gothic architecture, and was the first English writer to point out clearly the essential continuity of structural development in the Romanesque and Gothic styles. Yet he speaks of the early Gothic period as that "in which pointed architecture was *invented* (P. 524); and later, declares (p. 526) that

*painted glass is really the important formative principle** of Gothic architecture; so much so, that there would be more meaning in the name if it were called 'the *painted glass style*' instead of the pointed style."

At the end of Vol. I Fergusson enumerates and discusses the details of Gothic design. In this discussion he starts with pillars and windows, though their forms were logically evolved as a result of the vaulted construction. Then follows vaulting, then buttresses, and at the end instead of the beginning, a general discussion of Gothic construction.

Moreover the plan of Fergusson's history is destructive of any adequate conception of either the structural or the artistic evolution of Gothic design. Fergusson was an enthusiast on the subject of ethnology. His ethnology was that of the mid-nineteenth century, with divisions of the human races as precise and as neatly ticketed as the Gothic period-styles. That system of ethnology has been largely discredited; but even assuming its premises as correct, Fergusson's conclusions from them are wholly untenable. He divides up the French styles according to the fancied race-predominance in different sections, and discusses each of these as though each race element had its own distinctive architecture. The unity of the church and of its requirements, the wide distribution and influence of the great monastic orders, the wanderings of the guilds of lay-builders, and a score of other influences overriding and crossing these ethnographic divisions, he ignores completely. Even so, he is constantly encountering and noting exceptions to the operation of his supposed ethnographic laws, so that his system breaks down completely. But it suffices to prevent any broad view of the evolution of French medieval architecture as a whole or of the real genesis and relations of the different schools of that architecture.

III.

It was Viollet-le-Duc who first, in his epoch-making *Dictionnaire raisonné de l'architecture française du V^e au XVII^e*

^{*}Quoted from Blomfield, "The Mistress Art," p. 94.

^{*}The italics are ours.

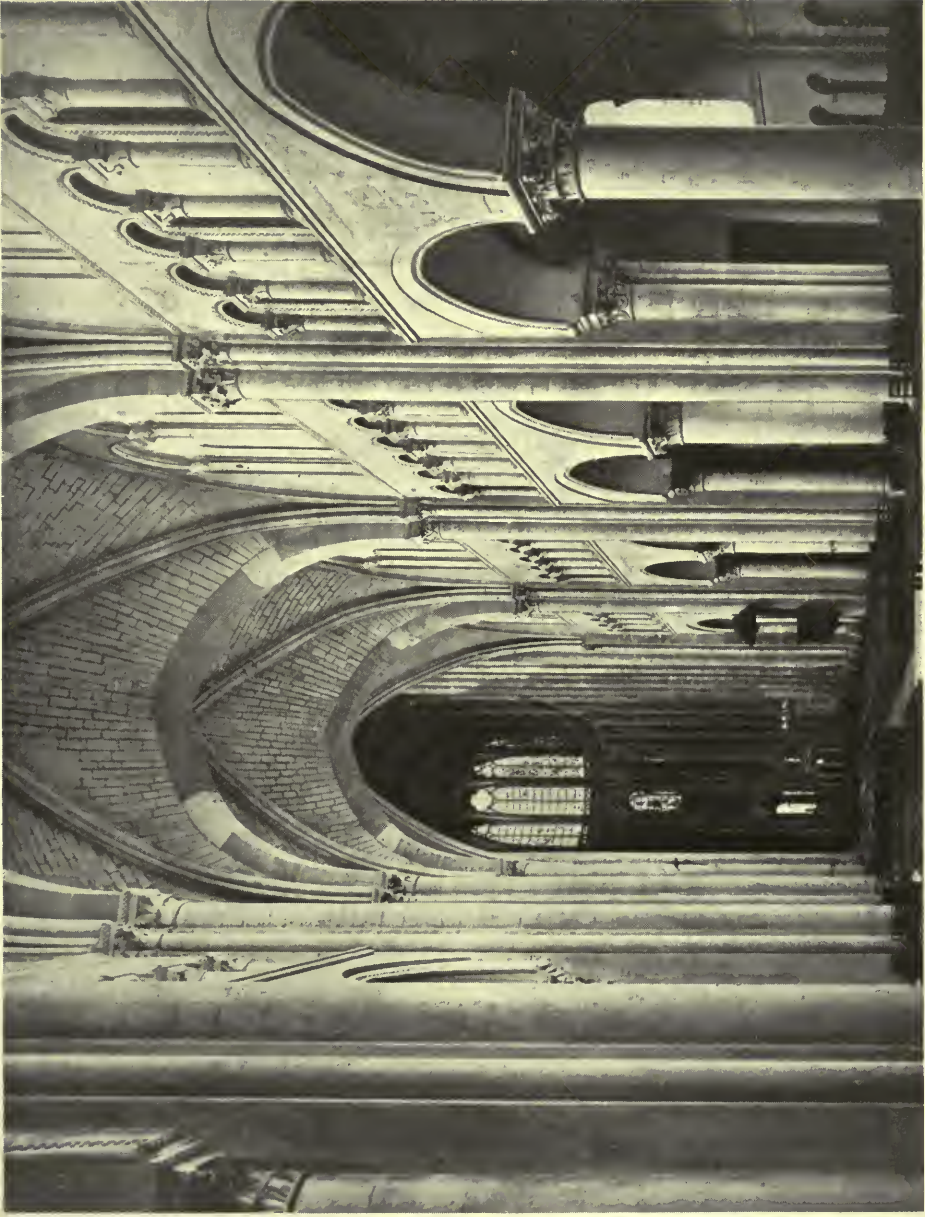


FIG. 2. NAVE OF LE MANS CATHEDRAL, TRANSITIONAL FROM ROMANESQUE TO GOTHIC.

Siècle,* set forth in clear terms and with authority the structural basis of the entire development of the French Gothic styles. This he did with masterly skill in his article *Construction*, which occupies 279 pages, and of which an admirable translation was made twenty years ago by Mr. George Martin Huss and published by Macmillan under the title *Rational Construction*. The same thesis is more briefly set forth in the article *Architecture*; while in that on *Cathédrale* he discusses also those social and political movements which contributed so powerfully to the building of cathedrals in France. All historians and critics of Gothic architecture since 1864 have built more or less upon the foundation which he laid, and we owe him an incalculable debt for having set them on the right path.

It was not, however, until 1889 that any writer in English undertook to embody in permanent form the results of this progress; and it was an American who performed this much needed task. Professor Charles Moore of Harvard in his *Development and Character of Gothic Architecture*† presented an admirable analysis of the structural elements of the French Gothic system, and traced with great skill and clearness the evolution of these elements and of their combination into that remarkable product of scientific reasoning, artistic taste and technical execution, the French Gothic cathedral. He acknowledged frankly his indebtedness to Viollet-le-Duc as the one who first showed that "this architecture consists primarily in a peculiar structural system, * * * and that its distinctive character is that the whole scheme of the building is determined by, and its whole strength is made to reside in, a finely organized and frankly confessed framework rather than in walls." But Professor Moore developed this thesis on independent lines, as the result of personal study of the monuments, and illustrated it with original drawings of great beauty and vigor of delineation. Within the limits suggested by its title this was the clearest, most scientific and accurate work that had appeared in English on its

subject. In spite of certain defects to which I shall later call attention, it has rightly become a classic in its field; and I believe it has had no valid rival until the publication recently of Prof. Frothingham's Volumes III and IV of the Sturgis and Frothingham *History of Architecture*.

Within a few years after Professor Moore's work the late Russell Sturgis published (1896) his *European Architecture*, a somewhat discursive work on European architectural history, in which the Gothic styles were treated with full appreciation of their structural basis, but they, of course, formed only a relatively small part of the work. Since then numerous works have appeared in England touching on Gothic architecture, but the majority are either general histories of architecture like Statham's *A Short Critical History of Architecture* and Simpson's excellent *A History of Architectural Development* in three volumes; or works on the English Gothic alone, like Bond's various works. Prior's *Gothic Architecture in England* and Bond's volumes I shall discuss in a later article.

IV.

What do we mean by Gothic architecture?

One would imagine the answer to this question to be fundamental to any valid discussion of the subject. Now is it not a curious fact that in none of the works cited above, except in Bond's *Gothic Architecture in England*, is there to be found any effort at a clear, scientific succinct definition of the term? What is more singular, Professor Moore, who devotes a whole chapter of his book on Gothic Architecture to the title "Definition of Gothic," fails to provide the definition! On page 18 we read: "The general form and constructive character of a developed Gothic building may be summarized as follows:" but the summary which occupies the next two and a half pages of the book is, of course, not a definition of Gothic architecture, and is intentionally descriptive only of a developed French Gothic building. Having nowhere defined Gothic architecture,

*Paris: 1st edition, 1854-68.

†New York: The Macmillan Company; 2d edition, 1899.

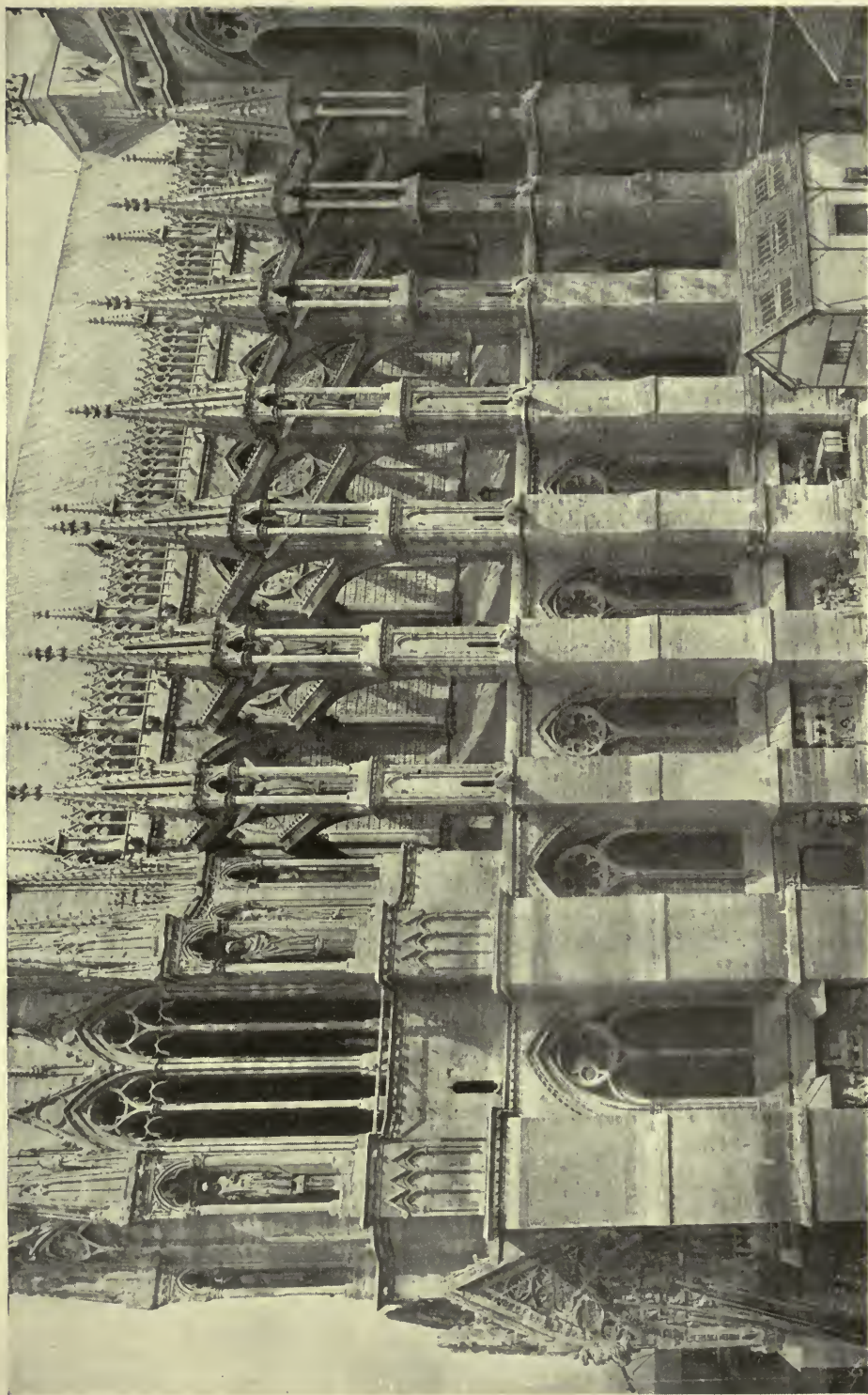


FIG. 3. SOUTH FLANK OF RHEIMS CATHEDRAL.
EXPRESSION OF STRUCTURE IN THE FRENCH GOTHIC.



FIG. 4. GOTHIC ARCHITECTURE IN ENGLAND. NAVE OF EXETER CATHEDRAL, SHOWING MULTIPLE RIBS.

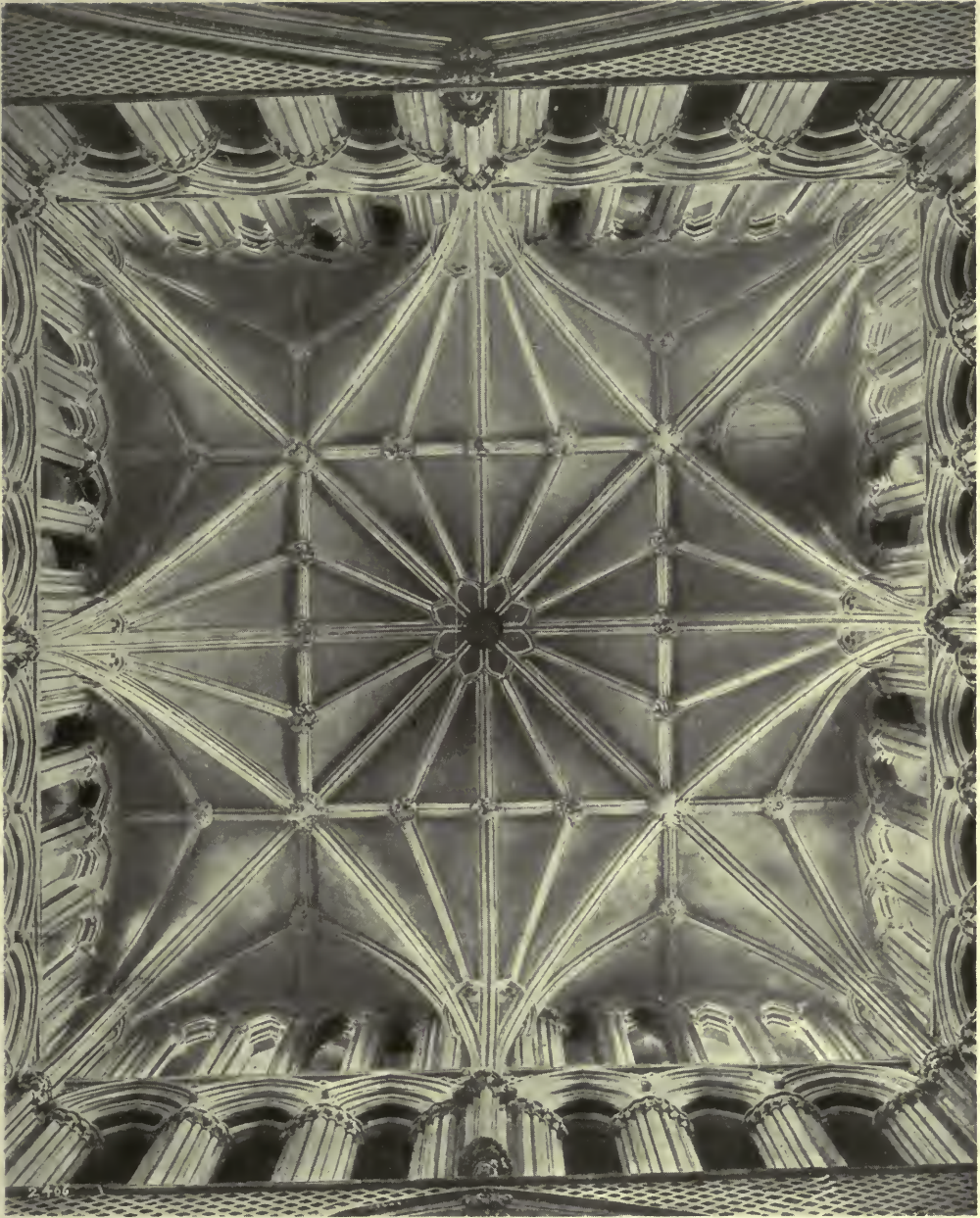


FIG. 5. VAULTED CEILING OF LANTERN,
LINCOLN CATHEDRAL. MULTIPLE RIBS CON-
SISTENTLY APPLYING GOTHIC PRINCIPLES.



FIG. 6. SPANISH GOTHIC INTERIOR.
NAVE OF SALAMANCA CATHEDRAL.

however, Moore leaves us in no doubt as to what he himself means—whatever others may mean—by the term; for him the only “real” Gothic, the only “true” Gothic is that which was developed by the French during the twelfth and thirteenth centuries. Thus in a footnote to p. 19 (2d Ed. 1899) he observes that the English vault-construction with *liernes* and *tiercerons* “was a violation of the principles of true Gothic art.” So on page 204, speaking of the choir of Lincoln, he finds that “the vaulting conoid does not narrow inward in the manner that gives an effective concentration of the vault-thrusts against the pier, as in true Gothic.” The village churches of England are not “monuments of Gothic style.” Professor Moore’s *Mediæval Church Architecture of England*, a later work, is almost wholly devoted to demonstrating the essentially non-Gothic character of that architecture.

Now Professor Moore has an undoubted right to restrict his own use of the term Gothic to the French developments; and granting this restriction, one may in general follow his reasoning to the end and accept the conclusions to which it brings him. But he must not claim this restriction as other than personal: he has no right to impose it on others. He is dealing with a term which had its origin in popular usage, and which by universal acceptance in half a dozen languages, has been applied to a vast body of medieval architecture. It connotes a movement covering all western Europe through a period of over three and a half centuries. One would suppose that the first effort of the scientific writer would be to seek for those elements, qualities, features and principles which were common to the whole movement, and which would account for the comprehensive use of the term. Professor Moore ignores all these, and denies the valid use of the term Gothic to all developments which did not confine themselves to the methods and principles which dominated the French phase of the movement. He traces its multifarious developments back to the French germ, and makes that germ the definition of the whole. It is as if, beholding a

whole orchard of apple trees sprung from one original tree, he should declare *that* to be the only “true” apple tree and the others all false apple trees. Some of us think the popular judgment nearer right in calling all the fruit of these trees apples, real apples, although many of them, grown from seeds of the original tree falling on other soil and springing up under other conditions, differ in shape and coloring from the original fruit and may indeed be noticeably inferior to it.

Mr. Francis Bond sets otherwise to work, but in a still more curious manner. He seeks to discover at the outset not what are the dominant and pervasive elements of this architecture called Gothic, but what it is that differentiates it from the precedent Romanesque architecture. Now as all the modern critics are agreed that the Gothic grew out of the Romanesque by a gradual process of structural and artistic evolution, Mr. Bond’s procedure seems passing strange. For the germs of nearly all Gothic design are visible in the Romanesque; so that excluding these one by one, and then discovering that the gradually and successively curtailed definitions fail to include many obviously Gothic buildings, Mr. Bond is at last forced to abandon the result of this process and to go back to his starting point. On page 10 of his “English Gothic Architecture”* we read: “English Gothic Architecture is the art of erecting aisled and clearstoried buildings whose vaults have groins or intersecting ribs and whose thrusts are wholly or mainly stopped, directly or indirectly, by buttresses.” But as this fails to include English Gothic buildings without aisles or without clearstories, he curtails the definition, to read: “Gothic architecture” (note the dropping of “English” from the term) “is the art of erecting buildings with vaults whose ribs intersect, and whose thrusts are stopped by buttresses.” But this still fails to cover parish churches, cathedrals and halls with wooden ceilings, e. g., York Minster and Carlisle choir, which, however, have buttresses; hence another curtailment: “Gothic architecture, is the art of erect-

*London, 1905.

ing buttressed buildings." But even this brief and widely inclusive definition does not meet the case of Eleanor's Crosses and of tombs, plainly Gothic, which have no buttresses; while on the other hand it has brought us around in a circle back to Romanesque architecture again—for that architecture produced buttressed buildings! Nay, more: it admits all Roman thermae, the basilica of Constantine, the dome of Hagia Sophia and the domes of nearly all Turkish mosques under its broad mantle, for all these are buttressed. Mr. Bond, it is true, overlooks this absurd result, but in order to bring the Eleanor's Crosses and the tombs under his definition, he abandons the result of his circuitous process, and starts anew. The final definition is in the main excellent, but it might better have been presented at the outset, as the direct result of primary observation: "Gothic architecture is the art of erecting buildings whose vaults possess intersecting ribs and the thrusts of whose vaults are *wholly or largely, directly or indirectly*, stopped by buttresses; and also of doing work *which possesses the chief characteristics of buildings so constructed*" (the italics are ours).

This is, in the main, first-rate. But reasonable as it appears at first sight, by whatever process attained, it is mistaken in confining the term to "the art of erecting" such buildings as are referred to, for this excludes the buildings themselves. The art of building them is Gothic architecture, but not the products of this art! Amiens and Westminster Abbey are not Gothic architecture! This is to construe Mr. Bond's language very strictly, but a scientific definition must be capable of strict construction.

Mr. Russell Sturgis, in his excellent *Dictionary of Architecture** under the title "Gothic Architecture," proceeds very directly to his definition. In part this reads: "That which originated in North Central France about the middle of the twelfth century, and which at the close of that century had spread over what is now Northern France, while detached buildings in England, in Northern Spain, and on the Rhine were beginning to show its

influence. * * * The style which may be properly called Gothic continued to prevail in France until 1500, in Germany and in Spain nearly as long, and in England until even a later date. France was always its chief centre, the architecture of no other country equaling it in dignity or beauty, in perfectly rational and logical working out of its principles, or in beauty of sculptured detail. * * * In England the style was developed in a peculiar way, with strong national characteristics, on a smaller scale * * * and yet in a peculiar way attractive."

Mr. Sturgis has thus correctly defined the term "Gothic architecture" by its historical and geographic content, recognizing the full extent of its application in ordinary usage. He does not in this definition set forth its principles; these are discussed in the analytical and historical exposition which follows in the article from which I have quoted. Is it not, however, possible to combine the historico-geographical with the analytical elements, and thus produce a definition which shall include all that is commonly understood by the term Gothic, and at the same time specify the characteristics which distinguish it from all that is non-Gothic? For surely a definition is not complete that fails to exclude what does not belong under the term defined, even though it include all that does.

V.

May I now venture to add my contribution to these various efforts to define Gothic architecture? I submit this contribution in all humility for the reader's consideration and criticism; he may discover a better answer of his own.

The term "Gothic" as applied to architecture designates *that group of styles which grew up in Western and Northern Europe in the Middle Ages, starting with germinant principles and features already existing in Romanesque architecture, and developing these along various lines in the effort to solve the problem of the construction and adornment of the cruciform church with aisles, wholly vaulted with stone.*

So far the *definition*; which recognizes the fact of the variety of developments

*New York: The Macmillan Company, 1902.



FIG. 7. AN EXAMPLE OF GERMAN SECULAR GOTHIC ARCHITECTURE. INTERIOR OF RATHAUS AT AACHEN.

due to varying conditions and ideals in different countries and periods, gathers them, in accordance with universal usage, into the Gothic fold, in so far as, and because, they sprang alike from the germs which came to life in the preceding Romanesque architecture, and were all dominated by the great problem of the stone-vaulted church with aisles and transepts, fitted for the ritual of the great Western Christian Church. It does not assert that no building is Gothic which is not a stone-vaulted church with aisles and transepts; nor that the various styles or developments in different lands and periods, in order to claim the right to be called Gothic, must show a like persistent logical fidelity throughout their history to the germinant principles from which they all had their first life; or must conform in the manner and logic of their development to the manner and logic of the French Gothic, even though that be conceded to be the parent style. All these styles may rightly be grouped as Gothic, under this definition, because they trace back to a common origin, were occupied with the same fundamental problem, in the service of the same Catholic Church, for a uniform ritual and discipline, and employed to a very wide extent, many of the same characteristic forms and details.

Now this architecture, though primarily and chiefly and most impressively an ecclesiastical architecture, was nevertheless made to serve the secular as well as the religious needs of the community, and to employ, where need was, other materials than cut stone. We may therefore rightly include under its popular name, in accordance with the common usage, such diverse buildings as the brick churches of North Germany, Westminster Hall with its "open timber" roof, and the cloth-halls and town halls of Belgium—many of them, alas, mere heaps of ruins today.

But such a definition is in itself meagre enough, and demands supplementing by some sort of descriptive characterization. In Professor Moore's summary on pages 18 to 21 of his *Development of Gothic Architecture*, five features are enumerated. It can be easily seen that they are

based on Amiens Cathedral as the type, and so framed as to exclude many buildings which lack one or another of these characteristics. They are: (1) the typical French plan, with ambulatory and apsidal chapels; (2) four-part vaults with only the three sets of ribs—transverse, longitudinal and groin (a note explicitly excludes all English multiple-rib vaulting as a "violation of the principles of true Gothic art"); (3) clustered shafts to sustain these ribs and a wall-buttress rising through the triforium to form an exterior feature of the clearstory; (4) flying buttresses; (5) suppression of walls

No criticism or objection can be raised against the characterization of which the above is but an epitome, *as applied to developed French Gothic architecture*. But it is wholly misleading when asserted as a criterion of all "true" Gothic architecture. Professor Moore's reasoning appears to be this: Gothic architecture had its birth and earliest development in France. The French developed it along structural lines with a rigid scientific logic not matched elsewhere. Its highest development in France is unequalled elsewhere. The foreign developments did not conform to the French logic. They abandoned some of the French principles, and used forms primarily derived from France otherwise than the French. Hence the French is the only true Gothic. The French is the only "true" Gothic because it is the only true Gothic! Now it is perfectly competent to defend the thesis that the French is the highest development among the Gothic styles; that it is the most rigidly logical in its construction; that its monuments are the noblest produced by the whole Gothic movement. But to call other styles "false," bastard, non-Gothic, because they followed other lines toward other ideals is not legitimate criticism. It completely ignores the impressive fact of the great unities, the commanding resemblances, of all the styles we commonly call Gothic; all the elements that are common to the various phases of that marvelous building activity which from 1160 to 1500 covered Western Europe with superb churches, chapels, halls, hospitals, towers and municipal buildings



FIG. 8. THE GOTHIC STYLE IN ITALY.
NAVE OF CATHEDRAL OF FLORENCE.

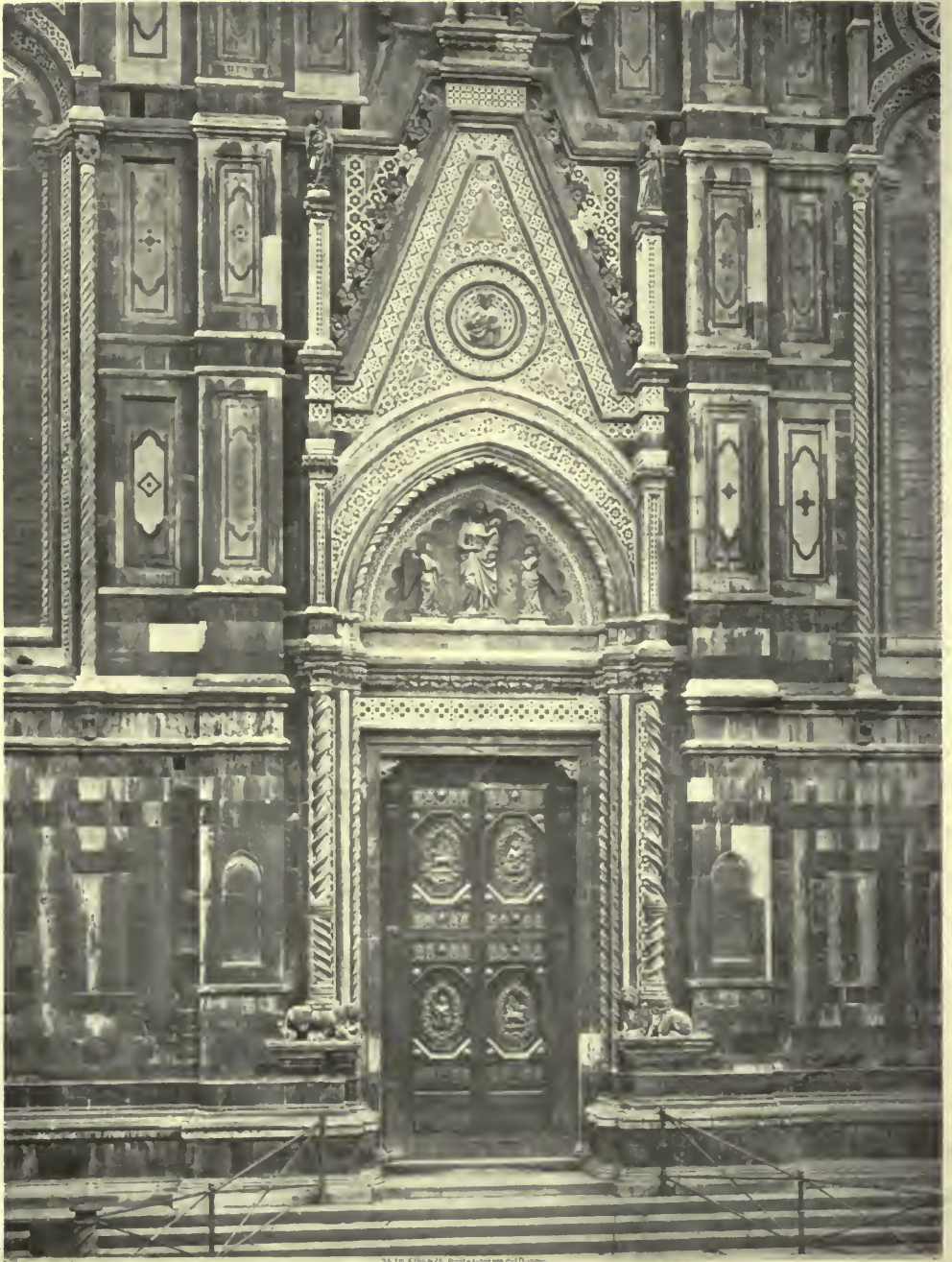


FIG. 9. "GOTHIC" DECORATION IN ITALY.
DETAIL FROM CATHEDRAL OF FLORENCE.

which are among its most priceless possessions. And it rests upon the singularly narrow assumption that logic alone, and structural logic alone, and the French conception of structural logic alone, is the one only permissible principle of progress and development. The relations of structural logic to esthetic logic, imagination and the decorative instinct, which Professor Moore seems to pass over, I shall consider in another paper.

V.

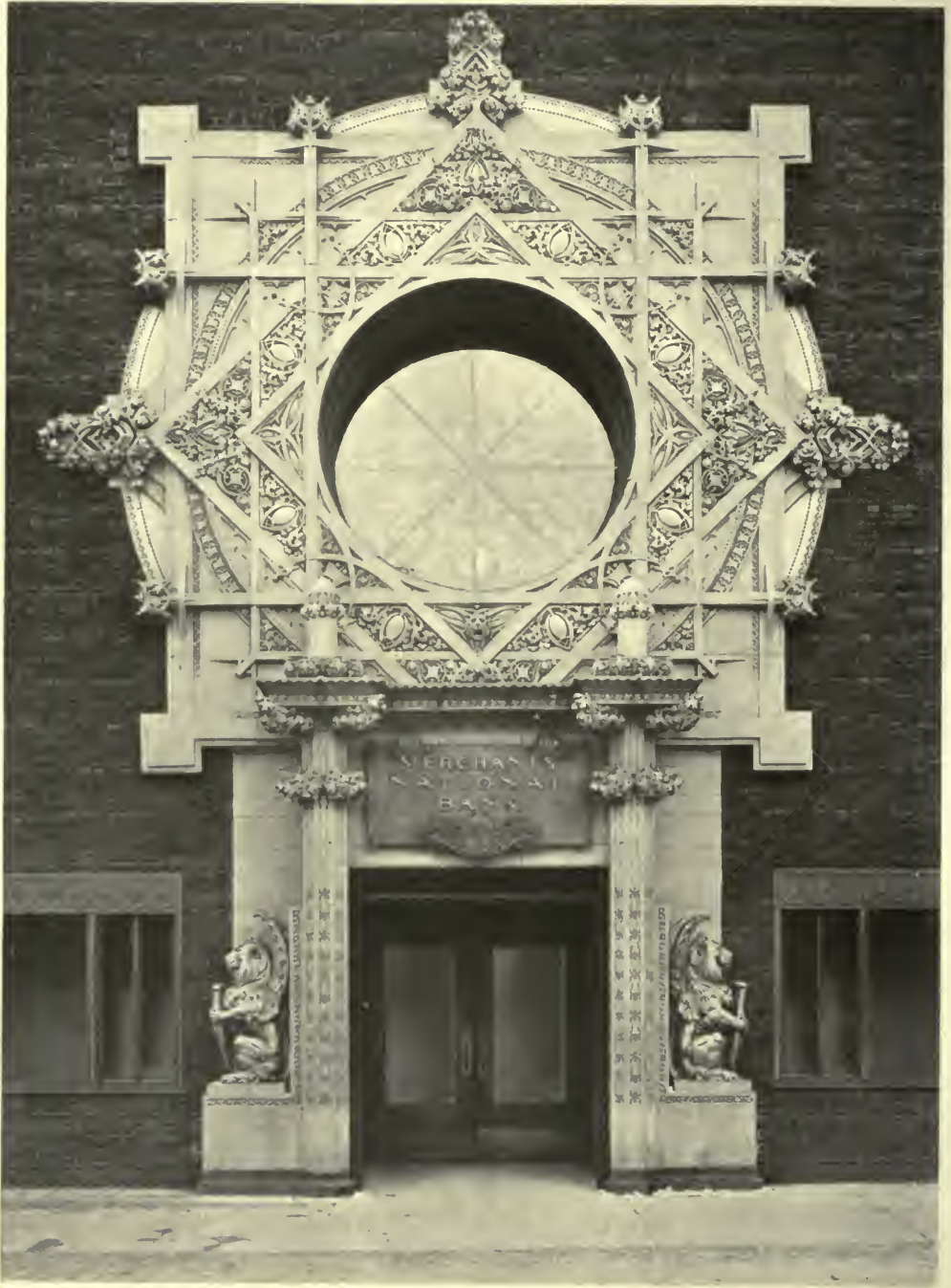
May I now attempt the characterization of the Gothic styles which should supplement the definition I have given?

The styles called Gothic, springing from a common source in Romanesque architecture, and developing throughout western Europe on differing lines, are in general characterized by the following features, although not all of these will be found in all examples:

Ribbed vaulting; pointed arches; the flying arch and pinnacled buttress; clustered shafting; traceried windows in all but the earliest phases; stained glass; a progressive tendency towards loftiness, lightness of supports and suppression of wall surfaces; a system of decoration of which one element was the emphasis and adornment of structural features, and another the use of sculpture and carving of human, animal, vegetable and grotesque forms, controlled by a definite didactic purpose and significance; and finally the use of available materials according to their nature upon principles in part of structural logic and in part of decorative effect.

Not all these features and characteristics are found in all Gothic buildings, nor did all of them develop together at the outset. The different styles vary in the dominance of structural, esthetic, decorative and ritual considerations. It was the French who, on the whole, developed with the most perfect balance and symmetry, the greater part of these features and characteristics; but other schools, following other lines, toward other ideals and under other conditions, also produced architectural styles and works of extraordinary beauty and dignity in which these features and characteristics appear in varying degree and with varying approaches to perfection, as unifying elements in the great and varied movement which the world persists in calling by the name Gothic.

NOTE: Since this article was set in type, the Cambridge University Press has published an important work by Sir Thomas G. Jackson, R.A., F.S.A., on *Gothic Architecture in France, England and Italy*, in which the first chapter is devoted to the definition of Gothic. Here, as in Professor Moore's book, there is no attempt at a succinct definition of the style, "which cannot be defined by any of its features;" but it is regarded as an expression of the whole spirit of the Middle Ages, characterized by sound construction, economy (in its broadest sense), and esthetic expression of the construction. The reader is referred to these volumes for a very interesting discussion of the style.



CENTRAL FEATURE, SOUTH FRONT—MERCHANTS NATIONAL BANK, GRINNELL, IOWA. LOUIS H. SULLIVAN, ARCHITECT.

AN ARCHITECTURE OF DEMOCRACY

THREE RECENT EXAMPLES FROM THE
WORK OF LOUIS H. SULLIVAN

BY A. N. REBORI



SO much has already been said and written about the general character of Louis H. Sullivan's practice that any additional remarks on this subject, in order to be of real value, must be derived from a fresh point of view, or else suffer the ignominy of repetition. I will chance monotony, however, by repeating what I believe to be the greatest tribute ever paid a living architect by a critic. The late Montgomery Schuyler has said "a new work by Sullivan is the most interesting event which can happen in the American architectural world to-day," which was indeed a compliment, the utterance of which any one should feel justly proud to have inspired. If there is an occasional dissension from this opinion, it is because the work of this master is not fully understood or its meaning and intent not entirely grasped. I use the word "master" in its fullest sense, for surely there is no denying that none but a master-mind could conceive and execute such work as his, and yet I have heard it said on many occasions that "Sullivan excels in details," and that "his architecture is not so interesting," and further, that "without this fancy detail there would be nothing to it at all," which remarks tend to show a gross ignorance of the fundamental principles that underlie all of Sullivan's architecture.

If we agree that the ornamentation of his buildings is beautiful, we are bound to admit from even the most casual study that it is beautiful, not only as ornament, but by reason of the part it plays in the general scheme of development. It is, to say the least, the true handwriting of the designer expressing itself in his own par-

ticular flourish or grace. The great lesson that Sullivan's work teaches is not one of detail or ornament, but one more comprehensive in which the solution of a particular problem is given artistic and practical expression. It is in his analyses of the conditions at hand and in the straightforward and brilliant manner by which conditions are made to function that the works of this master architect fairly stand out in all their bigness. It is the expression from within outward, or as Sullivan himself so aptly puts it, "mind over matter."

Take for example, any one of his bank buildings, and we are bound to admit that the solution of the problem was the result of a previous knowledge of the conditions involved, combined with inventive imagination and technical and artistic skill of a most unusual order. For the lack of a better word we might term all this "creative genius." Call it what we will, it is architecture.

That there is a formula to which Sullivan adheres in the development of his work is quite apparent; but of one thing we can rest assured, it is not one of duplication, for, with no two problems alike, no two buildings are given the same expression. It is an architecture of pure intent, with form following function as its basic principle. To understand function requires an intimate knowledge of the practical requirements; to express form demands artistic skill combined with an intimate knowledge of structural material. Hence Sullivan arrives at a solution of a given problem by means of a carefully worked-out plan in which the allotted areas arranged as to needs dominate the

treatment, and the outward appearance of the building is permitted to develop accordingly, with the method of construction taking form naturally. But, as all structural conditions are not pleasing to the eye or worthy to be classed as architecture, his artistic instinct causes him to add decoration or adjust propositions, as the case may be, obtaining a justness and balance that is both structural and beautiful.

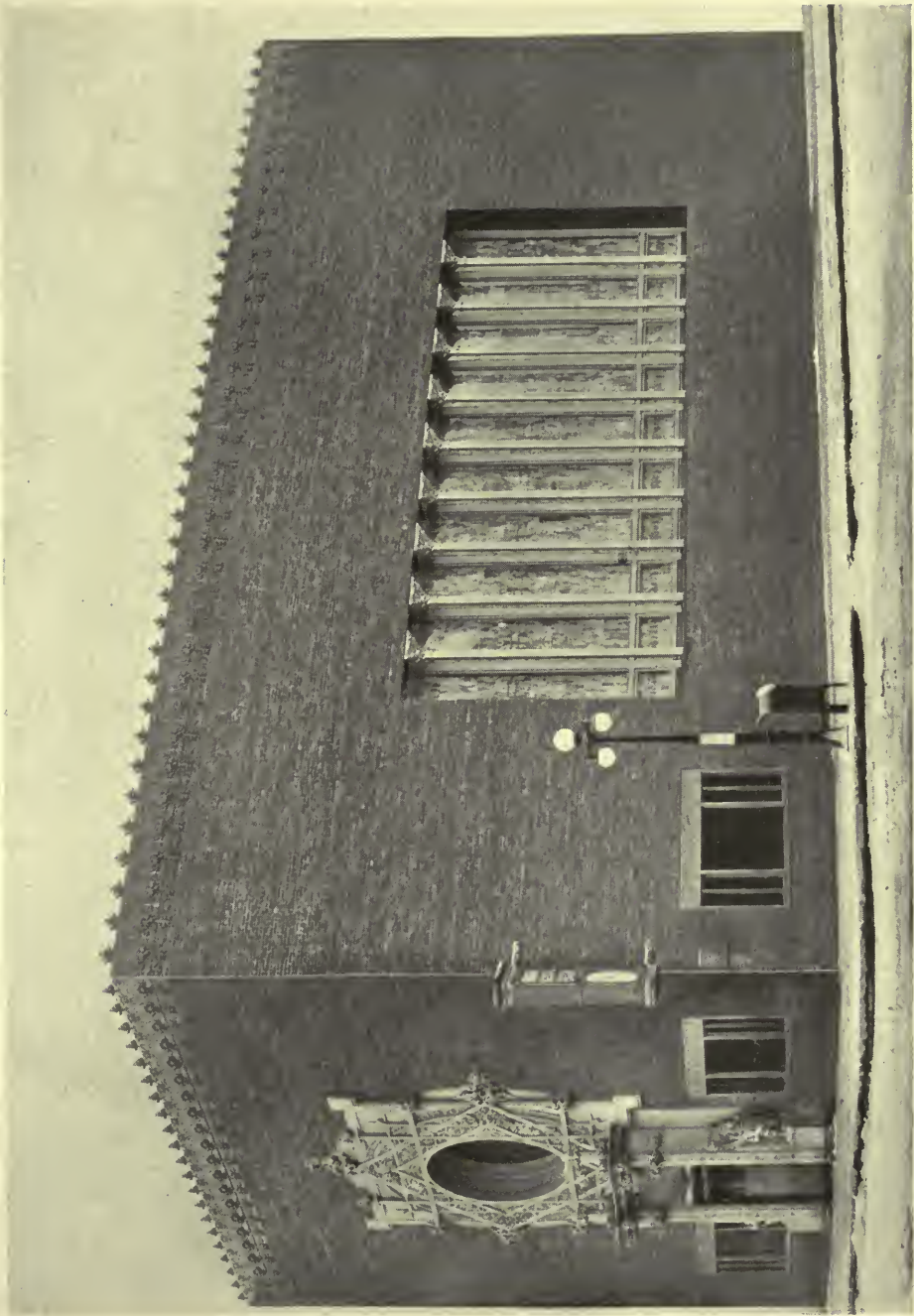
In contrast with this method of work, we have the buildings of the many architects throughout the land, who, by their faithful reproductions of monuments of the old world, not only have been successful professionally, but have achieved a high pinnacle of fame in their own field. Sullivan, at least, stands in a class by himself, for indeed his architecture is not one of imitation, but an architecture that gives a truthful and idealistic modern interpretation of a given problem in a most intimate and individualistic way. It is the true spirit of democracy, expressed in terms of building, significant of our times, our people, and our life. I believe it to be all this, and more, by virtue of the skill displayed by the designer in the artistic spacing of his decoration, in the placing and scale of the detail, and in the study given the design as a whole based on function, logic and art. The problem confronting him in any case is to make the most of the advantages and minimize the disadvantages, and to do so with the least possible sacrifice of the strictly utilitarian purpose of the structure itself, and yet to make as expressive, harmonious and beautiful a building as conditions permit.

In the light of these remarks, it might interest the reader to hear how Sullivan solves a given problem. Of course, there must first be a problem, or rather a client desiring a new building, which is an event unusually scarce at the present time. But in this particular case, the architect was informed by a banker who had seen one of Mr. Sullivan's bank buildings that it was the intention of the committee on building to erect a new bank to house their institution. Being broad-minded and up-to-date business men, strongly in favor of a rational architecture, they in-

ited Sullivan to study their requirements and prepare drawings. Complying with their call he left for the scene of expectations, Grinnell, Iowa, in the central part of the State, personally to interview his prospective clients and look over the original site. After meeting the committee, he set about the customary task of learning the needs of the proposed building, not in a casual way, but in the most detailed manner possible. Judging by the sketches and notes which were made with the aid of an ordinary desk rule on sheets of common yellow paper acquired at a near-by apothecary shop, not a single part of the machinery that was to make up this bank's organization was overlooked. Here we find not only the allotted space to the various departments, but the different desks, cages, and all minor details worked out to an exact scale. For three whole days he talked and drew, rubbing out as changes were made, fitting and adjusting to the satisfaction of all. The dimensions are clearly marked on these original drawings in plan, section and elevation, leaving no doubt as to the exact layout of the building. I asked Mr. Sullivan how it happened that his preliminary sketches were worked out in such a definite manner, and he answered quite simply that "those were the requirements as given, and it only remained to jot them down on paper," which he did, using the sheets of yellow paper available at the time.

These notes or preliminary sketches are the most exquisite bits of architectural memoranda that it has ever been my pleasure to see. In their making, every possible element that was to play a part in the future project was fully analyzed and put into architectural form in plan, section and elevation, and what was more, this was all done in a little office adjoining the bank president's room in the old building at Grinnell, Iowa, in full view of and with the aid of the building committee. Before leaving the place, the owner knew from these sketches exactly what his building was going to look like, from the arrangement of the smallest detail to its largest mass, all of which received his approval.

The development of the sketches into working drawings proceeded in close ac-



GENERAL EXTERIOR VIEW—MERCHANTS
NATIONAL BANK, GRINNELL, IOWA.
LOUIS H. SULLIVAN, ARCHITECT.

cordance with the original scheme, for, having once determined the exact conditions and requirements, there was no further need for change, for the vital organ, the plan, which plays the important role, was determined upon and accepted. Hence, we see how Sullivan arrives in a most intimate manner to a logical expression of the functioning duties of the building itself. All this is done without the aid of that exquisite ornamentation for which there is no formula, but which is the personality of the artist himself, or, as I have previously put it, his handwriting.

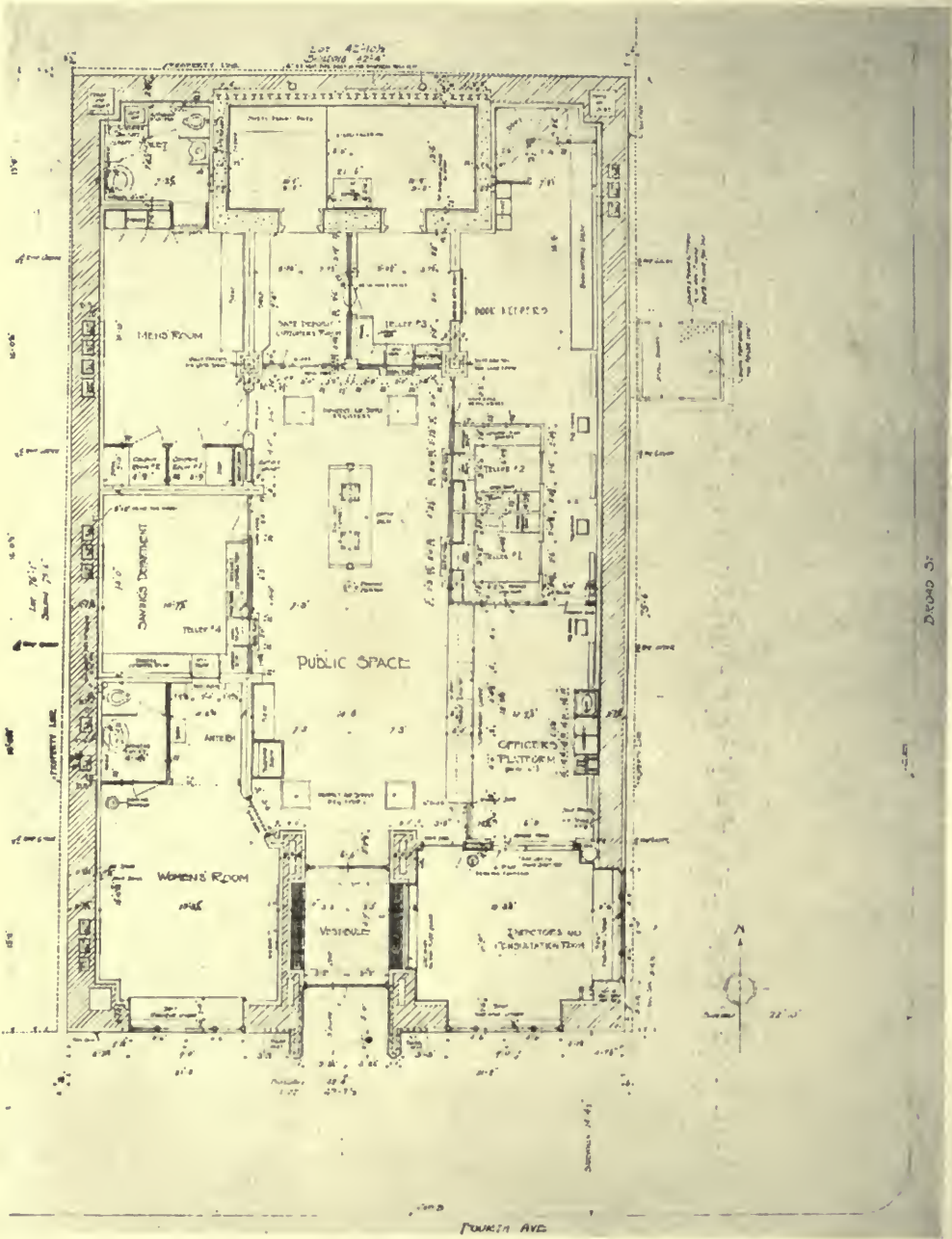
Consequently, by the abandonment of every architectural convention that does not conform in strict loyalty to the problem involved, the simple force of need becomes a principle of beauty. That is why no two buildings from the hand of Sullivan are alike, no more than two persons possess the same physiognomy. Each problem has its own particular solution, derived solely on its merit, and worked out on an intelligence of the highest order, the result of which can bear analysis, and still prove that "form follows functions." It is the organic simplicity of this unified work of Sullivan's that will live long after his ornament has ceased to play so important a part in the minds of its observers.

I am convinced his work possesses style, but that style is a distinctly personal one, emanating from the source, and that source is Sullivan. The remarkable part of it remains in the fact that it is original, and does not bear copying, for to be able to do likewise, or rather to possess the ability to do likewise, would be to do something else, equally as good and just as personal to the individual. Surely it is not given to many of us to be original, and we can all realize that nothing can be more depressing than the undertaking to do something new by an architect who is unaware of what has already been done or who has not learned how to do it. Originality as we often find it is usually a "stunt," or a peculiar twisting, or a disarrangement of accepted form, whereas Sullivan's original designs signify a natural growth, the steady ad-

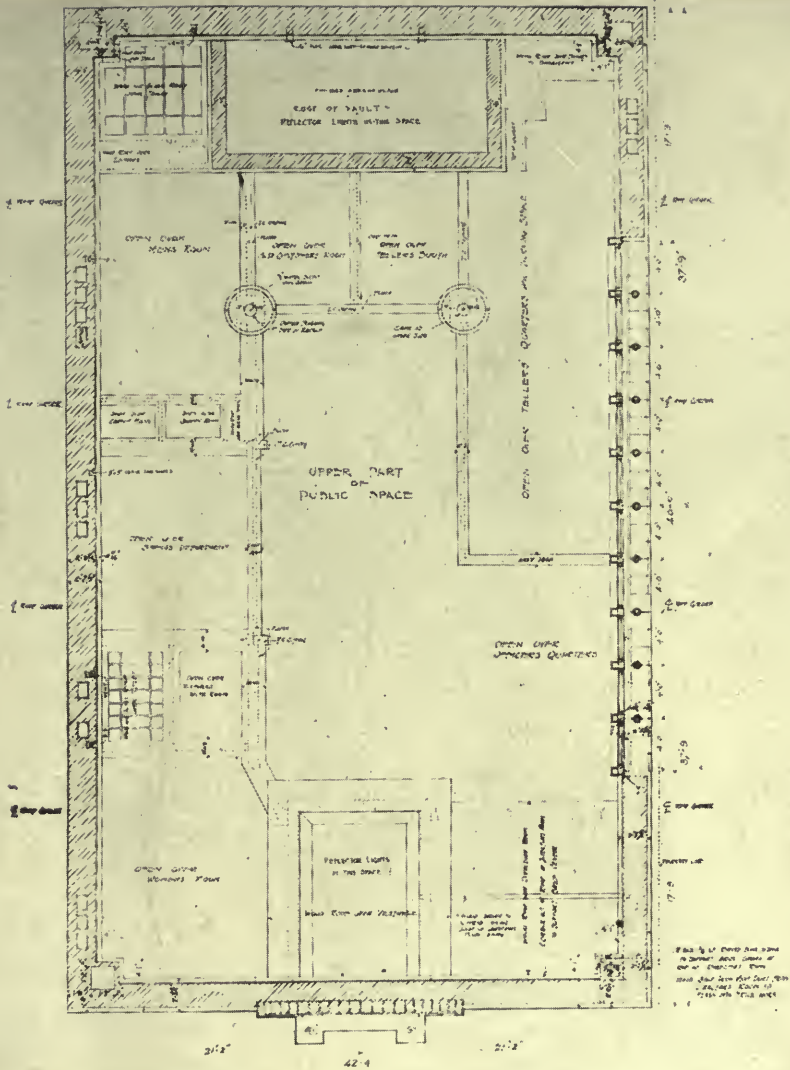
vancement of which abounds with knowledge and judgment. Chance does not play a part in the solution of a problem controlled by such a mind, and yet it is the imaginative quality so rarely possessed, but in Sullivan's case, so paramount, that makes his buildings great.

The bank building at Newark, Ohio, is quite as different from any other bank building that has preceded it, as it is different from the bank building at Grinnell, Iowa. The fact that one is not like the other clearly shows the designer's intention to treat each problem on its needs, regardless of stereotyped precedent. In the design for the Grinnell building a single story structure is required and frankly expressed, whereas in the case of the building at Newark a two-story structure is demanded and likewise takes proper form. The choice of materials—varying from an entire terra cotta treatment for the façades on the one hand, and a brick and terra cotta treatment on the other—and their varied handling show the versatility of the architect. The same remarks apply to all three buildings herein illustrated, the largest covering a plot of ground forty-three by seventy-five, and the smallest a small corner lot twenty by sixty. None of these buildings compares in magnitude with Sullivan's greatest bank at Owatonna, Minn., yet they are all strikingly successful, each in its own characteristic way.

The Merchants National Bank at Grinnell, Iowa, presents a brilliant, dignified exterior, with its entrance motif of delicately modeled lace-like design clearly cut and imbedded against a background of rich toned brickwork as the dominant feature of its design. The side is simplicity itself in the form of a flat wall treatment with a single principal window of leaded glass preceded by a closely spaced colonnade possessing exquisitely ornamented spreading capitals within the face of the enclosing brick frame. Besides the principal features of the façade are to be found the windows to the directors' and women's room discreetly and frankly placed in a manner evidently not intended to play an important part in the general composition. The crowning feature consists of a rich orna-



PLAN OF FIRST FLOOR—MERCHANTS
 NATIONAL BANK, GRINNELL, IOWA.
 LOUIS H. SULLIVAN, ARCHITECT.



PLAN AT UPPER LEVEL OF BANKING ROOM
 —MERCHANTS NATIONAL BANK, GRINNELL,
 IOWA. LOUIS H. SULLIVAN, ARCHITECT.



GENERAL INTERIOR VIEW LOOKING TOWARD VAULTS—MERCHANTS NATIONAL BANK,
GRINNELL, IOWA.
Louis H. Sullivan, Architect.



INTERIOR VIEW, SHOWING OFFICERS' QUARTERS AND PRESIDENT'S ROOM.
Louis H. Sullivan, Architect.



VIEW OF INTERIOR SHOWING TELLERS' QUARTERS—MERCHANTS NATIONAL BANK, GRINNELL, IOWA. LOUIS H. SULLIVAN, ARCHITECT.



MEN'S (CUSTOMERS') ROOM—MER-
CHANTS NATIONAL BANK, GRINNELL,
IOWA. LOUIS H. SULLIVAN, ARCHITECT.



DETAIL OF CHECK DESK—MERCHANTS
NATIONAL BANK, GRINNELL, IOWA.
LOUIS H. SULLIVAN, ARCHITECT.



CROWNING DETAIL OF VAULT—MERCHANTS NATIONAL BANK, GRINNELL, IOWA. LOUIS H. SULLIVAN, ARCHITECT.

mented terra cotta coping slightly silhouetted against the sky. The exterior brickwork is of wire-cut shale brick of mixed shades, ranging in color from blue-black to golden-red and laid with raked joints. The crown effect is of brown terra cotta with gold inlaid, and the griffins or lions on the flank of the entrance are of fire gilt terra cotta. Over the door, marked in lettering which is in keeping with the character of the ornament, is a statuary bronze sign or name-plate.

The slender metal columns with spreading caps supported on a solid brick wall high above the sidewalk, on the east front, are covered with gold leaf which sparkles in the sun, adding unusual charm and brightness to the exterior. Separated from the leaded glass by a three-inch air space, hermetically sealed, is a thickness of polished plate glass, on the outside face. The effect is that of a dream-like futuristic picture, mysterious but superb in color. At the corner, protruding like a sore thumb, is the "old clock," a relic of the bank's former home.

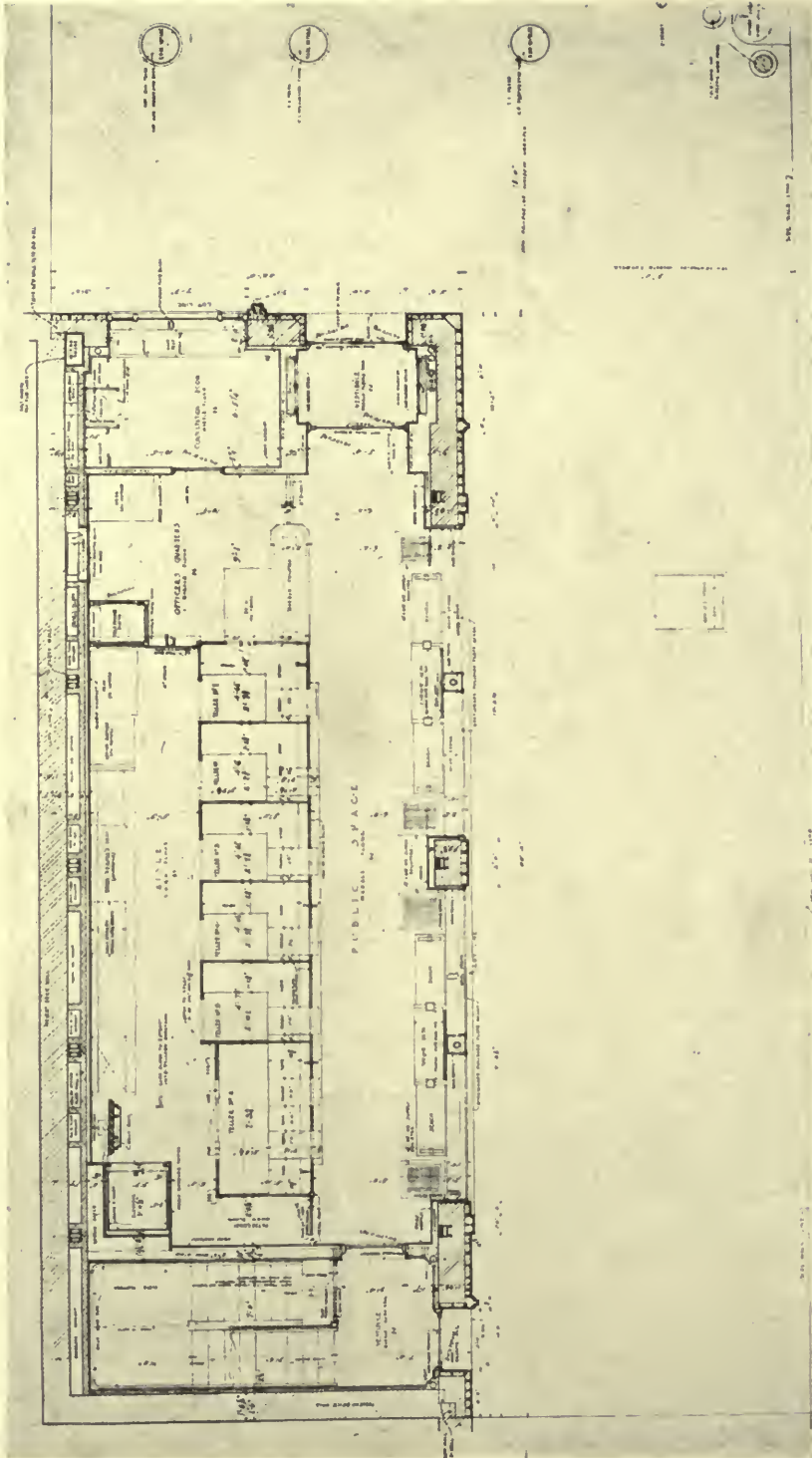
If the exterior frankly proclaims the plan, it is to the interior that we must turn to see the plan in working order. And yet here again the same consistency in design is found followed out in every department. The direct and simple treatment of the front, depending largely on its color scheme for interest, truthfully corresponds to the interior forms or plan. The same thoughtful consideration is everywhere apparent. From the moment the visitor enters past the vestibuled doors the workings of the bank are thrown open to view, disclosing at first sight the intricate mechanism of the open doors to the steel-lined vaults on the central axis. Then comes to view on the right and left the glass, brick and bronze partition screens that divide the space around the central public lobby. It is like the open works of a watch as seen through its crystal back cover.

At the street corner of the plan is conveniently placed the combination directors' and consultation room within easy access for the public, and with a wide opening provided with a concealed side coiling wood shutter adjoining the officers' quarters. This shutter is used

only during directors' meetings. A brick and marble counter separates in a most informal manner the office space from the public. The tellers' and bookkeepers' space, with their dividing cages of straightforward material, completes the arrangement of the right side of the plan, while on the left, fully equipped with up-to-date features, are placed a women's room, savings department and men's room in the order named. Between these two divisions is placed a vault at the rear of the building, two stories in height, with an elevator serving the main floor level and the basement providing the only ingress for the lower level of the vault.

The interior fittings are housed in a single lofty room, limited only in size by the outside walls and roof of the building. In general, the interior decoration is confined to a carefully studied series of units composed of the material employed, and paneled off in a decisive manner from the simple skylighted glass and wood paneled ceiling to the side walls of plaster, marble and brickwork. The principal flood of natural light is admitted through the large opalescent east window, so admirably marked on the outside of the building, and is augmented by the central skylight, which throws a soft, diffused blanket of light that covers every portion of the room and gives a strong decorative treatment to the otherwise simple ceiling. The circular port window over the entrance adds a note of brilliantly harmonious colors by its leaded glass design that lends to the effectiveness of the otherwise flat high wall, of which it is the radiating note. Contrasted with this brilliant symphony of color, which is decidedly meant to be the high pitch of this dignified and orderly interior, is the rest of the glass work, which takes on a mottled soft colored flat tone of vibrating transparency. A recall of the high-key color work in an unusual but successful manner is found in the treatment of the interior clock, which is set in a glass mosaic field flatly imbedded in the brickwork over the vestibule feature.

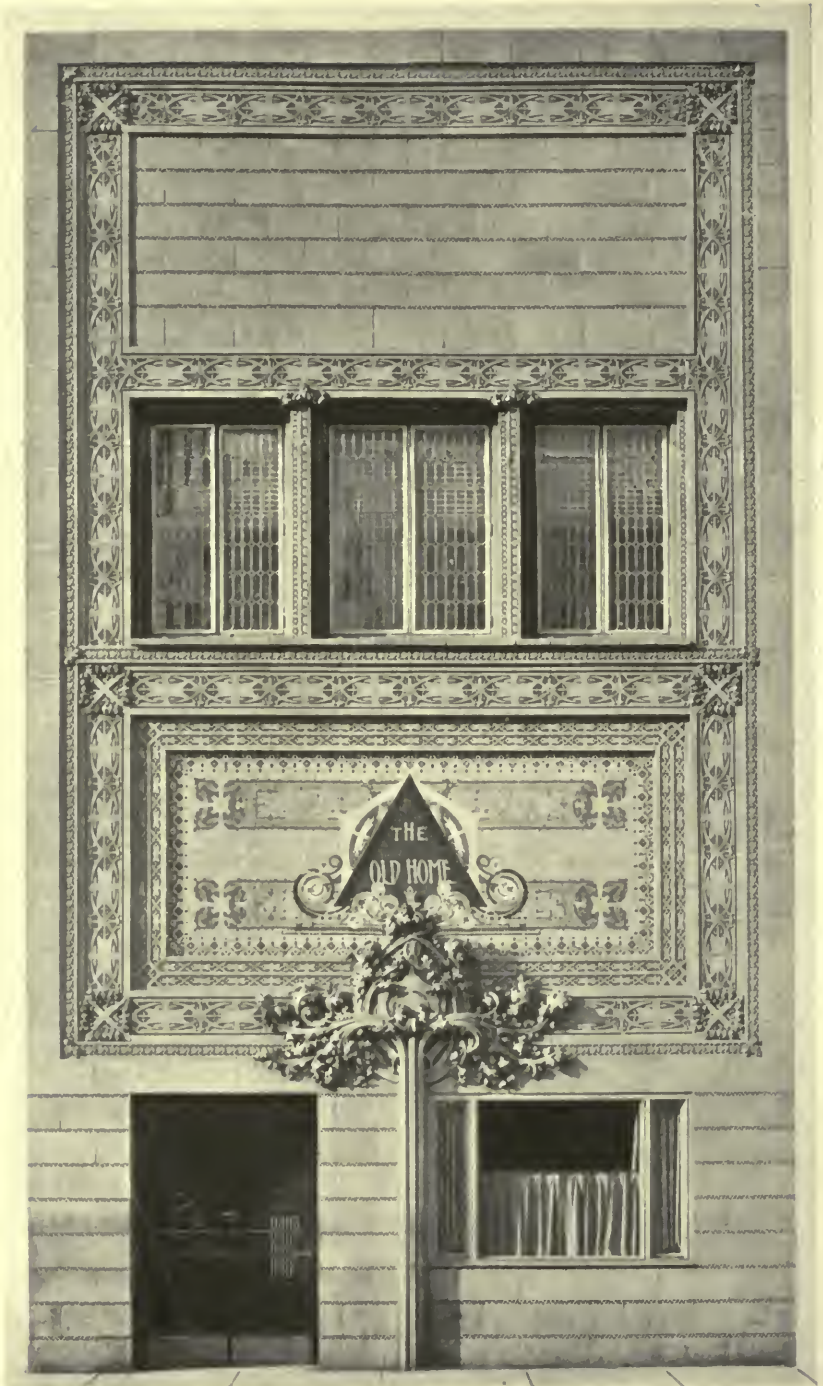
Bright accents of color are added in the way of leaded glass inserts to the delicately carved oak framed electroliers, desk lamps, and the leaded glass panels



PLAN OF FIRST FLOOR—THE HOME BUILDING ASSOCIATION COMPANY, NEWARK, OHIO. LOUIS H. SULLIVAN, ARCHITECT.



GENERAL EXTERIOR VIEW—THE HOME BUILDING ASSOCIATION COMPANY, NEWARK, OHIO. LOUIS H. SULLIVAN, ARCHITECT.



EAST FRONT—THE HOME BUILDING AS-
SOCIATION COMPANY, NEWARK, OHIO.
LOUIS H. SULLIVAN, ARCHITECT.

of the large east window. These spots add color value to the entire scheme and help liven up the flat faced walls. Comparatively dark finished quartered oak frames enclose large plaster ceiling panels painted a lighter shade. The floor is of gray pink Tennessee marble in oblong shapes and laid with hair joint. The assorted, thin, Roman shape brick for inside brickwork are carried to a height of 13 feet around the walls and are capped above the vault doors by a richly designed and executed topping or crown of fire gilt terra cotta. In elegant contrast with the direct brick treatment are the counter tops of Vermont verde-antique marble in flat slabs of almost three inches thick. They project slightly at the statuary bronze wickets where the projecting marble deal plate is of a grand antique marble a shade richer in color. The woodwork throughout is of quartered oak, stained to a hickory shade, with the grain in every case effectively permitted to add to the decorativeness of the interior. Mouldings are tabooed in the handling of all woodwork.

Wherever wood carving is indulged in, it adds a distinct charm, because it is well done, and it gives a greater appreciation of the wood. Some of this carving appears on the upright parts of the check desk, and again at the spandrels above the doors. It is decidedly of a wood character and sets off and enhances the beauty of an otherwise flat and direct wood treatment. Wherever the various materials are used there is no sham on the part of the designer, nor is there any doubt on the part of the observer as to what the various materials represent. Wood is made to look like wood, and likewise all the other materials are honestly given expression. What is more remarkable is that these simple expressions are given an interpretation that is at once intelligent and beautiful. Surely we find no instance where the problem is shirked or covered up by an incumbent disguise of something that it is not. Here without doubt is seen the hand of a master craftsman with something to say, and that something presented in a most plausible manner. The result is not the same old story over and over again, but an

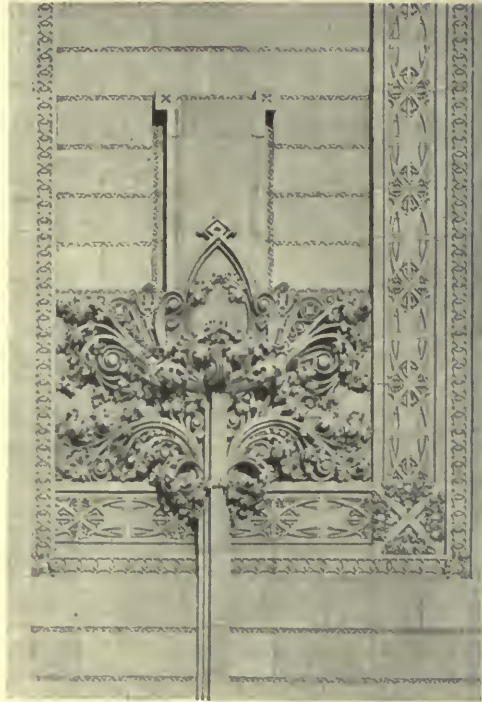
architectural treatment that is as pliable to the mind of Sullivan as the conditions leading up to the solution of a problem permit.

Thus we see in the little bank building for the Home Building Association Company at Newark, Ohio, another solution and expression of an architectural work that is as different both in general composition and detail from the Grinnell Bank, which I have just described, as the requirements of the latter problem differed from the requirements of the first. In the latter we find a condition which frankly required a one-story treatment, whereas in the Newark building it is just as obvious from the treatment of its design that the structure is of two stories. And yet what a temptation it would be to almost any other architect to string a row of classic columns under a generous cornice across the façade of both these buildings! But this article has not to do with classic architecture, nor is it my intention to compare Sullivan's works with those of other architects. I merely digress at this point to bring home the vital force and fundamental truths of the architecture now under consideration.

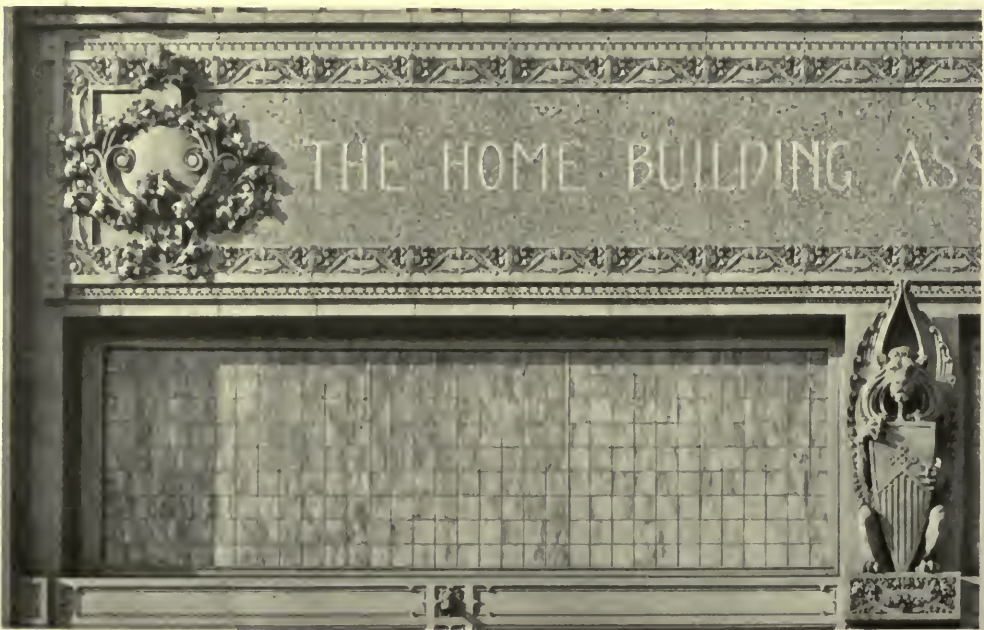
To return to the subject of the building in Newark, it is plain that both the first and second story plans are the natural outcome of a carefully studied set of requirements to be taken care of on a corner plot of ground of small dimensions. In this case a two story building was essential, hence its designer takes advantage of the imposed requirements by placing the various offices of the business organization on the second story, occupying the ground floor with tellers' and officers' quarters, within the easiest possible access for the transient trade or public. The main entrance is on the short side of the lot, while the entrance to the upper story is purposely placed at the opposite end of the long side. The window openings throughout are placed and arranged with a daring adherence to the strictly utilitarian purpose of the structure itself that speaks highly of a competence that is born of understanding. These windows are spaced broad and low, as they should be, where light is essential and conditions permit.

Once again, if the plan is as clearly expressed as it is intelligent, it is to the elevations that we must turn in order to grasp the simple force of this direct bit of planning, for here we see how by the skill of the architect, in his emphasis and his subordination in the artistic spacing of his decoration, in the placing and scale of his detail and study given to his design as a whole, based on function, reason and logic, the result is made highly artistic and effective. The designer once more made the most of the advantages presented by the plan, and correspondingly minimized the disadvantages, and yet he has accomplished this without the least sacrifice of the strictly utilitarian purpose of the structure.

Thus the effect attained is an expressive, harmonious and beautiful building, based on fact artistically enforced. For example, Mr. Sullivan does not hesitate to subordinate the side entrance in its relation to the general façade. As a matter of fact, he frankly treats it to a consideration of secondary importance by flanking its right side only with the stem of the delicate burst of floral ornament, which blossoms above and



DETAIL SOUTH FRONT—THE HOME BUILDING ASSOCIATION COMPANY, NEWARK, OHIO.
Louis H. Sullivan, Architect.



DETAIL OF GLASS MOSAIC PANEL, SOUTH FRONT—THE HOME BUILDING ASSOCIATION COMPANY, NEWARK, OHIO.
Louis H. Sullivan, Architect.



SOUTH FRONT—THE HOME BUILDING
ASSOCIATION COMPANY, NEWARK, OHIO.
LOUIS H. SULLIVAN, ARCHITECT.

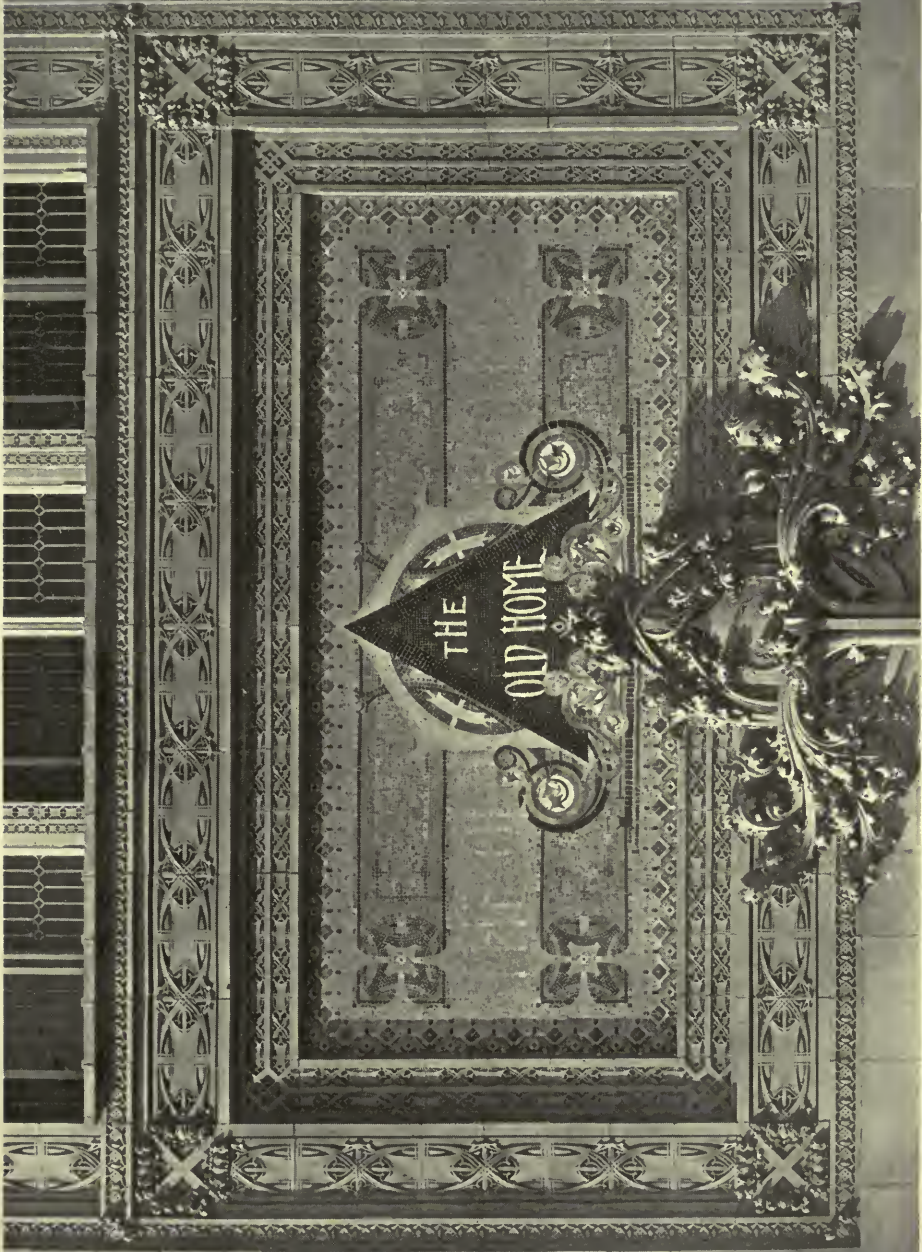
which is repeated on the opposite of the large frame enclosing the side window openings of the two floors. I asked Mr. Sullivan why he placed these efflorescent spots as he did, and he answered simply that "it was done to take the eye away from the side opening so that the front entrance would dominate and clearly mark the public entrance to the building."

The exterior is treated in carefully arrayed panels of soft greenish gray terracotta, with ornamented sand-finished borders, leaded glass windows and inlaid glass mosaic, rich and mellow, of a soft mottled shade, with the front panel more strongly emphasized by its gold lettering in a field of green shaded glass. The contrast between the gray colored terracotta and the exquisitely tinted glass mosaic work gives the exterior of this little building a richness and charm that is at once distinctive without being overdone. I will not attempt to analyze the character of the exterior ornamental detail, for that would really be attempting too much, especially when there is no other age, style or period with which it can be compared, as far as its relation to that particular style or period is concerned. It is distinctively of today, and is characteristically Sullivan, and all his name implies. Its very freedom breathes a joyous spirit of renaissance, of true democracy. Further than this, I do not care to go for fear of detracting from the vital importance of Sullivan's work, which is, as previously stated at the beginning of this article, an architecture of organic significance, in which the force of need is the underlying principle from which it is evolved. The interior of "The Old Home," as the Newark building is called, is as successfully handled in all its minutest details as the exterior. The general view gives a fair idea of the decorative scheme. Although the ghost-like reflections on the polished marble facing and plate glass screen tend to distort and make flimsy the solidity of the walls, this effect does not appear in reality. Color is extensively used throughout from the rare antique marble floor carried around the counter and side walls below to the rich polychromatic frieze of conventionalized design, and the richly paneled deco-

rative ceiling above. For the teller's screen a simple and effective arrangement of bronze grilles on plate glass supporting a continuous bronze light reflector is made to suffice. The wood work is mahogany, with doors of a single flat panel of carefully selected grain African mahogany veneer from Togas Island, off the west coast of Africa.

Judging solely from the illustrations herein shown, one is apt to get the impression that the interior color scheme is rather loud. This is not the case, however, for in reality the decorative work is harmoniously blended, rich and effective, and well united and held in place. Its one fault is that it runs the risk of becoming unrestful because of its exuberance. Taking this building as a whole, both in its exterior and interior treatment, it is as successful as it is refreshing. In its scope, the design of this building shows a remarkable diversification, and considering that the practical considerations were admirably taken care of and not slighted in the least, what the designer has accomplished aside from its artistic quality is very impressive. It argues not merely an unremitting application, but the establishment of a very clean cut and effective method of work determined by modern construction and uses of the place.

Herein lies the secret of the positiveness of all of Sullivan's buildings. They can stand the most severe analysis from a structural and practical standpoint, and yet reveal nothing commonplace about the manner in which the structure is given architectural significance. Every one of his buildings, I repeat, is the solution of a particular problem, and as such the result is as successful for its own purpose as it is inapplicable to any other. Add to this a most intimate knowledge and masterful handling of building material and decorative ornament of a most personal nature, and the result is a living architecture that defies classification. At least, it only can be classed under one heading, and that is the architecture of Louis H. Sullivan. It is an architecture that is all embracing, derived from the source, and leaving no question open as to its authorship. It is conscientiously



DETAIL OF POLYCHROME GLASS MOSAIC PANEL, EAST FRONT—THE HOME BUILDING ASSOCIATION COMPANY, NEWARK, OHIO. LOUIS H. SULLIVAN, ARCHITECT.



GENERAL INTERIOR VIEW—THE HOME
BUILDING ASSOCIATION COMPANY, NEW-
ARK, OHIO. LOUIS H. SULLIVAN, ARCHITECT.



VIEW OF OFFICERS' QUARTERS AND DOOR TO CONSULTATION ROOM—THE HOME BUILDING ASSOCIATION COMPANY, NEWARK, OHIO. LOUIS H. SULLIVAN, ARCHITECT.

usg



LAND AND LOAN OFFICE, ALGONA, IOWA.
Louis H. Sullivan, Architect.

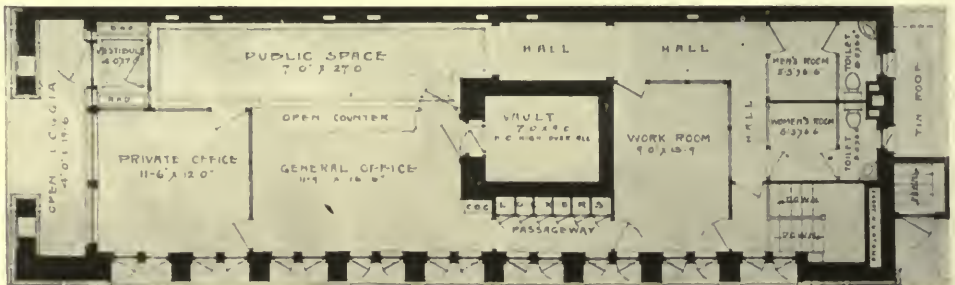
applied to all problems large or small. In fact no work is too small to receive or demand careful consideration and due study by his matured intellect.

Witness for example, the studied simplicity of the Land and Loan building at Algona, Iowa. Here is a little structure clearly designed with a view of the part it was to play as a real estate office in a town of secondary importance. To describe it would be superfluous, as the complete details are fully set forth in drawings of this building shown.

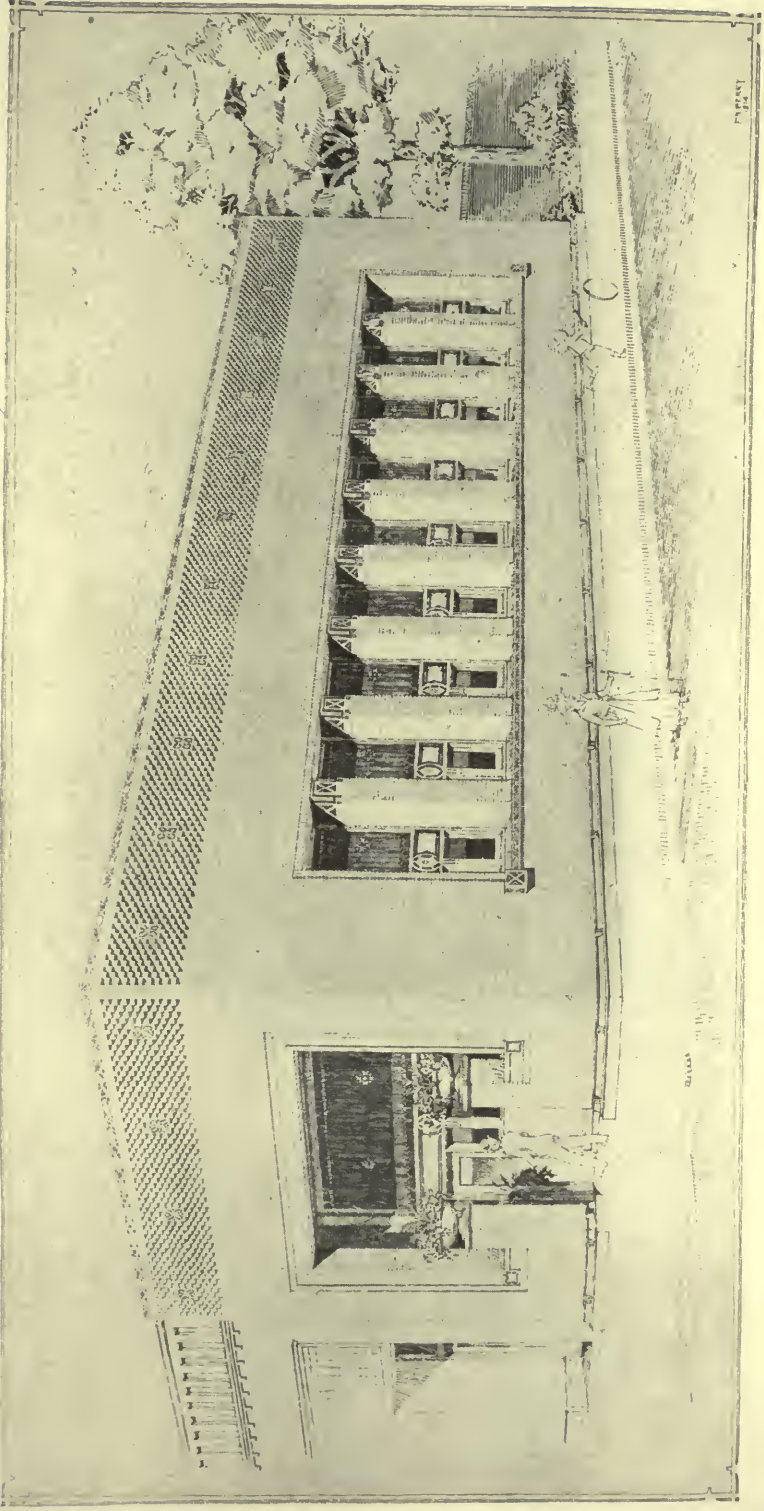
In conclusion, it is to be hoped that the initiative elements brought out by Sullivan's work will not cause these charming designs to be copied and reproduced else-

where, but that modern architects already advancing so rapidly along new lines of departure will value the lesson these buildings advance without copying their exact form. If this is done, the great architectural talent in America now engaged in the attempt to expand along classic lines will, without doubt, eventually develop a purely rational American architecture—an architecture of democracy.

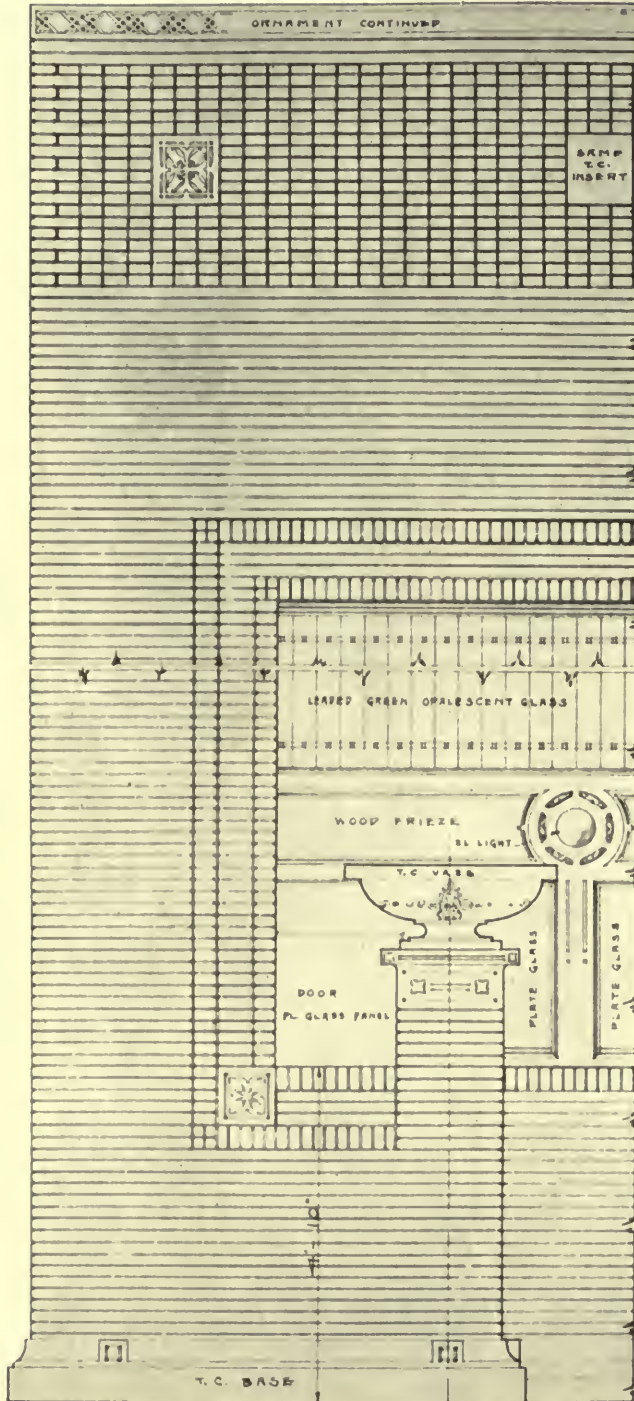
Bannister Fletcher has fairly sized up the present state of architectural endeavor in the following statement: "It is certain that there is a great future for American architecture if only the architects will as much as possible express them-



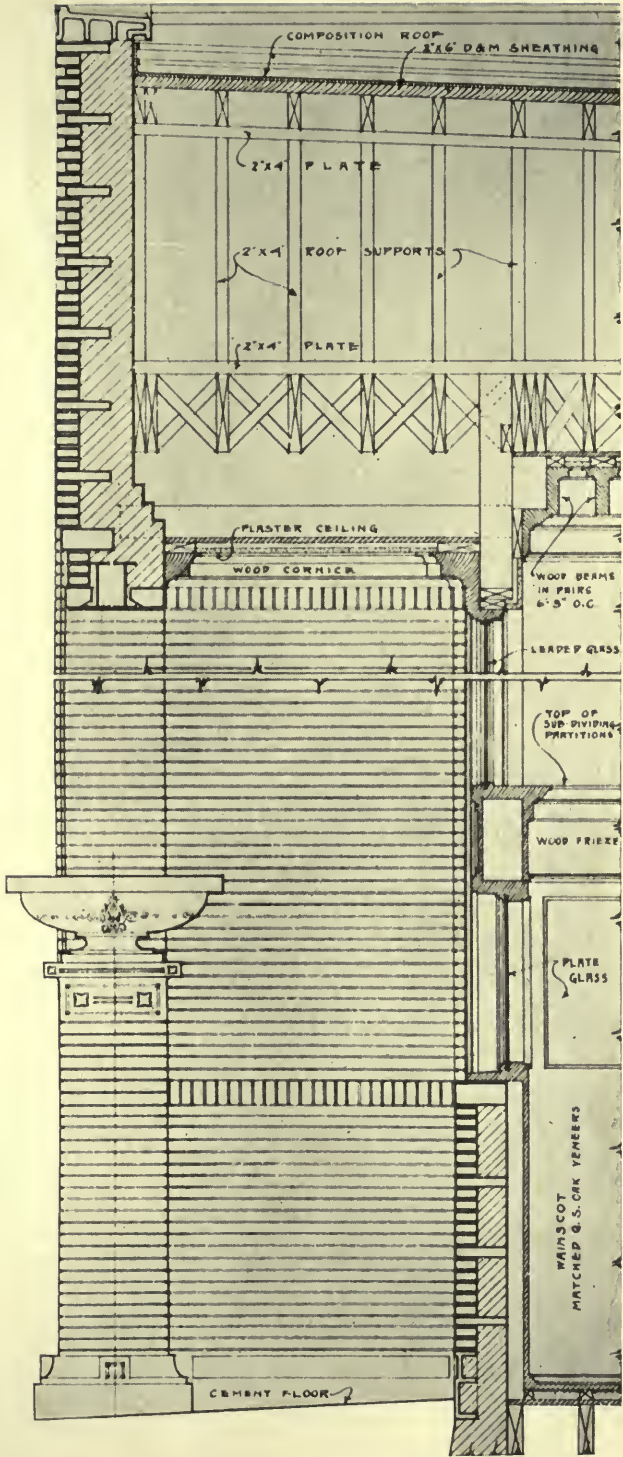
FLOOR PLAN—LAND AND LOAN OFFICE, ALGONA, IOWA.
Louis H. Sullivan, Architect.



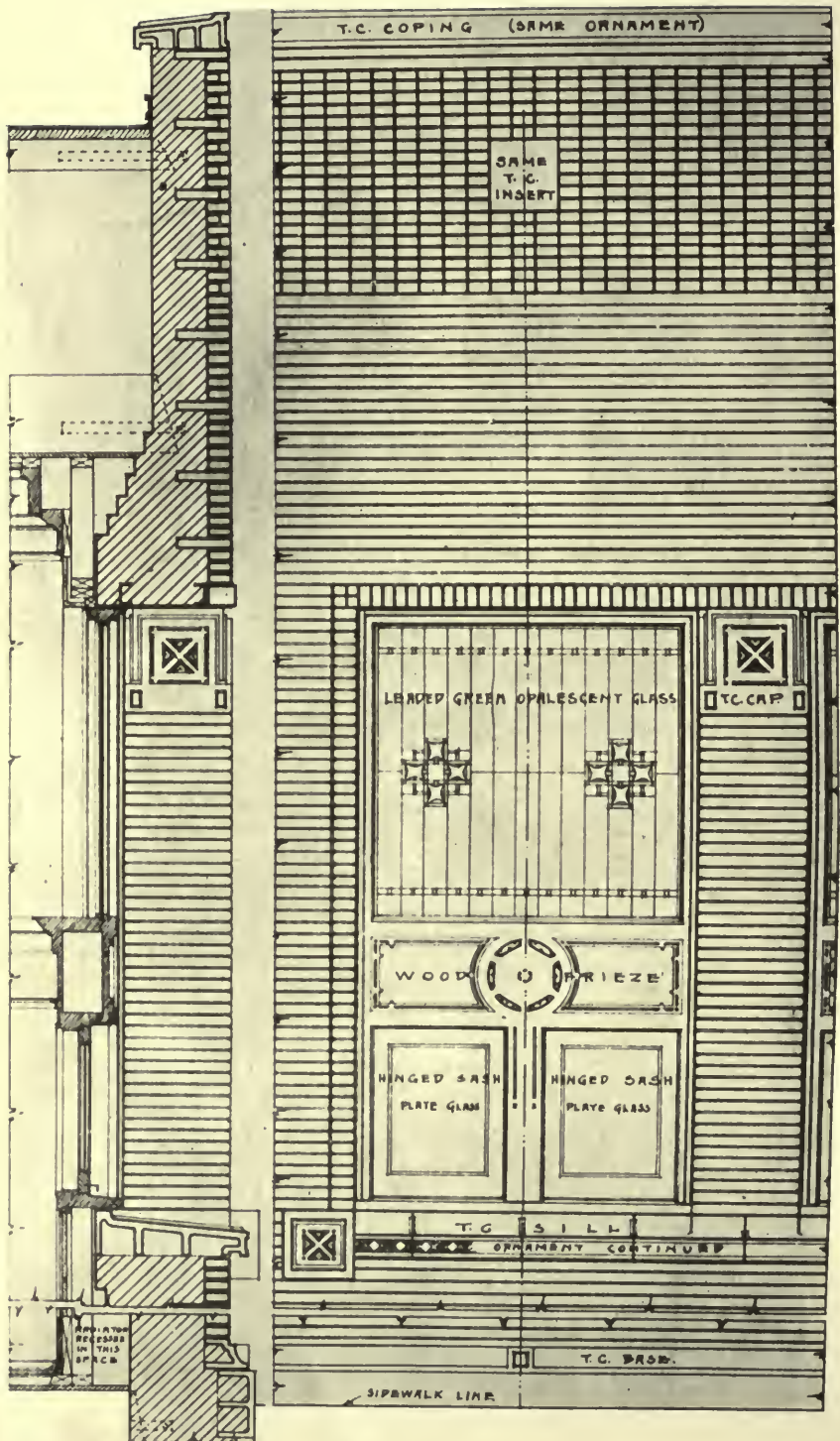
LAND AND LOAN OFFICE, ALGONA,
IOWA. LOUIS H. SULLIVAN, ARCHITECT.



DETAIL OF FRONT ELEVATION—LAND
AND LOAN OFFICE, ALGONA, IOWA.
LOUIS H. SULLIVAN, ARCHITECT.



SECTION THROUGH FRONT—LAND AND LOAN OFFICE, ALGONA, IOWA. LOUIS H. SULLIVAN, ARCHITECT.



DETAILS OF SIDE-LAND AND
 LOAN OFFICE, ALGONA, IOWA.
 LOUIS H. SULLIVAN, ARCHITECT.

selves in the language of their own times. No advance can be made by the copying of ancient buildings as has been done in certain cases constituting a retrogressive movement, and showing a sad want of appreciation of the true value of art. The great historic styles must of course be well studied, not for the forms with which they abound, but for the principles which they inculcate, much in the same way that the literature of the past is studied in order to acquire a good literary style. If architecture is thus studied a good result is assured and the architects will produce works reflecting the hopes, needs and aspirations of the life and character of the age in which they live."

Finally when the opportune moments arrive and Sullivan's entire works are compiled and presented in book form, the

feature that will demand attention will be the uniform character of his architecture. Then it will be possible to follow the long years of progressive growth that led up to the design of these three characteristic small buildings illustrated in this number. Very certainly, any perusal of his works reveals the facts that no attempt was made to liken the ancients to ourselves. On the contrary we will find that the designer was at some pains to impart into his style the mode and manner, the forms and color of present times. In his architecture we have at least something that stirs and stimulates, something that appeals strongly to the imagination and decidedly not an attempt to travesty the Greek or Roman, but an architecture replete with meaning and pregnant with a future that inspires us with high and far-reaching hope.





HALLWAY-ALLOMBY, LAVEROCK, WHITE-
MARSH VALLEY, PA. JOSEPH PATTERSON
SIMS, OF FURNESS, EVANS & CO., ARCHITECT.

PORTFOLIO
OF
CURRENT
ARCHITECTURE



DINING ROOM—ALLONBY, LAVEROCK, WHITE-MARSH VALLEY, PA. JOSEPH PATTERSON SIMS, OF FURNESS, EVANS & CO., ARCHITECT.



LIVING ROOM—ALLOMBY, LAVEROCK, WHITE-
MARSH VALLEY, PA. JOSEPH PATTERSON
SIMS OF FIRNESS, EVANS & CO ARCHITECT



LIVING ROOM—ALLOMBY, LAVEROCK, WHITE-
MARSH VALLEY, PA. JOSEPH PATTERSON
SIMS, OF FURNESS, EVANS & CO., ARCHITECT.



LIVING ROOM—ALLONBY, LAVEROCK, WHITE-
MARSH VALLEY, PA. JOSEPH PATTERSON
1900. ON EXHIBITION AT THE U.S. NATIONAL MUSEUM



VISTA THROUGH LIVING ROOM—ALLONBY, LAVEROCK, WHITEMARSH VALLEY, PA. JOSEPH PATTERSON SIMS, OF FURNESS, EVANS & CO., ARCHITECT.



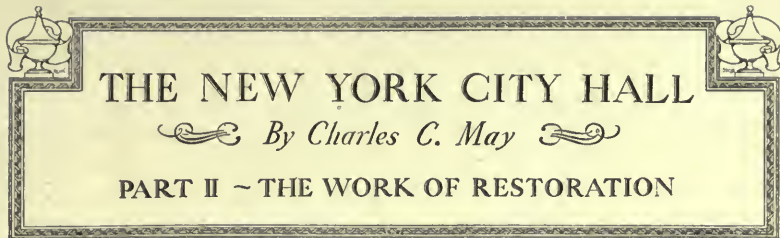
LIBRARY-ALONBY, LAVEROCK, WHITE-
MARSH VALLEY, PA. JOSEPH PATTERSON
CHAS. C. PATTERSON, PHILADELPHIA, PA.



LIBRARY—ALLOMBY, LAVEROCK, WHITE,
MARSH VALLEY, PA. JOSEPH PATTERSON
SIMS, OF FURNESS, EVANS & CO., ARCHITECT.



THE BOARD OF ESTIMATE ROOM—NEW YORK CITY HALL, RESTORATION (1902) BY WILLIAM MARTIN AIKEN, RENOVATION AND FURNISHING BY GROSVENOR ATTORBERY JOHN TOMPKINS ASSOCIATED



THE NEW YORK CITY HALL

By Charles C. May

PART II ~ THE WORK OF RESTORATION

IT would be an absorbing task to trace down through these hundred years the story of each room of the City Hall, for each has gathered round itself a wealth of association. The names of those who within its walls have shaped the city's destinies form a veritable civic roll of honor. The more obvious traces of this romance, it is true, can be gained by a visit to the Governor's Room, but to the lover of the City Hall the charm of historic reminiscence is not so local. Each room and meeting place, the rotunda; the landings of the graceful stairway, all are eloquent with the presence of the city's greatest men. It's portico witnessed the brief fierce struggle between the military and Mayor Woods in 1857; under it's dome the bier of Abraham Lincoln rested on its solemn triumphal progress from Washington to Illinois; it's charred roof trusses tell of the rush of volunteers to save the building from the destruction that threatened in '58.

Modern restorations in the City Hall have been called intelligent, and so we earnestly believe them to be. But it must not be conceived that the quality of work may be measured and classified by the degree of literalness of the restoration. It is neither possible nor desirable that every form of anachronism be removed. Such a result could be approached only by abandoning all official occupancy of the building and re-dedicating it (as may still conceivably happen) for use as municipal museum, portrait gallery, and treasure house for memorabilia connected with the city's past. In the meantime, the principal rooms have been preserved whenever possible for their original uses. Sometimes the necessity for re-adjustment has been frankly acknowledged.

Thus the President of the Board of Aldermen occupies today the original offices of the Register and the Surrogate; the Mayor's new private office existed first as a committee room; the clicking of many typewriters now fills the quarters assigned in 1811, to Mr. and Mrs. Skaats, the housekeepers; while the Mayor's recent Committee on Food Supply held meetings in the combined Dungeon for Women Prisoners and the Office of the Captain of the Watch.

The change in the form of municipal government when Greater New York was created in 1896 caused the city to embark upon the larger operations of recent years. First were cleared out the dividing partitions from the eastern second floor, turning several court rooms into a single space—the present Aldermanic Chamber. Next later than this, and more satisfactory in an architectural sense, was the renovation of the large room at the other end of the building, now known as the Board of Estimate Room. The treatment of this room in reserved simplicity, with detail studied in the spirit of McComb's own work, marks its architect, Mr. William Martin Aiken, as among the first of this generation to conceive a restoration in its true sense. His work (it was completed in 1902) may therefore be regarded as ushering in the new and brighter era for the City Hall—the initial step in a movement that is still in progress.

There is a certain sorry comfort in knowing that the frequent overcrowding that occurs here is by no means entirely a result of present-day conditions. One finds that back in 1829 "it has been remarked that there is no apartment in the City Hall sufficiently large to contain the citizens at any general meeting. This is



THE NEW YORK CITY HALL, FROM THE NORTHEAST. THE BROWNSTONE WALLS ON THE REAR ARE PAINTED TO THE TONE OF THE ADJOINING MARBLE.

considered a defect, which, however, may be easily remedied by erecting another building connected with it, for which there is ample space of ground in the rear."

The Board of Estimate Room was originally called The Court of Sessions. "This is a spacious apartment," writes Goodrich, "measuring 70 feet by 42. It is set on the northwest end of the building, and is neatly and conveniently fitted up for the accommodation of the judges, the officers of the court, and for the Public, who have access at all times during the sittings. In this room are held the General Sessions of the Peace, and the Sessions of the State Court of Oyer and Terminer. These being courts of criminal jurisdiction, they excite much interest, and draw a large concourse of auditors. The largest room in the Hall is, therefore, appropriated to their use."

"The seats and furniture in the room are constructed in such a manner that

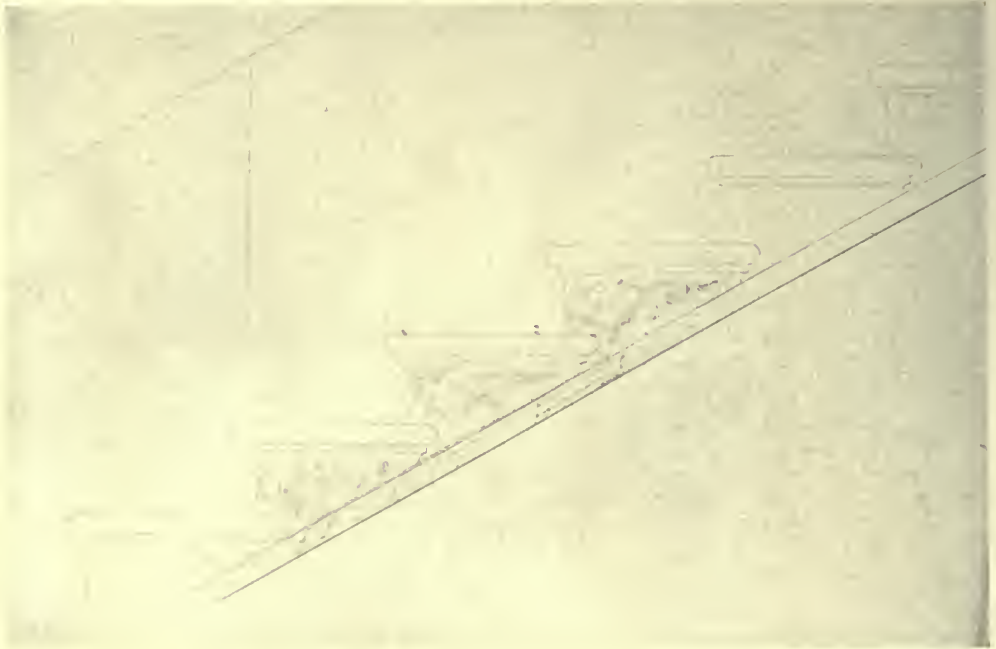
they can be easily removed to prepare for the corporation feasts that are held here on particular occasions."

The restoration next in sequence and perhaps richest of all in historical association and appeal, was that which redeemed from long neglect the trio of central southern rooms on the second floor now known collectively as the Governor's Room—a title applied originally only to the central unit of the three. This marked too, the entrance of individual civic pride into a field usually reserved for the municipality. The entire cost of the work—a substantial sum—was borne by Mrs. Russell Sage, who generously came to the rescue after the city had, from reasons of economy, declined to make the required appropriation.

The Governor's rooms—speaking literally of the three—are essentially the state quarters of the City Hall, and that in both senses of the word. Dedicated



DETAIL OF MAIN VESTIBULE (DOORS ARE NOT ORIGINAL)—NEW YORK CITY HALL.



MCCOMB'S SKETCH FOR STAIR STRING—NEW YORK CITY HALL.

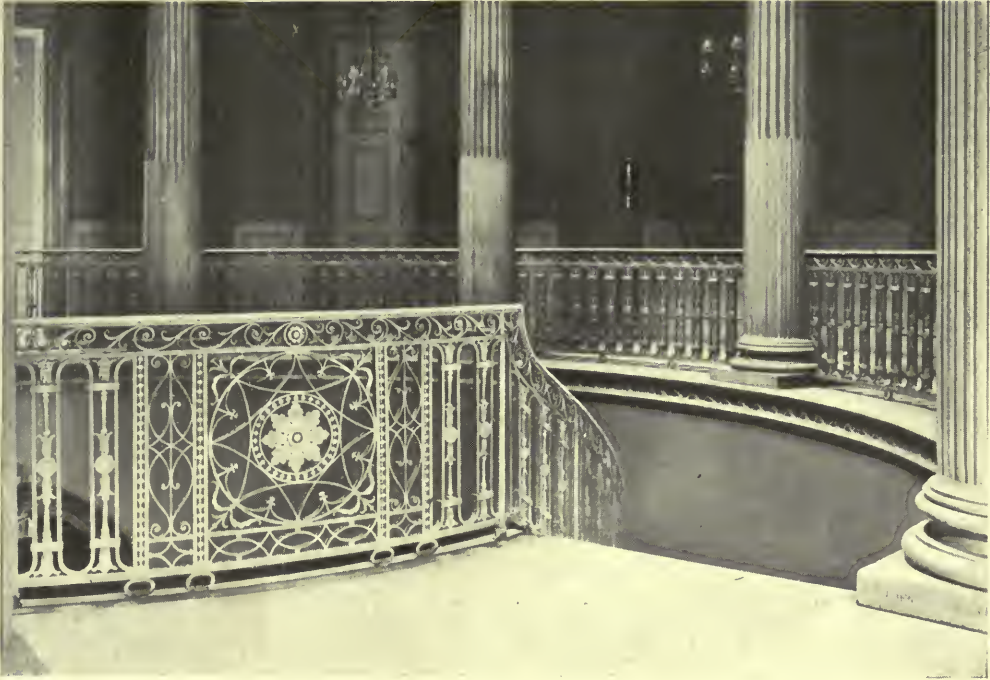
from the first to "the use and accommodation of the person administering the government of this State," the Governor's Room was in the early days the seat of State government within the city, and actively used as such. It was not until much later that the term became a dead letter.

In its other role, that of formal reception room for the city's most distinguished guests, the Governor's Room has witnessed many a notable gathering. Perhaps chief among them was the reception (or series of receptions) tendered to General Lafayette on his revisiting America in 1824. After according him a welcome that amounted to a triumphal entry, the Common Council informed him that "the Portrait Room" (the Governor's Room had even then acquired a good collection) "in the City Hall is appointed to the use of the Marquis, where, during his stay he will, between the hours of twelve and two, receive the visits of such of the citizens as are desirous of paying their respects to him."

Less spectacular were the New Year's receptions when the citizenry offered annual greetings to their Mayors, and the

occasional gatherings when the Governor was officially "at home." This latter custom has been happily revived during the past year in Governor Whitman's reception during the city's celebration of the two hundred and fiftieth anniversary of its present form of government.

For the work of restoring the Governor's Room Grosvenor Atterbury was selected as architect, with his associate, John Tompkins, in collaboration. Most fortunately, the original drawings by McComb had recently been brought to light in the archives of the New York Historical Society. These drawings, with others loaned by his descendants, were carefully studied for hints of his own treatment; Sir William Chambers' *Treatise on the Decorative Part of Civil Architecture* (a copy owned and annotated by McComb) yielded further ideas; two windows, shown on the drawings, but since bricked up, were re-opened a bit of wainscot cap, unearthed during the work of demolition, and checked with McComb's sketches, offered the solution of that particular problem; his portfolio yielded also a motive for the chandeliers, translated, to be sure, to give light from



IRON RAILING AT ROTUNDA—NEW YORK CITY HALL.



DETAIL OF MAIN STAIRWAY—NEW YORK CITY HALL.



MARBLE BAND AT ROTUNDA. THIS CARVING HAD BEEN ALL BUT OBLITERATED BY PAINT—
NEW YORK CITY HALL.

electric instead of real candles—in such painstaking and minute research was the entire work carried on.

The fact that the Governor's Room had also been the "Portrait Room" was not lost sight of—rather, the portraits have been made to form the chief decorative note, counting perfectly against their setting of broad, flat wall panels. The chief emphasis is focussed upon the two full-length portraits—Washington and George Clinton—set as over-mantels at opposite ends of the center room, and adequately carried by architectural frames.

Since its re-opening in 1909 the Governor's Room has exercised an immeasurable influence. Furnished with important memorabilia of New York, its walls peopled with the faces of those who have dominated in the large affairs of the city, these rooms have daily received the visits of surprising numbers—groups of school children, guided by teachers; students of municipal history; sightseers from other

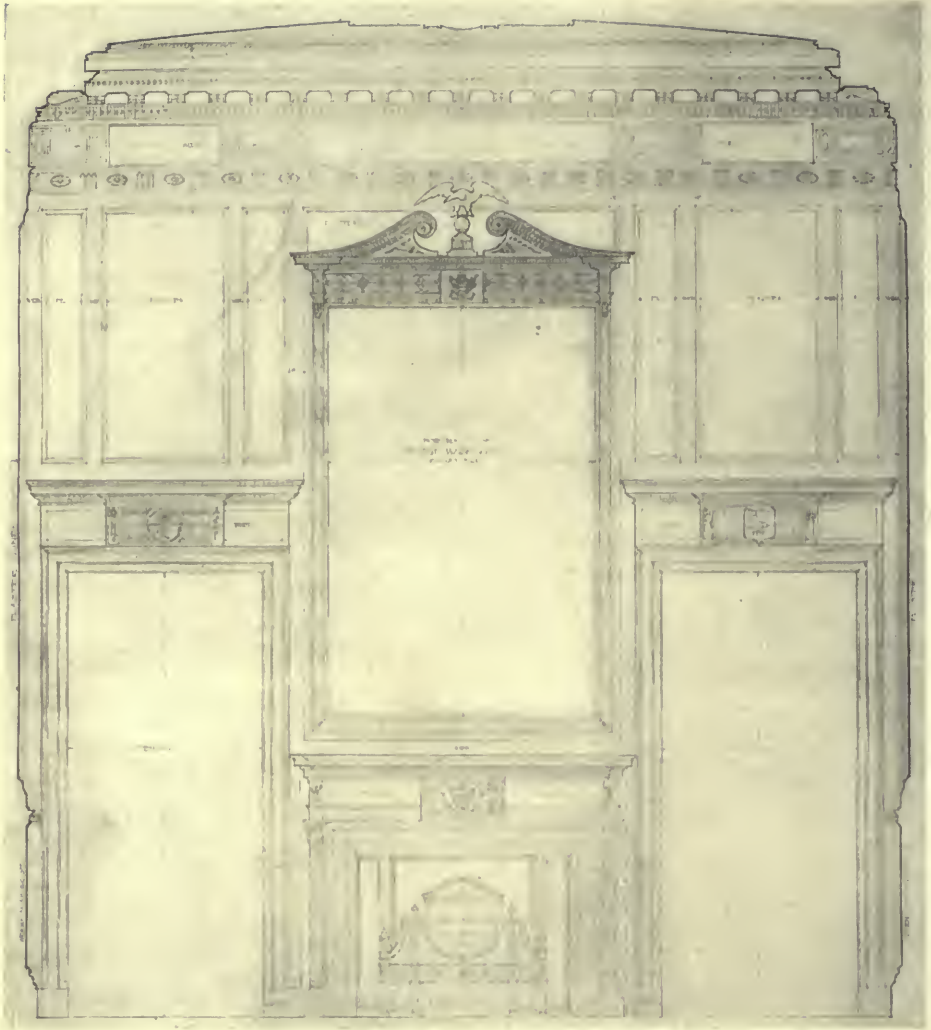
cities and other States; notable travelers from the far corners of the earth. Let no one question the value of a municipal museum such as the Governor's Room.

With two important sections of the City Hall thus placed before the public as object lessons in restoration, further progress was conditional upon the attitude of the President of Manhattan Borough, under whose jurisdiction falls the care of public buildings. The needs were sensitive appreciation, initiative, and patient perseverance, and such qualities were eminently supplied by Mr. George McAneny when he became Borough President. The impelling turn had already been given to the wheel, the gathered momentum of two successful restorations had been invaluable, but it may be safely stated that from 1910 down to the present it has been Mr. McAneny's hand, quietly and judiciously applied, that has kept the machinery from running down.

It was with unquestioned wisdom that the portion of the building selected for



THE GOVERNOR'S ROOM, CENTRAL UNIT—NEW YORK CITY HALL. GROSVENOR ATTERBURY, ARCHITECT FOR THE RESTORATION. JOHN TOMPKINS, ASSOCIATED.



WEST ELEVATION OF MAIN ROOM, GOVERNOR'S SUITE—NEW YORK CITY HALL. GROSVENOR ATTERBURY, ARCHITECT FOR THE RESTORATION. JOHN TOMPKINS, ASSOCIATED.



DETAIL OF GOVERNOR'S ROOM, SHOWING ONE OF THE
COLLECTION OF TRUMBULLS—NEW YORK CITY HALL.
GROSVENOR ATTERBURY, ARCHITECT FOR THE RES-
TORATION. JOHN TOMPKINS, ASSOCIATED.



FIREPLACE IN GOVERNOR'S ROOM—NEW YORK CITY HALL.
Grosvenor Atterbury, Architect for the Restoration. John Tompkins, Associated.

the next restoration was that southwest wing of the second floor, known through a hundred years as the Council Chamber. In this room the meetings of the Common Council had been held almost from the first. Not the very first, for the Council, it seems, in eager anticipation of the City Hall's completion began holding their weekly meetings in the Mayor's Room (now the Mayor's Reception Room) before the middle of August, 1811. That even these patient souls were tried by the conditions that surrounded them appears from this resolution early in 1812. "Whereas the new City Hall being in an unfinished state and abounding with combustible materials, prudence requires as a measure of precaution that the use of fire therein at present be wholly prohibited, and though its central situation and commodious apartments render it a suitable place for the meeting of the Board, yet as the safety of the building ought to be consulted in preference to the season of the members" it was proposed that the Board return to its "former place of meeting in the old City Hall." The vote

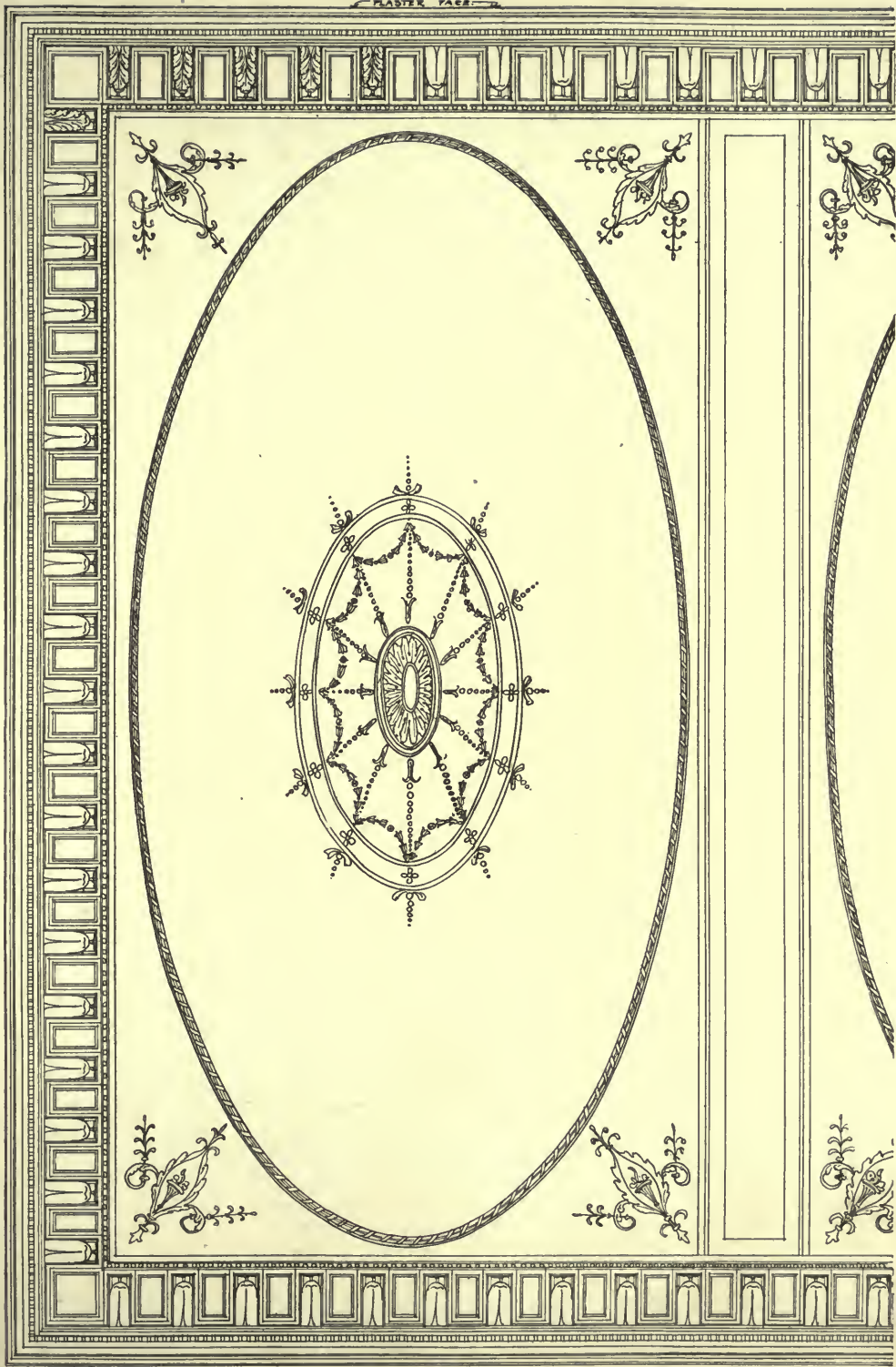
was in the negative, however, and shortly afterward the Board assembled "at the Common Council Chamber in the City Hall, which was prepared for their reception."

Like most of the "apartments" in the City Hall the Council Chamber was ultimately lost to its original purpose. When in 1910, Mr. William A. Boring was selected as architect for the restoration, so much subdivision and temporary partitioning had occurred as to destroy all resemblance to the Council Chamber of McComb's day.

As in the case of the Governor's Room McComb's portfolio yielded studies which proved most helpful. Even more valuable was a contribution by a member of the Art Commission—a print published in 1830, doubtless before any material changes had been made. Tantalizing as is this print in the things it does not show, and insistent as are the figures in effectually blotting out important details, this picture yet gives a fairly comprehensive view—the columnar circle inscribed within the square of the walls;



THE GOVERNOR'S ROOM, EAST UNIT—NEW YORK CITY HALL. GROSVENOR ATTERBURY, ARCHITECT FOR THE RESTORATION. JOHN TOMPKINS, ASSOCIATED.



PLASTER CEILING, MAIN ROOM, GOVERNOR'S SUITE—NEW YORK CITY HALL. GROSVENOR ATTERBURY, ARCHITECT FOR THE RESTORATION. JOHN TOMPKINS, ASSOCIATED.



McCOMB'S SKETCH FOR THE COUNCIL CHAMBER—NEW YORK CITY HALL.

the rich Corinthian order and entablature; the shallow, refined curve of the dome ceiling. It includes also the canopy over the chair of the presiding officer, with that "gilt eagle" which the Council in 1818 directed to be placed there, together with such other embellishment as McComb might deem suitable.

Further research and study were needed to piece out the lacking data, but results were gratifying. The fireplace, for instance, was produced from the apparently solid west wall, its presence revealed not by divining rod nor by intuition, but by study of McComb's original drawings. The details of entablature and ceiling are worthy of note. True in scale, dignified, restrained, the ornament has that clean-cut, deeply incised quality that characterizes some of the best of the old work. A notable instance of such feeling occurs in the Octagon House in Washington.

Mr. Boring's restoration fitted the room for the use of the President of Manhattan Borough. The requirements of space for secretarial and clerical staffs have lately outgrown the space here avail-

able, so that the Council Chamber has for two years been exempted from active service as an executive office, entitled to enjoy henceforth a more sedate life as the occasional conference room for committees of the Board of Estimate.

From 1911 down through 1915 the work of rehabilitation has gone on almost continuously under the architectural supervision of Mr. Grosvenor Atterbury and his associate, Stowe Phelps. The start was made by contracts which for want of a better title were known as "General Repairs No. 1 and No. 2." Such operations were prosaic, but essential. Reference has been made to the utter disregard for architectural or municipal propriety with which every variety of pipe known to plumber, every species of wire strung by electrician, had been allowed to assume right of way in the "apartments," and corridors—even about the Rotunda. The west stairway to the basement had been rudely partitioned off and disfigured with shabby wooden stairs; panel work and wainscots everywhere were fallen into a sad state—either by opening of the woodwork



THE COUNCIL CHAMBER—NEW YORK CITY HALL. NOW
A COMMITTEE ROOM FOR THE BOARD OF ESTIMATE.
WILLIAM A. BORING, ARCHITECT FOR THE RESTORATION.

into gaping cracks, or through "repairs" with putty, plaster and paint, until all delicacy of profile had been lost. The obvious and, it may be added, more economical corrective would have been to discard the old wainscots completely and to reproduce them in modern cabinet work. Such a method, however, did not accord with the ideas of the Art Commission and the architect, who have consistently regarded as sacred and inviolate every inch of original wood that has come down to us. The wainscots, the lovely carved door heads and pilaster caps, all were accordingly given successive treatments of paint-remover and scraper until the profiles of mouldings and carved ornament were once more revealed as McComb had designed them. Nor was it from woodwork alone that it has been necessary to set free the paint-smothered carving. Around the circumference of the Rotunda runs a band of marble, beautiful in design and splendid in execution—the work, doubtless, of the master sculptor Le Maire. This, too, had had the exquisite detail all but obliterated by layer upon layer of "lead and oil," and it was liberated only with infinite pains and patience on the part of the workmen.

Incidental to these general repairs was the resetting of several bulky monoliths, inscribed, one with the names of the building committee first entrusted with the City Hall's construction; another, those of architect, sculptor, master mason et al.; a third, the table of Federal measures. Originally parts of the attic coping, withdrawn during Mayor Van Wyck's term of office, these huge stones were temporarily placed in the main corridor, to save them from further deterioration. They are now built into the

walls of the basement corridor, where they may be preserved indefinitely, and still not clash with architectural environment.

Investigations as to structural conditions have brought to light some surprising instances of neglect. Floors had sometimes sagged. Others were added until at some points five layers of blocking and boarding had been allowed to pile themselves with never a question as to the cause of the sag. Some of the huge wooden girders (they span up to forty-two feet) had begun to bend or to check. Worse than these were the sins of omission that had been committed in reframing timbers cut through for one reason or another. Too often beams that had a resting place at one end were neglected at the other, until one feels that only Providence actively engaged to overrule gravity had averted disaster.

This is by no means to cast aspersions against McComb, nor against the materials with which he wrought. If wooden girders have begun to ask aid of steel I-beams, it is because of superimposed loads not dreamed of by McComb; if beam ends have been sadly attacked by rot, it is because of long-continued dampness from long-neglected leaks; if the cupola threatens to resolve itself into its component parts, it is because it is not the real, but a reproduced cupola, put together in 1858 by builders less careful than McComb. Let it be said, then, in a word, that where materials have been left to themselves to do the work intended for them to do, they have stood very worthily to their tasks, and modern investigation, in greatly the majority of cases, finds them as sturdy and tough and solid as ever.

THE ARCHITECT'S LIBRARY



THE FAMOUS IRONWORK OF SPAIN

By MARRION WILCOX

A TRAVELER from America who visits Seville is sure to notice with great pleasure the wrought-iron screens, gates, or rejas that adorn the ample doorways of many an ancient residence. From the street one catches a glimpse, through the screens, of the patios, or ornamented courtyards, with their fountains and exotic plants, and the characteristic patterns of the wrought-iron screens are charmingly emphasized by such backgrounds. The reja guards against encroachment, while revealing the interior quite adequately.

I mention the Sevillian doorway rejas, on high screen gates, merely because this seems a pleasant way to introduce this book* to architects and sincere students of architecture. In this brief review I shall try to epigrammatize the contents of a very genuine and sufficiently extended treatise.

The Moors who overran Spain (the authors remind us) expressed, with iron as a medium, not only their basic principles of design, but also the delicate and

elaborate method they applied to the precious metals. During the Romanesque and early Gothic periods, French ironwork also exerted its influence in the western peninsula. Italian Renaissance architecture, as it was interpreted and applied in Spain, gave to the ironworker such an opportunity for the exercise of his native talent that he achieved grandeur and architectonic quality in his work, surpassing the attainments of ironworkers in other lands; but if we are to appreciate a distinguishing characteristic of the arts of Spain, we must emphasize the fact that the imposing size of some of the Spanish ironworker's products is only one of the noteworthy features. Equally interesting is the exotic suggestion which, in Spanish architecture and industrial arts, reminds us constantly of Spanish history, in the usual sense, and of the geological history of Spain in a very special sense—for, geologically speaking, southern Spain once belonged to the southern continent, and not to Europe at all. Our authors do not mention this circumstance, but they say: "The Moorish occupation of seven centuries is a circumstance unparalleled in any other European country and its in-

*Spanish Ironwork: being an account of the extent of the craft in Spain from earliest times. By Arthur Byne and Mildred Stapley. Fully illustrated, 8vo. Price 50 cents in heavy paper cover, \$1.25 bound in cloth. New York: The Hispanic Society of America, 1915.

fluence on all Spanish art was lasting. This Orientalism was sometimes preserved pure, sometimes combined with European designs." Moorish and Gothic art blended, with harmonious results, and to this blend the name *Mudéjar* was given.

For purposes of decoration in connection with architecture in the Iberian peninsula, it appears that iron was not truly popular until demonstration of some of its art values had been made in England and France. Then its use as a decorative architectural feature invaded and made pacific conquests in Spain. To this extent it may be called a borrowed talent. But Spain carried the use of iron farther than the northern countries ever did. To be explicit, "Door hardware," the authors say, "with the exception of the strap hinge, developed to a point undreamed of elsewhere; knockers, escutcheons, bosses being infinitely more plentiful. Hardly a window in the land but had an iron grille or *reja* When furniture came into general use (early Spanish houses were as devoid of chairs and tables as Moorish homes were) iron was often used as a diagonal brace between vertical supports, and even entire chairs, tables, etc., were made of it. When in due time the balcony began to be an architectural feature it was upheld by a row of interesting scroll brackets. In the churches, candelabra became massive and imposing, railings or screens (*verjas*) grew to be of towering height, and even entire pulpits were beaten out of iron." It is clearly shown in the book that a large part of this work which we see today is *Mudéjar*.

Our authors make special mention of the great doors of the Puerta del Perdón in the mosque of Cordova, but these are copper-plated; and a pair of (also mentioned) wooden doors in the Madrid National Museum are bronze-mounted. One of the earliest iron-covered doors is in the cloister of Tarragona Cathedral—thirteenth century doors, formerly covered by iron plates, stamped, gilded and fastened with copper nails. The colossal iron-plated main doors of the western facade of the same cathedral (sixteenth century) are of wood sheathed in iron

plates, with copper nails and a copper rosette in the centre of each plate. Hinges and knockers are most elaborate in design. In the back plates of the knockers and in the huge hinges at the top, a very decorative result is obtained by successive thicknesses of pierced tracery. That, of course, is a Moorish idea. Moorish, in fact, the entire scheme must be called, with only the shadows of the knockers to give relief to the flat patterning. In the west portal of Santa María del Mar at Barcelona, the doors are covered with iron plates cut to a pattern; and the doors in the main portal of Huesca Cathedral are covered with beaten iron, fastened by nails made apparently of brass.

The process of treating iron so as to prevent rust, or to reduce rusting to a minimum, is called one of the lost arts. According to our authors, it is generally believed that the desired result was secured by dipping in oil. The iron was heated to a brilliant cherry red. When its molecules were thus separated it was immersed in linseed oil, or some other fine, transparent oil, which penetrated—perhaps only to a very slight extent—the mass of metal, making a rustless and hard surface that could be polished fairly well.

The metal that we have too often regarded as most useful, least beautiful, was employed in another way, characteristically or peculiarly Spanish. Iron pulpits were often designed in connection with the iron *rejas*. A few examples, excellent in design and workmanship, may be seen at Avila, Burgos and other places in Spain. The pulpits are generally in pairs, one at each side of the Capilla Mayor. The Avila examples are, first, flamboyant Gothic, beautiful and interesting as a piece of architectural design and as ironwork, and, second, Renaissance. Both pulpits are of gilded iron, hexagonal in plan, and ten feet in height.

The architectural importance of the Spanish ironwork is clearly stated on pages 69 and 70, where we read that the influence of the fifteenth century Italian art was manifested in Spain at the close of that century, and the term Plateresque has been chosen to designate early Spanish Renaissance architecture be-

cause the ornamentation of Spanish structures belonging to that period resembles "the minute manner of the silversmith's (or platero's) art." This designation would in itself suggest that metalwork was popular at the time. The first Plateresque buildings were the hospitals built by Enrique de Egas of Flanders in Toledo and Santiago—the original Santiago which has given its name to interesting cities in the New World. As Gothic had become firmly established, it was not immediately supplanted; on the contrary, buildings in that style were erected after the Renaissance invasion, and Renaissance edifices borrowed many Gothic features. The result is characterized as "one of charm and novelty." That will not be conceded in certain quarters. We shall be willing to concede however, that there was a certain degree of novelty, though not absolute novelty, in this blending of styles, and that the result was not wholly devoid of charm. In the decorative accessories especially, some very effective hybrid forms are found. Moorish art was ornamental, rather than structural. The Spaniards had felt its influence during long ages. Therefore the superficial side of the Italian Renaissance appealed most strongly to them. Moreover, the fact that Spanish Renaissance is invariably sumptuous finds its explanation in part in that vast territorial increase that flattered Spanish pride in the sixteenth century; and the treasure brought back to the Tower of Gold in Seville paid the ironworker's wage, no matter how difficult the task. As the activity of the smith generally reflected the condition of his country, Spanish ironwork (we read) became a thing of unsurpassed grandeur. It remained largely Gótico-florido during the beginning of the Renaissance or Plateresque period, but when, after a time, the new style dominated with its rich architectural treatments and its unhesitating use of the human figure (previously rare in iron) the smith became a magician. The English authority, J. Starkie Gardner, says that the Spanish ironworker of that period produced things "of so grand and impressive a character as to confound all our previous

conceptions of the capabilities of the material." The artistic craftsman of that day, to put the matter plainly and simply, refused to be confined within the limits which the stubborn nature of his material and the technical difficulties of his craft seemed to impose. He was truly the ironmaster.

An impression of the scope of this book may be obtained from the following list of the subjects that are discussed carefully and interestingly. Spanish ironwork before the Gothic period; Gothic rejas and pulpits; Gothic hardware and domestic utensils; the development of the Renaissance reja; Renaissance church rejas; smaller Renaissance productions; the last of Spanish ironwork. It is indeed, as a publisher's note asserts, "the most complete account of Spanish ironwork yet printed." The value of the book is enhanced by an index and a catalogue of ironwork in the collection of the Hispanic Society of America. The illustrations, 158 in number, are uncommonly good.

A MANUAL ON LIGHTING

Readers of the ARCHITECTURAL RECORD are already familiar with the persistent ambitions of Mr. F. Laurent Godinez in behalf of American eyes. He has applied himself manfully to the task of making us acquainted with our own shortcomings in a branch of science now lagging a full century behind its sister mechanical arts. His volume entitled *The Lighting Book* (McBride, Nast & Company, New York; octavo, pp. 109, numerous plates; \$1.25) brings together in readable and thoroughly intelligible form his tested theories of lighting as applied to domestic interiors. The subtitle, "a manual for the layman, setting forth the practical and esthetic sides of good lighting," plainly indicates the two-fold purpose that present-day lighting has come to serve: namely, the primary purpose of the illuminant—gauged according to ophthalmic needs—coupled with the second but not entirely accessory or secondary purpose of the artistic effect of light—gauged according to its relation to interior design. This is, to say the least,

an ultra-modern conception; but its manifest actuality is attested by contemporary results, architectural and optical, not to mention its constantly increasing application in public buildings and in educational institutions.

The new volume considers at length the use and misuse of light from a practical and material point of view, and the value of light as an assistant element, in which is vested the ability to mar utterly an otherwise successful design, from the decorator's point of view. It discusses direct and indirect lighting, intensity of sources of light, the shading and re-directing of light, and the manipulation

of light and lighting fixtures for decorative effects—in other words, design in light and light sources.

There are many interesting plates and detailed diagrams, arranged in an instructive comparative fashion, more or less on the ancient principle of "the old way" and "the new way," which, properly used, is an effective method of clinching an argument, especially in new fields. We are convinced that light, lighting fixtures, and the use of light practically and artistically are the three constituent elements of a science soon to assume large proportions.

R. F. B.



The Brick Church and Parish House. Presenting a Collection of Designs for Churches, with Articles. Ill. 80 pages, including plate illustrations and plans, 11 by 13 inches. St. Louis: Hydraulic-Press Brick Co.

The Prairie Spirit in Landscape Gardening. By Wilhelm Miller, Department of Horticulture, Division of Landscape Extension, University of Illinois. Ill. 32 pages. 9½ by 12 inches. Urbana: University of Illinois.

Limes and Cements. An Elementary Treatise on Their Nature, Manufacture and Use. By Ernest A. Dancaster, B. Sc. (London). Ill. 189 pp., index. 5 by 7½ inches. New York: D. Appleton & Co. \$1.75 net.

The Kalendar of the Royal Institute of British Architects. 1915-1916—82nd Session. 483 p., index. 5½ by 8½ inches. London: The Royal Institute of British Architects. 62 cts.

Dams and Weirs. An Analytical and Practical Treatise on Gravity Dams and Weirs; Arch and Buttress Dams; Submerged Weirs; and Barrages. By W. G. Bligh, Inspector Engineer of Irrigation Works Department of Interior, Canada, and Member, Inst. Civil Engineering (Lon-

don). Ill. 206 p., index. 5½ by 8½ inches. Chicago: American Technical Society. \$1.50.

Theaters and Moving Picture Houses. A Practical Treatise on the Proper Planning and Construction of Such Buildings and Containing Useful Suggestions, Rules and Data for the Benefit of Architects, Prospective Owners, Etc. By Arthur S. Meloy, Architect. 18 plate illustrations, with line drawings by the Author. 121 p., 7 by 10 inches. New York: Architects' Supply & Publishing Co.

Concrete and Reinforced Concrete. A Condensed Practical Treatise on the Problems of Concrete Construction, Including Cement Mixtures, Tests, Beam and Slab Design, Construction Work, Retaining Walls, Etc. By Walter Loring Webb, C. E., and W. Herbert Gibson, B. S., C. E. Ill. 218 p., appendix and index. 4½ by 7 inches. Chicago: American Technical Society. \$1.50.

Impressions of the Art at the Panama-Pacific Exposition. With a Chapter on the San Diego Exposition and an Introductory Essay on the Modern Spirit in Contemporary Painting. By Christian Brinton, Member of the International Jury. Ill. 199 p., index. 8 by 12 inches. New York: John Lane Co. \$3.00 net.



NOTES & COMMENTS

The Tomb of Perneb.

An Egyptian monument of the year 2650 B. C., the tomb of the "Sole Companion and Lord Chamberlain, Perneb," a dignitary who held high office at the royal capital of Mem-

phis on the Nile, has been reerected at the Metropolitan Museum. The tomb is the largest single exhibit at the Museum and a special salient in the plan of the building had to be laid out to accommodate it. The structure is placed at the north end of the great hall as one enters from Fifth Avenue, and has been rebuilt with the remarkable care and skill which characterizes all similar undertakings at this institution. Electric lighting is provided in the various interiors and also for the exteriors so that all details of construction and decoration are at once apparent to their full advantage, both as to finely gauged relief and as to symbolic coloring. Several small scale models and a number of photographs showing the entire process of dismantling and shipping the tomb are also exhibited.

During the Fifth Dynasty of the Memphite period in Egyptian history, the royal cemetery was located chiefly at Sakkara, which has long been known to us as the site of many imperial pyramid mausolea, notable among them the great stepped pyramid of King Zoser, dating from about 3000 B. C. As a person of exalted position at court it was Perneb's ambition to locate the abiding place of his body, and therefore of his *ka* or double, near that of his sovereign, whose tomb was undoubtedly in the immediate neighborhood, though it has not as yet been found, or at least identified. Since similar ambitions were cherished by all persons of importance near the person of the king, or possibly because of the builders' intention, we find a crowding of monuments which in the case of the Perneb example had made the tomb acces-

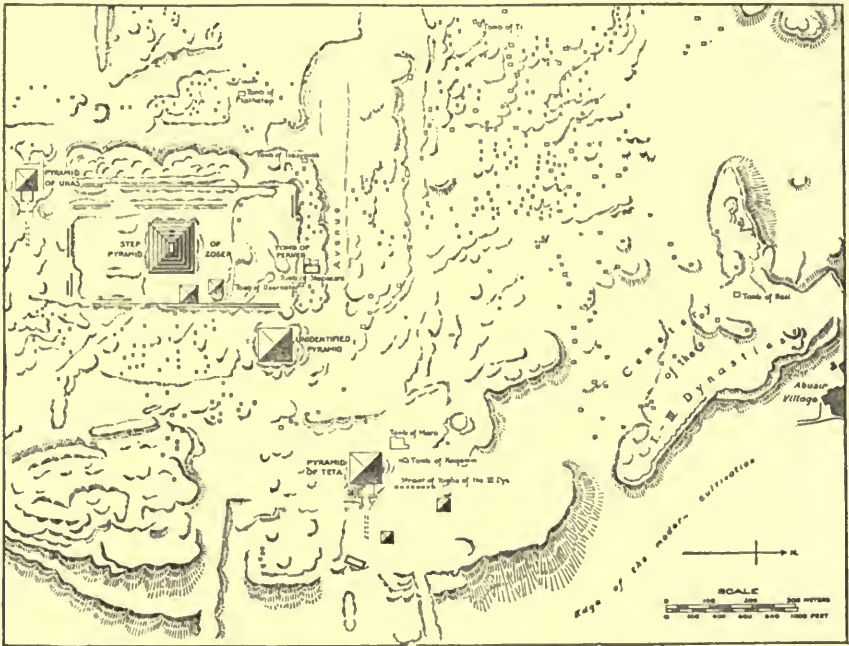
sible only through a narrow alley leading off at one end of the entrance court and parallel with its front.

The structure is in general form a low truncated pyramid of a kind that has in more recent times been given the name of *mastaba*. This rectangular type of building, which is characteristic only of oldest Egypt, generally measures from forty to fifty feet in length, from thirty to forty feet in width, and from fifteen to twenty feet in height, and is oriented closely according to the points of the compass. Its usual form comprises four essential features: 1, a vestibule, sometimes preceded by an open space or courtyard, as in the present example; 2, an offering chamber or series of chambers, where the relatives of the deceased deposited delicacies for his *ka*, which according to Egyptian belief continued the pursuits and activities that had engaged his earthly attention; 3, the *serdab*, or statue chamber, in which was placed a carved likeness of the deceased for the habitation of his *ka* when it visited the tomb; this chamber was generally set apart, no door leading to it and only a narrow vertical slit in the masonry giving the opportunity of a view of the figure, which latter was sometimes accompanied by those of members of the deceased's family; 4, the burial chamber, situated at the bottom of a shaft reaching from fifty to one hundred feet downward through the mass of the tomb and into the rock platform beneath it, the whole of its height blocked up by filling in with stone, sealed at the top and made invisible after the interment (Fig. 2).

The scheme of the Perneb tomb varies from this typical plan disposition in several respects. Its general measurements were fifty-four feet in length by forty feet in width by eighteen feet in height. Owing to the presence of the tomb of Shepsesre, of about the same date and already known to Egyptologists for some years, on its easterly flank, it was found convenient to

build two projections forward at right angles to its front and abutting against the back of the Shepsesre tomb. (Fig. 3.) By this means a courtyard was established measuring about twenty-five feet in width across the front and eight feet in depth. The courtyard was flanked by an entrance chamber, which was reached through a narrow passage to a main street beyond, and by an exterior offering chamber. From the latter through a vertical slot in the masonry the effigies in the statue chamber (Fig. 3) could be seen. The main entrance into the body of the tomb was a recessed

cessible through a short passage the main offering chamber (Fig. 3), the only part of the tomb granted a general decorative treatment. This room was lighted directly by means of a long low window (Fig. 4), giving upon the courtyard at about the lintel level of the doorway, but reduced to a horizontal slit at its inner side to mitigate the brilliance of the sunlight reflected from the desert on all sides and so to retain the requisite degree of the gloom of solemnity. A second burial shaft had been provided for to the north of that of Perneb, probably for a near relative, but although



This and three following illustrations reproduced by courtesy of the Metropolitan Museum of Art.

FIG. 1. GENERAL PLAN OF SAKKARAH CEMETERY, SHOWING LOCATION OF PYRAMIDS AND TOMBS; TOMB OF PERNEB DUE NORTH OF STEPPED PYRAMID OF ZOSER ON CONTINUATION OF LINE ON ITS EASTERN SIDE.

doorway in the middle of the western side of the courtyard, eight feet wide and over thirteen feet in height. (Fig. 4). This led to a vestibule, beyond which, almost on axis with the door, lay the chief burial shaft, that of Perneb himself, in the body of the masonry, but not reached by any opening available after completion of the building. The shaft was five feet square and fifty-five feet deep; it led at its base in the mother rock to the burial chamber proper, which contained a limestone sarcophagus. (Fig. 2). From the south end of the vestibule, however, was made ac-

this carried into the rock platform far below, the burial chamber itself was never finished. (Fig. 3).

Owing to the conditions of construction which in the original tomb showed evidence of haste at various points, due probably to the fact that Perneb had too long delayed the erection of his tomb and approaching death or serious illness prompted him to hurry the work to completion while he was yet alive, and also because of the conditions of the site of its re-erection, all parts of the building were not brought to America, and a few minor changes were also made neces-

sary, e.g., in the width and length of passages to admit visitors and to account for existing walls in the exhibition gallery. Poor original masonry led in some cases, furthermore, to the substitution of plaster blocks for the roughly cut and laid blocks of limestone in the tomb itself. The whole structure having been despoiled by grave plunderers, even to the extent of removing all stone work to the bottom of the fifty-five foot burial shaft, nothing of value was left, although a number of broken jars, parts of wooden *ka* figures and food receptacles were thrown about and disdained even for fire wood by the ghouls.

In view of the fine mode of presentation accorded Perneb's tomb at the Museum, one is prompted to ask what has been done to safeguard the limestone masonry against the effects of the insidious climate of New York; for the stone contains chemical salts, which, though at rest in the dry Egyptian air of the sandy plains, immediately become active under the influence of humidity, even to the extent of causing disintegration within a short period of years. On this point a Museum report offers the following information: "Treatment of the stone by some of the older methods did not prove

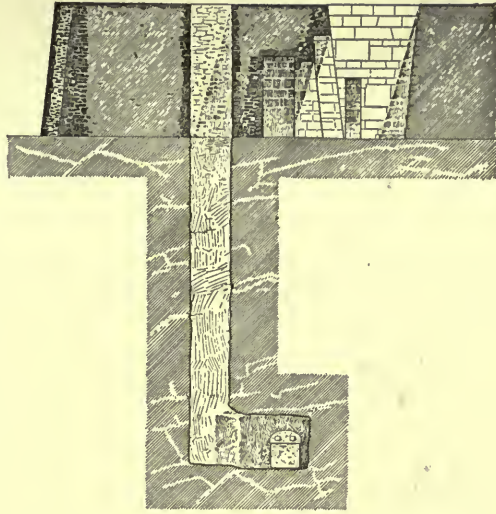


FIG. 2. TOMB OF PERNEB, SECTION SHOWING BURIAL SHAFT AND SUBTERRANEAN BURIAL CHAMBER.

entirely satisfactory and, accordingly, for some five years a chemist was employed in the department in carrying out experiments in the use of other mediums. * * * Experi-

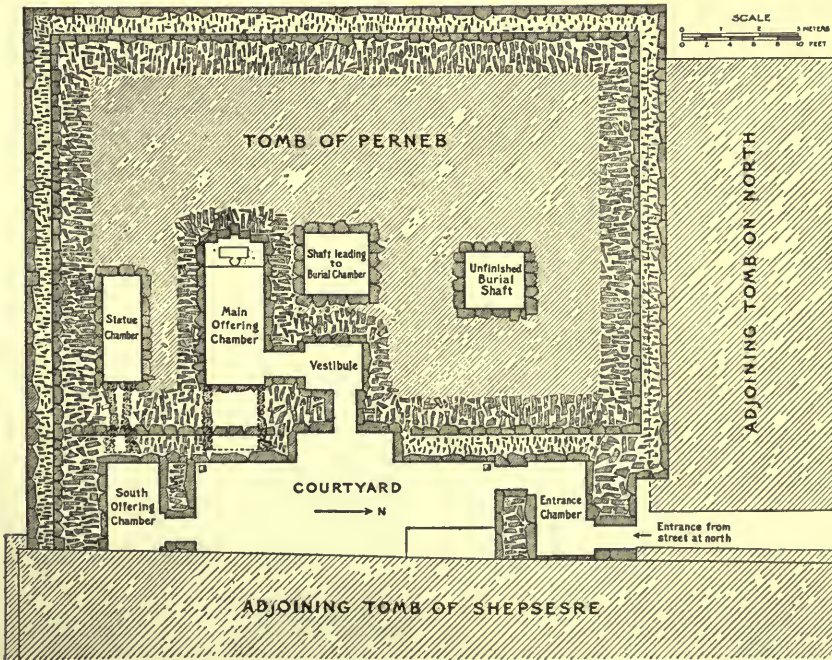


FIG. 3. TOMB OF PERNEB, PLAN SHOWING LOCATION OF ADJOINING TOMBS, FORMATION OF COURTYARD AND THE FOUR ESSENTIAL PLAN FEATURES OF THE MASTABA TOMB TYPE.



FIG. 4. TOMB OF PERNEB—VIEW OF COURTYARD, TOMB OF SHEPSESRE AT LEFT, DOOR TO SECONDARY OFFERING CHAMBER OPPOSITE, WINDOW LIGHTING STATUE CHAMBER TO RIGHT. PHOTOGRAPH MADE BEFORE REMOVAL TO THE METROPOLITAN MUSEUM.

ence has proved that, if the fibre of the stone is strong enough, the method to be preferred is that of immersing the blocks in water until the salts have been removed in solution, and thus the stone is freed of these destructive agents. * * * But this cannot be done without first subjecting the sculptured or painted surfaces to treatment which will enable them to withstand the action of the water during the long period that the block may be immersed. Our experiments on this side have produced very satisfactory results and under ordinary conditions this process would have been employed in the case of Perneb's tomb. It was seen to be impossible, however, owing to the liberal use which has been made of plaster on the faces of the painted blocks, in order to fill out and conceal imperfections in the stone, over which the color had afterwards been applied. These blocks would have been injured by immersion, and so the exactly opposite process was adopted of treating the entire surfaces of the blocks in such a way as to 'bottle up' the salts and prevent the air from getting access to them."

Richard F. Bach.

Liverpool School of Architecture.

The School of Architecture at the University of Liverpool has received a gift equivalent to \$120,000 toward the erection of a new building devoted exclusively to its own purposes. The structure has been designed by Professor C. H. Reilly, long connected with the school and well known as one of the chief English exponents of the scholastic as opposed to the apprentice system of teaching as the more advantageous mode of preparation for professional practice. In this country the quarrel has never claimed much attention, nor assumed such great importance; we have accepted the school as the proper source of architectural knowledge and have relied upon a brief succeeding period of practical work to bring about the necessary adjustment between learning and mastery.

Professor Reilly's building will be a lasting monument of progress toward the establishment of this procedure in England; it represents the growing cult of architectural teaching.