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THE Harrisburg competition seems to be still unsettled. At a recent meeting of the Capitol Commission three attorneys were present. Two of these, representing certain architects of Philadelphia, protested, in behalf of their clients, against the adoption of the report of the experts, firstly, because the statute placed the selection of a plan in the hands of the Commission, and this duty could not legally be delegated to experts; and, secondly, because the experts had recommended designs which could not be executed for a sum within the limit of cost fixed by the statute. After hearing the arguments in favor of this view, the Commission listened to a discourse from another lawyer, representing a New York firm of architects, who, as he said, had learned that their design was thrown out by the experts without consideration, because two trees were drawn in it. Governor Hastings observed, in regard to this, that the programme expressly stipulated that no trees should be represented; but the counsel for the New York architects claimed that this was a mere technicality, and that the exclusion of the design was a violation of the agreement implied in the programme that all the plans should be considered; and he protested against everything that the experts had done. Meanwhile, the Commissioners seem to be more and more perplexed as to their duty in the matter. Mr. John C. Bullitt, the distinguished counsel for the Philadelphia architects, was diplomatic enough to hold out the suggestion that the Commission "had the right to wipe out everything and begin correctly"; which is undoubtedly true; but he omitted to mention that the sovereign right of the State's representatives to revise or abrogate any of their contracts can be exercised only on the condition that all persons injured by such revision or abrogation are fully compensated for their injury. In the present case, the damages which the State must pay, if it should decide to begin over again, would, apparently, include the full promised fees to the authors of the design placed first, deducting the expense which they would save by not carrying it into execution; besides a reasonable compensation to every architect who submitted designs in conformity with the programme, relying on its promise that one of them should be carried out. If we remember rightly, the programme called for designs for a group of buildings, to cost, in all, about a million and a half; and it would take a very substantial sum to reimburse all the architects who competed for their time and skill in making such designs, in addition to the three per cent or so on the entire cost which would be payable to the architect awarded the first place.

IT is hardly likely that the Capitol Commissioners wish to annul arbitrarily their own contracts in regard to the matter, and the question which concerns them and the architects is really one of the interpretation of the contract. Mr. Bullitt's claim that the Commission had no right to delegate the selection of a plan to experts would be a very dangerous one if there were any probability of its being sustained; for people who deal with the representatives of the State have no redress against the State if its representatives exceed their powers; but the employment of experts is a thing so usual and necessary in carrying out the work entrusted to such commissions that the courts are very unlikely to adopt Mr. Bullitt's view; and the only contention left, which has any appearance of reason, is that the award of the experts violates the condition of the programme and of the statute which limited the cost of the Legislative Building to five hundred and fifty thousand dollars. As the programme and the statute also specified the minimum area of all the rooms, stipulating also, if we recollect rightly, that any plan which provided less space than the minimum in any room would be excluded from consideration, the obvious answer of the experts is that they believed their duty to be to select the plans which provided the accommodation required in the most convenient and economical way, and, if they found the stipulations in regard to cost and accommodations incompatible, to report the circumstances, so that proper authority might decide which should prevail. As we have said before, this position of the experts is perfectly intelligible, and the question which it raises is one which can easily be settled by the courts, and can be legally settled only by them. If the agreement constituted by the programme bound the architects primarily to provide the specified accommodation, and secondarily to design a building capable of being built within the limit of cost, it is difficult to see how any legal pretext can be found for rejecting the award of the experts; and if the courts should decide that the stipulation as to limit of cost was paramount, then only such of the competitive designs as can be carried out for the price stipulated can be considered, whatever may be the accommodation that they furnish. If none of the designs submitted can be executed for five hundred and fifty thousand dollars, all must, if the limit of cost is decided to prevail, be rejected; and, the architects having failed to fulfil their part of the agreement as thus interpreted, the Commission would, as we suppose, be free to build a structure, at a cost within the limit, in accordance with all the provisions of the statute except those relating to accommodation. In any event, it is plain that the statute and the programme, as interpreted by the courts, form the sole law of the case. Neither the Commissioners nor any one else, except the courts and the Legislature, have any power to change or interpret these documents; and the *à priori* theories of counsel are simply put forward to confuse the minds of the Commissioners, probably in the interest of some sort of injustice.

TWO fatal accidents have occurred in Boston recently in tearing down old buildings to make room for the erection of new ones for public purposes. It seems that it is the practice of the city authorities, after taking for public use land already covered with buildings, to advertise for proposals for removing the old buildings. The bidders for the work are generally irresponsible persons, whose main object is to make as much money as possible out of their contract, and to spend as little as possible for protecting other people from danger. Their first proceeding, on being awarded the contract, is to give notice about the neighborhood that the woodwork in the old buildings is to be given away. This notice brings to the place a swarm of women and children, eager to get cheap firewood; and the portable pieces of timber are soon carried away. Naturally, the collectors of firewood, many of whom are mere infants, do not exercise much discretion in pulling out studding or bracing, and accidents are almost inevitable. In private work, the system is totally different, demolitions being almost always carried out by responsible and skilful contractors, who allow no one in the building but their own men, and sort and carry off the old material with great care. So well is this work done in Boston that demolitions for private purposes are never attended with the clouds of dust which mark such operations in other places, particularly in Europe. Almost the first step is to construct a tight wooden conduit, leading from some

window to a convenient point over the street, and the broken plastering, bits of lath, and other dust-producing portions of the débris, are thrown down this conduit into a closed cart below. When nothing remains but the walls, these are taken down brick by brick, and, in many cases, the bricks are immediately cleaned and relaid in the new work.

THE New York papers say that the contractor who is removing the foundations of the old Tombs prison has discovered, much to his satisfaction, that the building, instead of standing on piles, as was supposed, rests on "mud sills," or horizontal timbers, laid three tiers deep in the trenches. The prison was built in 1838, so that the timbers have been in the ground for sixty years, but they are still sound. The site of the building was formerly a swamp, so that the sills were originally laid in mud, and have probably been soaked with water ever since. Some settlement has taken place, which is not surprising; but the structure does not seem to have suffered any serious dislocation. It is hardly necessary to say that no one would dream now of supporting a large stone building, in the middle of a crowded city, on mud sills; yet, as every architect who has had much to do with old buildings knows, our forefathers used, with perfect success, methods of construction which would not now be tolerated for a moment; and, stranger still, their four-story buildings, enclosed by eight-inch brick walls, resting on a single layer of three-inch planks, still stand in perfect condition, while hardly a day passes without the news of the fall of structures containing, for the same amount of enclosed space, at least twice as much stone and brick work, and five times as much ironwork. We would not, of course, advocate a return to the methods of building of the last century, but in certain details of construction, particularly in the bonding of brick and stone work, they seem to have been our superiors.

M. LAMBIN concludes, in *La Semaine des Constructeurs*, his list of plants used as models by the mediæval sculptors of ornament, adding seventy-six species to his previous enumeration. Among these are not only most of the trees and shrubs of France, but such small forms as the scarlet pimpernel, the hepatica, the wood anemone, the vervain, the violet, the primrose and various artemisias and salvias. Most of these are used indifferently in all parts of France where the great mediæval school of architecture flourished, but it is curious that in Brittany, the country of salt-water and sailors, a large part of the foliage used in sculptured decoration is that of marine plants, particularly of the algæ, which form the most noticeable "seaweeds" of the coast. Elsewhere in France, such marine vegetation is little used as a model, but there are capitals in the Cathedral of Soissons decorated with algæ, and other examples are found in the central part of France.

WHEN one reflects that the development of the great architectural art of the thirteenth century was, to say the least, contemporaneous with a singular attention, on the part of the sculptors concerned with the decorative portion of that art, to the natural forms about them, while the still greater architectural art of Greece, in the sixth and fifth centuries, B. C., was contemporaneous with the most beautiful sculpture of the human figure that the world has ever seen, it is impossible to avoid the idea that there may be some connection between a disposition to observe closely the beautiful things of nature and a capacity for producing works great in the abstract qualities which constitute the art of architecture. In fact, many people have adopted that conclusion with an ardor which has not been altogether beneficial to the cause of art. Yet, if it is true that the study of the subtile lines of the human figure gave Ictinus and his associates the refined discernment necessary for designing the Parthenon, why did not the attempt of the twelfth-century sculptors to do the same thing produce in them a similar result? In its way, the Romanesque sculpture of Arles and St. Gilles is as great as most Greek architectural sculpture, yet the Romanesque sculptors were very indifferent to the proportions of the buildings which they helped to decorate, and the characteristic architecture of the Middle Ages was not developed until architectural sculptors had, as a rule, turned their best efforts away from figure-work to the imitation of those lower natural forms which the Greeks despised so heartily. That there ever was any connection between the mediæval system of vaulting and the over-arching trees of the forest, or between the horizontal stripes of Italian Gothic and the clouds hanging over the Adriatic, no one now believes, but the simultaneous appearance of two great arts, one of pure abstraction, and the other of pure naturalism, in the sixth century, B. C., and again, in a totally different form, nearly two thousand years later, is a phenomenon which can hardly be the result of accident. From the analogy of these instances and, in a different way, of the artistic movement of the Renaissance, it is reasonable to infer that any renewed development of architectural art, whether in this country or elsewhere, will be accompanied by a conspicuous revival of interest in all the arts; and, although it is impossible to say in what direction the next step in advance will be taken in any art, the development of all will certainly be promoted by the cultivation of a mutual understanding and appreciation among artists generally.

THE *Deutsche Bauzeitung* publishes plans and views of a very interesting little house in Charlottenburg, the best suburb of Berlin. Two years ago this house was the object of a special visit from the Berlin Society of Architects, and it certainly merits study. The architects were Cremer & Wolffenstein, who are well known for their clever and picturesque city work, but the owner seems to have had a considerable hand in the arrangement of the plan. The plot of land being large enough to afford light on four sides of the house, the owner directed that a large hall, or "Diele," to use the name applied to the similar room in old German houses, should be arranged, extending through two stories, lighted by a large window at one end, and opening at the other into the dining-room, the middle of which should be in the longer axis of the "Diele"; while in the centre of one side of the "Diele" should be a fireplace, in an alcove, and directly opposite this a vestibule leading to the main entrance of the building. The longer axis of the dining-room, again, was required to pass through the middle of a music-room, and a conservatory beyond; while a second axis, at right angles to the first, parallel to that of the "Diele," passed through the middle of the music-room, and of a parlor and boudoir, which also opened into the "Diele," by doors symmetrically arranged on each side of the great fireplace. It must be confessed that the conception of such a plan does credit to the taste and intelligence of the owner, and it has been carried out by the architects with great skill. As shown in the *Deutsche Bauzeitung*, the "Diele" forms a charming room, large enough to be dignified, without being too large to be homelike. The great four-centred mullioned window at one end, by which it is picturesquely and sufficiently illuminated, is filled with stained-glass; the ceiling is arched, and decorated with ribs and pendants, in the old German fashion, and the gallery, which runs around it at the level of the second floor, gives access to the family bed-rooms. The third story is a mansard, affording ample space for additional rooms. Allowing a reasonable size for the rooms, the house would, apparently, be about fifty-five or sixty feet square on the ground. As the cost of the building was something over seventy-five thousand dollars, it is likely that the latter dimension would be more nearly correct; but a similar arrangement could very well be compressed into fifty-five feet, or even fifty feet square, and to a client of a romantic turn of mind it might be very attractive.

ARCHÆOLOGISTS do not seem to agree much better than doctors in regard to professional questions. The New York *Times* publishes a long editorial in regard to an article in the *Gazette des Beaux-Arts*, in which Mlle. Eugénie Sellers claims that the so-called Hermes of Praxiteles, discovered at Olympia in 1877, is not the work of Praxiteles, but of Cephisodotus, who, according to the *Times*, was a pupil of Praxiteles. The Olympian Hermes is attributed to Praxiteles on authority of Pausanias, but, as Mlle. Sellers points out, Pausanias is known to have been careless in such matters, and, as Cephisodotus is known to have made a statue of Hermes, and as the one at Olympia strongly resembles another statue, representing Eirene, or Peace, a replica of which is still extant, and is preserved in the Glyptothek at Munich, she infers that both are from the same hand. Rayet, a French archæologist recently deceased, is said to have held a similar opinion. A trifling confusion is introduced into the discussion by the fact that Cephisodotus, who is called by the *Times* the pupil of Praxiteles, is believed by some archæologists to have been his father, but it is not impossible that they might have worked together.

PUEBLO ARCHITECTURE.[1]—IV.

ROOF CONSTRUCTION.

A Tusayan Wood Rack.

ALTHOUGH pueblo architecture is a stone system, growing out of the abundance of rocky material in the Pueblo country, yet these builders have never been able to dispense with timber in the construction of roofs, notwithstanding that they had every incentive to do so. Roof timbers must be brought from a long distance, and with the means of transportation at command this part of the construction is more onerous than all the rest combined.

While many of the ruins are located in timbered regions, the larger ones are usually found in the open valleys, and the roof-timbers used in their construction must necessarily have been brought several miles. In almost every case the same conditions would eventually prevail, for an occupation of a site for one or two centuries, not unusual in pueblo history, would cause the surrounding region for many miles to be denuded of its timber. At the present day the inhabitants of the Moki villages are compelled to transport their fire-wood eight or ten miles on the backs of burros, and logs large enough for building purposes are seldom procured nearer than fifteen or twenty miles.

Ancient Floor-beams at Kien-tiel.

Prior to the Spanish conquest the Pueblos had no beast of burden and the transportation of large timbers was an onerous task. Doubtless this was one of the principal causes for the small size of rooms in the ancient ruins as compared with the modern villages. Moki traditions contain a very clear account of the difficulty encountered in procuring timbers for roofing the Mission buildings put up by the monks at several of the villages, and destroyed in the great insurrection of 1680. These timbers were brought from the pine forests of the San Francisco mountains, over a hundred miles away, and were transported over that great distance on the backs of men. Some of them can still be seen in the roofs of the native kivas, or sacred chambers, where they were placed when torn out of the old Mission buildings.

It must not be forgotten that until quite recently the Pueblos had no metal implements, and the cutting of a log of wood was a task requiring much time and labor. The timber was cut by guess and was not often of the exact length required. If too short, it could not be used, but if too long it was placed in the wall without further attempt at fitting and the end was allowed to project, often five or

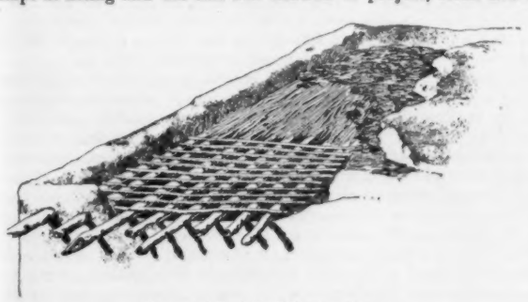


Diagram of Zuni Roof Construction.

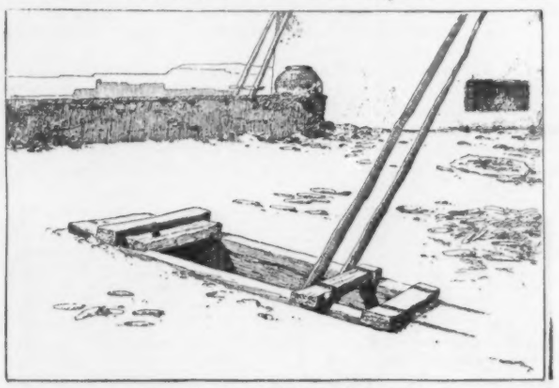
six feet. The same custom prevails to-day, and roof-timbers projecting from a few inches to a few feet are the rule. Quite often the roof is carried out over the projection thus formed and thus an efficient protection of the side walls is secured.

In the pueblo system roofs and floors are practically the same; that is, roofs are constructed in a similar manner whether they are exposed or whether they form floors for rooms above. This doubtless arises from the fact that the great house clusters are not the product of intelligent design, but of growth, as the necessity for more space compels the addition of room after room to those already erected.

The construction of a pueblo roof is a simple process and, except the main timbers, the material used in it is everywhere abundant. The main timbers are eight to twelve inches in diameter and are laid about two feet apart on the top of the walls when the latter reach the proper height, being wedged and chinked with bits of stone and held in place by a foot or more of masonry added to the wall after the beams are placed.

When the main timbers are thus solidly built into the wall, a secondary series of lighter timbers or poles is placed across them, and these, in turn, are covered with twigs and brush. Over this dry grass is spread, and the roof is treated with a surfacing of clay or adobe mud, which is applied wet and trampled down, and finally covered with dry earth. Often clayey earth is spread directly upon the layer of grass, and in time this settles down and forms a smooth, even surface which resists water fairly well.

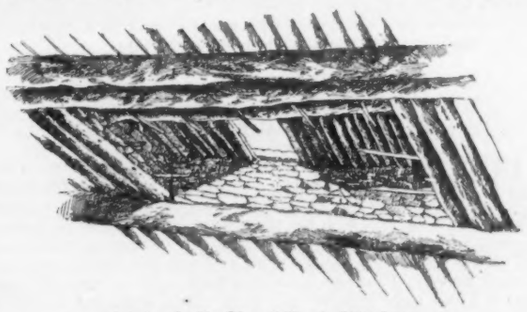
Earth roofs, such as those described, must be made nearly flat, for even a slight pitch will cause them to be washed out by rains. Owing to their flatness, however, a long continued rain readily penetrates the earth and brush and drips through into the room below. The water from melting snow is almost sure to come through, unless the snow is removed from the roofs immediately after it has fallen.



A Kiva [Sacred Chamber] Trap-door, Zuni.

Such roofs, however, are almost impervious to the sun's heat; and in the Pueblo country, where the summer temperature often reaches 120 degrees, but where rains are seldom more than showers, and snow, which falls but seldom, generally disappears in a few days, these roofs are an admirable adaptation of means supplied by nature.

Throughout the whole of the Pueblo country, comprising parts of four States and Territories, and covering an area of 150,000 square miles, extending from the western part of the great plains into the mountainous regions west of them, there is a remarkable homogeneity in roof construction, notwithstanding the wide diversity in character of surroundings. Only minute differences exist between ruins and villages hundreds of miles apart and removed from one another by centuries of time. Although the older ruins are almost always roofless, traces of the former covering often remain. In the old ruin of Kin-Tiel, claimed by the Zuñis, and situated on the trail between that pueblo and the Moki villages, walls are still standing to a height of ten feet in places, and here and there the old roof-timbers or floor-beams remain in place. Excavations now being made at



Interior of a Kiva [Sacred Chamber] Hatchway.

this ruin under the auspices of the Bureau of American Ethnology show that it is almost certainly pre-Columbian; that is, that these beams were placed over three hundred and fifty years ago. Similarly in many of the old cliff ruins, especially in those of large size, the timbers remain as they were placed by the builders.

The preservation of these timbers, in some cases for several centuries, is due to the extreme dryness of the climate. They have

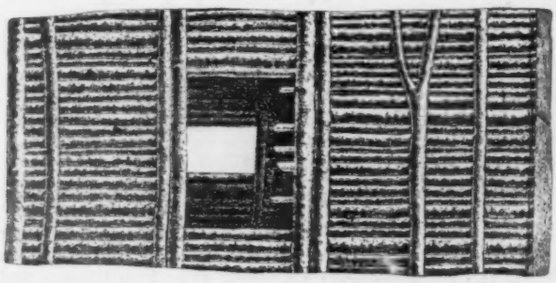
[1] Continued from No. 1126, page 33.

remained in place for all these years, and in regions where the supply of timber and even of firewood is very scanty, because the present occupants of most of that region, the Navajo Indians, have a superstitious dread of everything connected with the old ruins: they will never under any circumstances eat food prepared on a fire made of wood from such a place, or use any of its timbers in their own huts. The comparative abundance of white tourists in the past decade and their frequent spoliation of the ruins without evil consequences to themselves have had their effect on the Navajos, and the old superstition is not so strong as it was, but there is no doubt that to this feeling we owe the preservation of the ruins undisturbed for centuries.

The flat roofs of a pueblo cluster are much used as places of social resort in the evenings, and in the summer time are often covered with fruit and vegetables put out to dry. Strings of peppers, or chili, and strips of meat, are hung from the projecting rafters and add a bit of color to the prevailing gray tone. Piles of cut firewood are stacked on the copings, where they occupy but little space; but even this little is valuable, and racks are often constructed on the level of the first roof, thus in fact increasing its area.

Perhaps the best roof-construction occurs in the kivas, or sacred ceremonial chambers in which the civil and religious business of the tribe is transacted. In the Moki villages these chambers are rectangular, approximately 15 by 25 feet and 9 or 10 feet high, and are always constructed underground, or partly underground. They are invariably entered by means of a ladder through a hatchway in the roof and have no other exterior opening. Usually the roof is on the level of the ground and the hatchway is raised a foot above it by side walls of stone masonry; the construction is shown in the ceiling plan and in the interior view.

In Zuñi the kivas are not detached structures, but are rooms incorporated into the house clusters. Doubtless this change of arrangement was brought about by the repressive policy of the Spanish monks, who dominated the people for a long time, and whose efforts to eliminate the native religion compelled the performance in secret of the ancient rites. The kivas can be recognized, however, by the



Ceiling Plan of a Kiva.

peculiar trap-door, which resembles somewhat the hatchway of the Moki structures.

There is little doubt that in ancient times the kivas were circular, and doubtless this form is a survival from the time when the people lived in circular lodges of brush or earth, as the Navajos do to-day. Many circular stone chambers are found in the cliff ruins and in other village remains. These are sometimes incorporated into clusters of rectangular rooms, sometimes attached to the edge of the cluster; the latter is the typical and traditional arrangement. In the former case the problems arising from the use of circular and rectangular rooms together were too difficult for the old builders, and many awkward expedients can be seen. The principal problem, however, the roofing of the circular rooms, was solved in a very simple manner. Each circular room was enclosed in a rectangular chamber, and the latter was roofed in the usual way.

Cosmos Mindeleff.

[To be continued.]

THE MONUMENT TO COLONEL R. G. SHAW.

We have waited until now to lay before our readers views of the memorial erected to the memory of Col. Robert G. Shaw and the members of the Fifty-fourth Regiment, so that the prints might not be disfigured with the relics of wreaths and other decorations with which the various portions of the monument were decorated at the time of its inauguration and which a natural sense of propriety prevented any one from removing. At last most of these tender tributes have decayed and been swept away, but it will be noticed that the front view still shows a rope running from one tree to another, whose purpose it is not easy to guess unless it is to prevent spectators from poking their umbrellas through the bronze, in the same way that the big crimson cord prevents the same disaster at the various picture galleries.

There is no doubt but that in this structure Boston has acquired a work of very high value and artistic merit, although just what rank will finally be accorded to it, it is too early to surmise. The fact that it is indubitably better than anything else in the city is not, unfortunately, to say much in its praise; but, by any fair standard of value, it has merits which cannot be questioned.

Those who are familiar with the history of the undertaking, who know with what reverent and tender feelings a certain number of citizens in Boston combined together a good many years ago to secure for the young soldier and his swarthy followers a memorial which should not only be a fitting tribute to his self-sacrificing heroism and their racial courage, but also a significant record of one of the most interesting political events in our history, will realize with what distress these promoters were compelled to endure the delay and disappointment of seeing their enterprise so long deprived of its proper fruition. Again and again the sculptor, Mr. St. Gaudens, held out expectation that at last he was nearly satisfied with the work and should soon be able to comply with his pledges and carry out his agreement; but so often did these rumors wither that there were some who were willing to say to one another that it began to look as if the sculptor were afraid of his own reputation; for it was known that he desired this work to be his masterpiece, and he seemed to shrink from presenting to the world the standard by which he wished his art and himself to be finally measured. In the intervening time, many of the original promoters of the undertaking have passed away without seeing this one of their desires carried into execution; but those who survive are entirely willing to acknowledge that the final result is to them full compensation for all the delay and anxiety to which they had been subjected; while the nearly contemporaneous unveiling of this monument, the Cooper monument in New York and the Logan statue in Chicago is evidence that the sculptor had other reason than timidity for causing the vexatious delays.

In this monument, so far as it is the work of Mr. St. Gaudens, — and, of course, the flavor and essence of the memorial lies in his work, — he has endeavored to incorporate a very unusual treatment. In size, in composition, in the combination of high relief with low relief and with the figure in the round, this composition stands, so so far as we can recall, practically in a class by itself; and if the sculptor has failed in any particular, it will readily be agreed that it is probably because he sought to combine, for the first time, elements which have not hitherto been treated in combination, and that naturally the result may not be quite as satisfactory as if he had had the opportunity of first studying the essays made by others in a similar class of work. It seems to us inevitable that, where the mechanical difficulties were greater than usual, they must have had a hampering effect upon the flow and sequence of the sculptor's artistic impulse, and that, consciously or unconsciously, he must have felt more than usually impeded by the restraining influence of unaccustomed practical difficulties.

In its essence, the sculptor's idea is as composite as is the composition itself, and we find it difficult to feel that the result is as satisfactory as it might have been, had both composition and the guiding purpose been of a more simplified character. In its first essential, it has, to an undesirable extent, the attributes of a mere pictorial composition. It is realistic to a degree, and its realism is of such a character that, while it retains interest and attracts attention, it is more because of its faithful rendering of an unusual and picturesque historical event than because of the sculptural dignity or artistic merit in the work itself as a piece of statuary. That is, the result is too nearly the mere graphic record of an historic event, rigidly correct in all its ethnical, social and military details but not quite reaching the height of artistic possibilities that the incident offers. Rude treated his "Departure" in a little different spirit, and yet he chronicled no more patriotic event than this marching of the colored troops on what all felt was really a forlorn hope.

As apart from the event itself — the mere exodus — which the bronze undertakes to immortalize, it is extremely difficult to find in the composition much trace of feeling or sentiment; and it seems to us as if the sculptor himself must have felt that he were producing a merely pictorial record — that his own handiwork was not telling with sufficient pathos the story which might be told, that led him to introduce into his composition the allegorical figure above the column of troops. From our standpoint, this device, although well intentioned, has been quite inadequate to produce what we assume to be the intended and desired effect, and has merely resulted in introducing a bit of strictly sculpturesque trickery which does not mitigate the realism of the composition below, but appears merely as a discordant element in the composition. If it were desirable to treat the main composition realistically, to present merely a pictorial modelling of an event; if it were really impossible to in any way elevate, etherealize and ennoble the files of colored troops, — as it seems it would not have been impossible to do in the case of Colonel Shaw and his horse, — why, then it would have been better to leave the composition as a mere realistic and pictorial record, a result which would have, in all probability, satisfied the expectations of the general populace and the desires of the Association which was erecting the monument.

As a piece of very unusual and very elaborate modelling, as exhibiting great skill on the part of the sculptor, and a thorough mastery of all the technical branches of his art, we willingly acknowledge that the work is not only interesting but worthy of the sculptor's reputation; but at the same time we cannot avoid the feeling that as a result of inspiration, of high artistic impulse, as a sympathetic idealization, it falls short of what our own conception of it would be, based upon our observation of the work which Mr. St.

Gaudens has previously contributed to the world's stores of interesting and worthy sculpture.

How far the sculptor was himself responsible for the selection of the incident which was to memorialize a social, military and political development which was not only historical but more than ordinarily full of pathos, it is not for us to say. It seems quite probable that the selection was more or less influenced by the direct instructions, or the inferred predilections, of the Association's committee. All personal friends of Colonel Shaw preferring that the memorial should take the form of a portrait statue, it was not unnatural that, remembering how the young man and his troops marched down Beacon Hill on their way to the cars, they should have indicated to the sculptor that he should recall in bronze the last glimpse they had of their departing young friend. If this be so, then it follows, somewhat as a matter of course, that the sculpture should bear the impress of a certain amount of realism; for it is hard, in the case of a portrait statue, to introduce an idealism which practically belongs to the inner nature of the subject and not to his external envelope, which, of course, is what can mainly be expressed in sculpture.

While the train of historic incidents which this tablet commemorates is one unique in our own history, it is not by any means without parallel in the history of other nations. It is no uncommon thing for a European commander to lose his life while heroically leading a forlorn hope composed of colored and half-savage troops. The annals of African and Indian warfare are full of heroic parallels, where French, German, and English officers have performed deeds equally worthy of commemoration with those in which Colonel Shaw took part. Although we cannot recall that any of these similar incidents have ever been commemorated in just this way, there are several cases where the sculptor has managed to treat the subject with sufficient realism and yet has not wholly lost sight of the pathetic and sentimental side of the situation. In the north aisle of St. Paul's Cathedral, we remember seeing, a few years ago, a bronze bas-relief tablet erected to the memory of the men and officers of a certain cavalry regiment, where the movement was fine and the treatment of the composition was altogether more artistic than realistic. Many of the memorials of the Franco-Prussian conflict erected by the French show work which is, without question, realistic, but equally without question full of pathos and sentiment; and we can find it in our hearts to wish that Mr. St. Gaudens could have been allowed by his advisory committee to treat his subject a little more from the sentimental and idealistic standpoint than from the purely material and realistic. Some of our readers may remember that, at the Boston Museum of Fine-Arts, there is an extremely interesting drawing by Dr. William Rimmer, in which essentially the same subject — the advance of the Fifty-fourth Regiment on the monster Slavery — is treated in a most highly idealized way. All of Dr. Rimmer's drawings were essentially sculpturesque, and this one was a particularly successful one; and while it was unquestionably a purely allegorical rendering, it nevertheless conveyed a suggestion of the unusual character of the event commemorated, and we would like to have had Mr. St. Gaudens introduce in the treatment of his general composition a similar suggestion of exaltation.

While the monument has deservedly met with general applause and approbation, it has nevertheless been made the target of a certain amount of criticism and amusing newspaper discussion. The scholars have made a great deal of the brief Latin inscription, which is generally declared to be at fault, but which we believe is quite admissible, being, as we understand it, merely the motto of the Cincinnati Society, of which Colonel Shaw was, by right of descent, a member. Then, too, one of the newspapers alleged that a very amusing blunder in plain English had been committed in carving one of the inscriptions in the stone-work; but as this blunder could easily be corrected, it is now no longer discoverable. Besides this, old soldiers point out that the sculptor has committed the solecism of placing Colonel Shaw on the right of the line instead of the left. This, of course, is an allowable inversion of military propriety; since, if the troops were to be represented as marching down the hill to the westward, the column of the troops would be shown in front of the horse, and so prevent the making of the mounted figure the prominent and outstanding feature which the sculptor desired. It is quite possible, however, that the incident is depicted with historical accuracy, since, as the Governor reviewed the troops from the State House steps, the Colonel may have, at the saluting point, marched on the right of the line, as shown in the panel. Other critics — horsemen — have complaints to make as to the manner in which the sculptor has chosen to treat the horse, and they express the feeling that it is hardly possible that Mr. St. Gaudens can himself be a horseman or familiar with the treatment which a good horseman ordinarily accords to his mount. The horse itself seems one which easily might fall to an officer's luck as a remount in the field, but it is hardly likely that, in the early years of the war, any officer would set out from home with so hard-bitted and unelastic a steed as here must gape open-mouthed at generations to come. We cannot regard Mr. St.

Bronze Panel of the Shaw Monument. Augustus St. Gaudens, Sculptor.

Gaudens's treatment of the equine portion of the monument as being any more successful in the case of the Logan statue, recently unveiled at Chicago, than it is here in the Shaw monument at Boston. In both cases, the horses give the impression that they have been modelled after a knowledge derived from books, rather than in consonance with the teachings of an intimate personal acquaintance with the animal as a species; and as, in the case of all equestrian sculpture, it is, in the nature of things, the horse and not the rider which gives the keynote to the beholder's general impression, it is a little unfortunate that a sculptor of Mr. St. Gaudens's real ability did not chance to have a greater personal knowledge of the animal. If we seem to be somewhat hypercritical in advancing these slight objections, this slight wind-break in the general current of applause, it is not because we are unable to perceive or to admit the masterly way in which the sculptor has handled his subject. He has unquestionably devised an unusual treatment, and has carried it into execution in an able manner, and we believe that, where he has fallen short, it is because he has been in part handicapped by the material difficulties of an unusual technical endeavor and in part by the instructions of the advisory committee, which he felt bound to comply with. As a piece of pictorial sculpture, it will always maintain high rank and deserve respect and admiration; as a piece of portrait sculpture, it will equally deserve commendation; and it is only in the field of sentiment and idealization, where the relative values will differ with the intellectual and sentimental composition of each observer, that there is to be found any great risk of unkindly, and possibly undeserved, criticism.

As to the monument as a whole, it is a very satisfactory and successful composition, particularly so when the architects' work is seen from the Beacon-Street Mall below. It is only when seen from the Beacon-Street side that the architectural treatment is found to be somewhat inadequate. Here, in the endeavor not to have the architectural treatment in any way conflict with or overburden the sculptor's work, the architects have been too self-denying and have given the crowning member too little value in the general composition, and this defect is all the more noticeable because of the awkward way in which the curved line is connected with the short bit of straight entablature. The site and the manner in which the site has been taken advantage of by the architects are particularly happy; and it is only fair to point out that, while the monument, as it stands, is a credit to both sculptor and architect, it nevertheless owes no little of its artistic value to the skill of the landscape gardener who devised the means of protecting from injury and preserving the roots of the two great English elms during the laying of the heavy foundations. People who saw these roots exposed for so long a time doubted whether all the careful wrappings about them would succeed in maintaining life in the mighty trunks and limbs above; but it is pleasant to note that the vitality of the trees seems rather to have gained than lost by the operation.

As the casting of a panel of such size as this, where the figures are of heroic size and in high relief, presented unusual technical difficulties, it is a matter of gratification to those who are interested in American industrial arts that it was not found necessary to have the panel cast by either French or German founders. The successful work of the Gorham Manufacturing Company in casting and finishing the bronze allows the monument to stand as a wholly American product.

PARIS

PROGRESS OF THE PREPARATIONS FOR THE EXHIBITION OF 1900.

IT is time, perhaps, to speak of the work now going on for the Exposition of 1900. The general plan has been adopted, the work on the new palaces in the Champs Elysées is in full swing and the picture of the final result can be evoked in most of its particulars. The general aspect will not vary greatly from that which I sketched out in the *American Architect* for October 19, 1895. The greatest changes to note will be found in the palaces on the Champs Elysées, since at that time the competition had not been held, though later, November 28, 1896, this was described in some detail. M. Girault, charged with the construction of the Petit Palais, has also been given the general oversight of the Grand Palais facing it on the new avenue cut on the axis of the Invalides, to which it will give access over the new Pont Alexandre III.

Already the Grand Palais, begun on the side of the Avenue d'Antin, is taking shape in the way of foundation work, which has already made good progress. This westerly portion of the building has been entrusted to M. Thomas, while the portion which intervenes between it and the main portion by M. Deglane, on the new avenue, has been entrusted to M. Louvet.

On the fifteenth of February was made the first attack of the wreckers on the old Palais de l'Industrie. The work of demolition was delayed during the continuance of the annual *Salon*, which closed June 10th. The work of demolition is, at this writing, actively going on and will be finished, it is hoped, in October. The great entrance porch, which happens to fall outside of the line of the new building, will be preserved for the present, since in its spacious depths are being built the temporary quarters of the superintending officials.

In plan the nave of the Grand Palais extends for the full breadth of the structure parallel to the new avenue, and in it will be held the hippic competitions and here will be placed the sculptural exhibits of the yearly *Salons*. On the transverse axis the nave is extended part way into the portion assigned to M. Louvet, and at its extremity is placed the grand staircase, while the galleries are reached by staircases at either end. That portion of the building fronting on the Avenue d'Antin is more particularly devoted to reception purposes, though here will be found several exhibition halls. In the first story will be the *Grand Salon*, to be used for concerts and balls, reached by stairs from the grand nave and also from the Avenue d'Antin. The offices, work-rooms, stables, etc., are in the basement, or, rather, the ground floor, since the pitch of the ground is such that, though counting as basement rooms in the façade, they are actually above ground.

To judge from the drawings and models which have been prepared, the façades will be both decorative and monumental: they present a series of colonnades intercepted on the axes by the entrance features. Later it will be worth while to describe the building in detail, but now it is better to say a few words about the Exhibition as a whole.

The main approach will be over the new avenue, but another important entrance will be on the Quai de la Conférence in the angle of the Place de la Concorde. After crossing the Pont Alexandre III we shall find on the Esplanade of the Invalides the palaces of Furniture and Decoration, of Education, and for the various industries.

Following along the Seine, one will find between the Pont des Invalides and the Pont de l'Alma upon the left, ranged along the quay, with galleries corbelling out over the bank, the palaces and pavilions of the foreign powers. On the right hand, the palaces of the City of Paris, of Horticulture and Arboriculture, Social Economy, and of all the Congress. From the point-of-view of success, much is hoped from this part of the Exposition, which it is desired to make very picturesque and amusing, by holding here in the evenings a series of Venetian fêtes. Between the Pont de l'Alma and the Pont de Jéna, the Exposition only occupies the left bank, upon which will be erected the buildings of the Army, the Navy, and the Mercantile Marine. On the other side of the Pont de Jéna, on the same bank, will be found the Forestry Building and those devoted to Hunting, Fishing and Crops. On the Champ de Mars, a spectator on the Eiffel Tower will see before him, in the background, a grand château d'eau, dominated by the Palace of Electricity on the axis of the Champ de Mars, marking the site of the old Gallery of Machines. On each side, a series of palaces connected one with the other, of width decreasing up to the tower, will shelter, on the right hand, the Food Exhibit, Civil Engineering and Transportation, and the Materials and general processes of Mechanical Industry; on the left, the instruments and general processes of the Arts, Sciences, and Letters; Threads, Tissues and Clothes; Mines and Metallurgy, and Industrial Chemistry.

In the one-time Gallery of Machines will be arranged the exhibit of Agriculture, upon either side of the grand Salle des Fêtes, which will occupy the centre. This Salle des Fêtes will be built of light material in a wholly temporary fashion, since it must be completed between May, 1899, and May, 1900. Between this time and that, the Gallery of Machines will be a home to the two annual *Salons*, one of them driven from the Palais de l'Industrie, the other from the old Palais des Beaux Arts of the Champ de Mars.

On either side of the château d'eau, occupying the back of the rectangular horse-shoe formed by these palaces, a gentle rampe will conduct visitors to the first story of these palaces. So far as it may be possible, elevators will be multiplied, and it is thus hoped to satisfy the crowd who always grumble when they are obliged to ascend stairs; but the relatively restricted space, after the necessary requirements of the exhibitors have been satisfied, has made it obligatory to give a certain importance to these upper stories. In order to overcome this inconvenience and put gentle compulsion on the visitors, the cafés and restaurants will be established on the galleries overlooking the gardens, from whence a most attractive outlook will evidently be provided. Moreover, the elevated railroad serving the Invalides and the quays, passing by a viaduct over the Avenue La Motte Piquet, will bring visitors directly to the first story.

If the work-yards of the Champs Elysées are in full activity, those of the Champ de Mars are still very quiet. The demolition of the old central dome, of which the iron carcass is still standing, has only lately been begun. The gigantic statue of the Winged Victory which surmounted it, perched on the end of a supporting beam whose extension was disguised by decorations in staff and zinc, is now isolated and presents a most curious effect. In order to remove it, it has been necessary to build a special scaffolding. The demolition of the Palais des Arts Liberaux will begin at the end of July, and that of the Palais des Beaux Arts in the month of October. It is expected that the contracts for the new buildings will be made toward the end of the year, and then the work at the Champ de Mars will be in full swing. Two years and four months then remain

for carrying out the work before the opening of the Exposition, fixed for April 15, 1900, and the time is full short enough.

At the Invalides, a part of the esplanade is in disorder because of the works of the Chemin de Fer de l'Ouest and the stations which must occupy a large space near the same. The track, which follows the left bank, is in course of execution.

As to the Pont Alexandre III, which, as you know, is composed of only a single arch, 110 metres long, the foundation abutment on the right bank is soon to be begun; while the iron caisson for the placing of the concrete is already finished. This caisson measures 44 metres by 33½. To resume, then, on the side of the Champs Elysées reigns the greatest activity. Yet, nevertheless, they are not without disquietude because of the little time allowed for the execution of works of so great size and importance. Happily, it is to young men, active and devoted, that this task has been entrusted. The studies are being carried along in such a fashion that the work, once begun, will be subject to no delays. It is only to be hoped that between now and 1900 the Seine may be a little reasonable and not indulge in one of its usual overflows.

And now for the names of the architects entrusted with the different portions of work for the Exposition of 1900, who have been chosen from among those whose schemes received prizes in the original competition:

M. René Binet: The monumental entrances from the Champs Elysées and the Place de la Concorde.

MM. Cassien-Bernard and Cousin: The architectural and decorative treatment of the Pont Alexandre III, and the treatment of the adjustment of the quays and banks of the Esplanade of the Invalides.

MM. Toudoire and Pradelle: Palace of Education and Instruction, and the Galleries of National Manufactures.

M. Esquié: Palace of Decoration and Furniture.

M. Tropey Bailly: Palace of Ceramics, Crystals and Glass on the banks of the Seine and the Champ de Mars.

M. Ch. Albert Gautier: Palace of Horticulture. The quays and banks between the Pont de l'Alma and the Pont des Invalides.

M. Ch. Mewès: Palace of Social Economy and Congresses, and the provisional bridges passing over the ways leading to the Pont de l'Alma.

MM. Tronchet and Rey: Palaces of Navigation, Commerce, Forestry, Hunting, Fishing and Crops, as well as the quays and banks down stream of the Pont de l'Alma.

M. Sortias: Palace of Letters, Sciences and Arts.

M. Varcollier: Palace of Food Stuffs.

M. Blavette: Palace of Threads, Tissues and Clothes.

M. Jacques Hermant: Palace of Civil Engineering and Transportation.

M. Paulin: Palace of Machinery; Palace of Mines and Metallurgy, and the Château d'Eau at the back of the Champ de Mars.

M. Eugène Hénard: Palace of Electricity and that of Industrial Chemistry.

M. Raulin: Arrangement of the Machinery Gallery as a salle des fêtes, the Agricultural Building, and the Trocadéro.

MM. Deperthes, father and son: The Colonial Palace.

The service of installation is entrusted to M. Louis Bonnier, Architect-in-Chief, to whom have been added M. Lucien Roy for the French sections and M. Masson-Détourbet for the foreign sections.

NATIONAL ELECTRICAL CODE.[1]—III.

LOW-POTENTIAL SYSTEMS. — 300 VOLTS OR LESS.

[*Any circuit attached to any machine, or combination of machines, which develops a difference of potential, between any two wires, of over ten volts and less than 300 volts shall be considered as a low-potential circuit, and as coming under the class, unless an approved transforming devise is used, which cuts the difference of potential down to ten volts or less. The primary circuit not to exceed a potential of 3,000 volts.*]

24. Wires —

GENERAL RULES.

(*See also Nos.* 14, 15 *and* 16.)

a. Must not be laid in plaster, cement or similar finish.

b. Must never be fastened with staples.

c. Must not be fished for any great distance, and only in places where the inspector can satisfy himself that the rules have been complied with.

d. Twin-wires must never be used, except in conduits, or where flexible conductors are necessary.

e. Must be protected on side walls from mechanical injury. When crossing floor-timbers in cellars or in rooms, where they might be exposed to injury, wires must be attached by their insulating supports to the under side of a wooden strip, not less than one-half inch in thickness, and not less than three inches in width.

Suitable protection on side walls may be secured by a substantial boxing, retaining an air-space of one inch around the conductor, closed at the top (the wires passing through bushed holes), and extending not less than five feet from the floor; or by an iron-armored or metal-sheathed insulating conduit sufficiently strong to withstand the strain it will be subjected to; or plain metal pipe, lined with insulating tubing, which must extend one-half inch beyond the end of the metal tube.

The pipe must extend not less than five feet above the floor, and may extend through the floor in place of a floor bushing.

If iron pipes are used with alternating currents, the two or more wires of a circuit *must* be placed in the same conduit. In this case the insulation of each wire must be reinforced by a tough conduit tubing projecting beyond the ends of the iron pipe at least two inches.

f. When run immediately under roofs, or in proximity to water-tanks or pipes, will be considered as exposed to moisture.

SPECIAL RULES. — FOR OPEN WORK:

In Dry Places:

g. Must have an *approved* rubber or weatherproof insulation (see No. 40 *a* and *b*).

h. Must be rigidly supported on non-combustible, non-absorptive insulators, which separate the wire at least one-half inch from the surface wired over, and they must be kept apart at least two and one-half inches.

Rigid supporting requires under ordinary conditions, where wiring along flat surfaces, supports at least every four and one-half feet. If the wires are liable to be disturbed, the distance between supports should be shortened. In buildings of mill construction, mains of No. 8 B. & S. wire or over, where not liable to be disturbed, may be separated about four inches, and run from timber to timber, not breaking around, and may be supported at each timber only.

This rule will not be interpreted to forbid the placing of the neutral of a three-wire system in the centre of a three-wire cleat, provided the outside wires are separated two and one-half inches.

[*In damp places, such as Breweries, Packing-houses, Stables, Dye-houses, Paper or Pulp Mills, or buildings specially liable to moisture or acid or other fumes liable to injure the wires or their insulation, except where used for pendants:*]

i. Must have an *approved* rubber insulating covering (see No. 40 *a*).

j. Must be rigidly supported on non-combustible, non-absorptive insulators, which separate the wire at least one inch from the surface wired over, and they must be kept apart at least two and one-half inches.

Rigid supporting requires under ordinary conditions, where wiring over flat surfaces, supports at least every four and one-half feet. If the wires are liable to be disturbed, the distance between supports should be shortened. In buildings of mill construction, mains of No. 8 B. & S. wire or over, where not liable to be disturbed, may be separated about four inches and run from timber to timber, not breaking around, and may be supported at each timber only.

k. Must have no joints or splices.

FOR MOULDING WORK:

l. Must have an *approved* rubber insulating covering (see No. 40 *a*).

m. Must never be placed in moulding in concealed or damp places.

FOR CONDUIT WORK.

n. Must have an *approved* rubber insulating covering (see No. 40 *e*).

The use of concentric wire (see No. 40 *e*) is recommended in preference to twin conductors.

o. Must not be drawn in until all mechanical work on the building has been, as far as possible, completed.

p. Must not have wires of different circuits drawn in the same conduit.

q. Must, for alternating systems, have the two or more wires of a circuit drawn in the same conduit.

It is advised that this be done for direct-current system also, so that they may be changed to alternating systems at any time, induction troubles preventing such a change unless this construction is followed.

FOR SO-CALLED CONCEALED WORK:

r. Must have an *approved* rubber insulating covering (see No. 40 *a*).

s. Must be rigidly supported on non-combustible, non-absorptive insulators which separate the wire at least one inch from the surface wired over, and must be kept at least ten inches apart, and, when possible, should be run singly on separate timbers or studding.

Rigid supporting requires under ordinary conditions, where wiring along flat surfaces, supports at least every four and one-half feet. If the wires are liable to be disturbed, the distance between supports should be shortened.

t. When from the nature of the case it is impossible to place concealed wiring on non-combustible insulating supports of glass or porcelain, the wires, if not exposed to moisture, may be fished on the loop system if incased throughout in approved continuous flexible tubing or conduit (see page 45).

FOR FIXTURE WORK:

u. Must have an *approved* rubber insulating covering (see No. 40 *d*), and shall not be less in size than No. 18, B. & S.

v. Supply conductors, and especially the splices to fixture wires, must be kept clear of the grounded part of gas-pipes, and, where shells are used, the latter must be constructed in a manner affording sufficient area to allow this requirement.

w. Must, when fixtures are wired outside, be so secured as not to

[1] Rules and requirements of the National Board of Fire Underwriters for the installation of wiring and apparatus for electric light, heat and power, as recommended by the Underwriters' National Electric Association. Continued from No. 1131, page 74.

be cut or abraded by the pressure of the fastenings or motion of the fixture.

25. Interior Conduits —

(*See also Nos.* 24, *n to q, and* 41.)

The object of a tube or conduit is to facilitate the insertion or extraction of the conductors to protect them from mechanical injury and, as far as possible, from moisture. Tubes or conduits are to be considered merely as raceways, and are not to be relied upon for insulation between wire and wire or between the wire and the ground.

a. Must be continuous from one junction-box to another or to fixtures, and the conduit tube must properly enter all fittings.

b. Must be first installed as a complete conduit system, without the conductors.

c. Conduits must extend at least one-half inch beyond the finished surface of walls or ceilings, except that, if the end is threaded and a coupling screwed on, the conduit may be left flush with the surface, and the coupling may be removed when work on building is completed.

d. Must, after conductors are introduced, have all outlets plugged with special wood or fibrous plugs, made in parts, and the outlet then sealed with approved compound. Joints must be made air-tight and moisture proof.

e. Must have the metal of the conduit permanently and effectually grounded.

26. Fixtures —

(*See also No.* 24 *u to w.*)

a. Must, when supported from the gas-piping of a building, be insulated from the gas-pipe system by means of *approved* insulating joints (see No. 51) placed as close as possible to the ceiling.

It is recommended that the gas outlet pipe be protected above the insulating joint by a non-combustible, non-absorptive insulating tube, having a flange at the lower end, where it comes in contact with the insulating joint; and that, where outlet tubes are used, they be of sufficient length to extend below the insulating joints, and that they be so secured that they will not be pushed back when the canopy is put in place. Where iron ceilings are used, care must be taken to see that the canopy is thoroughly and permanently insulated from the ceiling.

b. Must have all burs, or fins, removed before the conductors are drawn into the fixture.

c. The tendency to condensation within the pipes should be guarded against by sealing the upper end of the fixture.

d. No combination fixture in which the conductors are concealed in a space less than one-fourth inch between the inside pipe and the outside casing will be approved.

e. Must be tested for "contacts" between conductors and fixtures, for "short circuits" and for ground connections before it is connected to its supply conductors.

f. Ceiling-blocks of fixtures should be made of insulating material; if not, the wires in passing through the plate must be surrounded with non-combustible, non-absorptive, insulating material, such as glass or porcelain.

27. Sockets —

(*For construction rules, see No.* 47.)

a. In rooms where inflammable gases may exist the incandescent lamp and socket must be inclosed in a vapor-tight globe, and supported on a pipe-hanger, wired with approved rubber-covered wire (see No. 40 *a*) soldered directly to the circuit.

b. In damp or wet places, or over specially inflammable stuff, waterproof sockets must be used.

When waterproof sockets are used, they should be hung by separate stranded rubber-covered wires, not smaller than No. 14 B. & S, which should, preferably, be twisted together when the drop is over three feet. These wires should be soldered direct to the circuit wires, but supported independently of them.

28. Flexible Cord —

a. Must have an *approved* insulation and covering (see No. 40 *c*).

b. Must not be used as a support for clusters.

c. Must not be used except for pendants, wiring of fixtures and portable lamps or motors.

d. Must not be used in show-windows.

e. Must be protected by insulating bushings where the cord enters the socket.

f. Must be so suspended that the entire weight of the socket and lamp will be borne by knots under the bushing in the socket, and above the point where the cord comes through the ceiling block or rosette, in order that the strain may be taken from the joints and binding screws.

29. Arc-Lights on Low-Potential Circuits —

a. Must have a cut-out (see No. 17 *a*) for each lamp or each series of lamps.

The branch conductors should have a carrying-capacity about fifty per cent in excess of the normal current required by the lamp, to provide for heavy current required when lamp is started or when carbons become stuck without over-fusing the wires.

b. Must only be furnished with such resistances or regulators as are inclosed in non-combustible material, such resistances being treated as sources of heat. Incandescent lamps must not be used for resistance devices.

c. Must be supplied with globes and protected by spark-arresters and wire-netting around globe, as in the case of arc-lights on high-potential circuits (see Nos. 19 and 50).

30. Economy Coils —

a. Economy and compensator coils for arc-lamps must be mounted on non-combustible, non-absorptive insulating supports, such as glass or porcelain, allowing an air-space of at least one inch between frame and support, and in general to be treated like sources of heat.

31. Decorative Series Lamps —

a. Incandescent-lamps run in series shall not be used for decorative purposes inside of buildings, except by special permission in writing from the Inspection Department having jurisdiction.

[To be continued.]

ILLUSTRATIONS

[*Contributors of drawings are requested to send also plans and a full and adequate description of the buildings, including a statement of cost.*]

THE COLONEL ROBERT G. SHAW MEMORIAL, FROM THE COMMON, BOSTON, MASS. MESSRS. McKIM, MEAD & WHITE, ARCHITECTS, NEW YORK, N. Y.

[Gelatine Print, issued with the International and Imperial Editions only.]

ROSE-WINDOWS: WHEELS. PLATES I AND II.

HAVING, some time ago, occasion to search for a certain form of rose-window, we discovered that apparently there was no publication, apart from Raguenet's little serial, in which any considerable number of rose-windows had been brought together in a way to facilitate comparison and study. We have thought, therefore, to do a helpful thing in making this series of illustrations which begins its appearance to-day. As the basic geometrical construction lines would but confuse the several designs these lines have been omitted, but the centres of the several arcs have been preserved, and by the aid of these points the student can deduce the geometric diagram.

HOUSE OF MRS. WALDO, 728 MADISON AVE., NEW YORK, N. Y. MESSRS. KIMBALL & THOMSON, ARCHITECTS, NEW YORK, N. Y.

[The following named illustrations may be found by reference to our advertising pages.]

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ACCESSORIES OF LANDSCAPE ARCHITECTURE, NO. LXIV: VIEW IN THE GARDEN OF THE VILLA BORGHESE, ROME, ITALY.

A GROUP OF DOMED CHURCHES.

A GROUP OF CHAPELS.

[Additional Illustrations in the International Edition.]

THE COLONEL ROBERT G. SHAW MEMORIAL, FROM BEACON ST., BOSTON, MASS. MR. AUGUSTUS ST. GAUDENS, SCULPTOR: MESSRS. McKIM, MEAD & WHITE, ARCHITECTS, NEW YORK, N. Y.

[Gelatine Print.]

THE BRONZE PANEL OF THE SHAW MEMORIAL, BOSTON, MASS. MR. AUGUSTUS ST. GAUDENS, SCULPTOR, NEW YORK, N. Y.

[Gelatine Print.]

ALTHOUGH a copyright has been placed on this panel, the sculptor has been kind enough to waive his claim in our behalf.

THE PALACE OF THE CITY OF BRUSSELS AT THE INTERNATIONAL EXHIBITION, BRUSSELS, BELGIUM. M. SAINTENOY, ARCHITECT.

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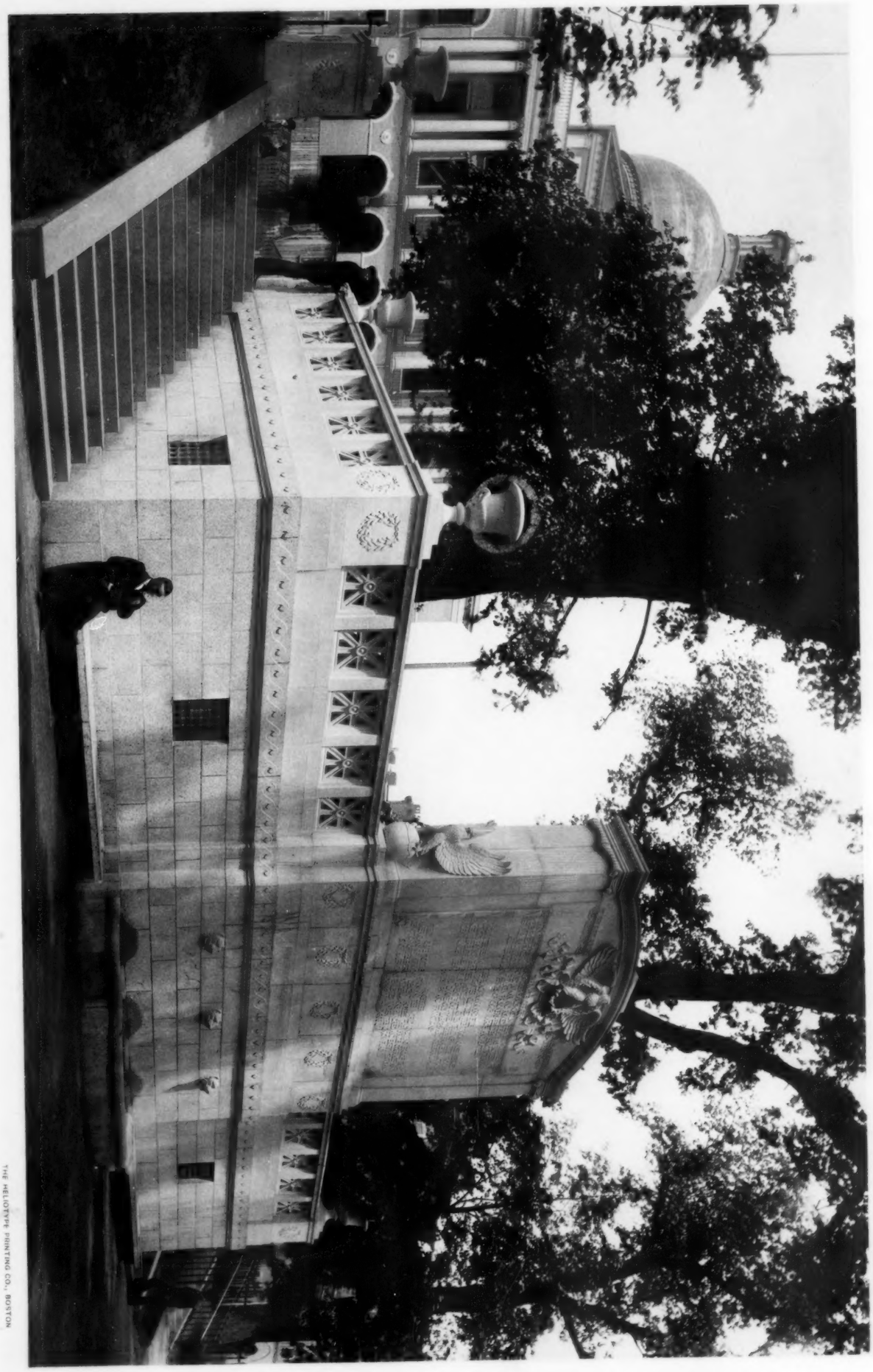
THE RATHSAPOTHEKE, BREMEN, GER. HERR M. SALZMANN, ARCHITECT.

S. J. Parkhill & Co., Printers, Boston, U. S. A.

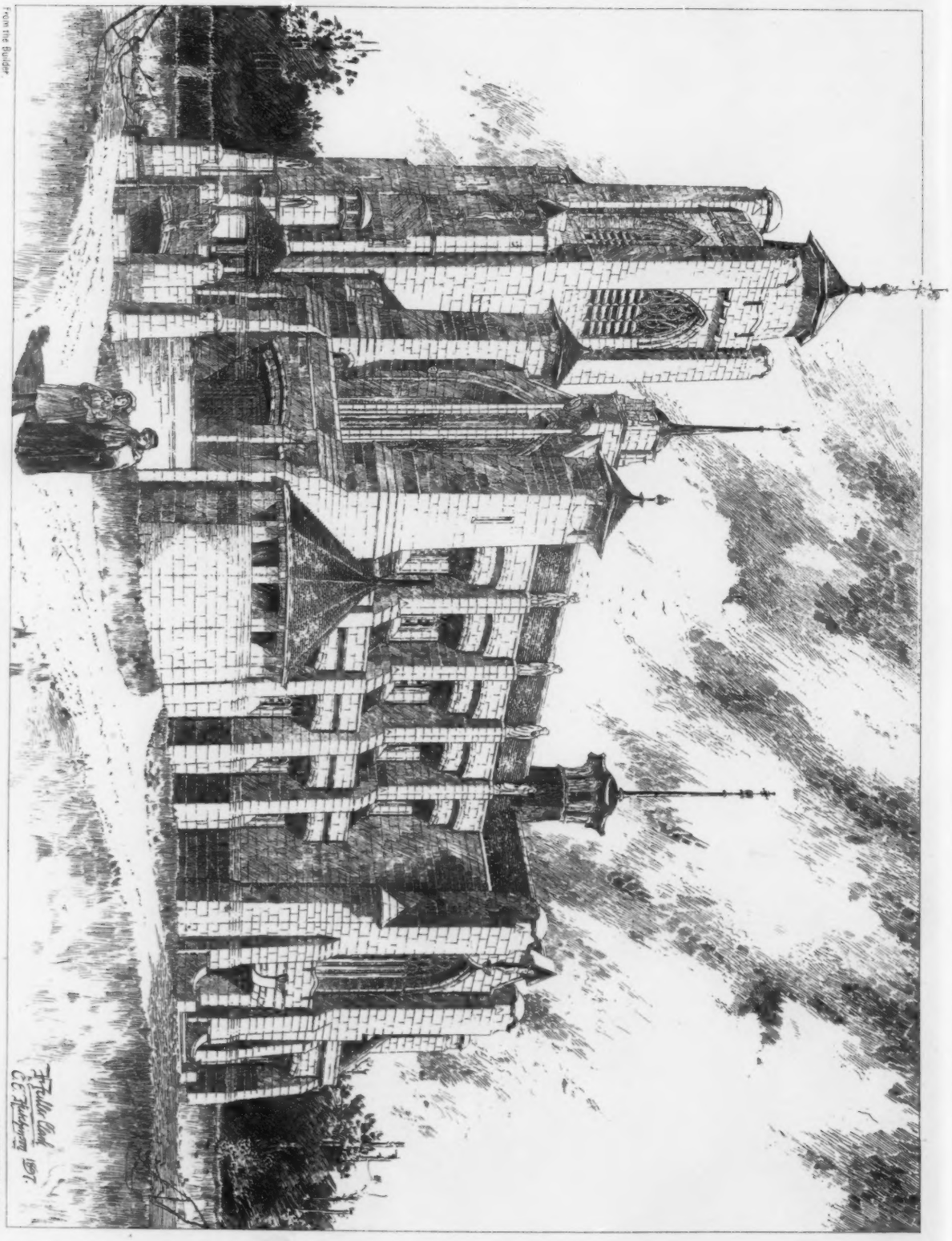


THE COLONEL ROBERT GOULD SHAW MEMORIAL, BOSTON, MASS.

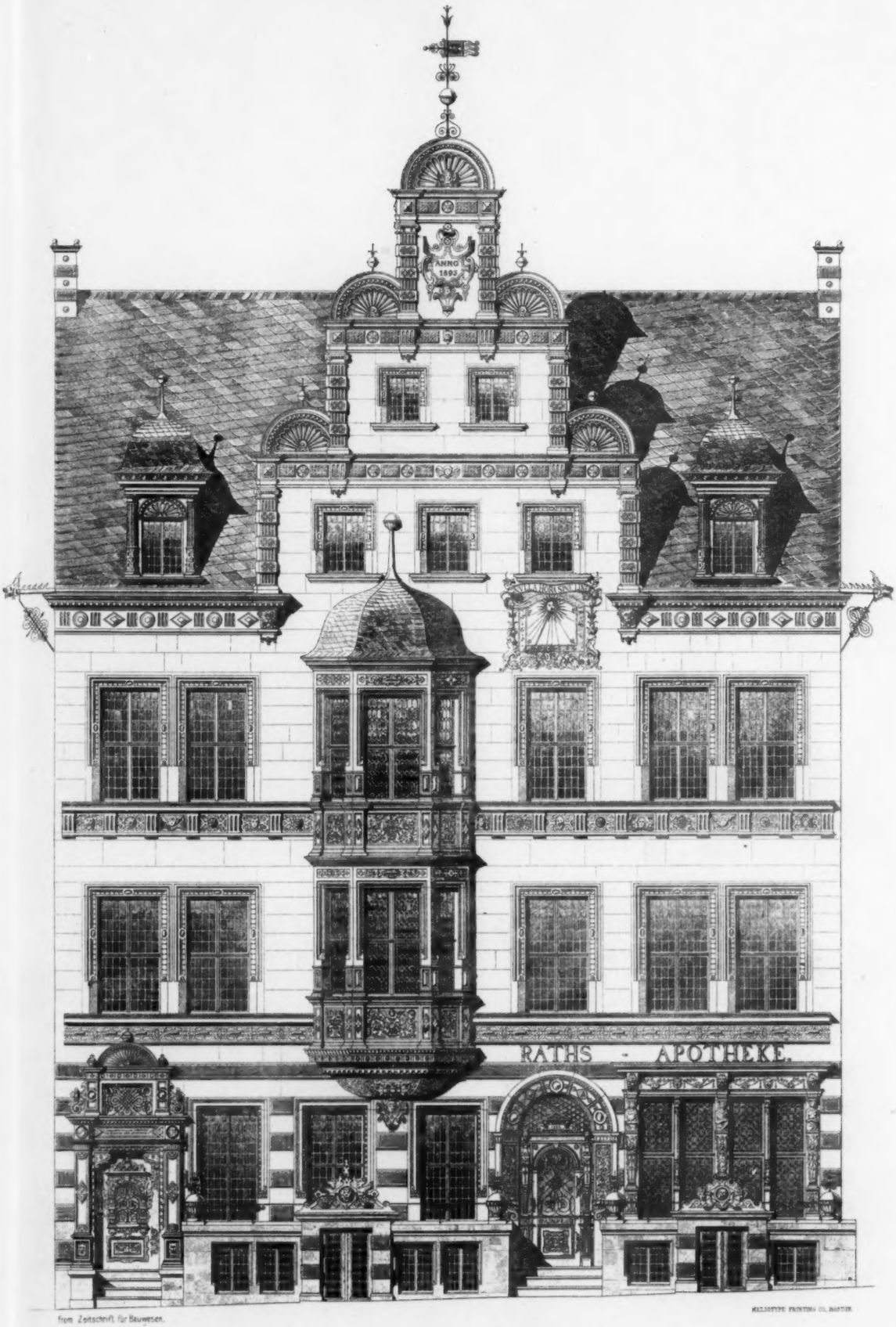
MCKIM MEAD & WHITE, Architects.

THE HELIOTYPE PRINTING CO., BOSTON

From the Builder.



PROPOSED MEMORIAL CHURCH.—Messrs. Clark & Hutchinson, Architects.



from Zeitschrift für Bauwesen.

Hauptansicht von der Marktseite.

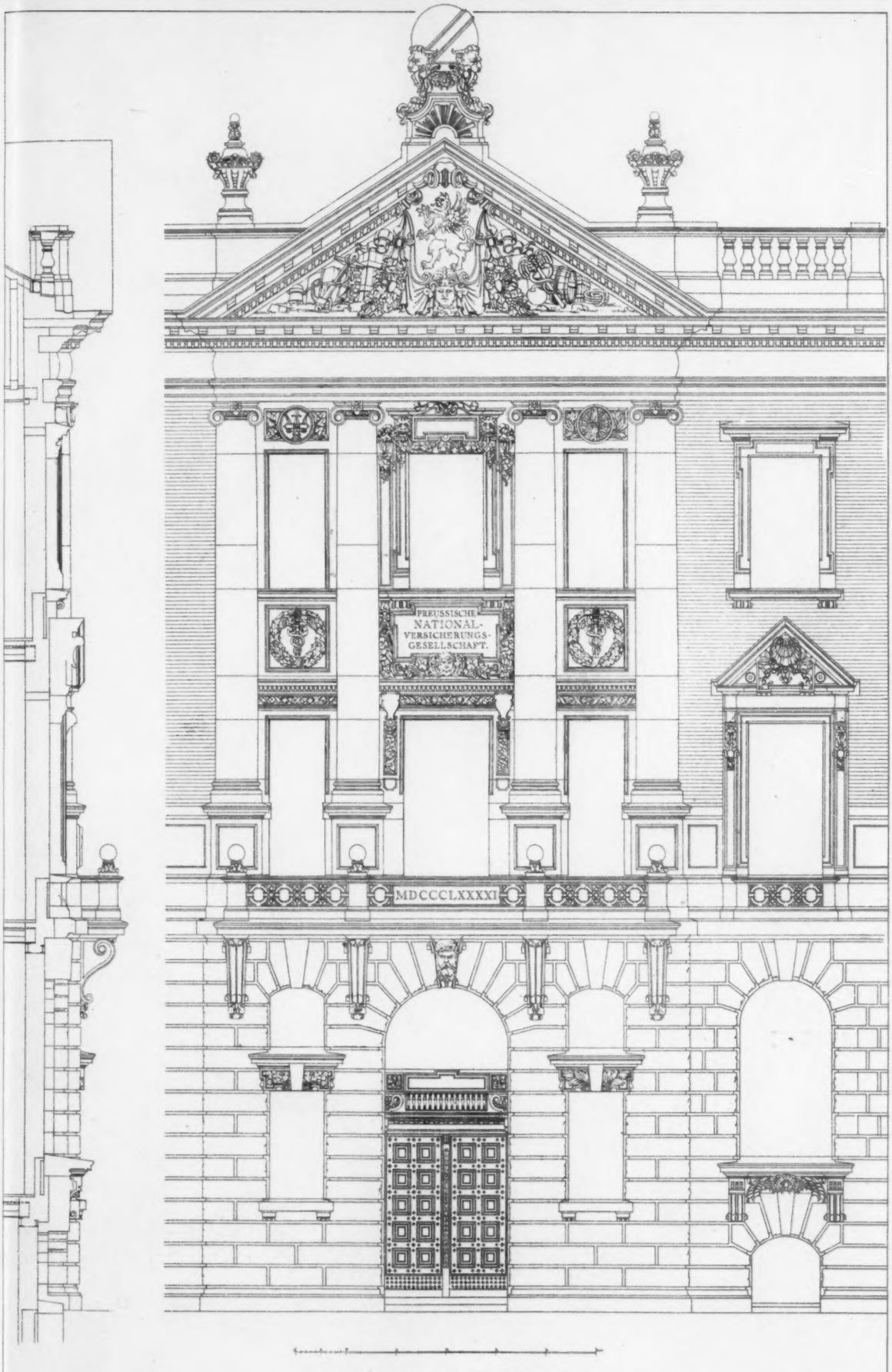
Rathsapotheke in Bremen.

From La Construction Moderne

HELIOTYPE PRINTING CO., BOSTON

EXPOSITION DE BRUXELLES — PALAIS DE LA VILLE DE BRUXELLES.

ARCHITECT: M. SAINTENOY.

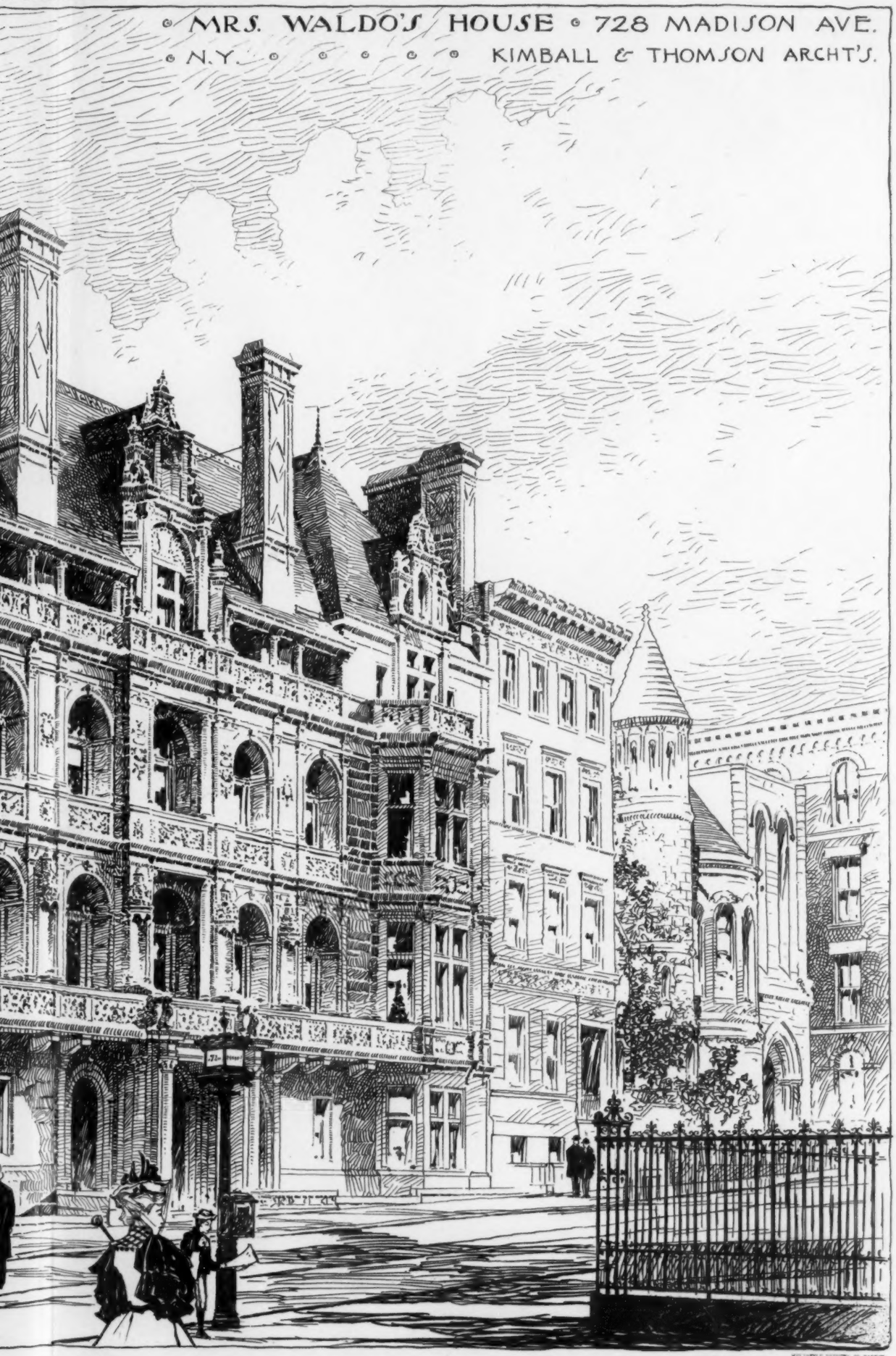


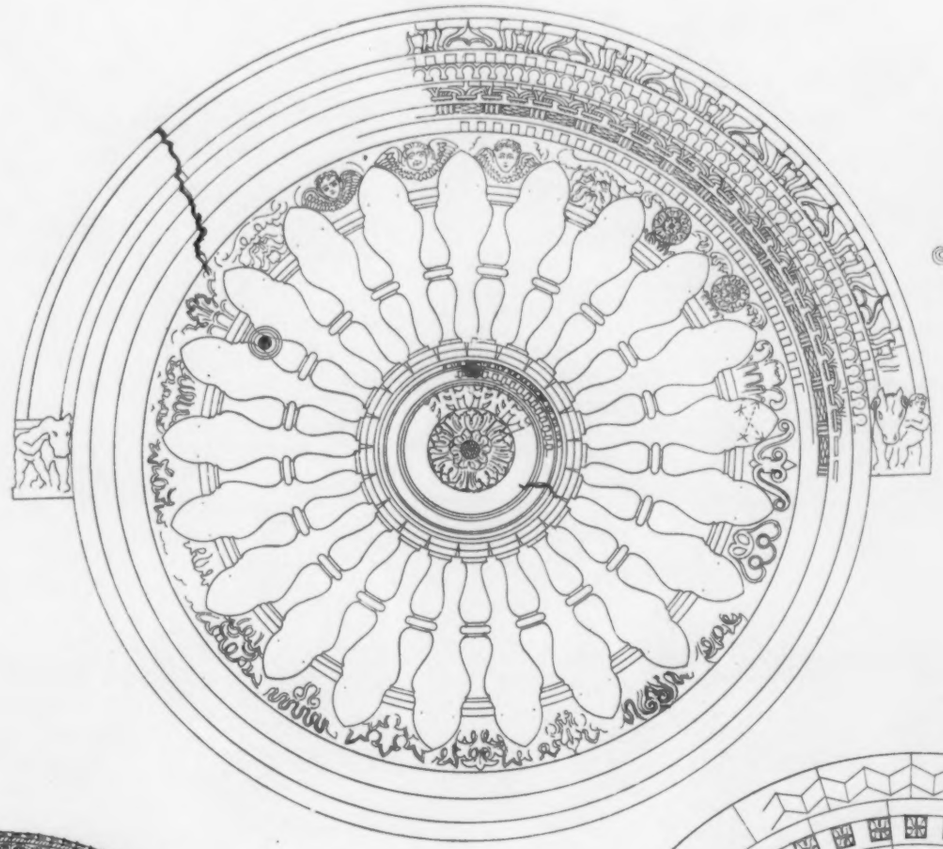
Einzelheit des Mittelbaues.

from Zeitschrift für Bauwesen.

BUILDING OF THE PRUSSIAN NATIONAL INSURANCE COMPANY, STETTIN, PRUSSIA.

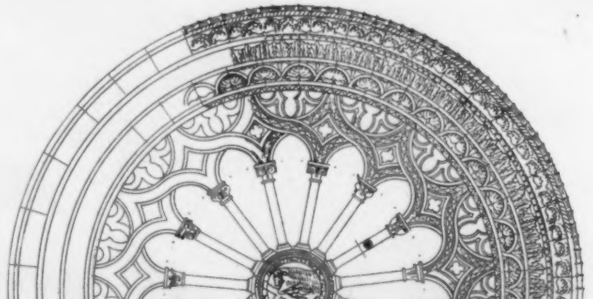
F. WICHARDS, ARCHITECT

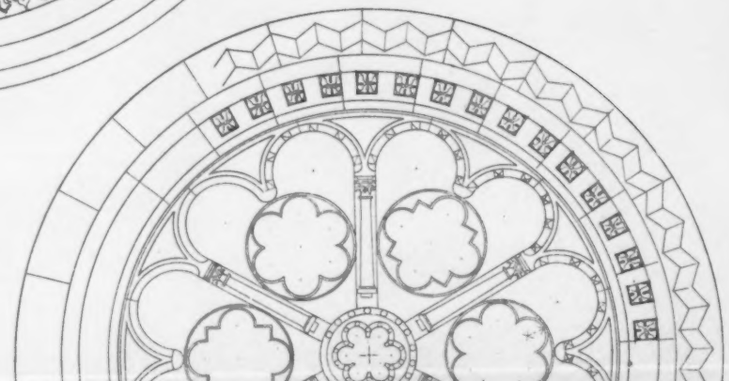




· BARI · CATHEDRAL ·
· ITALY ·
12TH CENTURY [RESTORED]

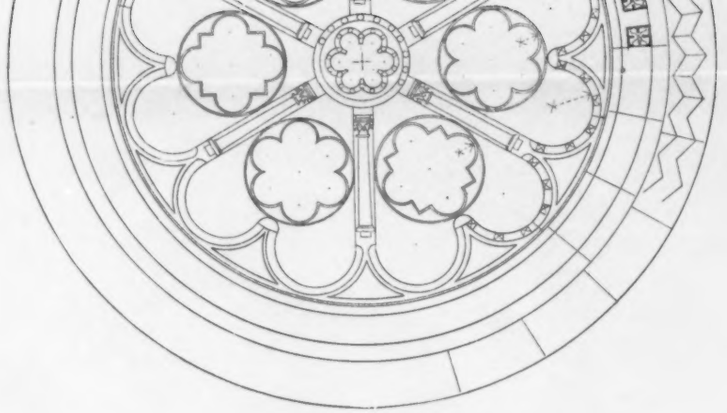
ROSE WINDOWS
I
WHEELS



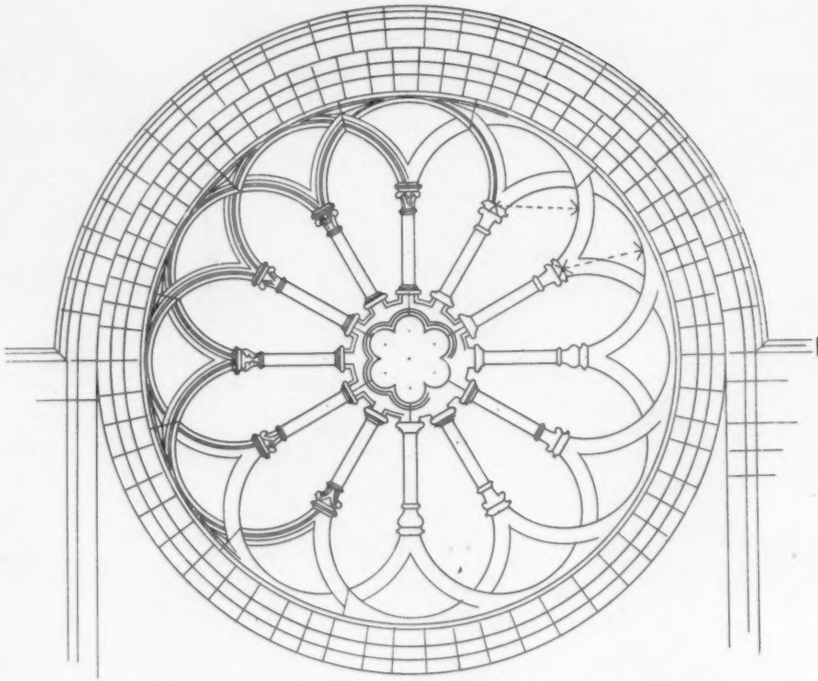


[14TH. CENTURY]

·EAST·WINDOW·
·CATHEDRAL · ALTAMURA · ITALY·

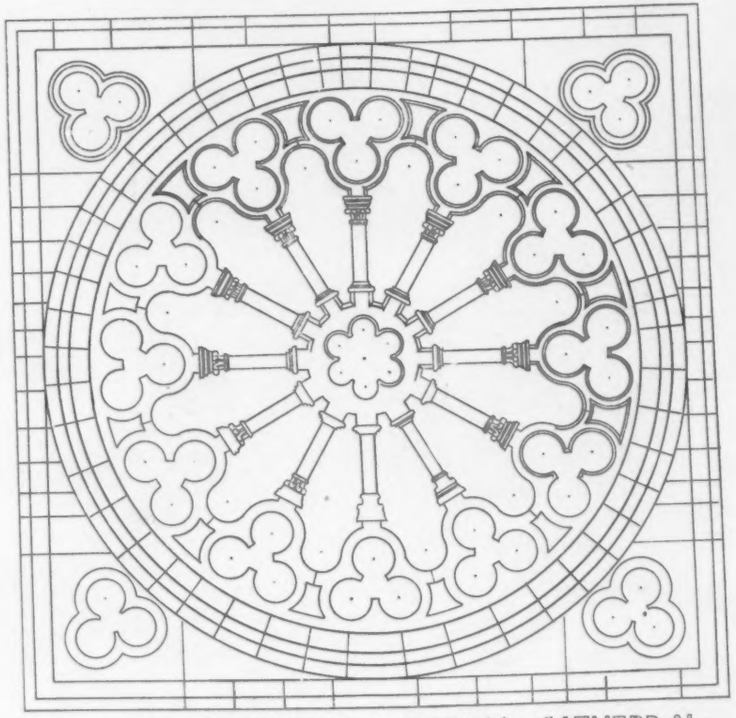


·MINSTER · FREIBURG·

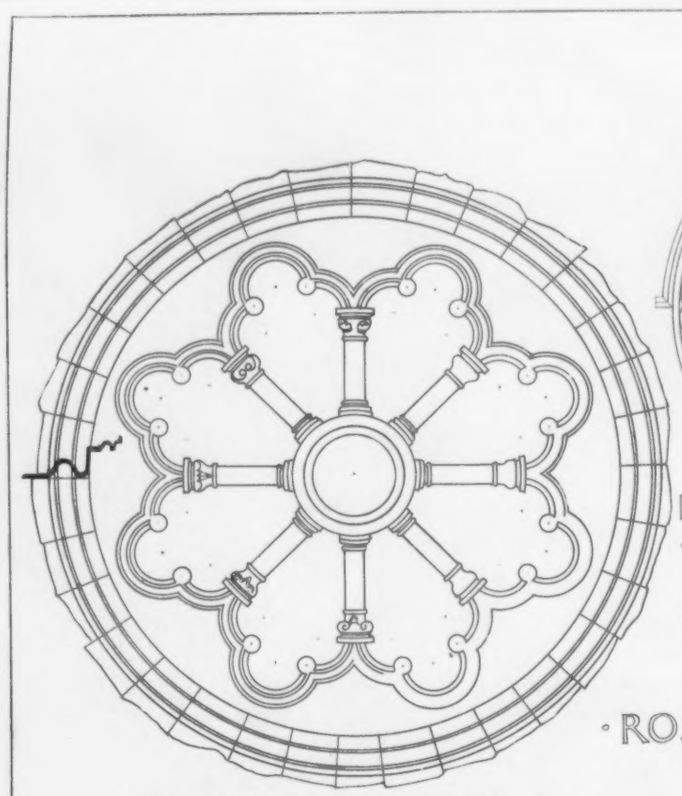


[14TH CENTURY]

·NORTH·TRANSEPT BAYEUX CATHEDRAL·



·SOUTH·TRANSEPT·BAYEUX·CATHEDRAL·



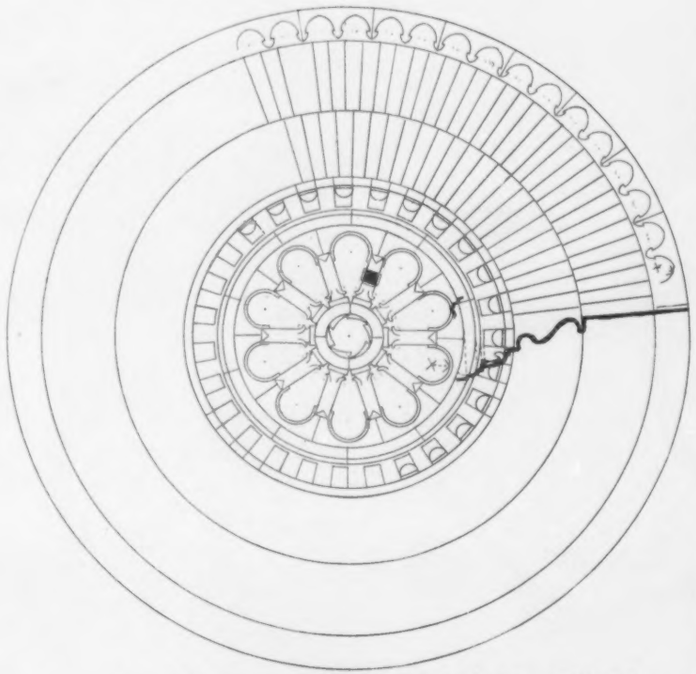
·PATRIXBOURNE·CHURCH·KENT·
·ENGLAND·

SCALE 0 1 2 3 FEET.

[12TH. CENTURY]
·CREMONA·CATHEDRAL·ITALY
·NORTH·TRANSEPT·

SCALE 0 1 2 3 4 5 FEET.

·ROSE · WINDOWS.
II
·WHEELS·



·S·JACOPO· SAN GIMIGNANO · ITALY·

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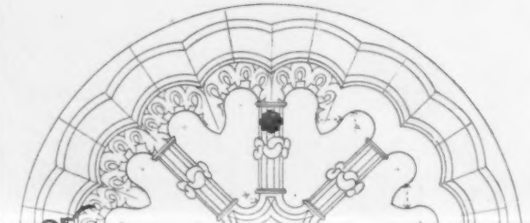
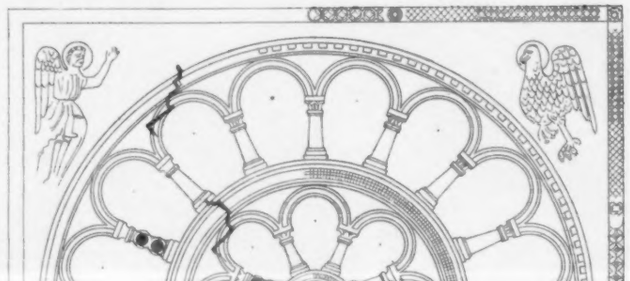
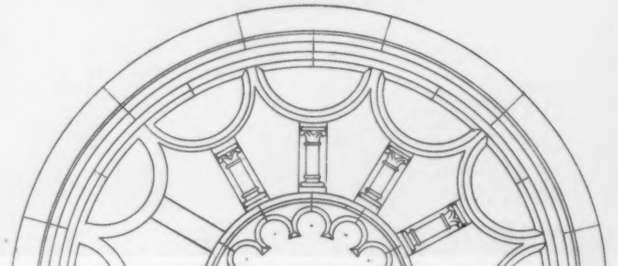
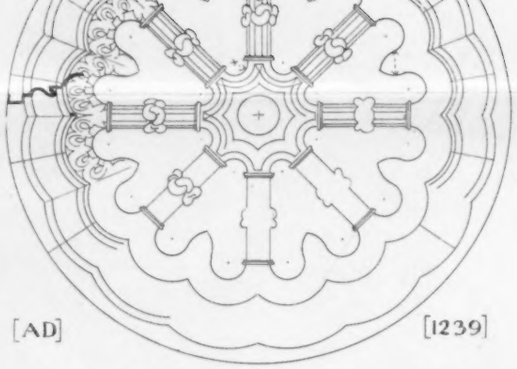




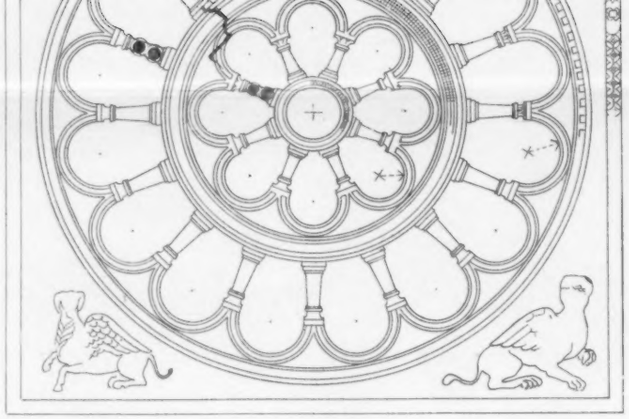




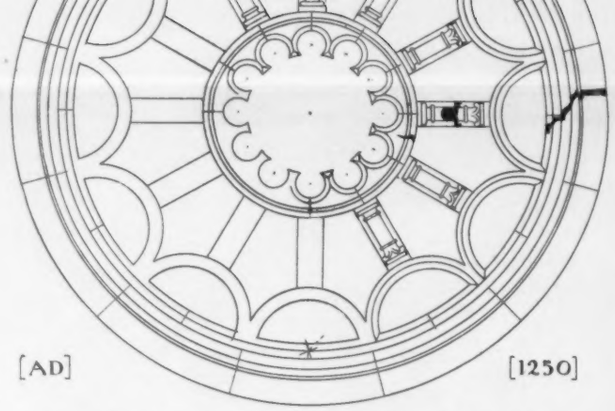
[AD] [1239]

·MAINZ·CATHEDRAL·GERMANY·

SCALE 0 1 2 3 4 5 FEET



·S·GIOVANNI·IN·ZOCCOLI·VITERBO·
·ITALY·
[11TH CENTURY]



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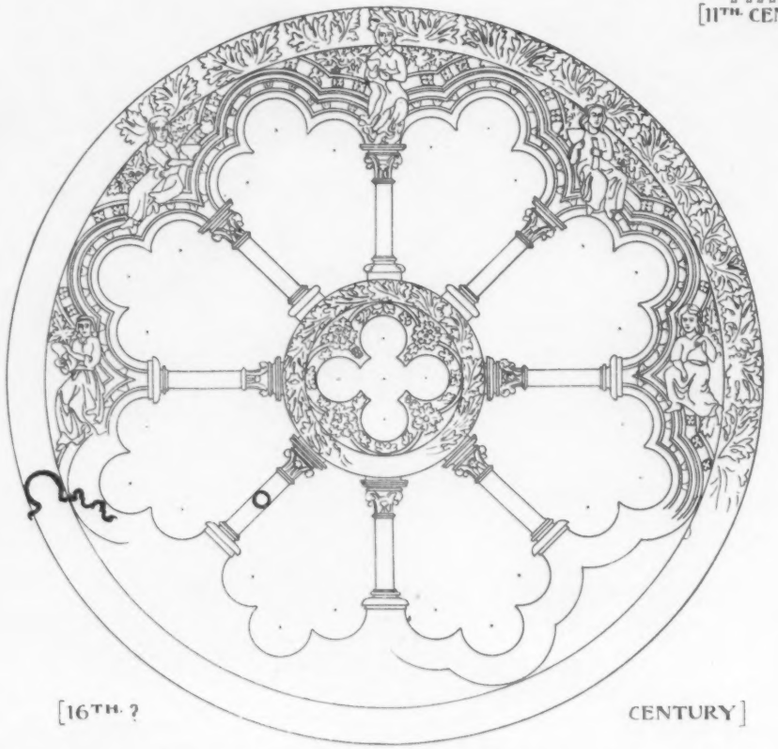
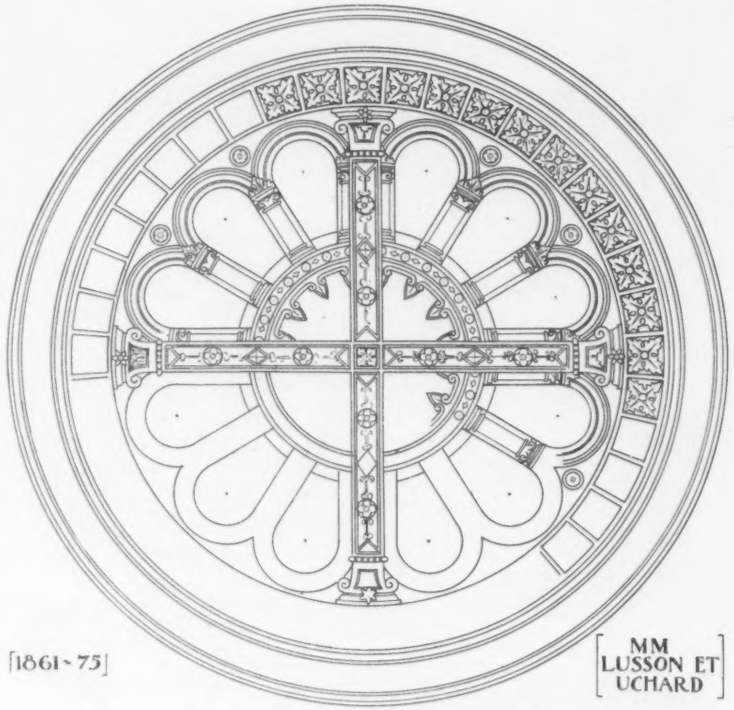
·S·ULRICH·REGENSBURG·GERMANY·



[16TH ? CENTURY]

·BOURGES·CATHEDRAL·FRANCE·

SCALE 0 1 2 3 4 5 FEET



[1861-75]

[MM LUSSON ET UCHARD]

·ST·FRANÇOIS·XAVIER·PARIS·FRANCE·

SCALE 0 1 2 3 4 5 FEET.

THE BRONZE PANEL OF THE COLONEL R

AUGUSTUS S

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GUSTUS ST. GAUDENS, Sculptor.

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