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VOL. XXIX.

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ARCHITECTURE

ENGINEERING

DECORATION

TICKNOR & COMPANY

CONSTRUCTION

BOSTON MASS.

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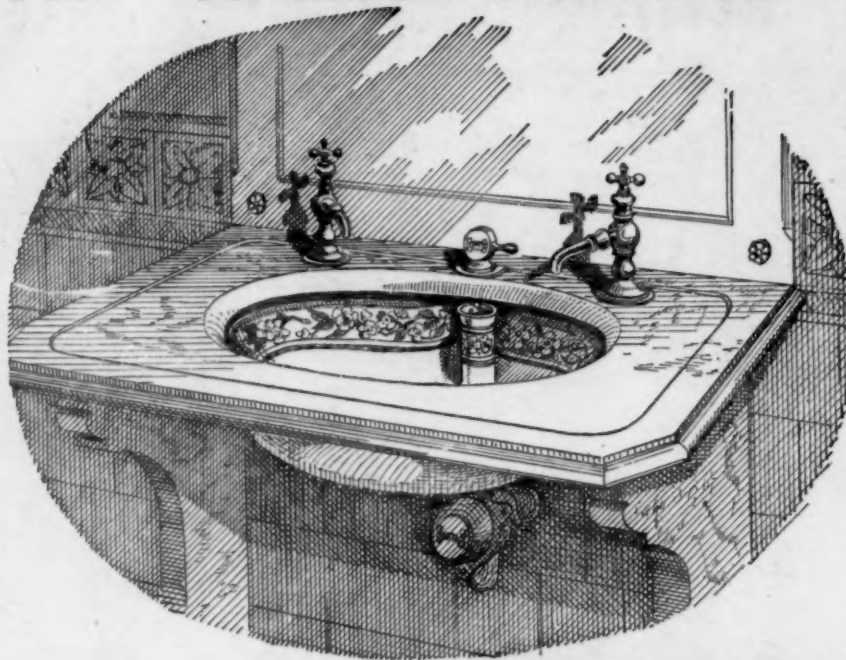
LE PETIT BEGUINAGE, GHENT, BELGIUM.
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THE AMERICAN ARCHITECT AND BUILDING NEWS.

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SEPTEMBER 20, 1890.



SUMMARY

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WE often have occasion to comment on the unfavorable influence which the practice of managing insurance companies in the interest of the agents has upon building construction; and it is a satisfaction to find an insurance official who, as some of them do, believes that conflagrations are public disasters, and that the interest of the stockholders in insurance companies, as well as of the community in general, would be promoted by making fires less frequent and less destructive. Such a man is Mr. F. C. Moore, the President of the Continental Fire Insurance Company in New York, who has written a little book about the simpler methods of preventing fires, which is evidently intended to do good, and ought to win for its author and the company which he manages, a confidence which he probably never thought of inviting. Mr. Atkinson has shown us how much underwriters and architects can help each other if they try, and Mr. Moore brings to the discussion a knowledge which, if not so thorough as that of Mr. Atkinson and Mr. Woodbury in regard to special classes of buildings, perhaps covers a greater range of experience. For example, in speaking of long iron girders and trusses, which the mill insurance companies have not much to do with, he points out, what every architect knows in theory, but does not always have in mind at the right moment, that an iron girder fifty feet long when raised in temperature one thousand Fahrenheit degrees, expands about four inches. The heat of a burning building is, however, often far above this. It is not at all unusual to see cast-iron columns partly melted, which would require a heat of about two thousand degrees, and at this temperature a fifty-foot girder resting on the columns would expand about eight inches, and a line of columns a hundred and fifty feet high, such as exists in many modern office-buildings, would increase in length about two feet. Under such movements, which take place with enormous force, a building is torn to pieces, so that the so-called fireproof structure, of iron and brick, may be destroyed by the burning of part of their contents, when a wooden shed would be only partially injured.

AS an illustration of the way in which the spread of fire in a building may be easily and cheaply prevented, Mr. Moore describes the well-known system used by Mr. O. B. Potter of New York, in several of the structures erected and owned by

him. This consists, briefly, in using rather heavy timbers, wire lathing underneath, and filling-in a little rough mortar from above, between the beams, on the back of the wire lath; deafening also the flooring above with mortar. The mortar is nearly two inches thick, instead of the usual one-inch, and, to allow of the nailing of the upper floor, battens are put on top of the beams, coming nearly through the mortar. With the exception of this, which seems to us more troublesome, and less effective, than the method of laying an under floor over the whole surface, covered with an inch of mortar in a continuous sheet, and nailing the upper floor on top, the system is an excellent one. Mr. Potter, besides the nails in the underside of the beam, holds the wire lathing by wire hooks, hung from nails driven into the sides of the beams, so that, in case of fire, the lathing and plaster may not drop off the beams, as sometimes happens, by the loosening of the nails which follows the charring of the wood around them through the heat which they conduct. There are various other valuable suggestions, for which we will refer our readers to the pamphlet itself, which is sold at a nominal price, and can, apparently, be obtained at any of the agencies of the Continental Fire Insurance Company.

A MEETING of "workingmen" was held last week in New York to discuss the New York Central Railroad strike, which was addressed by the usual selection of orators. An individual named Pentecost announced that "all who did not work for wages robbed from others," a sentiment which, one would think, it would be hard to get the most ignorant workingman to swallow. Being in this censorious mood, he further mentioned that he considered men like General Grant to be butchers, and wound up by expressing his surprise that people should "hold up their hands in horror" at the wrecking of a train on the Central Railroad, "when monopolists murdered thousands by starvation." Dr. McGlynn was the next to try his hand at utilizing the superior knowledge, which Providence has enabled him to acquire, for the benefit of his poor hearers. He "believed that this strike would lead to the abolition of monopolies." "The highways," he thought, "ought to belong to the people," and "so, also, should the currency of the people." He forgot to explain this last remark, but, in the light of Master-workman Lee's proposition, that unless some New York Central shares were immediately handed over to him he would order the railroad "struck," we suppose it to mean that Dr. McGlynn hopes, by similar means, to take away all railroad shares, together with all the circulating medium of the country, and put them in the pockets of his friends, who, it will be observed, are alone entitled to be called "the people." Mr. Powderly followed with a short speech of considerable importance. After his usual abuse of the people from whom he has just been asking favors, he remarked that "the Central was not the best road to travel over just now. For forty men had lately been killed on the road between Thirty-third and Sixty-fifth Streets." Mr. Powderly's speeches can usually be read between the lines with advantage, and it is easy to see that he had in his mind the thought, which is evidently not new to him, of trying to frighten the public from travelling over the railway which has incurred his hatred. He hastily and carelessly, as he often does, expressed the idea which was uppermost in his thoughts, and in a moment, seeing how directly his malicious suggestion connected him with the attempt at wholesale murder on the road a few days before, he covered his unguarded words by explaining that the railroad was dangerous to travellers "because forty men had lately been killed on it" "between Thirty-third and Sixty-fifth Streets." Now every one knows that the New York Central Railroad, between Thirty-third and Sixty-fifth Streets, runs either through a tunnel or in an inaccessible cutting, with bridges at the streets, and that while forty yardmen may have been killed on that part of the line, which, however, needs to be confirmed, no passengers have been, or could be, by any reasonable possibility injured on it. Obviously, therefore, Mr. Powderly, finding that he was on dangerous ground, attempted to conceal what was probably his real thought—that people had better look out how they travelled over railroads that he did not like, because they were liable to be thrown off the track and slaughtered by wholesale—by the lame explanation that switch-tenders had been injured near the station.

IT cannot be denied that recent events have brought considerable discredit upon the system of giving to a few irresponsible plotters power, almost of life and death, over vast bodies of working-men, with whom they have not a single interest in common. The distress of the New York Central trainmen, who threw up their positions at the order of an insolent engine-driver, who threatened the railroad officials that he would "stop every wheel on the line," unless they gave him part of the "watered stock" of the Company, and who, now that their places have been filled, are feebly pleading to be taken back again; the suspicion that "organizers" who look upon strikes as a means for supplying themselves gratuitously with railway shares might not be above subtracting something from the enormous sums of money which pass through their hands, nearly five hundred thousand dollars, for example, having been contributed by the Brotherhood of Locomotive Firemen alone, to help the strike on the Burlington road in 1888; and experience of the serious consequences of the attempt made by the New York delegates to coerce a few brick-makers into helping their schemes, have opened the eyes of working-men to the impudence with which they are "exploited" for the sake of the money which they contribute to what they imagine to be a good cause; and murmurings are heard in all directions. A speaker at a labor meeting, not long ago, was vigorously applauded when he denounced the chiefs of the once dreaded order of the Knights of Labor as "thieves and skunks," and the brick-handlers in New York began, before the suspension of shipments had lasted a week, to discuss the question whether they should not defy the order of the walking delegates, and handle all the brick that offered, without asking where they came from. Still more recently, a blow has been struck at irresponsible dictation in labor matters, by the commencement of a suit by the Frick Coke Company, one of the most important corporations in Pennsylvania, against its employes, for one hundred thousand dollars damages, for having gone on strike without notice, to compel the discharge of non-Union men, after having signed an agreement promising to give six days' notice before striking on account of any grievance, and conceding to the Company the right to employ and discharge whom it pleased. The Company proposes to retain twenty-seven thousand dollars in wages now due, pending the suit. We wish we could believe that the case would be allowed to be carried to a decision, but it is likely to be hushed up by the labor leaders. The power of ordering sudden strikes, and of preventing men not bound by oath to obey them from earning a living, are essential to the continuance of their authority, and they can easily find money enough to pay the men their wages, or to conciliate the Company, rather than have a judicial precedent set up which would be fatal to their power.

A NUMBER of houses in Philadelphia are now undergoing repairs, to save them from falling, on account of the rotting of the plank foundation on which they are built. It seems that these structures, which were only built a few years ago, stand on what was once a mill-dam. In order to secure a foundation, piles were driven, and planks put on top, and on these planks the stonework was started. Where the water-line was is not stated, but the planks soon rotted, and the buildings began to settle. The cause of the settlement was easily ascertained, and a contract made for putting in a new foundation, which is to be done by shoring up the buildings, excavating beneath them until the planks are reached and removed, and laying a thick footing of concrete, and underpinning the walls on top of the concrete. Of course, this will answer the purpose effectually, if the work is properly done, but one cannot help wondering who the architect was that originally advised the erection of the houses upon a bed of planks above the water-line.

NOTWITHSTANDING all the objections, the Exhibition of 1892 at Chicago is to be held in two places, the Directors having decided to reclaim a portion of the lake front, and connect it, by bridges across the tracks of the Illinois Central Railway, with fifty acres of vacant land nearer the city; and to utilize in addition the so-called Jackson Park, which is at some distance, but can be made accessible by railroad and steamboat. In all, there will be about seven hundred acres available for building. Although it is to be regretted that no place could be found for grouping all the buildings together, every one will hope that the division of the site may not interfere with the success of the Exhibition.

WE can give a few more particulars about the competition for the Roumanian Parliament-Houses. It appears that the limit of cost of buildings is fixed at five hundred thousand dollars for the Chamber of Deputies, and three hundred thousand for the Senate Chamber, and, as the cost of construction must be estimated at five dollars a cubic metre, this condition fixes the total size of the structures. The first prize in each competition is three thousand dollars, the second fourteen hundred dollars, and the third six hundred dollars. The first prize will be awarded under any circumstances, but the Government reserves the right to carry the buildings into execution in any way that it pleases. The jury consists of the President of the House of Deputies, the President of the Council of Ministers, one of the members of the committee of the House of Deputies which drew up the conditions of the competition, and four architects, two Roumanian and two foreigners, of different nationalities. All the designs will be exhibited publicly for two weeks. Seven drawings are required: a block-plan; a general plan; a detailed plan of the Hall of Deputies and its accessories, at a scale of one to one hundred; two elevations at the same scale, and two sections at one to two hundred; and the drawings must be accompanied by an explanatory essay, written either in French or Roumanian. The programme, which is evidently drawn up by an architect, and is clear and sensible, furnishes some curious points. The rooms to be situated on the first floor, with the required sizes, are specified, and even the arrangement of the seats in the assembly chambers. In the Senate Chamber must be provided a row of seats for the bishops, comprising ten places, with an additional one, at the head of the row, for the Crown Prince. Each chamber is to have several galleries: one for foreign ambassadors; one for the royal family; one for former members of the Legislature—a very pretty courtesy, by the way, which we never heard of elsewhere; one for officials, with a hundred places; one for ladies, and one for the public in general. In both houses a bench is reserved for the ministers.

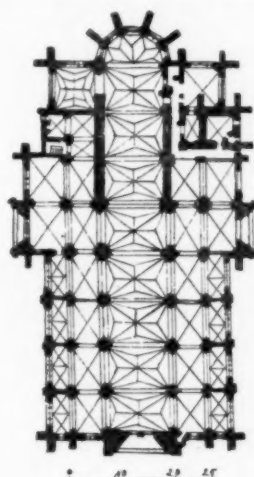
MERRILL'S work on "*Newspaper Libel*" is an awesome book, and any editor who studies it cannot but be filled with wonder that his peace of mind is not more often disturbed by the appearance of the dreaded legal summons. For our own part, we have thus far avoided pleading in the courts, though aggrieved individuals have at times taken legal advice against us. But now it appears that to the danger of having their exchequers depleted by civil suits, editors of architectural journals in some parts of this country must prepare to support by arms their right to criticise those building operations at least upon which public money is expended. A few days ago, the Covington, Ky., *Commonwealth* published an account—and, as such things go in the daily papers, a very decently-expressed account—of the tribulations that were attending the building of a school-house at Newport, Ky. According to the *Commonwealth*, it appeared that after the architect, who does not seem to have had the superintendence of the work, had prepared the drawings, the City Engineer was called in to set out the building and fix the grade-levels. This was done, and the work proceeded until the mason found that he had laid all the foundation required by his contract under the specification and yet the walls did not show above the ground. Of course, this had to be cured, and implied an "extra." The next difficulty was encountered when, following the drawings, the mason found that the hammered-stone water-table showed only at the back of the building. He took the responsibility of changing it to the front, and called attention to the matter when the authorities next visited the building. This led to an examination, and now that all the interior foundations, including those for the large tower, were laid, the authorities and workmen mustered intelligence enough to make out that the City Engineer had set out the building "hind-side foremost." Assuming that this tale was not a malicious fabrication, the *Commonwealth* was justified in publishing the statement, and in so doing did not use any extravagant invective. The City Engineer, feeling aggrieved, discovered what reporter had written the "attack," and, meeting him in the court-house, struck him with a heavy cane, cutting his head open, and then ran. As soon as the assaulted man could wipe the blood out of his eyes he followed with a drawn revolver, overtook the escaping engineer, clinched with him, and in the short struggle that followed fired two shots. The result of what on the face of things appears to be a proper criticism of a building blunder, is a dead City Engineer and a reporter imprisoned for murder.

RELIGIOUS ARCHITECTURE.¹—XXIV.

THE RENAISSANCE.—I.



Fig. 1. View and Plan of the Nôtre-Dame de Brou, Bourg [16th Century].



TOWARD the close of the fifteenth century, as we have already observed, Gothic art began to undergo serious modifications. The growth of prosperity and even of affluence created new requirements and art developed a richly ornamental character; the simplicity and severity of primitive times had disappeared; but, though this fact was to be regretted, every candid judge must concede that other more pliant, more varied qualities had replaced these original ones, qualities better suited to meet the needs of a more advanced and more polished civilization.

The transformation continued during the early part of the sixteenth century, when Gothic traditions became allied with the surviving traditions of Roman antiquity, imported from Italy.

The decoration, as we remarked above, had assumed a character of rare pliancy. Instead of confining themselves to an almost slavish imitation of nature, as was done during the period of Gothic supremacy, the Renaissance artists gave free play to fancy: they wrought floral motives into volutes, and twining patterns of almost infinite variety; in their hands the *fauna* assumed fantastic shapes; a throng of beings, half chimerical, half plant-like, sported in the midst of a vegetation springing from richly ornamented vases, or along balustrades, shafts, and pilasters. Never did caprice have wider scope; but, at the same time it was subject to a general sense of order, inexorably fixed by rigid architectural lines.

The origin of these arabesques, as they are often quite inaccurately termed, is attributed to the Romans, whose mural decorations were brought to light and closely studied by Renaissance artists, and which must, in fact, have furnished noteworthy models. The architects and sculptors of the sixteenth century had only to reproduce in relief these scrolls, combinations and labyrinthine designs. This theory is not at all improbable, in view of the enthusiastic research which the artists of the period devoted to the long neglected and almost forgotten antiquities, then so marvellously unveiled. It must be added that the Romans had themselves employed this kind of decoration, as for example, on the triumphal arch at Besançon.

What is true of the decoration is equally true of certain architectural forms in which Classical severity is abandoned, and which are, therefore, usually referred to the Renaissance style. In the latter, it has been said, the grand and changeless types of antiquity were indiscriminately modified, distorted and perverted to suit the artist's fancy. It would be a manifest injustice to hold Renaissance architects wholly responsible for the sacrilege. The Romans were the first to sin in this respect. At Baalbec and at Petra, to go no farther, more than one religious structure is encountered which would very naturally be classed as Renaissance. From a cursory examina-

tion of their polygonal or circular plans, rounded façades and circular pediments, we should assign them to a very recent period. They prove better than any amount of reasoning could do that the Renaissance, which was at first confined to Italy, was in truth the revival of ancient art after centuries of

stagnation; its architecture was, in fact, the last stage of Roman architecture, the final development of forms already foreshadowed in the productions of the ancients themselves.

Without doubt, the Renaissance architects expressed in manifold ways their respectful admiration for those masterpieces of antiquity which they had, as it were, discovered, and which, at the very least, they had saved from the oblivion to which centuries had consigned them; but their admiration was not servile to the extent of prohibiting the exercise of their own genius. It was at a much later period that this respect for antiquity was carried so far beyond its proper bounds as to demand the slavish adoption of the laws discovered by the ancient Romans—laws which were henceforth to be unalterable. In the sixteenth century, especially in Italy, there was a great deal of talk about Vitruvius, about proportions, and modules, and orders: But architects studied this author for his useful directions, which they felt at liberty to interpret as they chose.

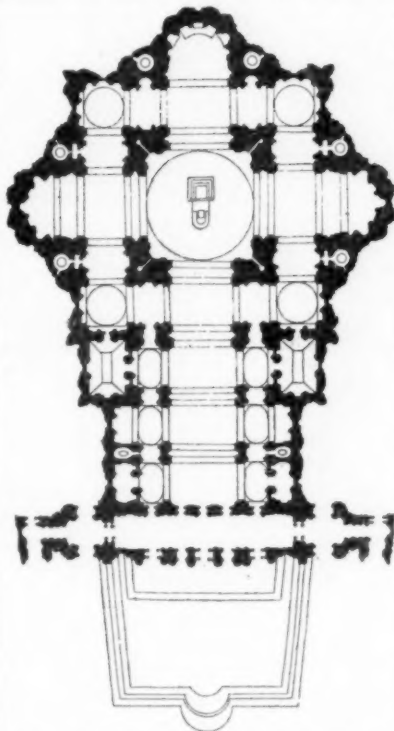


Fig. 2. Plan of St. Peter's, Rome [16th Century].

The spirit of the French architects of the times is revealed in a passage in Philibert Delorme's work, entitled: "How it is permitted, after the example of the ancients, to invent and make new columns, as we have made some, called French columns." The passage is as follows:

"If the architects of antiquity, among divers nations and in divers countries, were permitted to invent new columns, as the Latins and Romans invented the Tuscan and Composite; the Athenians the Athenian; and as, long before the said Latins and Romans, the Dorians invented the Doric, the Ionians the Ionic and the Corinthians the Corinthian, who will prevent the French from inventing columns and calling them French,

¹ From the French of P. Planat, in Planat's "Encyclopédie de l'Architecture et de la Construction." Continued from page 162, No. 768.

as those might be termed which I invented and caused to be made for the portico of the chapel in the park of Villiers-Cotterets, of the time and reign of his late majesty, King Henry!

"So is it that, whatever invention and intelligence can suggest, I counsel always to observe and guard the true measures which the excellent architects of antiquity have bequeathed to

The Gothic plan had as yet undergone but slight changes. Constant modifications were going on, but they were mainly in the decorative forms. As the vaulting became more and more depressed, new ribs were added; the number of diagonal ribs were increased, and these were connected by ridge-ribs. Richly carved and chiselled pendentives clung to the network of intersecting vaults. Sculpture was, moreover, assuming an



Fig. 3. View of St. Peter's, Rome [16th Century].

us, and which they discovered by following in the footsteps of nature, and after great and multifold experiments, as well for the Doric and Ionic orders as for the Corinthian . . . so that in observing these measures the architects who well understand the art, and have great experience in it, will be able by their intelligence and divine understanding to invent countless beautiful designs in all places and kingdoms whatsoever; and chiefly when they are willing to choose their subjects according to the nature of their surroundings, as our predecessors did—I mean by imitating and copying the natural objects made and created by God, whether trees, plants, birds, animals and things terrestrial or celestial. Upon which I shall propose to you, for example, our French column, which, being made in pieces, can be adorned and enriched with those things toward which this French kingdom is most inclined, and to which the inhabitants are most attached, in order not only to decorate the place with pedestals, bases, capitals, architraves, friezes and cornices, but to make other architectural ornaments, which can be changed and also enriched with various devices suitable for this kingdom, as *fleurs-de-lys* and other devices peculiar to the kings, princes and lords."

It was, then, with great freedom of interpretation that the Renaissance architects took their models from ancient art. Like their Gothic forerunners, they fully understood the necessity of studying nature around them and culling therefrom new motives, which should put life and a modern spirit into the ancient masterpieces to which they appealed for inspiration.

The transformation was not, however, accomplished immediately. A transitional period intervened, as a few examples will show.

In the sixteenth century a number of churches were still built in the Pointed style. Notre Dame de Brou, at Bourg (Figure 1), was begun in 1511, and finished at a much later date.

St. Etienne-du-Mont, in Paris, was reconstructed in 1517, but the work was not completed until 1563. The nave is in the new style, but the rest of the edifice is Gothic.

St. Merry, also in the Pointed style, was erected in 1520.

A good many churches belonging to mendicant orders were built with only one aisle adjoining the nave; in some cases the church was divided into two equal naves. This latter disposition was especially in vogue in the sixteenth century, though earlier examples of it exist.

increasingly important rôle, and was beginning to appear on the façades, rood-lofts and pulpits.

In St. Peter's, at Auxerre, where the Gothic buttresses and flying-buttresses are retained, while the façade is decorated after the antique, we have an example of the Transitional style

which is not devoid of originality, and in which certain apparently quite incongruous elements are harmoniously combined.

St. Eustache (Figures 4, 5), in Paris, furnishes an instance of the very curious effort to adapt Renaissance decorations to Gothic forms. Although it is the fashion now to rail at this attempt, the unprejudiced critic will, nevertheless, admit that it possesses much interest, and that in some places it produced happy results. St. Eustache, begun in 1532, was completed by

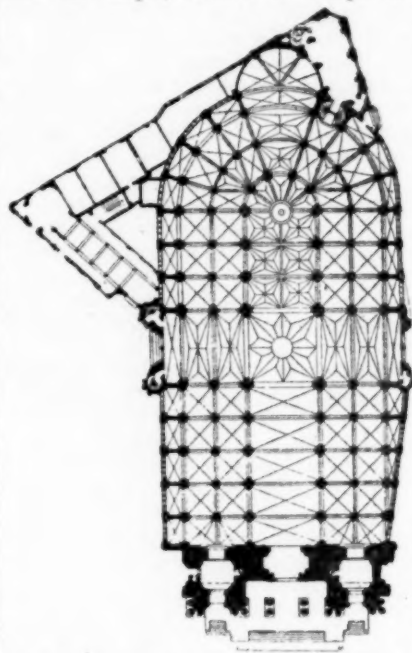


Fig. 4. Plan of St. Eustache, Paris [16th Century].

David in 1642; the main portal was rebuilt in 1755 by Mansard de Jony.

The most interesting portals are those on the north and south sides; they are Gothic in character, although the round arch is employed. The coving of the south door was formerly adorned with fifty statues, that of the north with forty. "Both of these portals exhibit first¹ a broad, lavishly-ornamented, arched doorway, with an open-work tympanum, massive pilasters loaded with foliage; then, above, two stories of

¹ F. de Guilhermy.

galleries, several rows of balustrades, a mullioned rose-window, two small spires terminating in open lanterns, a second rose-window on a level with the roofs, and finally, in the point of the gable, and commemorative of the conversion of St. Eustache, a stag's head bearing a crucifix between the horns." The chapel bays are framed-in with Composite pilasters; the supports of the flying-buttresses are decorated with others of different orders.

Among the churches belonging to the Renaissance proper, we must cite: the church at Gisors, the façade of Villeneuve-le-Roi, the portal of St. Clotilde at Les Andelys, the apses of St. Pierre's and Saint-Sauveur's at Caen, the church at Argentan, the side portal of the Trinité at Falaise, a part of the Limoges Cathedral and the façade of St. Michel at Dijon.

The attempt made at St. Eustache had, so to speak, no sequel. It was in another way that religious architecture was destined to advance. From the outset, two Renaissance types had existed in Italy, which had been universally adopted at once, and to which all the religious structures reared after that time can be referred: these were, on the one hand, St. Peter's at Rome, in the form of a Latin cross, with rectangular pillars instead of columns along the aisles, with barrel-vaulting and a central dome; on the other hand, the church of the Gesù, followed almost immediately by the churches of St. Andrea del Valle and St. Ignatius, which constitute the original models of that style termed, from its source, the Jesuit style.

Gothic art, imported under German influence, was never completely naturalized in Italy. The round arch was maintained there, along with the pointed, even during the thirteenth century, as in the Campo Santo at Pisa; it is found also at Or-San-Michele. Though the pointed arch was adopted in the dome reared by Brunelleschi at Florence, San Lorenzo and San Spirito, of the fifteenth century, definitively re-established the old semicircular form.

The Pointed style had then been abandoned for a century in Italy when St. Peter's was erected in Rome (Figures 2, 3); Bramante had said: "I will place the Pantheon on the vaults of the Temple of Peace." His plan was that of a basilica in

the form of a Greek cross, with an apse in the axis, and one at each extremity of the transept. A dome, surrounded by an exterior colonnade, was to crown the intersection of the nave and transept.

In 1514, it was discovered that the stability of the structure was endangered. Bramante was dead. Fra Giocondo, the elder Sangallo, and Raphael were commissioned to continue the work. All three had died in 1520; their successors were Balthazar Peruzzi and Antonio di Sangallo, who changed the plan to the form of a Latin cross and strengthened the dome supports. In 1546 Michel Angelo was summoned to the work.

He partially destroyed Sangallo's constructions, restored Bramante's plan of a Greek cross, and again strengthened Bramante's dome pillars. At the time of his death, in 1564, all the hemicycles were completed. The drum of the dome was ready for the superstructure. The portico remained to be built.

The dome was soon finished; then the work was discontinued until 1605, when Carlo Maderno was commissioned to construct the façade. The portico projected by Michel Angelo was abandoned, and the nave was lengthened by three bays, with a vestibule in front. The façade towers were added at a somewhat later date by Bernini, the architect of the baldachino over the high-altar, and of the colonnade around the square.

In determining the share of glory due to the different architects of this stupendous edifice, a large portion must be ascribed to Michel Angelo, who unquestionably

originated its most important features, and who was able to unify the collective plans, though this part of his work was undone by those who came after him. It must, nevertheless, be remarked that the idea of resting the dome on a drum interposed between it and the pendentives was not his; it entered into Bramante's plan, and the latter had copied it from the church of St. Augustine at Rome. Still older examples of this disposition are to be found in certain Byzantine churches of Greece. The exceptional proportions of the dome were indeed imitated from those of the Pantheon, as Bramante had declared; but we must remember that fully as extraordinary dimensions had been reached in Brunelleschi's dome at

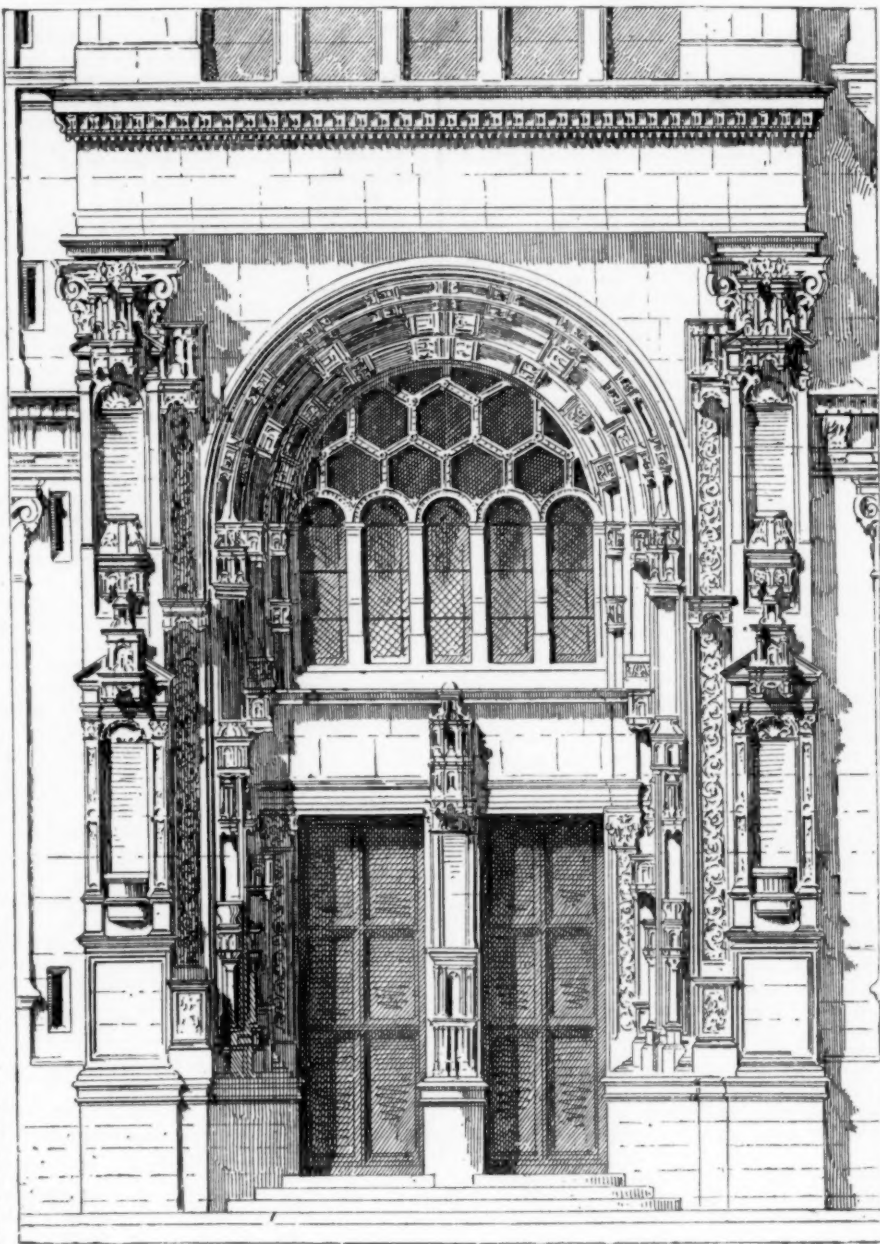


Fig. 5. South Portal of St. Eustache, Paris [16th Century].

Florence. The system of double cupolas, one in the interior, the other over the first, had been legitimately established at Florence and was in constant use thereafter.

[To be continued.]

SAFE BUILDING.¹—XLIV.

CHAPTER XI.—GRAPHICAL ANALYSIS OF STRAINS IN TRUSSES.

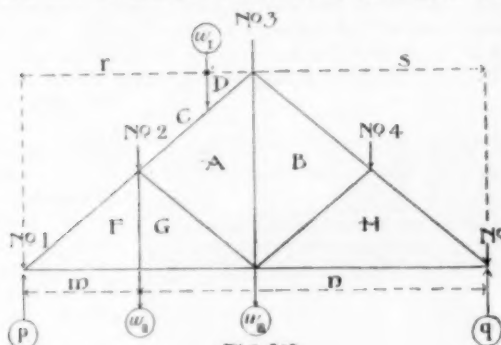


FIG. 212

THE same general rules which apply to beams and girders apply equally well to trusses; but as the latter are made up of a large number of parts, some sustaining the loads directly, others transmitting the consequent strains and thus helping indirectly to sustain the loads, it becomes difficult and often very complex to follow out all the strains arithmetically. For this reason the graphical method is generally used, and for the architect, who has many other things to remember, besides strains and stresses, will always be found to be the most convenient.

There are three steps necessary in designing a truss:

- 1st. Ascertaining the amounts of loads on each part, and their points of application.
- 2d. Ascertaining the consequent strains on each member of truss.
- 3d. Designing the members and joints of truss.

In calculating trusses it is always assumed that all the members meeting at any joint are connected by a single pin, and are, therefore, at liberty to move around this pin, until they assume equilibrium towards each other, when of course, they will all counter-balance each other and remain stationary. All loads are, therefore, assumed to act directly on the joints, and are considered as vertical forces at these points (except where wind is allowed for separately). It will frequently happen, however, that the loads are not placed directly over the joints.

For instance, the load might be uniformly distributed over the entire rafter (or chord): in that case, we should have to assume one-half the load on each panel as coming directly (and vertically) on the joint (that is, each joint would act as a vertical reaction, made up of several parts), and afterwards when designing the truss members, we should have to add sufficient material to the rafter (or chord) to take care of the transverse strain, due to the uniform load.

Or, again, we might have a load w , as shown in Figure 212. The amounts of this load coming on joints Nos. 2 and 3 would be figured exactly the same as reactions (Formule 14 and 15).

In these formule p would be load No. 2; q load No. 3; l would be the length of rafter from No. 2 to No. 3; m would be the length of C or from No. 2 to load; and n would be the length of D or from load to No. 3.

All these lengths can be measured either along the rafter, or horizontally between the vertical lines, the result will be the same.

Where loads are suspended from the lower chord, or what amounts to the same thing—rest on same (as ceilings for instance), the load can be considered as hanging from the bottom chord as shown at w , Figure 212.

This, however, seriously complicates the strain diagram, it is better therefore to consider (which is also the fact) that the load w is transferred directly to No. 3 by the tie-rod AB . We will therefore in making our

strain diagram add the amount of w to load No. 3, and must remember later to add an amount of tension (equal to w) to rod AB over and above that found by strain diagram. If we had a load w placed half-way between p and w , we should have to make the tie-beam or lower chord sufficiently strong to bear this transverse load in addition to the tension existing in it. In this case, the point w and p would be the reactions for load w , and the rod AB would transfer its share up to No. 3 in addition to load w . But as a rule it is more economical to transfer the load w up to joint No. 2 directly, by means of the tie-rod. When making the strain diagram, however, this rod should be omitted and the truss shown as at H . Otherwise it will be found that the corresponding points f and g of strain diagram would coincide. This would mean that there was no strain on FG due to the strains in truss; and this is a fact, as the only stress in the rod is in resisting the direct tension due to the load hanging from No. 2 by the rod.

¹ Continued from page 150, No. 767.

When figuring the reactions p and q they should be figured by the Formulæ (14) to (17) inclusive. If all the loads are uniformly or symmetrically placed along the truss, each reaction will be just one-half of the total

load. If not, then the truss is considered the same as if it were a beam and the reactions figured by the formulæ, the distances m , n , r and s are measured horizontally between verticals as shown; the distance l is, of course, the entire (horizontal) distance from p to q .

Wind can safely, as a rule, be assumed to act vertically on the truss and to simply add just so much to the calculated dead load.

The writer generally adds for this climate (New York City) 30 pounds per square foot of surface of roof (measured on the slant, not horizontally). This will do for small roofs and approximate calculations of large roofs. This allowance will include the necessary allowance for snow, for, if the roof is steep, the snow will either slide off, or be blown off, and if the roof is flat the wind pressure will be very much smaller and the reduction in wind pressure will fully offset the weight of snow.

Of course taking the wind as a vertical dead load involves two errors: first, the wind is never on the entire roof, as it can manifestly act on one side only; secondly, the wind does not act vertically. Where wind pressure is calculated separately it is assumed to act at right angles to the surface of the roof and on one side only. In large trusses this should always be done, as it will frequently be found that stresses in certain members will be reversed.

That is, members, which under a dead, vertical load show only tension or compression in the strain diagram may (with wind taken normal to roof and on one side only) be reversed and show, respectively, compression or tension.

Iron trusses, over eighty feet long, need some arrangement to allow for expansion and contraction. In roof trusses this is provided by anchoring down one end and leaving the other end free to move (horizontally) by placing it on rollers.

It will readily be seen that where there are rollers the effect on the truss will be very different, according to which side the wind is blowing from. In such trusses, therefore, it will be necessary to make three strain diagrams, one for vertical dead load (including snow but no wind); one for wind only on right side; one for wind only on left side.

The truss must then be designed to withstand the strains due to the dead load only; and enough added, where necessary, to withstand the additional or different strains due to either pressure. Where both strains are of the same nature they should be added together; where they are of opposite natures they will, of course, offset each other, but the member should be strong enough or stiff enough to withstand either separately.

As the wind acts horizontally, it will on striking a roof of course cause a different pressure at right angles to the inclination of roof, than is its pressure against a vertical surface. This pressure will therefore vary with the inclination of the roof. To determine it, it is assumed that the greatest wind pressure per square foot of roof surface will never exceed forty pounds. For steep roofs with an inclination of 60° to 90° with the horizon, this is the pressure assumed.

For roofs forming smaller angles with the horizon a complicated trigonometrical formula is used. Its results are as follows:

TABLE XLIV.

TABLE OF WIND PRESSURES ON ROOFS.

Angle of Inclination of Rafters with Horizon.	Pressure or Load, in pounds, per square foot of Roof Surface.
10°	9½
15°	14
20°	18½
25°	22½
30°	26½
35°	30
40°	33½
45°	36
50°	38
55°	39½
60° to 90°	40

It will be noticed that approximately the pressures in pounds are about eighty per cent or four-fifths of the number of degrees of the angle of inclination.

Where the wind is taken separately the allowance for snow in the strain diagram for dead loads should be fifteen pounds per square foot of roof surface.

Having once ascertained the amount of load on each joint, the

strains on the different members of the truss are found by the general methods given at the end of Chapter I. (Pages 69 to 74, Vol. I.)

Particular attention is again called to the method of notation, and to the necessity of reading off the pieces in their proper order, and of reading around each joint in the same direction. The writer always uses the direction in which the hands of a watch would travel around each joint.

In calculating the strains each joint can be analyzed by a separate strain diagram, or all of the strain diagrams can be combined into one. As the latter method is much more convenient and less liable to error, it is the one always adopted.

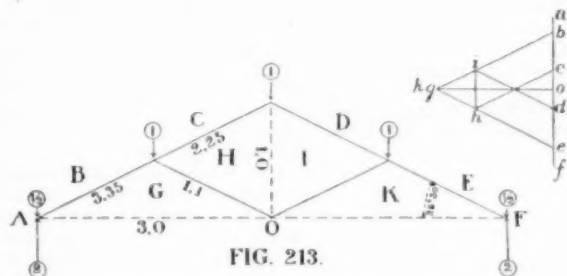
In laying out the strain diagram we begin with the joint with the least number of members and this usually is at one of the reactions, where we have only one strut and one tie. Having found these strains we pass to one of the joints at their other ends, and so on. The reason for doing this is that it will be found impossible to draw the lines in the strain diagram representing any joint where there are more than two unknown strains. By beginning, therefore, with a joint of two members only, the strains on these can be found. We then can pass to joints of three members, containing at least one of the former strains and so on. Figures 213 and following ones give a large number of roof designs with their corresponding strain diagrams. We will analyze one or two of these and the student can puzzle out the rest.

Only a few will offer any particular difficulty, and these will be taken up and explained later.

In all the figures dotted lines mean that the dotted member is in tension and full lines that the member is in compression. The numbers in Figures 213 to 228 give the amount of strain, in pounds, on each member due to one pound of load at each joint for roofs with inclination angles as shown in figures.

All that is necessary therefore, where roofs are designed similar to any of these figures, and with same inclinations and angles, to ascertain the amount of load on the joints and then multiply the number or given strain on each member by the amount of load on each joint. This will give the actual amount of strain on each member.

For instance, we will say we have designed a roof truss similar to Figure 213 with the principal rafter at an inclination of $26^{\circ}30'$; we will say the trusses are 10 feet apart and 48 feet span, and



weight of roof including snow and wind 50 pounds per square foot measured on the slant. By scaling the rafters we find they measure 27 feet each in length, therefore load on each joint $= 27 \times 50 = 1350$ pounds.

We now refer to Figure 213 and have the strains, as follows:
 Compression on rafter $BG = 3.35.6750 = +22612$ pounds.
 Compression on rafter $CH = 2.25.6750 = +15187$ pounds.
 Compression on strut $GH = 1.1.6750 = +7425$ pounds.
 Tension on tie $GO = 3.0.6750 = -20250$ pounds.
 Tension on tie $HI = 1.0.6750 = -6750$ pounds.

Had we drawn the strain diagram and made $ab = ef = 27.50 = 3375$ pounds at any scale, and at same scale made $bc = cd = de = 6750$ pounds, we should find that at the same scale the respective lines would measure:

$bg = 22700$ pounds.
 $ch = 15200$ pounds.
 $gh = 7400$ pounds.
 $go = 20300$ pounds.
 $hi = 6750$ pounds.

and to ascertain whether these strains were compression or tension we should follow the direction of each line at each joint and see whether it thrusts against or pulls away from the joint.

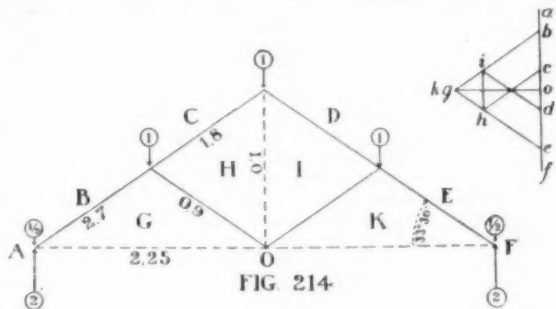
To draw the strain diagram we first select a convenient scale, by which we will measure all the loads and strains. We now draw our load line, making in (Figure 213) ab the load on AB the foot of main rafter, we then make bc the load on joint BC , the next one on main rafter, cd the load on apex and so on; as we know the reactions will each be just one-half the load, we locate o half way between f and a , in other words we make fo reaction FO and oa reaction OA .

To get the strains we begin at the joint $ABGOA$ at foot of main rafter, for here there are only two unknown strains, namely, the compression on BG and the tension on GO .

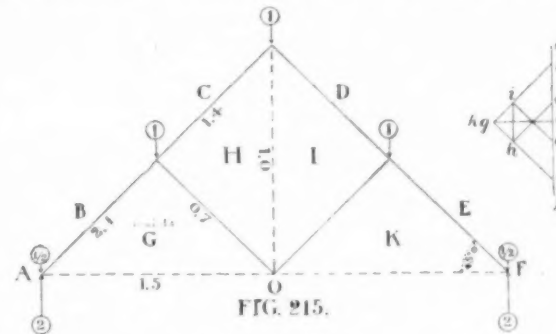
In strain diagram draw bg parallel BG ; and go parallel GO till they intersect at g ; then will bg be the amount of thrust on the joint or the compression in BG and go will be the amount of pull on the joint or tension in GO . To make sure of these we read off the lines following the proper succession, namely, AB, BG, GO, OA ; referring now to strain diagram we read ab , this is down or a vertical load; next bg , this is down or towards the joint, therefore compression; next go , this is to the right or pulling away from the joint, therefore tension; and finally oa (which brings us back to the point of starting a) and being upward is, of course, the direction of the reaction. As our strain diagram is a closed figure $abgoa$, we know the joint is in equilibrium. Had we failed to get back to the point of starting a , we should have known there was some missing member to the truss at this joint.

On the other hand, if we had had two letters coming onto the same point—(which would be the case with letters F and G were we to draw strain diagram for Figure 212)

—we should know that the member or line between these two letters was superfluous so far as aiding the general truss is concerned. We now (in Figure 213) pass to the next joint with only two unknown strains. This is evidently the joint at half the height of rafter, we have just found the amount of compression on BG —(note that we now read GB and not BG as before, for around this new joint the hands of a watch would travel in the direction GB)—and the only unknown strains are the compressions on CH and on HG . In strain diagram we draw ch parallel CH and hg parallel HG till they intersect; ch will then



be the amount of compression on CH and hg the amount of compression on HG . We now read off the pieces in succession BC, CH, HG and GB ; and in strain diagram; bc , downwards, therefore a vertical load; ch downwards towards joint, therefore compression; hg to the left, towards joint, therefore compression; and gb upwards towards the joint, therefore compression; as our figure is a closed one, we having arrived back at the point of start b , the joint is in equilibrium. We next examine similarly the joint at



apex and at centre of horizontal tie. The joints to the right will be similar to the corresponding left-hand joints, as the truss is uniformly loaded. Figures 214 and 215 are similar to 213, the only difference being in the increased pitch of the rafter.

LOUIS DECOPPET BERG.

[To be continued.]

BURIED TREASURE IN THE RAMPARTS OF GENOA.—No sooner has the Castle of St. Angelo been effectually defended against the threatened Roman tramway incursion than a portion of the old ramparts of Genoa have been handed over to a party of treasure-hunters. It appears that the descendants of Doge Durazzo have "shown cause" why they should demolish a part of the St. Michael ramparts, inasmuch as certain recently discovered documents point out that the said Doge's ducal sword, set with precious stones, is lying there, together with boxes of Genoese gold-pieces, of the nominal value of over \$15,000,000. The Italian Government has consented on the condition that any objects of art that may be found shall become State property under the trusteeship of the Ministry of Fine Arts; arms and weapons shall go to the museums in the department of the Ministry of War, and of the money, 80 per cent shall be poured into the State coffers, leaving 20 per cent, or \$3,000,000, only to the family.—*Philadelphia Telegraph*.



APPOINTMENT OF A GOVERNMENT ARCHITECT.—RETIREMENT OF THE COLONIAL ARCHITECT.—THE PROPOSED PARLIAMENT BUILDINGS.—REGISTRATION OF ARCHITECTS.

SYDNEY, N. S. W.

THE principal event of the month in our architectural community has been the appointment of Mr. W. L. Vernon, F. R. I. B. A., to the position of Government Architect. Mr. Vernon is an Englishman who came to Sydney some seven years ago in search of health. He has now found the object of his search, together with an appointment worth altogether about £1,500 per annum. He is well-known, and has excellent qualifications for the position he now occupies; furthermore he is on terms of personal friendship with the majority of his fellow architects. This personal intimacy, under the new system of competition for all public works exceeding £5,000 in value, should prove an immense advantage to him; for as professional advisor to the Government, he will necessarily be brought much into contact with those in private practice, and to have their confidence and support will materially help to lighten his labors. The late Colonial Architect, unfortunately, held himself aloof from all of us, and this professional isolation was indirectly the cause of the abolition of his office, and his own enforced retirement.

But, nevertheless, it is somewhat saddening to think that after thirty years of hard and faithful service he should be "permitted," in official phraseology, to go down into the obscurity of private life, without comment and without notice, beyond the briefest intimation of the fact in the public prints, and with never a word of thanks from those for whom he worked so well. For his work has undoubtedly been well done; and though many faults may be found by those that seek them, let it be said of him that of his best he has every reason to be proud, and of his worst he need not be ashamed. It seems to be the irony of fate that an architect's name shall seldom be associated with his best work, though it is associated too often with much that he would wish to disown; and Mr. Barnett will be remembered a generation hence in connection with the Post-office carvings—should they still disfigure the spandrels—when, under other circumstances, all but a few had forgotten to whom they owed the design of the fine building, on which these grotesques are an unfortunate but insignificant blot.

But of the general public we have few that know, and fewer still that care, anything about architecture, for New South Wales, æsthetically, has not yet emerged from an exceedingly uninteresting childhood, and to most of us anything artistic is only relatively good or bad according to the praise or blame bestowed on it by *soi-disant* critics. We babble of art, and we decry the Post-office carvings; but we tolerate, if we do not admire, the windows which light the stairways to our Centennial Hall, which are quite as bad in design, with the added offensiveness of the crudest coloring, and without any of the grotesque element to palliate their utter vileness.

Despite the heavy rains which still continue—106 inches have fallen since the beginning of the year—building operations are assuming a lively aspect here. The second series of competitive drawings for the City Avenue Company are being prepared; another large arcade has just been begun; and a third, still larger, is approaching completion. The Australia Hotel, too, is practically finished externally, and certainly looks infinitely better in execution than it did in the published design. The drawings for the completion of the National Art Gallery, are, I believe, out, awaiting the approval of the trustees; our Museum is being largely extended; the Lands Office should be ready for occupation in a few months; and there is a multitude of less important buildings rising everywhere. It is rumored, too, that competitive designs will shortly be called for our new Houses of Parliament. Nearly thirty years ago there was a competition, open to the world, for these buildings, and though the design of a Dublin architect was accepted and the premium, I presume, paid, nothing further has been done and the premiated drawings have served to decorate a Government office for many a long year. When I said that nothing further had been done, I made a mistake; no less than two foundation-stones have been laid at different periods, but our Legislature still makes laws for us in the hideous old Georgian buildings in Macquarie Street.

The attention of the Councils of both the New South Wales and the Victorian Institutes of Architects is at present directed towards effecting the registration of architects. If this can be done we shall have achieved an important advance; but the difficulty has not yet been surmounted in England, and it is doubtful whether it can be brought about here for some time to come. It is, however, a consummation devoutly to be wished; because those outside the profession are so ignorant or so apathetic, that they cannot or will not attempt to discriminate between the man who has really made his art the study of his life, and the successful builder. In fact "the practical man" if he choose to style himself architect, is oftentimes treated with more

respect, and receives more commissions on the score of his practical (as opposed to the architect's so-called theoretical) knowledge than if he had started with a professional education, and genius as his only capital.

THE same Australian mail brings us the following communication from the Corresponding Secretary of the Institute of Architects of New South Wales, which has a bearing on the contents of the preceding letter from our regular correspondent:—

I have the honor of enclosing you a newspaper report of what occurred yesterday afternoon. The mail leaves in an hour, and I have no opportunity of adding anything to the enclosure, but it was chiefly through the instrumentality of the President (Mr. J. Horbury Hunt) and one or two others, whose assistance was asked for by the Government, that the Colonial Architect's department here has been so satisfactorily remodelled.

"The newly-appointed Government Supervising Architect, Mr. W. L. Vernon, was waited upon yesterday afternoon by a number of his professional brethren who desired to offer their congratulations on his appointment to the position. The interview took place at the office occupied until lately by the Colonial Architect. There were present: the President of the Institute of Architects of New South Wales, Mr. J. Horbury Hunt; the Vice-president, Mr. Arthur Blackett; the Treasurer, Mr. James McDonald; the Secretary, Mr. J. J. Davey; Messrs. W. Pritchard, S. M. Green, J. B. Barlow, and W. G. Coward, members of the Council of the Institute; Mr. G. A. Mansfield, Fellow of the Institute; and Mr. B. Backhouse, Chairman of the City of Sydney Improvement Board.

"Mr. J. Horbury Hunt was the first to speak. He said that in his official capacity as President of the Institute of Architects, accompanied by the members of its Council, and supported by the Chairman of the City Improvement Board and the two senior members of the profession, he desired on the behalf of those with him, for himself and for the profession generally, to offer to him, Mr. Vernon, their hearty congratulations upon his being appointed by the wise determination of the Minister for Works to that very important post, and on that occasion he was certain he (the Minister) would pardon his reference to some passages in a written expression of opinion given by him to the Minister by request, pertaining to the subject of the new appointment. In that opinion some of his expressions were as follows: 'All having any knowledge of our profession will agree that he who may be selected by the Minister for the honor of the new position will, if so disposed, have in his hands the elements of much usefulness, both for the Government and the architectural profession. It can and should be made by him who is appointed, a position of much honor. Now that the Minister, to his credit, has determined to give Government patronage to our profession generally, he who fills this new office will have to be the Government adviser in all matters architectural, as Mr. Barnett has hitherto been; while under the proposed new order of things, the new adviser to the Government will have a very much more important position to fill, because heretofore the adviser to the Minister has been within the Government Department; now it is to be coupled in a most important manner with the whole of the architectural profession, making the duties of the new office of much importance to the whole profession, as well as to the builders and contractors, and should not appear less so to him who may in the future fill this important post. These duties make it a truly important office, and if ably filled the respect and confidence of the profession will be secured, and will thereby bring credit to him who fills it and consequent benefits to the Government.' The duties of the new office must be of a much more arduous character than hitherto, while in other respects it will be one of greater responsibility. In the past, the head of this department had only to work with the department as such, now his successor will have to do all that and work with the whole profession of architecture. While holding in one hand the interests of the Government, he will have in the other the claims and privileges of the profession to observe and adjust in the many and varied relationships that will come into existence between the Government and the profession. This alone will be a truly important feature of the new office, one made especially important now that competition is to be brought into the service of the Government. Architectural competition has of late become such a marked feature in our professional life, that care, skill, and experience are required to administer successfully services used under this system. Little did I think twenty-eight years ago (on the 7th day of January to come), then sitting in this room with your predecessor, Mr. Barnett, that I should, after all these years stand on this same floor in the capacity of the President of the Institute to welcome his successor to this office. In those early days Mr. Barnett and myself saw much of each other; in yonder library I notice Stuart and Revett's "Athens," Wood's "Palmyra and Baalbec," Taylor and Cressy's "Rome," all of which came out from London in a case of literature, consigned jointly to Mr. Barnett and myself, now more than twenty-three years ago. These are instances in one's life, Mr. Vernon, tending to make my office here to-day of much real pleasure and I shall in conjunction with the Institute feel it to be my duty at all times to render such service or give encouragement or advice that may help to make your duties rest lightly on your well-developed shoulders. Mr. Mansfield and Mr. Backhouse desire to support and they will I am certain strengthen

my feebly expressed good fellowship towards you. All this and like questions of so much importance to the profession were now in able hands. He should, in conjunction with his Institute, feel it to be his duty at all times to render such service or give encouragement or advice that may help to make his (Mr. Vernon's) duties rest lightly on his well-developed shoulders. The City Architect would have been among those present if it had been possible for him to attend.

"Mr. Mansfield, in indorsing these remarks, said that the appointment was one which would be hailed with satisfaction by the profession generally.

"Mr. Backhouse spoke in similar terms, and expressed the opinion that Mr. Vernon was peculiarly well qualified to carry out the duties which had been entrusted to him.

"Mr. Vernon, in reply, said he valued highly the kind words which had been spoken, and that he was quite at a loss to return thanks. He had accepted the position after the utmost consideration. It was hoped to make the office more identical with the profession generally than it had been in the past, and, in fact, that the one should work with the other. (Hear, hear.) If any difficulties led him into errors, they would be errors of judgment and not of intention. He knew that the position was a responsible one, but, with the proffered advice, he was prepared to proceed with the task before him."



It is a significant fact that all the secular buildings in Rothenburg, including the Rathhaus, are in the style of the Renaissance, while all the ecclesiastical structures — those later as well as earlier than the Reformation — are Gothic. So here one can study from several worthy examples, as well, if not better, than at Nuremberg — where the influence from outside sources was stronger and more marked — that individual development of the Renaissance commonly characterized as German. In its town-hall, which in its general appearance and expression is markedly contrasted with the one at Ratibon, the town possesses its most noteworthy specimen of that style. In reality this structure consists of two parts, an older Gothic one and the newer Renaissance one, standing in front and completely hiding all of the older part excepting the picturesque clock-tower, which rises far up into the sky — the highest within a radius of many miles. Resting on a podium a few steps in height, and its front enriched with a loggia of rusticated columns, from the middle point of which rises a not very high bell-tower, it presents with its receding roof and light-colored stonework an extremely cheerful appearance, entirely different from that of the structure behind (erected before the Reformation, which the people of Rothenburg embraced as early as the year 1543,) in which is the old hall where took place the scene described in the *American Architect* for August 23. It is an immense hall, with a most remarkable timber ceiling supported in the centre by one big beam, peculiarly trussed and pinned with wooden pins, running along the whole length of it. A part of the hall is divided from the rest by a beautifully-carved balustrade, and a stone bench against the wall extends all around the apartment.

Yet even in the newer part we see a lingering of Gothic forms. Most noticeable is the winding staircase, with carved hand-rail and traceried ceiling — an exact counterpart of those found in numerous purely Gothic structures. The immense staircase halls, upon which at points this staircase opens — which, by the way, is the only one, and hardly large enough to allow two persons to pass comfortably — are curiously decorated. This decoration, were it not for the fact that the design is a rather unhappy one, might be very effective. We see the walls below the heavy cornice, which marks the line between the vertical and horizontal, divided into numerous spaces by vertically, horizontally and obliquely placed straight and curved pieces, very heavy, after the manner of Early English or other half-timbered work employed externally; the plastering likewise is brought out flush with the surface of the timbers, which are carved into geometrical patterns, and sometimes, where one beam crosses another, a rosette or a head has been added to give richness to the whole — a quality which is also supplemented by the narrow bands of color applied on the walls, more strongly marking the division-lines between the wood and plaster. These plastered spaces, without doubt, were intended to give place to historical paintings or frescos, but now the spaces are blank.

We pass across the old market-place and by the *Herrentrinkstube*, where the lords of by gone days made merry and passed the days and nights in revelry, to the Church of St. Jacob, which neither possesses a remarkable exterior nor an interior which can be described as interesting; and, besides, the latter has, like almost all of the old cathedrals which have fallen into the hands of

the Protestants, a painfully barren and whitewashed appearance. Aside from this fault, in its proportions and treatment it is successful and extremely pleasing, notwithstanding the fact that it has no transepts, which, considering the lateness of its date [1456] is a strange peculiarity. The only remaining altars, and, in fact, about the only remaining decorative pieces of church-furniture, are two immense, richly-carved, wooden altars, in the carving of which are displayed all the overwhelming richness and eccentricities of German work, one containing in a capsule a drop of the blood of the Saviour, and the central altar, the wings of which, in eight divisions, contain paintings on gold backgrounds representing Biblical subjects and characters painted by Herlein, one of the best painters of the early German school. The paintings on these altars are placed among his best efforts. Connected with the church above, but divided below by a vaulted passage and the street which passes under it, is the Chapel of the Holy Blood, so-called because the drop of blood now preserved in the main church was formerly kept there; but the chapel is now used as an exhibition and storage room for a lot of old paintings.

The visitor, before turning his back on Rothenburg, should not fail to take a walk around the city on the top of its old walls, which, excepting at a few places, are unbroken. The stroll is quite varied, and can be made more so if the pedestrian will take the pains to occasionally peep through one of the numerous embrasures in the outer wall, or to ascend the towers as he passes them, from the heights of which he enjoys an ever-changing landscape; or, if he be fond of such sport, to take advantage of the excellent shots at numerous stray cats seeking refuge in these walls, that are offered him. Or, if he be fond of studying rural domestic life, and happen to be conscience-hardened enough, he will find a source of amusement in looking down from where he is into the windows below him as he passes them.

Our last glimpse of Rothenburg is through the heavy-laden atmosphere and the blinding snow, which all but hide the towers of its surrounding walls and those within them from view; and as the last dim outline disappears from the gray of the heavens we turn our back on the fleeting scene, and thrusting the guide-book, the only material remnant of the quaint old town, into our pocket, Rothenburg passes wholly into the realm of memories. Then in its stead we take up the one which is to introduce us to the city of Nuremberg.

Probably the first thing the average mortal will do when he arrives at Nuremberg will be to go to a hotel. His second action is more difficult to divine, but it is reasonable to suppose that, if he be an architect, his first move, after being safely housed, will be towards the Church of St. Laurence. On the other hand, if his tastes run towards the quaint and the antique, he will ramble around the old walls and moat; or, if an artist, he will do the same, or search for the house of Dürer, and there spend a few hours among the works of that great artist, and as many minutes in the small studio where he worked and sought refuge from the tongue of his shrewish wife. And yet, again, if he be a poet, or a cobbler, or both, or the latter with aspirations of the former, or *vice versa*, the house of Hans Sachs, where the cobbler-poet pegged and rhymed, will prove a source of attraction to him. And here he can gather inspiration: should he also, perchance, be a musician, this place will have an additional charm, for here in this street one of the scenes of Wagner's "Master-singers" is laid, and here in this narrow by-way he can recall the sweet strains and sublime chords of one of the most beautiful of the immortal composer's works, in which the master shows himself capable of touching the more tender chords of the heart, and in simple melody carrying away an audience and lifting it above the commonplace as easily as with the sublimity and the grandeur of the music in "Tannhauser." And then, again, the infinite humor displayed in the shallow "Beckmesser," his serenade, the midnight tumult and the droll *Nachtwächter*, appearing as it is over, chanting his rhyme, and departing, as the light of the moon falls in his path, frightened at his own shadow, starting and stumbling, at length disappearing in the distance — all returns. And then, also, the beautiful words the poet Wagner has placed in the mouth of Hans Sachs, the wise counsellor of the "Master-singers" and the pride of early Nuremberg.

With the architect we will first take a glance at St. Laurence's, a church whose plan is most excellent and the effect of whose interior is most impressive and poetic, although its dimensions do not place it among the largest in the country. It is a lofty single-aisled structure and has only one entrance on the front and that is in the nave. The aisles continue around the choir thus forming an ambulatory and the exterior wall being pierced with a double row of windows, containing excellent painted-glass, the view towards this end is very beautiful. There is nothing of the grandiose about the exterior but it is very pretty, with its two well proportioned towers and in its treatment as successful as any church in Nuremberg. It is quite plain and does not display much of that exuberant fancy in its detail which one so often notices in German work and which leaves the impression that difficulties only imaginary were created solely to be overcome. Such highly-wrought elaboration is noticeable in the "Sacraments Hauslein" in the interior of the church. But perhaps the planning of the exterior is due to a great extent to the fact that buttresses are entirely wanting.

The "Sacraments Hauslein" is a most extraordinary specimen of

¹The place where the implements used in administering the Holy Sacrament are kept.

stone carving. So profuse is the carving and sculpture lavished on it that it was some seven years before the artist, with several apprentices, had completed his task. It must excite our admiration not only for the intricacy of design but also for its lightness and elegance and for the wonderful amount of patience and technical skill displayed in its execution.

On the side of the street opposite St. Laurence's stands the House of Nassau, a popular subject for sketching, with its large wall-surfaces, small windows and the statue of the duke of brown stone down below, and with its corner turrets and the small low loggia almost directly under the roof, all having a very picturesque appearance with a decided flavor of old Nuremberg about it.

A few steps farther takes us to the market-place, which on market-days is alive and full of bustle, where stands the Schöne Brunnen—a beautiful fountain. Well it deserves that name, for a more beautiful fountain I have never seen. And Fergusson describes it "as one of the most unexceptionable pieces of German design in existence." The decorative sculpture here exhibited in profusion is of a high order, something not uncommon in German Gothic. This beautiful structure solid and firm below, rising to a great height, delicate and rich above, stands on a base consisting of several steps and in an octagonal basin each corner of which is ornamented with a statue.

Then we turn towards St. Sebald's and its parsonage, the Gothic bay of which attracts the attention of the passers-by. At present one can hardly obtain a good view of the church, it being so much obstructed by scaffolding, steps having recently been taken for its restoration. Its interior also is closed to the public. Nevertheless one can catch a glimpse of the long narrow windows all around the church—the ratio of the height of which to their breadth being about as six to one—and of the "Bride's doorway," as *piquet* a little entrance as there is in Nuremberg. It has deeply splayed jambs, these being ornamented with canopied statues, from the outer member of which resting on carved corbels spring two narrow arches, one elliptical and the other pointed, the whole doorway then being brought to a square termination, the spaces between being filled with tracery which at the date of this specimen had not yet become so profuse and intricate as later on, when design became fantastic but unattractive, and so is more elegant and happy. Then on the sides of the doorway several statues under canopies which although they have no apparent connection with the rest of the doorway, are there and being there and having been put there centuries ago, seem to belong there, whereas, should we see in a modern example a similar device employed, the whole being without that charm and that peculiar quality of mystery which time gives to all things, we might think it uncalled for.

By this time the morning has worn away, and sight-seer-like we are not loath to partake of some light repast. Let us then turn to the right, up a hilly street, and as we ascend we see on one hand, built against the side of an old church, what some people might be pleased to term a shanty, and the sign of the "Bratwurst Glöcklein." Entering, we stoop as we pass through the low doorway, and as we seat ourselves at one of the few tables we hear the crackling of the fire in the adjacent kitchen, and not many minutes later four little sausages and a goodly quantity of sauerkraut and an inviting mug of beer stand temptingly before us. Now these "bratwürste," or sausages, have an historic interest as well as a delicious flavor. As early as the fourteenth century, these sausages, which were made and sold by the then proprietor of this little restaurant, had an international reputation: a newspaper clipping, framed and hanging on the wall, tells how the proprietor was appointed purveyor to the Sultan of Turkey. But the chief interest attached to this little place is the fact that it was much frequented by Dürer, Veit Stoss, Adam Kraft and other notables who lived "around the corner;" and we are told that Hans Sachs and the two Holbeins, father and son, although not regular guests, used occasionally to drop in and in jolly fellowship pass the evening. Many little souvenirs and relics we see on the walls—old mugs, pewter-plates, old prints and sketches, portraits and autographs. Among others there is a little bit of verse, written in this room some years ago by a foreign princess, which holds a place of honor on the wall.

The dwelling of Dürer is not far from here, close to the old Castle, with its interesting museum of antiquities. Naturally, the house is quite a curiosity, but the collection, consisting mostly of reproductions—the house not being the property of the State, but belonging to a society of artists—it is not the best place to study Dürer. Only a short time ago Nuremberg lost one of the most famous portraits by this artist, as it was sold to the Museum at Berlin for some \$81,000. His works are much distributed, and everywhere one encounters them, in the galleries of all countries. But near at hand, one probably finds the best collection at Munich, where the famous portrait of himself from his own brush is to be found. Mildly gazing, with half-dreamy look, directly out of the canvas, the rich brown locks falling over his shoulders, he appears before you as noble a head as one can imagine. His "Four Apostles," one of his latest and most famous productions, and in the execution of which he overcame a certain harshness and other faults characteristic of his earlier paintings, is also to be found there. At the National Museum, in the city where he lived and died—Nuremberg—one finds many of his works, also a fresco in the big hall of the town-hall. Besides this museum, which we will not dwell upon, there is another—Das Kunstgewerbe Museum—perhaps modelled after the Musée des Arts Decoratifs at Paris, and containing specimens and products of

the various branches of decorative art. In connection with the collections, there is a large library and a drawing-room under efficient instructors, where a person can either enter one of the courses, or, if he prefers, he can, without registering or going through any form, whenever he chooses, spend his odd moments there and enjoy the privileges of a regular attendant. Another valuable feature of the institution is the Information Bureau. Here the tradesman or workman can get any information he desires, all his questions are answered free of charge, and, should he have made an invention or a discovery in the branch in which he works—technological chemistry, for example—tests and analyses will be made at the expense of the Bureau. It will be readily seen what a valuable aid an institution of this kind can under circumstances be, although the statistics of the bureau do not show very encouraging results, and do not show that this opportunity offered to the working public is much taken advantage of. Nevertheless, it is reasonable to believe that the place Nuremberg holds as the chief manufacturing centre of, and, indeed, also financial centre of South Germany—if we omit Frankfurt-on-the-Main—is quite as much due to the fact that the city offers unusual advantages to the ambitious workman as to the fact that this same city was in olden times the centre of all arts, mechanic and decorative.

The visitor will probably take a drive to the cemetery and search among fallen tombstones and defaced and worn slabs for the graves of celebrities passed away. Then, with a few drives and rambles, the layman will have run through the list of the sights of Nuremberg. But the student of architecture may let days pass into weeks, and weeks into months, and even at the end of that time he will be loath to leave the city, with its narrow streets, quaint old buildings and queer bits of detail.

T. F. LAIST.



THE "CABILDO."—ITS CONSTRUCTION AND GENERAL DESIGN.—ITS ENLARGEMENT AND UTILITY.—ITS WROUGHT-IRON GRILLES.—ITS RESTORATION AND PRESENT USE.

TURNING from the cathedral we pass under the arcade of the "Cabildo." This interesting edifice is another relic of Spanish occupation. Its site was chosen at the same time as that for the cathedral and the two buildings are separated by a narrow flagged alley, the continuation of Orleans Street. Historically the Cabildo is possibly of more interest than any other building in the city, for its erection dates back to the time when Church and State were very closely allied.

Of the original structure we have no record, but from its proximity to the cathedral we have every right in the world to assume that it went through the same vicissitudes during the first years of its existence. The present building was built by the Spaniards after they had assumed the management of the province and was intended for a Municipal Chapter-house, from which the colony was governed and justice administered. Within its walls all the transfers of the country from one sovereign to another were made. Here the haughty Don, in big wig and knee-breeches, representing the King of Spain, absolved with lofty condescension, in his master's name, his vassals of the colony from their oaths of fealty and handed them over to the proud seigneur, who represented France.

The building then became the "Hôtel de Ville" and in it Governor Claiborne, representing the United States, in the year 1803, received the colony from the French Prefect. From the balcony was proclaimed the transfer and the new flag was saluted by the authorities. After this time the seat of government was removed to a new building outside the limits of the original city. When General Lafayette visited the city in 1826, and was entertained by the officials, the Cabildo was fitted as a residence for him; and in his honor a square in front of the new city-hall was called Lafayette Square.

Like all the edifices built by the Spaniards, the Cabildo is constructed in a heavy and solid manner, of imported brick covered with stucco. It covers the sidewalk in front with an arcade and reminds one in this respect of the houses of Berne. It was originally only two stories high, each story composed of elliptical arches supported by heavy pilasters and engaged columns. In the openings on the second tier are excellent examples of old wrought-iron railings of three equally good designs.

Towards the end of the Spanish domination one building was found insufficient to hold the offices of the officials, so on the other side of the cathedral, the site then occupied by the monastery of the Capuchin monks in whose charge was the cathedral, a new building was erected, a mere copy of the first. Thus was followed out the

idea of architectural symmetry which was still further preserved in the Pontalba Buildings — half stores and half residences — built on two opposing sides of Jackson Square, leaving the side in front of the cathedral, until recently, open to the river.

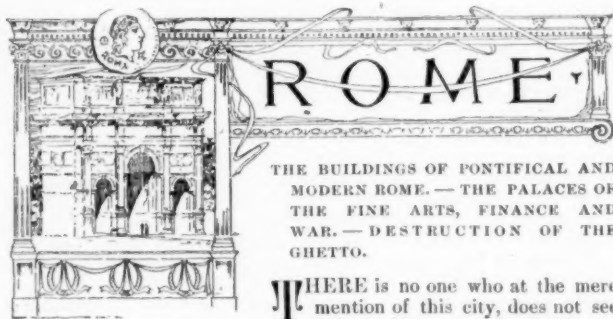
The new building was evidently the result of colonial industry, a fact noticeable in the rather wild designing of the wrought-iron balconies which though exhibiting skilful blacksmithing are grotesque when compared with the grace and beauty of the imported grilles of the original building.

When the French reassumed control they found the existing buildings inadequate and so placed a mansard roof on each and pierced it with a number of large dormer windows, retaining something of the Spanish type in a cupola placed in the centre of each roof. From the pediment in front they removed the arms of Spain but, as their rule lasted only twenty days, the American eagle and the "Stars and Stripes" were the next to occupy the place of honor.

In design the sculptured embellishments, as we see them now, are heavy, clumsy and grotesque.

At present a jail and a magistrates' court occupy the ground-floor of the Cabildo and the upper part is used by the Supreme Court of the State. The other building is used by the District Courts and on account of these facts the two edifices are now called the "Court Buildings."

Just now these buildings together with the cathedral are undergoing extensive restorations carried on under the direction of our "most potent, grave, and reverend" City Fathers, whose taste is not always the most cultured. But it is to be hoped that notwithstanding the introduction of "all modern improvements" we still shall have left to us, at least in outline, these relics — our City's heirlooms.



THE BUILDINGS OF PONTIFICAL AND MODERN ROME. — THE PALACES OF THE FINE ARTS, FINANCE AND WAR. — DESTRUCTION OF THE GHETTO.

WHERE is no one who at the mere mention of this city, does not see before his eyes the image of grandeur and extreme power. And art which always accompanied triumphs of the Roman Rome and the Rome of the Popes, even today cannot wholly withhold its charms from Italian Rome: It is agreed, then, that we need not concern ourselves with the Rome of antiquity, — the aqueducts, the baths and temples, neither with that of the Middle Ages, — the catacombs, basilicas, nor yet with the Renaissance and the centuries which preceded modern Rome. We need only to concern ourselves with contemporary Rome, which, in the year 1870 came under the control of the Italians; that is to say, with Rome, capital of the Kingdom of Italy. In Italy we are accustomed, when we speak of Rome, to fix the date 1870, because with the taking of the city of the S. P. Q. R. began for the Eternal City a life absolutely new, a life more stirring and modern, which strengthens Rome as much as she had been sacrificed by the sterile immobility of the Papal Government during its last years of control.

Before Rome became the capital of Italy, that is, in the years which immediately preceded the fall of the temporal power of the Pope, the architectural works carried out in the city can be considered absolutely second-rate performances in comparison with those which have been carried out since 1870. The works executed by the architect Vespignani who enjoyed the confidence of Pope Pius IX, like the old architects who were summoned to Rome by the sovereign pontiffs, have, nevertheless, their importance, but they cannot fairly represent the works of which the Rome of the Italians, the capital of the Kingdom of Italy, really stood in need. With 1870 sprang up in Rome a veritable municipal pride. The rehabilitation of the city was a necessity. I have mentioned the name of the architect Vespignani, yet even in an historical sketch like this, the work of this architect, eminent though he may be, can only be considered as the connecting link between the old world and the new; for this architect, who in 1837 was associated in the reconstruction of the celebrated basilica of St. Paul, in 1870 was named director-in-chief of the works of this same basilica under the Italian Government, a confirmation in effect of the appointment which Vespignani had received from Pius IX, in 1869, after the death of the former director. The name of this architect is almost entirely associated with works of this class. In fact, Vespignani did much work at St. John Lateran, at the Liberian Basilica, at the Basilica of St. Peter; directed the restorations at San Lorenzo, extra Muros, those at the Sistine Chapel and at Santa Maria Maggiore and those of San Lorenzo in Damaso. In all his works Vespignani showed both great sagacity and extreme conscientiousness, that conscientiousness which is the greatest virtue of a restorer of ancient monuments. Of original works, Vespignani prepared the plan of the grand cemetery of Campo Verano at Rome,

the palace of Monsignor Ferrare at Ceprano and the church of Santa Maria in Capranica. In short, a number of works which, as I have said, constitute the municipal activity of the last years of the Papal sovereignty and link Rome's architectural past with its future. It is a material bond, I think, because between the works of Vespignani and those of his successors there is no tie so far as concerns continuity of artistic development, the signification of which term can hardly escape you. It is Classic art which informs the buildings of Vespignani as well as those of the architects who worked with him and after him in the Eternal City. It is merely a question of adaptation. Ask the Roman architects, or better, those who, not being Romans, have done work in the capital city of Italy. "At Rome," they will tell you, "one can only employ the Roman architecture of the fifteenth or sixteenth century." In the shadow of the Pantheon and Colosseum only buildings with solemn arcades and columns supposed according to Classic conventions can be arranged, the Doric, Ionic and Corinthian crowning both. Consequently Rome has had architects perfect adepts in the Classic art, like Giovanni Montiroli, who was one of the most distinguished collaborators with the architect Canina in that graphic reconstruction of the most remarkable monuments of ancient Rome, "*Edifici di Roma Antica*."

Montiroli, with his Classic art, gained a reputation even beyond Rome. He made a name for himself in England, where he decorated the interior of Castle Alnwick, belonging to the Duke of Northumberland, all in Classic style. To this work alone the architect devoted twelve years of constant labor, and in it he achieved a great success. Amongst the architects who, before 1870, worked in Rome, in the style we have been speaking of, I ought to mention Dominique Jannetti, author of a remarkable building, Papari on the Janiculus, and many other architectural works, some of great interest. Classicism all along the line at Rome, as you see, Classicism in the past time when Rome maintained a style of life of its own in the midst of other Italian cities, and afterwards when Rome was united to the other portions of the kingdom. Then, as now, to prove good taste in the eyes of many architects at Rome, it was sufficient to adopt certain types recognized as beautiful and never vary from them. When new needs arose, it was sought to satisfy them by giving to old forms a new application. In architecture, then and now, a search after a new style did not seem to be necessary, consequently architecture with us has become an art distinctively decorative and imitative — when it is not a mere means of speculation. Rome, in fact, which in these last score of years has had to rehabilitate itself in order to take its place as the capital of the kingdom of Italy, has seen erected not only monumental buildings but several buildings for lease, where art is absolutely proscribed for the triumph of the most sordid speculation. Here, then, is another plague spot of the modern municipal life of Rome, which has had most disastrous consequences, and has brought about a very grave municipal crisis, the cause of which has been the abuse of credit. To tell the history of this would take long yet would not lack in instruction for the speculators of the future; but I must speak of the modern municipality in its artistic relations, and pass by the financial questions, for which, after all, I have no taste.

The one street where the Roman municipality had the greatest occasion to show itself liberal-minded, the Via Nazionale, that great street which is the most remarkable of Italian Rome, in the upper part of the city, begun by Monsignor Saverio de Merode, continued after 1870, was at length finished at the Piazza Venezia by the engineers of the Roman municipality, directed by the engineer A. Viviani. On this street the most considerable erection amongst a great number of seigniorial palaces, is the palace of the Exhibition of the Fine Arts, erected after the designs of the Sig. P. Piacentini, a Roman architect. This is one of the most artistic constructions of modern Rome, and has the merit of having been the first after 1870 really worthy of the capital of Italy. The necessity that this palace should be built in a quarter which was neither of the second-class nor far removed from the centre of the town, largely justifies, in my opinion, the choice of site. In fact, no place could lend itself to the erection of a building of this importance better than the Via Nazionale, which, by its position, being the connecting link between the old and the modern town, leads one to believe that it will finally acquire such importance as to surpass even the ancient Corso, the queen of Roman streets. This palace may be called the corollary of what I have just said. Its connection with Roman tradition can hardly escape one: a triumphal arch flanked by two walls decorated with pilasters — a very simple composition, and in some ways majestic. Perhaps the columns of the side, those architrave-covered intercolumniations, give the effect of being a little too weak for the plain wall-surface above, decorated with figured bas-reliefs; but this is because the architect did not wish to flank his great arch with arcades, a fact which once more demonstrates the artificiality of our application of styles.

The palace, although at the time of its inauguration much criticised, has incontestable merits. Its atrium, for example, has a very solemn air. Begun in August, 1880, it was finished in January, 1883. I happen to be in a position to give very exact figures on this building, and will give you an idea of Italian prices in the matter of monumental constructions. The palace covers an area of 4,800 square metres. The area of wall useful for exhibition purposes in the upper story and ground-floor has a linear length of 1,300 metres. The foundations have an average depth of nine metres, and their cubic contents is 11,400 cubic metres. The total contents of the walls, including the foundations, is 20,300 cubic metres, and of

the vaults 2,800 square metres. The walls are of brick in large part, as well as the vaults, and 216,000 kilogrammes of iron were used for the floors, and 38,850 for the lanterns and their supports. As to the cost, the total was about two million lire, and was borne by the municipality of Rome, in connection with the State and Provincial Governments. Upon the same Via Nazionale, some years afterwards, was erected the National Dramatic Theatre, upon a very inconvenient site and under economical conditions which were very unfavorable, yet Sig. F. Azzurri, a Roman architect, succeeded in extricating himself with honor from the difficult conditions which overweighed the development of his work, and has given us a well-arranged plan and an agreeable façade, as well as a convenient auditorium.

Limiting myself for the moment to the mention of works of public interest, I ought here to speak of one of the largest buildings which has been erected at Rome for the last score of years. It is a building which, though much attacked as a matter of art, is, nevertheless, remarkable for the very satisfactory treatment of the plan, as well as for its grandeur. It rises quite near the Porta Pia, by which our army entered Rome, in 1870. Those who have visited Rome recently have already guessed that I mean to speak of the Palace of the Minister of Finance, which covers an area of 36,000 square metres, and is due to the initiative of one of our most celebrated statesmen, the late Quintino Sella. The Palace of Finance was built after the plans of the Roman engineer Canevari, and its two façades are decorated with superb sculpture by Signors Costa and Rosa, which, artistically, are the most important part of the building. The interior, very richly arranged, has a magnificent hall, with frescos by Signor Mariani and excellent stucco-work. In short, the Palace of Finance is the largest official building in Rome, and I believe the richest. After this building, the Ministry of War should be mentioned, which was built near the Palace of Finance, on the Via 20 Settembre, under the direction of Colonel Garavaglia, and after him under Colonel the Marquis de la Penne. Even this is a very remarkable building, especially for its grandeur; but I should not care to point it out as a specimen of good architecture. It is a work of military engineering, and with us it is natural that military engineers do not take much interest in architectural matters, so that it is very difficult, not to say impossible, to discover an architectural work, however small, due to their corps. On the other hand, it is curious that our military engineers have little chance to show their ability in constructing barracks, for almost without exception, Italian barracks are reconstructed ancient convents, and in no way buildings expressly erected for military use. At Rome a single barracks has been built, that on the Prati di Castello for the carabinieri.

Appropos of alterations, I must mention one at Rome, that of San Silvestro in Capite. This monastery, since 1877 used for the offices of the post and telegraph, amongst the important architectural works of the capital, is that which has been the most pitilessly attacked by the critic. Just imagine the protest against the reconstruction of this monastery finally ending in a public subscription for the destruction of what had already been done! Naturally, there was no result, but yet the mere fact of the subscription is eloquent as regards the work of the architect in charge. This palace has one of its façades on the Piazza San Silvestro, where a little church in the Renaissance style, built after the plans of the architect Cipolla, reminds me that this same Cipolla built, about 1870, the savings-bank of Rome and the royal stables on the Quirinal, which are a chef-d'œuvre of their kind. The same architect whom I mentioned in my former letter, apropos of the building of the Bank of the Kingdom of Italy at Florence, has done much work at Rome for the royal family, and his work in the halls of the Quirinal (the royal palace) has been the object of much legitimate praise. It need hardly be said that these works are also mainly alterations. Among the noted things, I must mention the remarkable work done at the Palazzo Madama, by the architect Gabet, and those by the architect Comotto in the Palazzo Innocenzia at Montecitorio, formerly the home of the pontifical court. Since 1871, the Senate sits in the Palazzo Madama, and the National Parliament sits in the ancient palace at Montecitorio. It might be interesting to mention these works in some detail, either in the strictly architectural sense or in a decorative sense; but a study of the detail would lead me too far afield. Thus far I have mentioned only the public buildings erected by the State or by the municipality. Now that I must speak of buildings used for habitation mainly, the houses for rent, my pen is afraid, and I would willingly avoid touching a question which has no connection with art. Yes, that is the truth, not only at Rome, but more or less everywhere in the country. In the houses for rent, speculation rules everything with us, and in default of real architects, speculators with us turn to the engineers who ought to be concerning themselves with bridges and mines and industrial matters, though unfortunately they do occupy themselves with architecture without the possibility of being able to achieve distinction. Sometimes these engineers have a very secondary part in the work, where they have, as we say, "*la firma*," the signature which guarantees the goodness of the construction rather than its beauty. Nevertheless, in many cases the speculators, where this is possible, try to get along without the signature even of the engineer, accepting in place of it, that of the master-mason, who sometimes is architect, superintendent and speculator in one. In the houses of new Rome, then, we see everywhere columns, pediments and ornaments ill bestowed in a desire to give an aspect of richness

which does not exist in reality, and of which the sole aim is to raise the rent. Architecture is reduced in this way to serve an ignoble end.

I do not exaggerate the real state of things in modern Rome. What I write, *sine amore nec odio*, is within the knowledge of all, and I can point to an infinity of cases which are unfortunately to be seen everywhere in Rome without going in search of them, for since 1870 entire quarters have been built at Rome. In fact the vast meadows of the Esquiline, formerly full of palaces and houses, you see nowadays towering with buildings, and the Viminal and Celio, and the Aventine as they were formerly, you now see them peopled with other constructions of every kind, and especially of that tiresome species, as Voltaire would call them, which have been built in these last years.

And now a new quarter called the Testaccio is going to be laid out at Rome. Surely old Rome with its little tortuous streets could not be respected by new Rome. So the unhealthy but very picturesque Ghetto, the Jews' quarter, has been sacrificed to give place to the alleys of the Lungo-Tevere like the Trastevere of the Middle Ages—the Trastevere of crenellated towers, with its houses decorated with the fragments belonging to the ancient Rome of the Casars. But if in consequence of all these novelties the local color of Rome is vanishing, there is room for rejoicing that the work of sanitary reform should be directed to a quarter like the Ghetto, which for a long time has been a veritable plague spot to Rome. The Roman Ghetto was one of the most ancient in Italy, and its first inhabitants were the slaves whom Pompey, in the year 64 before Christ, brought out of Judea. Like the Ghetto at Florence, the leading characteristic of the one at Rome is poverty and filth. Eight gates gave entrance to it. The principal one was that on the Place Santa Maria del Pianto, called the Piazza Giudia, in the midst of which was a fountain of sweet water. From this place across the Via Rua one descended to the little square of the schools or synagogues, in the midst of which a circular mound indicated the basin of the fountain which used to represent the judgment of Solomon. Opposite the square of the schools was that of Monte Cenci, whence one descended by the Via Fiumara where, with the alleys Catalina and Azielle, were the habitations of the poorest class of the Jewish colony at Rome.

The demolition of the Ghetto has been a very sensible thing, only one would wish that the new quarter might be at least a little more reasonable than is generally the case at Rome, especially in the houses for rent, which represent the modern municipal problem *par excellence*. The question especially concerns the conciliation of economy with art, a conciliation which our builders seem to find impossible; so that if you turn to the new streets of Rome you will find houses for rent where the least damage is the lack of that conciliation which is here spoken of. Surely, to be able to admit art into modern habitations, we must begin by forgetting the Pantheon and Colosseum, and renouncing the traditions of the grand academic art. Without this every effort would be without serious results. Palladio built palaces at Vicenza and in Venice directly inspired from Classic architecture. But the sixteenth century was more closely associated with antiquity than the nineteenth century, and what Palladio did in his time we cannot do to-day with our ideas, which daily seek new liberties, like Schiller's fair and unfortunate prisoner. In a word, it is archaeological architecture which has caused us to wander from the road of modern architecture inspired with a rational understanding of our needs. You will easily find very distinguished architects with a good knowledge of ancient styles, but alas, almost insensible to the modern theory of building; so that we see in Italian houses for rent a deceitful richness, because, not having the means, we desire to have the air of grand seigniors by using the ancient seigniorial forms in houses which should not draw their inspiration from routine forms.

The illogical application of these forms gives modern Italian architecture a hybrid air, one without character, if it is not that which comes from speculation fortified in its desolating results by the architectural irrationalism which in every part of the old world carries everything before it just now. But let us not wander. Rome, which, with 1870, opened its gates to the builders from every part of Italy, has thus stimulated a grand and noble emulation amongst her best architects, with its public competitions for several edifices which are now in course of execution. The competition for the national monument to Victor Emmanuel is the first in its national importance. This monument is due to the young architect Signor Sacconi, and is to be erected upon the famous Campidoglio. Perhaps you will recall that in a competition for this monument a French architect won the prize the first time, the M. Nenot who erected the New Sorbonne at Paris. The second competition (for no project submitted in the first was thought worthy of execution) Signor Sacconi secured, and the young architect for some years has labored on his design, in which he has effected several changes and considerable ameliorations. Another very remarkable competition, as much in the strictly architectural sense as in that of constructive enterprise, is that for the Palais de Justice, which was gained by the architect Signor Salderini, although several remarkable schemes were presented. In this class of competition, I must mention likewise that for the Polyclinic, which has ended in the adoption of an excellent scheme, the cost of which rises to a considerable sum. I should also mention the competition for the Parliament Houses, which opened in 1884, was annulled, and opened again in 1888, resulting again unsuccessfully. The millions required for these buildings are spent with extreme lavishness. Let us at least hope that all this money which is taken

from the public treasury will be well used by the architects who direct the grand works of the capital. I have not spoken of the secondary monuments which are to be erected at Rome, like those to Cavour, to Garibaldi, etc., which have also been the subjects of notable competitions, the mere summary mention of which would compel me to add many pages to this already too long letter.

The conclusion to draw from all this movement in the civic life of Rome since 1870 is that much, good or bad, has been done, and the future leads us to hope for more satisfactory results than those which have been accomplished in the past. ALFREDO MELANI.



THE CARPENTERS' STRIKE.—WORLD'S FAIR MATTERS.—AN ELECTRIC FOUNTAIN.—THE SMOKE NUISANCE.—HEIGHTENING OLD BUILDINGS.—TERRACOTTA AND WIRE CONSTRUCTION.—THE OLD AND NEW METHODS OF LAYING FOUNDATIONS.—THE DEVELOPMENT OF FIREPROOF CONSTRUCTION.

THE carpenters' strike, which was mentioned last month as to be inaugurated on Labor Day, the first of September, was expected to call six thousand men from the work in the city and, it was feared, would somewhat paralyze building operations, for the present at least. The strike, however, as a strike, has not proved a marked success. To begin with, only a comparatively small number of even Union men joined the Brotherhood faction, as they doubtless felt the two associations of Bosses were too secure in their position to make it safe for them to do so. This naturally broke the entire strength of the strike and, though there may be some isolated cases, work is generally progressing without disturbance and no strike is recognized as "on." Most of the men went back to work when once the nominal wages were settled at 37½ cents an hour.

At last several of the vexed questions of the World's Fair matters are settled. Mr. Olmsted has been appointed supervising landscape architect, with Mr. Gottlieb as consulting engineer. There was some talk of the possibility of Mr. R. M. Hunt being appointed as supervising architect, but it has not been a cause of much surprise to many that this has proved chiefly talk and that Messrs. Burnham & Root, whose appointment seems to have been a foregone conclusion, are now the men who are to fill this office.

Finally, the important question of site is also settled, and it was made known after the Director's meeting of the ninth of September, that the dual site was the thing we must hurray for if the public was to follow the example of the press, and that the fair would be held on the Lake Front and in Jackson Park. The total number of votes cast was thirty-four, eighteen of which in the first balloting were for this arrangement; this vote was, however, made unanimous on the second ballot.

Negotiations with the Government and the Illinois Central Railroad, as regards the filling-in of the harbor are in progress. Probably before this letter goes to press some quite important decisions will have been arrived at in regard to the plan of the more important buildings, since for several weeks past the architects have been engaged on their sketches.

Mr. Yerkes, the energetic president of the North and West Side Cable-car Company, has presented to Lincoln Park an electric fountain, the finest one in this part of the country, if not in the United States. This month for the first time it has been playing evenings, and attracting large crowds to witness what is really a gorgeous sight. In the daytime it is a very ordinary looking affair, consisting simply of a basin containing about a dozen large concrete cylinders looking like rough casts of some huge hippopotamus-like animals, squatting on their haunches in the shallow water. Evening changes all this. A tremendous volume of water is thrown from the openings that dances and leaps in a perfect ecstasy of motion, sometimes rising in the centre to the height of fifty or sixty feet, while the side-streams cross and meet each other, falling back in showers of spray and mist. Add to this unusually fine fountain the unusual attraction that one minute the water is shimmering in that white electric light that looks like crystallized moonlight, and that in another all the most brilliant colors of the spectrum are seen in the different parts, or that it leaps up an entire dancing body of brilliant red, blue, or green color, and it can easily be imagined that it is a very beautiful sight of its kind. If, as we are told by the "Dictator," the Boston car-companies use their old Essex witches to pull their trains, we of the rough West cannot but smile at the contrast in the work to which our beldames of the "wicked eye" are put by this same kind of companies, for while our "broom-stick trains" rush along with a different power to turn their wheels, witchcraft is here used to develop the aesthetic and beautiful.

The authorities are really making an effort to stop the smoke nuisance in the heart of the city and suits have already been begun against many of the large establishments that have heretofore showered down smoke and cinders on the neighboring districts, obscuring

the light of the sun, as well as the conventional blue of the sky. The good work continues and as the result of the suits is either the payment of a fifty-dollar fine, or a discontinuance of the nuisance, it really looks as if some good might be accomplished. At least, if our atmosphere is not soon cleared, there will be a large part of our city invisible to the eye of the pedestrian on the common thoroughfare.

A large majority of the new down-town buildings contain nine and ten and even more stories and many of the old ones are now having new stories added to their height. It seems as if in many cases it might be a question as to how wise a plan this is, and whether their present construction will warrant the additional weights. However this may be, a half-dozen or more buildings are having such additions made, among others the Grand Pacific Hotel. This building has now in the process of erection one story in brick to be surmounted with a wooden construction, thus seeming to indicate the desirability of as little weight as possible.

Of all the metamorphosed buildings, that of the old Chamber of Commerce is the most striking. Formerly a three-story building, it now rises to the ten-storied height of the neighboring Tacoma Building. The outside walls were held up by screws, as described in a previous letter, and the interior construction was entirely removed and replaced with new work. The new parts of the outside walls are entirely of terra-cotta, a material now looked upon with much favor as a substitute for stone, so far as appearance is concerned, and for brick as regards fireproof quality. Hardly any of the recent large mercantile buildings have had stone used in their street fronts, and the substitution of iron and terra-cotta interior construction, now almost universal here, in the place of the old brick construction makes a most desirable change for the better, in as far as larger openings for light and air are practicable, consequent upon the diminishing of the thickness of the walls and partitions. These same walls and partitions gain in strength however as they have lost in bulk.

Our mercantile architecture of the West differs from that of the East inasmuch as it is not partially a wise adaptation of already well-known styles, but a gradual development of a style which long experience and frequent tests have shown to be good for this especial place and climate. The growth of this style is a most interesting one to note, for we now find ourselves in the very midst of and watching the formation and growth of a school here in Chicago, while heretofore we could only appreciate such development by the study of the growth of some of the older styles.

About six years ago foundations were laid for a certain large building, but on account of litigation with the owner of the next property the erection of the structure, after the foundations were once put-in was first temporarily, and finally permanently abandoned. The lot is now to be used as the site for the temple of the Women's Christian Temperance Association, and as these solid foundations are being taken out to give place to foundations of the more recent mode of construction it is most interesting to note the changes of method in this comparatively short time.

These new constructions are still those of the isolated-pier method, as are all in Chicago, but their great difference arises in their material, manner of laying and space occupied. The old ones had first their bed of concrete and then one or at most two tiers of railroad irons laid in concrete, while upon this bed was laid a veritable pyramid of dimension-stone and rubble. In this manner the sub-basement became almost useless, with its multitude of piers, filling all space. Gradually the railroad irons have been replaced by larger and heavier iron, and by degrees the dimension-stone has been supplanted by layers of iron I-beams, until now in these new foundations, instead of a bed of concrete, a tier of iron and three, six or eight courses of stone, we now have a bed of concrete and three or sometimes four courses of I-beams, each laid in cement. Thus is maintained the same amount of bearing surface on the clay earth, but bringing it in by offsets of three feet or more at each tier of beams to the iron pier or column, so that the sub-basement is no longer a collection of pyramids, and the foundation is not of stone, but of iron and concrete alone.

In the same manner as the railroad irons were originally laid near together and concrete run in between, so now the heavier beams are placed, but properly held in position by separators. First a tier of these is laid in one direction and then a tier on top runs in the opposite way, until the spread is reduced sufficiently to receive the bed-plate for a column.

One of the important and much discussed questions has been, "How is this iron to last; will it have entirely rusted out in fifty years, or will there have been no change?" This taking-up of these foundations proves that in this case at least most of the iron shows no sign whatever of rust or scale. Apparently the railroad iron was originally painted with red lead, (Query, is not red lead preferable to the commonly employed mineral paint?) and as the foundation is blasted or picked apart, a portion of the color has come off, attached to the adjacent particles of concrete, but the iron seems to be as strong and good as when first put in. So far as the writer's observation goes, this is the first case where iron in a deep foundation has been exposed for examination, and it certainly is an extremely satisfactory proof that we, in Chicago, are upon the right road.

Formerly, that is, previous to our great fire of 1871, our large fireproof buildings, so-called, were built, as in other cities, with stone façades and unprotected interior iron construction. The idea that they were fireproof soon proved to be false.

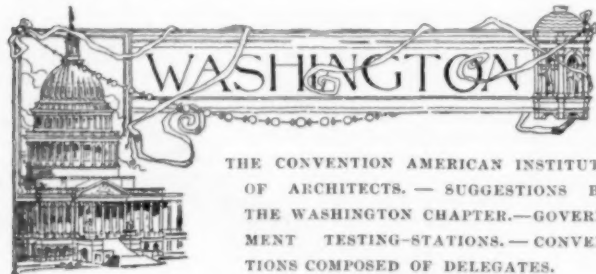
Brick was the next material used for the outside walls, and finally,

to give variety, terra-cotta, as an equally fireproof material, was introduced with it in the form of courses and panels. As a next step towards lightness of construction, iron columns were built into the exterior brick piers. The first large building where this combination was extensively used was in the Home Insurance Building, and as an outgrowth from this came the more extensive use of it in the Tacoma Building, the mullions, lintels, sills, etc., here being of iron covered with terra-cotta. Finally, as before stated, came the use of it for the upper portion of the entire outside wall in the remodelled Chamber of Commerce Building, and as the latest and lightest development the entire front of the but just completed Rand & McNally Building is constructed of it, thus giving the smallest possible piers and largest window openings. In this case it has been made to resemble as nearly as possible cut brownstone, both in shape of the blocks and in the texture of the surface. Of course any color desired can be obtained by mixing proper pigments with the clay. Throughout the city examples of nearly all shades from light yellow to dark brown can be seen.

The Rand & McNally Building is a most satisfactory structure of its kind. The entire building is kept as simple as possible, the tendency being to keep ornamentation, where used, on a level with the eye, or at least confined to the first few stories. This disposition of all ornaments is quite generally noticeable in all the more recent high structures. In this particular case the ornamentation is rather of a fifteenth-century character, the chief features of it being two fine arched entrances, the arches filled-in with open terra-cotta work of good and original design. The window reveals have rounded corners. Two pleasing features of the outside doors opening onto the sidewalk, are the bronze strips used as decorations and the insertion at the bottom of the door, where the most wear comes, of a metallic panel with a combed surface.

In the interior, comparatively low stories are noticed here, as in all the more recent buildings. The halls are well lighted from windows of obscured glass placed in the higher parts of the walls of the offices, which are themselves well provided with light and air.

The whole interior is kept extremely simple and in excellent taste. The walls and ceiling of the lower hall is entirely of Tennessee marble, those of the stories above being only wainscoted. The stairs are a combination of iron and marble, the treads being marble and the risers open ironwork to permit all the light possible to be gained for the staircase.



THE Convention which will be held next month will be an important one in the history of the Institute, as it is the first meeting, after a year's experience as a consolidated association.

The Washington architects hope for a full attendance, and the affair is expected to be both profitable and enjoyable.

Two questions of importance have been submitted to previous conventions by this Chapter, one of great importance to the profession and the community at large, the other being for the well-being of the Institute. The first was submitted to the Buffalo Convention and advocated the establishment of a government testing-station with branches in all the principal cities, where building materials could be tested by disinterested and trained officials. We all know how entirely impractical it is for a private individual, even when engaged on large works to make or obtain reliable tests of the different materials which go to make up a building. The data at hand is limited, obsolete, and in many instances unreliable. Tests made on small cubes, beams or posts have been found entirely unreliable, when applied to the same material in the sizes used in actual construction. The tests of Professor Lanza show this in the case of wooden beams. New quarries, new mines, and new factories are constantly being opened. We are obliged usually to take the tests furnished by the owners (interested parties) of the material supplied. Quarries, metals, forests, mills and kilns are constantly changing and old tests need constant verification. Tests should also be made as to the life, decay, and deterioration of building materials. The manner of manipulating testing-machines should be uniform where different brands of the same material are being tested. This is by no means easy of attainment where the party making such tests has occasion to use the machine only once or twice a year. There should be government officials who will have enough work to perform to become expert in the matter.

The Convention at Buffalo endorsed this measure, referred it to the Board of Trustees with instructions to investigate and promote. The measure has not been heard from since. I suppose it has been

dropped. The matter is well worthy the attention of the Institute and of Congress.

All architects feel the need of such an establishment, to help them when they are in doubt as to the character and strength of material which they are called upon to use in their many building operations. Everything that will tend to make buildings secure and healthful, preserves not only property, but in many instances life itself. Machines which can test brickwork, stonework, wooden-piers, iron-beams, and posts of full size will undoubtedly give very much more accurate results than the method frequently adopted of testing small cubes and calculating therefrom strength of columns and piers, and other forms of construction. The Government needs such stations for the millions spent yearly in government works.

This system is already in successful operation in France, Switzerland, Germany, Austria and Russia. The testing-station at Berlin is apparently just what we need in this country, a description of which I quote from Mr. Cluss's memorial on the subject:

"The testing-station in Berlin is equipped for tests of material in hot, cold, dry, wet or a changeable state. It owns hydraulic presses of varied capacities up to 320,000 pounds, and facilities for inserting test-pieces from the minutest sizes to large-sized columns and piers of brickwork, masonry, etc.

"There are accommodations for determining specific gravity, porosity and hygroscopicity; machines based on combined leverage systems for tests of tensile, compressive, transverse, shearing and torsional strength; machines for testing materials under often repeated strains; Atwood's machines for testing resistance to live forces; presses for testing pipes exposed to internal pressure up to 500 pounds per square inch; machines for determining the abrasion of paving materials by wear; apparatus for microscopic tests and photography; apparatus for analyses of organic and inorganic substances, fuels, oils, etc.

"The European institutions are due to the initiative of the national societies of architects and engineers."

The Institute should obtain the assistance of the civil and mechanical engineering societies and force the matter on the attention of Congress. It is a question well worthy the efforts of such societies, and the favorable action of Congress.

The second matter of interest brought forward by the Washington Chapter was submitted at the Cincinnati Convention, 1890. This was in reference to having the Convention composed of delegates from the different Chapters. This matter after short discussion was referred to the Board of Directors for consideration and digestion, with the idea that it or an improved and modified form embodying the same idea of representation by delegation should be brought up for action at the coming Convention of 1890.

The Board of Directors at their meeting held on the last night of the Convention, laid the matter on the table. This addition to the By-Laws was proposed because it is not possible or probable that more than one-third of the Fellows of the Institute could be present at any convention. When conventions are held in large cities, the architects of the city and surrounding community would usually have a large minority or often a majority in the convention, and thus the action of the convention would be local or sectional. All will acknowledge the desirability of national instead of local action in our conventions.

The following points were submitted:

"Each Chapter shall be represented in every meeting of the Institute by one or more delegates.

"Delegates may cast as many votes as there are members of the Institute in their Chapter.

"The President and Secretary of each Chapter to give to each delegate a certificate of membership, and the number of ballots he is entitled to cast.

"Individual members may instruct the Secretary of the American Institute to allow certain delegates to cast their votes for them."

Unfortunately the Convention had practically adjourned when this question was submitted, and it was not discussed but referred to the Board of Directors. The only criticism made was to the effect that members of a Chapter would be of different opinions, hence delegates could not properly cast a vote for them.

There is little doubt but that delegates from Boston with fifty odd votes would represent the Boston Chapter much better than if they had two votes (which I believe was the number attending the last convention from Boston), while Chicago had fifty votes in the same convention.

A majority of a Chapter would elect a delegate or delegates who would represent them. Thus a majority of the delegates would represent a majority of the Fellows of the Institute.

A convention in New York City would, according to the present methods, be in reality a meeting of New York architects who could do as they saw fit, wielding a power far out of proportion to their actual membership in the Institute.

The final clause "individual members may instruct, etc.," was put into the Washington Chapter's recommendation so that members who differed from their delegate on any important subject would have an opportunity to get some delegate who was in sympathy with him to cast his vote.

The delegate casting uneven votes may be impracticable on account of the difficulty in counting the votes, still there is no doubt but that the conventions should be composed of delegates.

The most practicable way, probably would be to subdivide the country into sections and have delegates elected from each section on a basis of one delegate for every five members or a fraction over five provided it did not number less than three.

A Convention composed of delegates selected in this way would represent a majority of the whole Institute. Chapters at a distance might select delegates from Chapters nearer the place of holding the Convention, whenever they saw fit to do so.

It was feared that the system of representation would reduce the attendance at Conventions. To avoid a trouble of this kind all who attend a convention as simple Fellows might be allowed one-fifth of a vote. In fact there are several ways of solving the matter. All that is necessary is for the members of the Institute or the Executive Board to give the matter due consideration, which I hope will be done in time for the Convention of 1891.



[Contributors are requested to send with their drawings full and adequate descriptions of the buildings, including a statement of cost.]

LE PETIT BÉGUINAGE, GHENT, BELGIUM.

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

THE diameter of the trunks of the trees set out about the grass-plot enclosed by this interesting group of buildings leads one to believe that, when the great nunnery at the other end of the town was removed to a suburb near by in 1875, a portion of the sisterhood remained in Ghent and established themselves in new quarters. A more sensible and homelike treatment of the buildings wherein might dwell three hundred women who have consecrated their lives to good work could not be devised, and as there are similar sisterhoods in this country it would be well to have brought to their attention the cheerful comfort of these semi-detached houses. The buildings which house three hundred nuns are placed around an irregular pentagonal quad in the middle of which rises a narrow-naved and unattractive chapel, practically all of brickwork like the house. It is strange that the architect did not, having gone so far, carry his use of brick a little farther and by omitting the slight amount of stone used, make his buildings one of the most perfect examples of rational architecture in brick that can be found.

SKETCHES BY A ROTCH TRAVELLING-SCHOLAR. BY MR. E. A. JOSSELYN.

[Issued with the International and Imperial Editions only.]

SKETCHES BY THE American Architect TRAVELLING-SCHOLAR. BY MR. T. F. LAIST.

[Issued with the International and Imperial Editions only.]

SKETCHES OF WROUGHT-IRON WORK BY MR. T. F. LAIST: American Architect TRAVELLING-SCHOLAR.

[Issued with the International and Imperial Editions only.]

COMPETITIVE DESIGN FOR SOUTH-SIDE POLICE-STATION, MILWAUKEE, WIS. MR. W. D. KIMBALL, ARCHITECT, MILWAUKEE, WIS.

THE building here shown will cost to build \$30,000, which includes all iron cell work; stone floors; complete gymnasium with open timber-roof, as well as all stable fittings in basement of patrol-house.

DESIGN FOR THE CHAMBER OF COMMERCE, PORTLAND, OREGON. MESSRS. JOHN PARKINSON AND J. B. HAMME, ASSOCIATED ARCHITECTS, SEATTLE, WASH.

THE design was submitted last month. The exterior: stone, pressed brick and terra-cotta; roof, Spanish tile. The Chamber of Commerce rooms on second floor; auditorium extending through four stories; balance of building devoted to offices, etc.

HOUSE AT ST. JOSEPH, MO. MESSRS. ECKEL & MANN, ARCHITECTS, ST. JOSEPH, MO.

NATIONAL UNION INSURANCE COMPANY'S BUILDING, WASHINGTON, D. C. MR. GLENN BROWN, ARCHITECT, WASHINGTON, D. C.

STABLE FOR REINHOLD KLITZKE, ESQ., BROOKLINE, MASS. MESSRS. RODMAN & NORRIS, ARCHITECTS, BOSTON, MASS.

HOUSE AT SUMMIT, N. J. MESSRS. STEPHENSON & GREENE, ARCHITECTS, BOSTON, MASS.

[Additional Illustrations in the International Edition.]

THE CHAPEL OF THE GRAND BÉGUINAGE, GHENT.

[Gelatin Print.]

UNTIL the béguines or nuns of the Béguinage sisterhood were removed from the city the largest nunnery of the order, with a membership of over one thousand, worshipped in this chapel which still stands near the Porte de Bruges. The nuns are not bound to life-long membership, but are free to leave and take to themselves husbands when occasion serves; but it is said that there are few defections from the ranks. The nuns are all maids or widows of good character and often of rank and wealth, and their lives are devoted to the care of the poor and sick—cheerful, active doers of good, not ascetic or insincere bigots.

ENTRANCE TO THE LARISCH PALACE, VIENNA, AUSTRIA. HERREN VANDERMÜLL & SICARDSBURG, ARCHITECTS.

[Gelatin Print.]

THE NEW ST. LAZARE STATION, PARIS, FRANCE. M. LISCH, ARCHITECT.

[Etching.]

WHEN the enlargement of the St. Lazare station was decided upon, it was seen that the question concerned not merely the erection of new buildings required by the demands of increasing traffic, but of preserving the greater part of the existing buildings and harmonizing them to a general expression of unity. Besides, the company owned a large tract of land opposite the main façade of the building from which it naturally sought to derive more profit, through placing upon it an auxiliary building. These are the reasons that have controlled the general disposition of the plan, which has the peculiarity that the central portion of the façade being masked by this auxiliary building—or terminal hotel—it became necessary to accentuate the flanking portions of the main façade, so that they became the chief features in the design. The wing that flanks upon the Rue de Rome is appropriated to the suburban traffic, while that at the other side, on the Rue d'Amsterdam, is devoted to the service of the main lines; as these branches of the company's service are very distinct, this wide separation is a very desirable convenience to travellers. The size of the main vestibule has been greatly increased, to the benefit of the circulation and, now, baggage which is delivered on the ground-floor is rapidly raised to the upper-floor by elevators or descends by inclined planes. The terminal hotel, which is directly connected with the station by a covered passage at the height of the first story, departs in its plan from the common type of French hotels in that it has no interior court-yard; this deviation was compelled by the restricted area. The arrangement follows those usual in English hotels: A large vestibule, decorated with marbles, mosaics and terra-cotta, gives access to the central hall with its galleries about it. From this central waiting-hall direct approach is had to the restaurant, café and table d'hôte dining-room. The exterior portions of the lower story are rented for shops, while the upper stories are devoted to the bed-chambers and other rooms of a large hotel. In the basement are the kitchens, wine-vaults and the machinery for heating and electric lighting.

MONUMENTAL SLAB, ALLER CHURCH, SOMERSET. DRAWN BY MR. ROLAND W. PAUL.

ST. CECILIA, EL DORADO. DRAWN BY MR. BERESFORD PITE.

DESIGNS FOR [1] CONSERVATORY, [2] PUBLIC HALL AND THEATRE, [3] REFRESHMENT ROOMS, [4] LAKE SIDE HOTEL, SCARBOROUGH, ENG. MR. W. HANSTOCK, ARCHITECT, BATLEY, ENG.

THESE illustrations formed part of the twenty-three designs prepared in the competition for laying out the Weaponess Estate, Scarborough. The property is over a mile in length and two-fifths of a mile at the greatest breadth. Mr. Hanstock's scheme comprised a sheet of water 30 acres in extent, botanic gardens of 15 acres, lakes, plantations, park, ornamental grounds, etc. The building sites were arranged on the principle of terrace above terrace, so that the upper one in all cases had a clear and uninterrupted view over everything in front. The plots were to be cut up into lengths to suit purchasers, and the depths of the same from front to back were made specially long to give ample flower and kitchen gardens at the back, and by so doing to give protection to the houses in the terraces above. The cost of the work was estimated at 96,683*l.* As the building sites contained 345,543 square yards, they would return at 5*s.* per square yard 86,386*l.* There would also be a revenue from the botanic gardens and other sources, and it was therefore claimed by the author that his scheme formed a profitable speculation.

COMMUNICATIONS.

[The editors cannot pay attention to demands of correspondents who forget to give their names and addresses as guaranty of good faith; nor do they hold themselves responsible for opinions expressed by their correspondents.]

THE WILLARD ARCHITECTURAL CASTS.

NEW YORK, September 10, 1890.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Dear Sirs,—Many of your readers will be glad to know that on Sunday last the steamer from Havre, "La Champagne," brought to this port the large models (one-twentieth full size) of the Parthenon, and the main façade of Notre Dame de Paris; to be followed later by the other façades of that splendid example of French mediæval work, as well as by models of the Temple of Karnak, the Pantheon, the Arch of Constantine, St. Trophime, etc.

The Parthenon and Notre Dame will be set in place in the Great Hall of the Metropolitan Museum of Art as soon as the articulation of the multitude of their various parts has been achieved by the accomplished *formateurs*, M. Jolly, who accompanies them with an assistant. M. Jolly did the work in Paris under the constant supervision of the celebrated archaeologist and architect, M. Chipiez; and the restorations shown in the model of the Parthenon embrace the latest results of the latter's profound study of the subject.

A. J. BLOOR.

THE CLARK MEDALS.

CHICAGO, August 27, 1890.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Dear Sirs,—Assuming that you will be kind enough to publish the action of the committee on the competition for the Clark Medals, we beg you to add that the competition may be participated in by any draughtsman under thirty years of age who is not a practising architect. Also, please note that enough funds are at the disposal of the committee to permit us to award several bronze medals in addition to the gold and silver medals already provided for.

Respectfully, the Committee,

by D. ADLER, Chairman.

ARCHITECT PHOTOGRAPHERS.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Dear Sirs,—I would like, with your assistance, to procure the names and addresses of those architects and draughtsmen who make use successfully of the photographic camera, and in each case I would like to learn the size of plate used.

I have no appliance or process for which I am seeking a market, and in helping me to the information I seek by receiving and forwarding the letters which this appeal may bring, you will be helping a

PHOTOGRAPHING ARCHITECT.

AUTOMATIC SPRINKLERS.

TACOMA, WASH., Aug. 28, 1890.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Dear Sirs,—Will you kindly advise us the address of parties to correspond with in reference to automatic sprinklers for use in warehouses, cellars, etc., in case of fire, to extinguish same. Your early reply will oblige,

Yours very truly, SUBSCRIBER.

[If our subscribers who find themselves in need of some material which is not advertised in our columns, would send us such inquiries as the above, they would probably have an influence on those old-fashioned people who now and then sell goods because some one must have them and can afford the time needed to hunt up the dealer. A complete line of advertisements of building supplies in an architectural journal would be of incalculable value to the profession, and our subscribers can, if they will, help us to complete the list in our own columns by asking why certain goods and appliances are never advertised.—EDS. AMERICAN ARCHITECT.]

CLARK ON SCHOOL-HOUSES.

ROCHESTER, N. Y., September 12, 1890.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Dear Sirs,—Can you tell us of a work by T. M. Clark on School Building?

Yours truly, S. W. & Co.

[The work in question was issued in pamphlet form by the United States Bureau of Education and can probably still be obtained by addressing the Commissioner at Washington.—EDS. AMERICAN ARCHITECT.]

HYDRAULIC LIME.

DANBURY, CONN., September 12, 1890.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Dear Sirs,—I notice in the *American Architect and Building News* under the head of Building Materials the quotation of "Hydraulic Lime." Will you kindly inform me what is meant by hydraulic lime, or in other words, what is the distinction between cement and hydraulic lime, the lime being quoted at a higher price than Rosendale cement and lower than other cements. One reason for my inquiry is, that our lime analyses lime .90, silica .06, oxide of iron and alumina .04 and although it does not harden under or by the action of water, it becomes as hard as cement after being made into mortar with sand, and after exposure to the air for a short time will resist the action of water. Hoping a reply will not encroach too much on your valuable time. I remain,

Very respectfully,

GEORGE B. BENJAMIN, Treas.

[Yours is the ordinary rich or "fat" lime which, if you choose, can be converted into an artificial hydraulic lime, or a cement, by adding the proper constituents. An hydraulic lime slakes slowly and without evolution of heat, and if "eminently hydraulic" will be firm under water in twenty hours, hard in four days and in six months can be worked like a hard limestone. It can be used safely and with economy in place of cement where the time required for hardening is not a material consideration and where while it is setting it is not subjected to the pressure of water in motion. A necessary ingredient of hydraulic limes is from 18 to 30 per cent of silicate of alumina or clay. The gray chalk of Sussex which produces an hydraulic lime is composed of 83 parts of carbonate of lime and 17 parts of clay. The quick-setting grades of Rosendale cement contains 46 parts carbonate of lime 17.8 parts carbonate of magnesia, 30 parts silicate of alumina. 1.3 parts iron, .2 parts sulphuric acid, 4.1 parts alkaline chlorides.—EDS. AMERICAN ARCHITECT.]

CORRECTIONS.

BOSTON, MASS., Sept. 17, 1890.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Dear Sirs,—Would it not be well to give us credit for the doorway of house on Commonwealth Avenue, Boston, published September 13? Mr. Davis has only recently bought the house of James Lawrence, for whom we built the house in 1882.

We make this point because you gave the name of the designer of the doorway near this one, in a recent number.

Yours truly,

ROTCH & TILDEN.

[The inquiry above emphasizes the desirability of the "signing of buildings" by the architects who design them. Our correspondents can hardly imagine that we did not make all reasonable inquiries as to authorship before publication.—EDS. AMERICAN ARCHITECT.]

BOSTON, MASS., September 15, 1890.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Dear Sir,—By some means between the type of my copyist and that of your press I am made to say that "good ventilation may be effected by a small quantity of air highly heated." What I wrote was "good ventilation may be affected (i. e. pretended) by" etc.

Please not allow me to stand long in the false position in which the error just brought to my notice places me. Your printer also erred in the matter of the middle initial of my name.

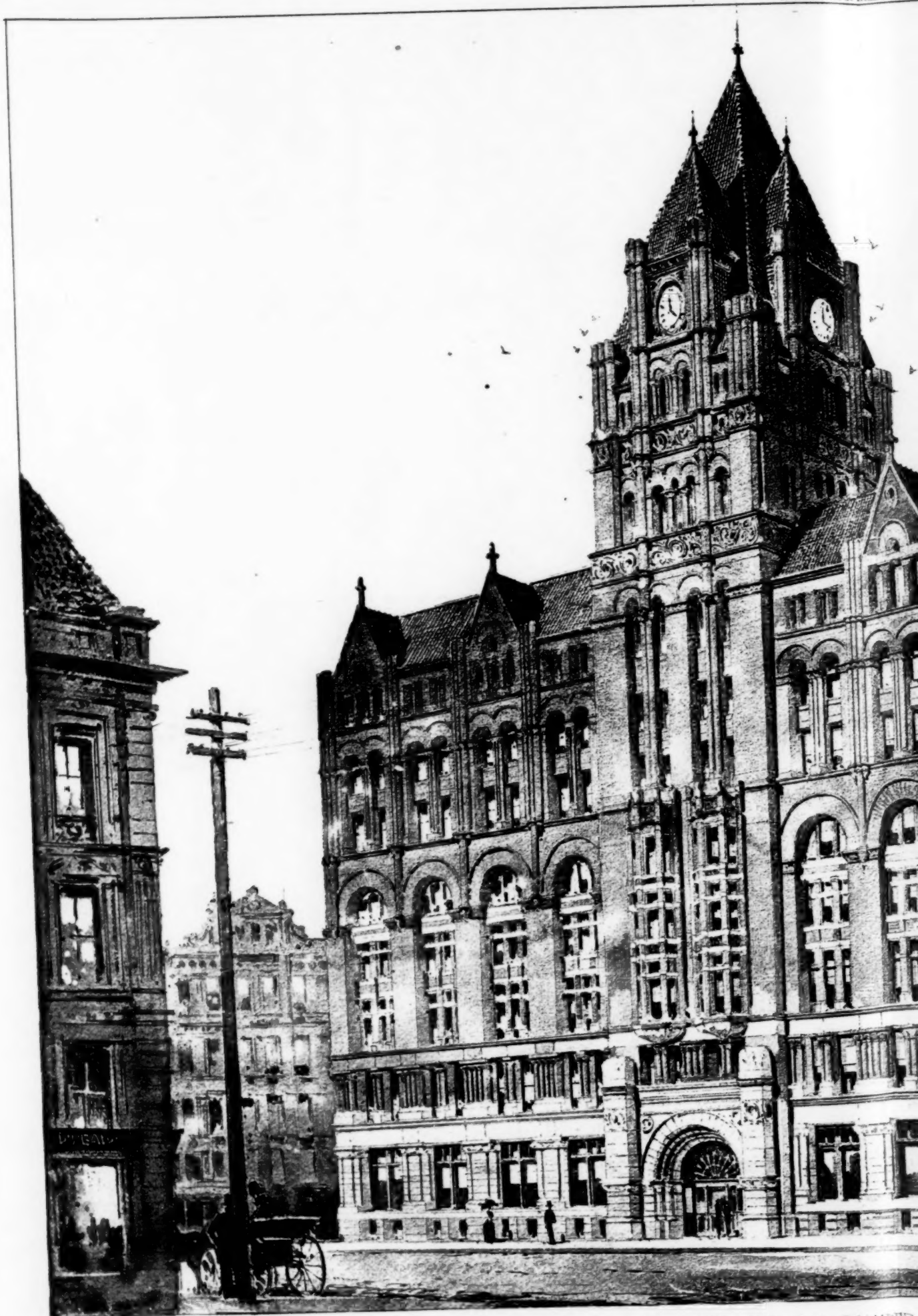
Yours truly,

S. H. WOODBRIDGE.

TRADE SURVEYS.

THE Government will save the business interests from serious trouble, as it is bound to, but business men are not at all pleased at the fact that such artificial assistance is necessary. Our fiscal system will be more carefully studied than ever, and the Treasury management will be adapted to present conditions. The country is making more rapid strides and developing requirements faster than the money-changers are prepared for. Commercial statesmanship, rather than mere political statesmanship, is demanded, and a set of men will probably soon raise their voices in legislative halls, calling for a deeper interest by the Government in the affairs of the people. The business of the country for the month of September, so far as reports show, has gone far ahead of last year for same month. Railroad traffic has grown, gross and net earnings have increased on all except 14 roads out of 154 roads. Bank clearings were favorable until within a few days. Manufacturers have too much to do to pay attention to the money market. There is a remarkable growth of little shops and shop-work, particularly throughout the Western States. Artisans by hundreds have within three or four years made successful starts in new places with small capital. The evidence of this is found in the machinery-shops and foundries and equipment establishments everywhere. With scarcely an exception, machinery-makers, iron and steel makers, lumber manufacturers, founders, tool manufacturers and electrical-supply concerns are increasing capacity, and this, too, without an accumulation of stocks. A close watch is kept upon the relations of supply and demand, and the scales are kept in nice adjustment. Late advices from representatives of Northern banking interests in the Southern States indicate that confidence in Southern investments is growing. Moneyed men have been taking their bearings with reference to the South, to see if they were getting adrift. Land is sold low. Speculation has not made fancy prices. New concerns are economically and successfully managed. The lumber manufacturers have made wonderful progress from North Carolina to Arkansas, and our available sources of supply have been vastly increased through railway building. The demand for coke has grown so much this year that upward of a dozen new companies are now forming to engage in the manufacture of that product. A score or more of coal companies are also forming to develop coal properties between Louisville and Montgomery, Ala. This region of country possesses many attractions to Northern capital because of its cotton, coal, iron, lumber and its manufacturing inducements. Middlesborough, Ky., is becoming a great manufacturing centre. A dozen other towns will probably follow in its footsteps. Chattanooga, Birmingham, Florence, Sheffield and a score of other places of lesser note are drawing a vast amount of Northern and foreign money. Capitalists feel it is advisable to have a stronger voice in the legislation of the national government. States have often run wild in their opposition to powerful interests, which they imagine are hostile. This feeling is taking shape because of the mighty interests throughout the West and South, which universal suffrage may imperil. This matter has been and is being greatly discussed in money circles. The subject of States' rights is being looked at from a new standpoint. Investors in a hundred new industries do not propose to permit any uncertainties to exist as to their control over their properties. The hostility of agricultural interests to railway management and control is not likely to ever show itself against the industrial investments, but yet the subject is being studied. Business interests will take care of themselves. Railroad management will gradually fall into harmony with the interests of the people. Industrial investments must continue to multiply as long as markets can be found. The country is only in its infancy of development, and those suspicious minds that fear the populace are far astray. Good government is being evolved, new systems of production, transportation and exchange, and new ethical conceptions and standards are arising which will meet with the hearty approval of the millions as fast as their fitness to newer conditions is demonstrated.

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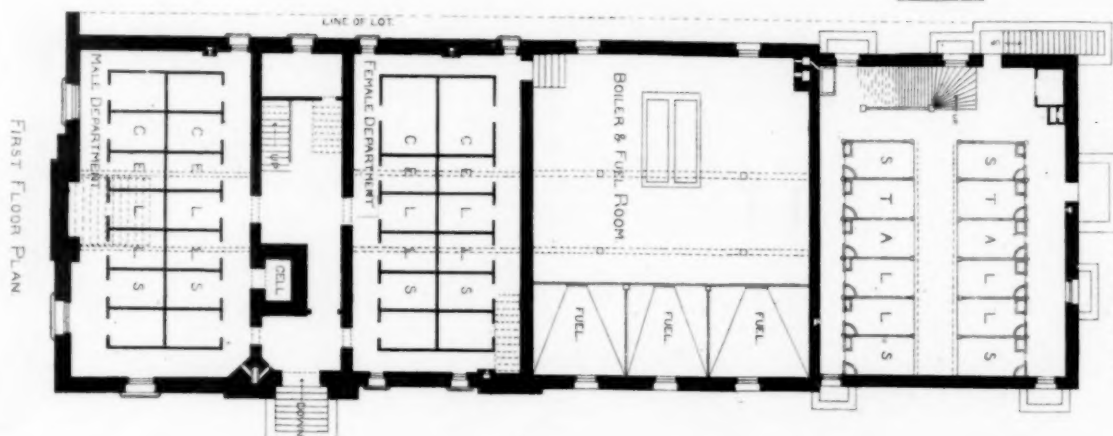
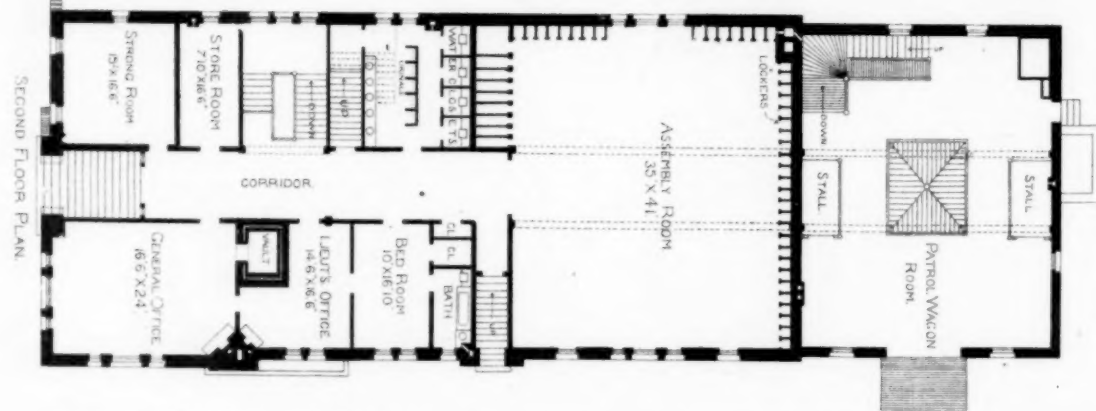
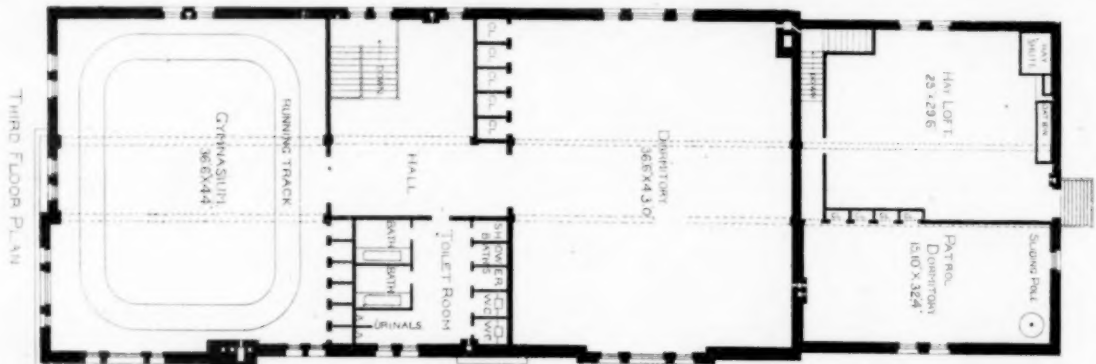
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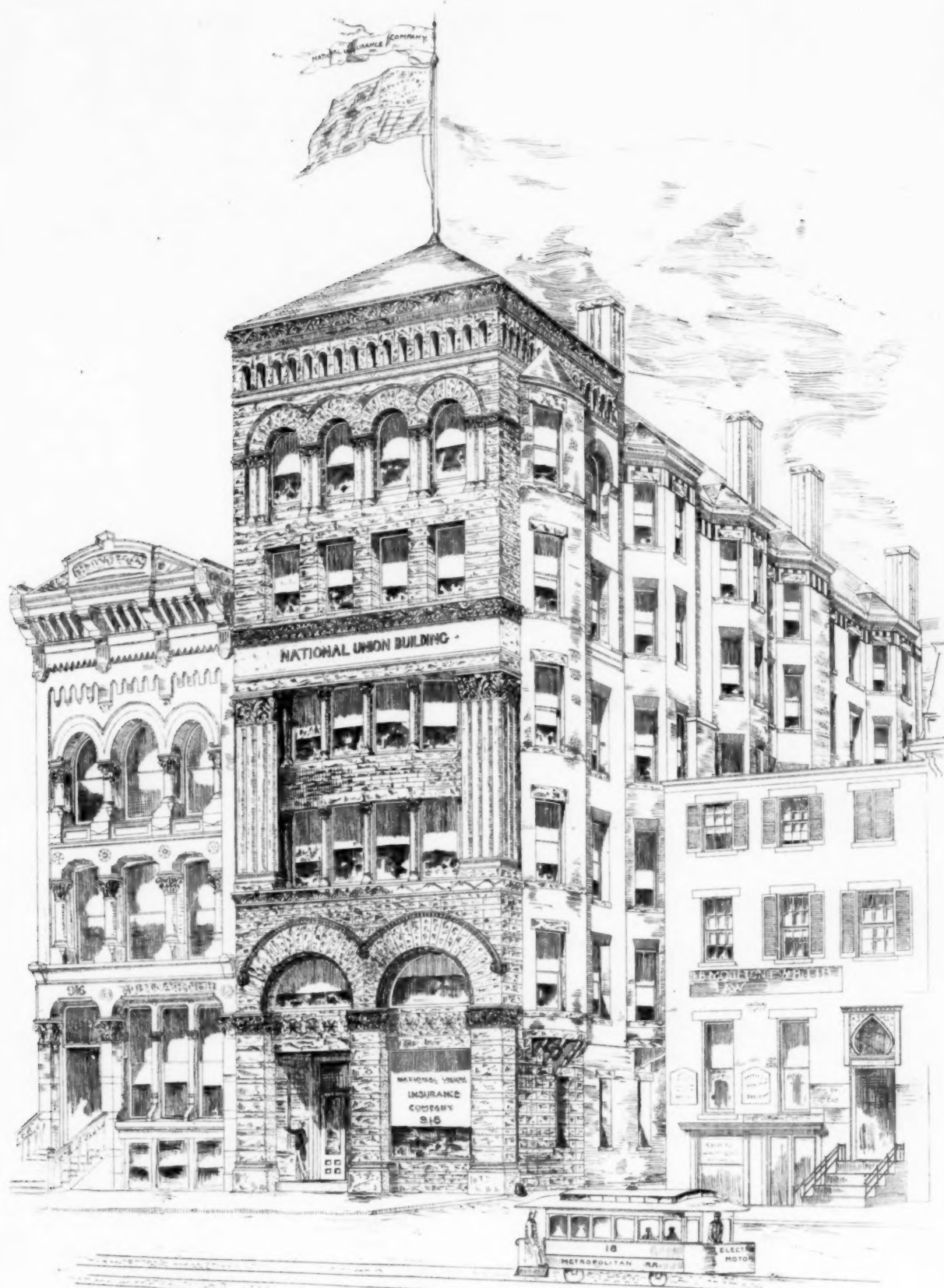
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DESIGN FOR
SOUTH SIDE POLICE STATION
MILWAUKEE WIS.
W.D. KIMBALL ARCHT.





THE NATIONAL UNION INSURANCE COMPANY'S NEW BUILDING 918 F STREET NW.

GLENN BROWN Architect

WASHINGTON, D. C.

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