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CONTENTS.

THE closing hours of the Convention of the Institute seem to have been peaceful. Although a great many architects were in Chicago at the time of the Convention, most of them seem to have contented themselves with looking in for a few minutes at the meetings, and then returning to their more imperative duty of sight-seeing. One interesting feature of the second day was, however, the adoption of an Institute badge, designed by Mr. R. Howland Hunt, the accomplished son and associate of Mr. R. M. Hunt, and consisting substantially of the Institute seal, reduced in size, and rendered in enamel and gold. These badges were on sale at the Convention, for $2.50 each, and we suppose that persons entitled to them can procure them of the officers of the Institute. Speaking of this reminds us of a proposition which was once made at an Institute Convention, that rubber-stamps should be issued to the members of the Institute desiring them, containing perhaps the usual legends of a dating stamp, enclosed in the ornamented *vesica* of the Institute seal, or otherwise distinguished in such a way as to show that the proprietor was a member of the Institute. The French Société Centrale provides its members with such a stamp, and its impression upon the thousands of drawings and other documents which go out of an architect's office might, one would say, do a great deal to advertise the Institute, and suggest the advantages of belonging to it. When the matter was brought up before, objection was made that a person might join the Institute, and get his stamp, and then misconduct himself, and, as the Institute could not get his stamp away from him, it might become connected with unworthy practices; but a similar liability does not affect the usefulness of the diplomas of professional schools, and, the Institute membership being taken exclusively from among men of mature years, and well-known character, it is hard to see how such an objection could have any appreciable force. Moreover, the Institute itself, in its early days, bestowed on its members a diploma, which was very highly valued, and does not seem to have been abused.

WE are, however, digressing from the subject, which is the acts of the past Convention, not the possible proceedings of future ones. After the balloting for officers, the result of which was given in our last issue, a vote was taken, to the effect that, unless the Directors should appoint otherwise, the next Convention should be held in New York. The vote for adjournment, after the usual complimentary resolutions, was then taken, the sessions of the Convention having lasted only two days. No papers were read at the Convention, the managers having decided to retain them, to be read before the larger audience of the International Congress of Architects, the sessions of which followed immediately after those of the Convention. The programme of the papers for the Congress has already been laid before our readers.

A LAW was passed at the last session of the Massachusetts Legislature, providing that any city or town in the Commonwealth may, by ordinance, establish, parallel to the outside line of a highway, and not more than twenty-five feet distant therefrom, a building line, beyond which no building may thereafter be erected. Some of the Boston papers comment very favorably on this law, supposing that it will increase the beauty of suburban towns, by preventing any one from thrusting his house in front of the line to which his neighbors have restricted themselves, and will greatly diminish the cost of future street-widening, inasmuch as there will be no buildings to be removed from the ground which must be taken for widening the roadway. At first sight, this seems plausible, but, in practice, we imagine that the effect of the law will be very different from what these editors anticipate. If all the streets in a given town were subject to municipal ordinances, the establishment of building-lines would certainly be desirable, but, in point of fact, this is far from being the case, most of the building operations in the suburban towns about Boston being carried on away from the public thoroughfares, on private streets, over which the town has no control whatever. In the city of Newton, which is a good type of the Massachusetts suburban community, more than half the streets, aggregating about thirty miles in length, are private ways, and on these private ways nearly all the building in the city is done, very few houses being erected on the long, dusty, public high-roads. It is obvious that, in a town like this, the acceptance of the authority given by the statute, which deprives every owner of property abutting on a public street of the use of one-fourth of his land, supposing his lot to be a hundred feet deep, would place a premium on lots abutting on private streets, which would be exempt from the operation of the law. However sensitive owners may be to landscape beauty, they rarely wish to be forced to contribute out of their own pockets to the æsthetic enjoyment of other people, and, particularly in the business parts of such towns, which are honeycombed with private ways, the adoption of any such rule would lead owners to secure their rights at once, by building out to the boundary of their lots, before the public should acquire a right to interfere with them; thus bringing about just the state of things that the statute is intended to prevent. Of course, we agree with the Boston editors and the Massachusetts legislators in thinking it desirable to reserve a uniform space in front of the houses in new neighborhoods, but it is certain that such planning cannot be imposed by force upon owners so long as prevails the present system, of having streets built entirely by private proprietors, without direction or assistance from the public authority. In Boston itself, where the laying-out and construction of new streets is vested solely in the Board of Survey, the owners have to submit to the planning prescribed for them, whether they like it or not, although even here we doubt whether an owner could legally be compelled to abandon without compensation the use of twenty-five feet from the front of his lot; but where there is no such control, it seems to us that the only way in which the town could influence private owners would be to promise them something in return for placing restrictions on their lots which would accomplish the results desired. If, for example, the town would relieve from taxation a strip twenty-five feet wide from the front of lots abutting on private streets, on condition that they should be so restricted that the strip could never be built upon, owners would probably be willing, in most cases, to accept the offer, and, considering the increased attractiveness of the streets, and the taxable value of the houses likely to be built on them, it would probably prove, in the end, a profitable transaction for the town; but, except where some bargain of this sort is made, it is difficult to see how any good results can follow from the new law.

A LITTLE festival was held lately at the dedication of the new "columbarium" of the United States Cremation Company, at Fresh Pond, on Long Island. It seems that the bodies of one thousand and ten persons have been incinerated by this company since its crematory was built. Out of that number six hundred and fifty were men, two hundred and seventy women, and only eighty-eight children. This seems to indicate, what is natural enough, that the idea of cremation is more popular among men than among women, who would be more likely than men to shrink from novel experiments in connection with the solemn mystery of death, while very few, either of men or women, seem to find it in their hearts to commit the bodies of their little children to the incinerating oven. Another curious circumstance is that less than one-third of the bodies cremated were those of persons born in this country. Of the six hundred and seventy-five foreigners so disposed of, five hundred and ten were Germans, thirty-four were English, and the rest were divided among many nationalities.

ALTHOUGH New York, as having a large German population, would naturally furnish a considerable proportion of Germans to those choosing disposal by cremation, the ratio of Germans to the population is very far from accounting for their great preponderance in the crematory lists. As these lists class all persons as Americans who were born in this country, even though their parentage, language and associations were all German, it is fair to assume that not more than one-fourth of the bodies consumed were those of persons brought up in American ways of thinking and feeling. While this indicates, probably, a greater readiness on the part of the Germans to adopt this philosophical and scientific method of disposal of the dead, it also seems to us to indicate that there is still, to Americans, a certain shock in the idea of burning the body that has belonged to a beloved person. This is not at all to be wondered at, for the Americans are probably, with the exception of the French, the most sympathetic and tender people in the world; but the effect of the attraction which cremation has for one part of the population, and its repulsion for another, seems not unlikely to lead, in time, to its adoption as a test of religious belief, or rather, of unbelief. Rightly or wrongly, the Germans are commonly supposed in this country to be a nation of materialists, and, while the relatives of a person deceased might not find anything alarming to their sensibilities in the idea of placing the ashes of their child or brother with those of his friends, or other members of his family, whose religious training had been similar to his, they would be very likely to object to putting them with those of persons reputed to have no religion whatever; and the suspicion that this might be the case would lead to inquiry as to the religion of persons previously received. Of course, as cremation is to be advocated on hygienic grounds alone, any mixing-up of religious questions with it is to be regretted, but in the interest of its promotion as a sanitary measure, it is time that it should be shown in an aspect to please those who are not materialists. There is no reason why it should not be so shown. A crematory has been built in the consecrated ground of Père Lachaise, and there is no reason why they should not be placed in all large cemeteries, instead of setting them up in picnic groves, which seems to be the present practice. As to the columbaria, any architect will understand that quite as much opportunity for artistic commemoration of the dead would be afforded by a well-designed building, with room enough for individual memorials, as by the average cemetery lot, and we do not know why, in the next generation, if the matter is properly managed, our consecrated columbaria might not be treasuries of art.

A VERY destructive fire took place the other day in London, in the old and solidly built district between Leadenhall Street and Houndsditch, near the Bank of England and in the same block with the banking-house of Baring Brothers, well known to American tourists. The origin of the fire seems to be unknown, but before it could be stopped, thirty buildings had been destroyed, with property valued at seven and one-half million dollars. The burned buildings were mostly occupied as warehouses, by dealers in stationery, clothing, tea, wines, furniture and so on, and were probably closely packed, but the small size of these old London buildings, compared with the vast dimensions of modern warehouses, ought, it would seem, to have prevented the fire from gaining much headway. That even this subdivision of the space was insufficient to prevent a great conflagration simply adds a little more to the evidence tending to show that the effect of the heat generated by the burning of such masses of inflammable goods as are gathered together in warehouses is almost irresistible by ordinary building materials, and that a structure which will hold such goods safely, while not an impossibility, is something that few persons have yet succeeded in designing.

WE have received another sample of the well-known court-house competition "invitations," announcing that on a given day certain persons would receive and consider quarter-scale plans, specifications and estimates, accompanied with full details of interior work and decoration, and bonds for completion within a specified sum, for a court-house, and would thereafter "arrange" with the architect, if any, whose plan should be accepted, for his compensation for supervision, etc. There is nothing novel about these terms, which are such as people who are ignorant of architects' work often think it keen and businesslike to offer. Of course, no real architect ever spends any time over them, unless to laugh at them, but they serve the purpose of bringing court-house committees and builders' clerks together, and, as the committees are perfectly satisfied with builders'-clerks' architecture, while the builders' clerks do not need to be squeamish about their fees as designers, if they can secure for their principals the contract for constructing the building, everybody is satisfied. Our correspondent observes that he would be glad, when he receives documents of this sort, to be able to send back some sort of tract, to show the persons who suppose they are doing him a favor, in pointing out to him a chance for employment, what architects really think about competitions, and he asks if we know of any missionary literature of the sort. The Boston Society of Architects, some years ago, published a small tract on competitions, of which it distributed a large number of copies among its members, to be used for this precise purpose. Copies would probably be gladly forwarded by the Secretary of the Boston Society of Architects, 9 Park Street, Boston; but the practice of competition has been so much improved within the last few years that the Boston pamphlet, although still very useful, is a little behind the times. It is, however, used as evidence in the courts, and as this would be the case with any official document of the kind, it is of great importance that such tracts should be kept carefully revised, and should be supported by the authority of as large a part of the profession as possible. For this reason, it would be very desirable to have the Institute undertake the task. The Institute has already a very good Committee on Competitions, which might do worse than present such a tract in the form of a report, which could be printed and served for distribution. We are sure that all architects of experience will agree that incalculable good might be done with such a document. People generally mean no harm to architects. When they offer them compensation at the rate of a dollar-and-a-half a day for making plans and specifications, they do so because they are informed that it is the regular thing for architects to conspire with the builder to steal for themselves a large slice of the cost of the building, and they think that a liberal opportunity for stealing, with a trifling fee, to save appearances, for the plans, is all that any one ought to ask. So in other things. They are told of some self-made architects, who can easily make full plans and specifications for a court-house in twenty-four hours, and it does not seem to them unreasonable to ask half a dozen competitors to do so much. It is not until they are told of the months and years of study that a real architect spends on his designs that they think of the difference between such work and that with which they are familiar; and, as old architects can testify, the idea of the existence of a being who, having such good opportunities for stealing as an architect, really and consistently refrains from availing himself of them, makes its way with difficulty through the provincial skull. When the public mind is set right on these points, architects will have less reason to complain of the treatment that they receive from court-house committees, and, if architects themselves will not take the trouble to set it right, no one else is likely to do so for them.

CITY GATES.[1]—I.

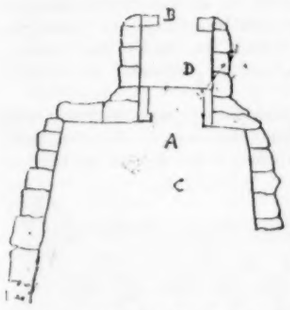


Fig. 1. Gate of the Lions, at Mycenæ.

FROM earliest times down to the invention of cannon, city gates uniformly presented the characteristics of one or several exits in a fortification wall, accompanied by works of defence. The latter became useless after the advent of artillery in the fifteenth century and gradually disappeared, or were retained in some cases simply out of respect for the past and in order not to break too abruptly with its traditions. During the Renaissance, in fact, these towers, battlements, etc., had ceased to exist except under a form in some measure ornamental; the decorative purpose evidently predominated over the defensive. The gates of the seventeenth and eighteenth centuries, inspired by Roman arches, became purely decorative. And lastly, during the nineteenth century these constructions have been transformed into barriers designed solely to facilitate the collection of local revenue duties; this new programme but very rarely serves as a pretext for the erection of anything monumental.

One of the most ancient and most beautiful of city entrances is the famous Gate of the Lions, at Mycenæ [See "*Construction*," p. 468, Figure 12]. It is one of the principal monuments of the Heroic Age. It occupies the northwest angle of the Acropolis wall and is constructed of hard breccia. The height, measured beneath the key, is 10½ feet; it is 10¼ feet broad at the base and 9½ at the top. The stones are very ingeniously corbelled above the lintel, so as to relieve this monolith of the superincumbent weight. A triangular opening is thus left, which is filled-in with a handsome basaltic slab, two feet in thickness; on this are sculptured two lions reared on their hind-legs, their fore-paws resting on an altar-table, supporting at its centre a smooth column. The plan given in Figure 1, will explain the defensive features. The gate proper is at *A*; *B* is a postern, and *C* a passage, 50 feet long by 30 feet broad, between the two reëntering walls of the citadel. Here the enemy could not march more than seven abreast, and they would find themselves exposed on three sides to the arrows fired by the besieged from the top of the walls. If, however, the besieging forces should succeed in passing the gate, the postern *B* then offered another obstacle to their progress; and this was the more easy to defend because missiles could be hurled on the enemy from four directions at once. Clearly, the object of the constructor was to give the greatest possible importance to the protection of the approach to the gate, so as to prolong the defence on the inside. This tendency to consider the city gate merely as the last of the obstructions to be carried will be observed later in the construction of French mediæval gates and their approaches.

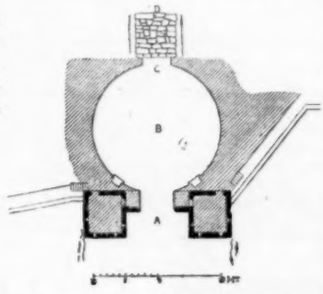


Fig. 2. Plan of the Gate of Messene.

Fig. 3. Section of the Gate of Messene.

Almost all ancient gates, with the exception of the one just described and a very few others, were built on the same plan; namely, one or two exits for chariots, and often two passage-ways for pedestrians, pierced in a wall flanked on the outside by two rectangular or semicircular towers. As examples of gates with but one exit, those of Messene and Perugia and the Porta Ostiensis at Rome may be cited. Among those having one passage for chariots and two for pedestrians, the gate of Fano is worthy of note; and lastly, of gates with two chariot-ways, the most numerous class, we call attention to the gate of Augustus, at Nîmes; the gate of St. Andrew, at Autun; the Porta Nigra, at Treves, etc. The gate of Messene (Figs. 2, 3, 4), of which we give a restoration after Blouet, was built at the same time as the walls themselves (369 B. C.), by Epamniondas. It was this gate that led to Megalopolis, in the time of Pausanias.

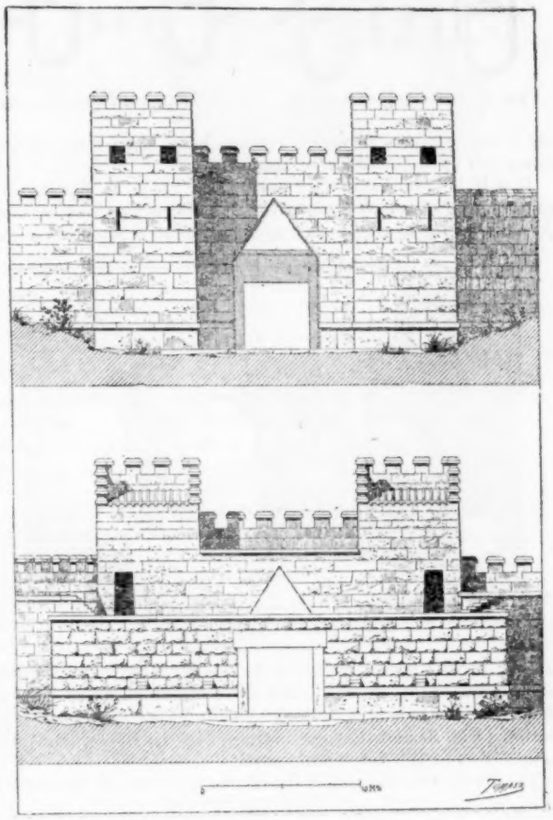


Fig. 4. Gate of Messene.

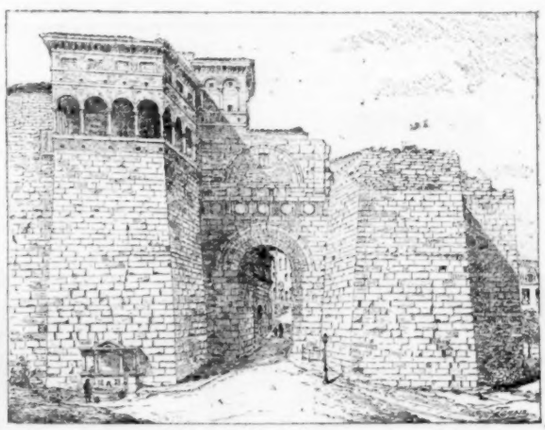


Fig. 5. Gate of Augustus, Perugia.

[1] From the French of G. Redon, in Planat's *Encyclopédie de l'Architecture et de la Construction*.

Its ruins are well enough preserved to enable us to judge that Blouet's restoration is substantially correct. The towers, only

Fig. 6. Gate of Augustus, Nimes.

Fig. 8. Saint Andrew's Gate, Autun.

the lower portions of which remain, have been restored after those still entire on the city ramparts.

It will be remarked that here (Fig. 2), as at Mycenæ, the constructors strove to prolong the defence as much as possible. A second gate *C* presented a new barrier to troops that should

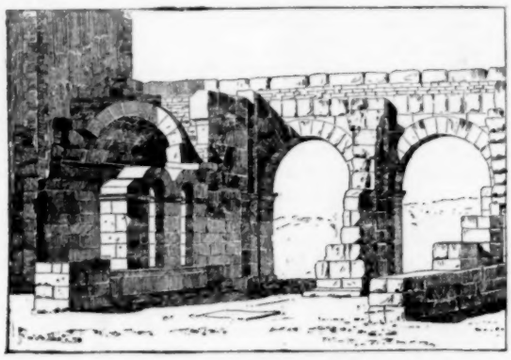


Fig. 7. Gate of Augustus, Nimes.

succeed in passing the first, and, before reaching it, they would be exposed, in the circular court *B*, to an attack on all sides at once from the besieged stationed on the upper platform. The section (Fig. 3) and the rear façade (Fig. 4), show plainly the composition of this interesting gate.

The Porta Ostiensis, now the Porta S. Paolo, at Rome, is a curious structure of formidable aspect, which already foreshadows certain French gates of the Middle Ages. It was erected by Belisarius when he rebuilt the city wall.

The Porta Marzia of Perugia (Fig. 5), the only gate of the old city now standing, is noted for its fine proportions and for the details of the ordinance with Ionic pilasters above the entrance. The open arcade which overlooks this passage might still be utilized for defensive purposes, if occasion required.

We have mentioned, as an example of gates with one arch and two passages for pedestrians, the gate of Fano, a small town on the shores of the Adriatic; it belongs to the time of

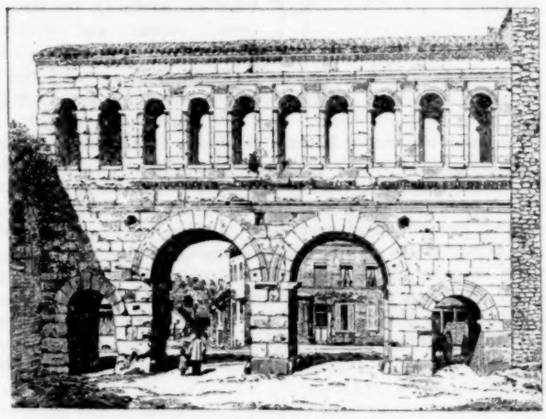


Fig. 9. Saint Andrew's Gate, Autun.

Augustus, who, according to the inscription, caused the place to be walled. This beautiful gate, to-day sadly ruined, is made of Istrian stone.

As specimens of gates with two large arches, the gate of Augustus, at Nimes (Figs. 6, 7), and the gate of St. Andrew, at Autun (Figs. 8, 9), have been cited. The former constituted a part of the Roman fortifications of the city. It was reared under Augustus in the year 15 B. C. About 1300, Charles V converted it into a fortress, which the Dauphin captured from the Burgundians in 1418. Demolished by the Huguenots in 1570, the stronghold was reduced to a heap of ruins, which the Revolution swept away. In 1848, the gate was restored by M. Questel. The gate of St. Andrew, at

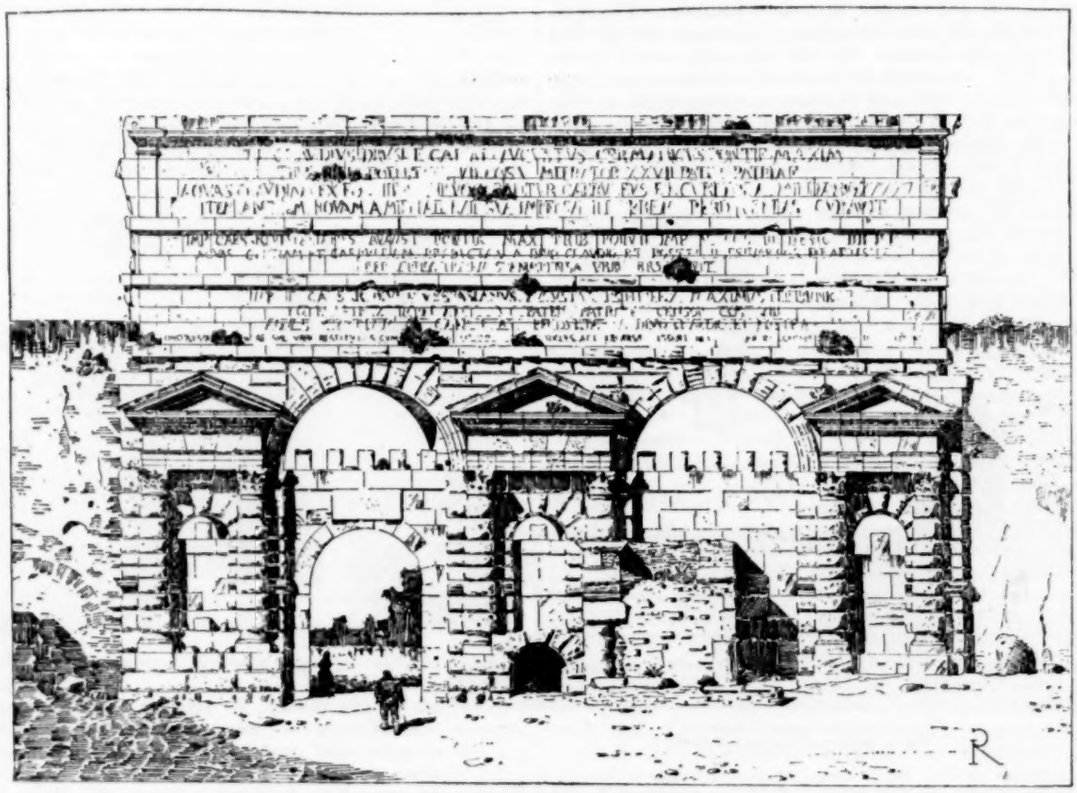


Fig. 11. Porta Maggiore, Rome.

Autun, dating from the fifth century A. D., is in a better state of preservation. It is built of blocks of sandstone laid without mortar. The towers were in rubble-work, revetted with small unhewn stones in the ancient fashion.

The Porta Nigra, at Treves (Fig. 10), is remarkable for its two stories of arches.

Before taking leave of antiquity and turning to French mediæval structures, let us note the peculiar features of the Porta Maggiore, or Arch of Claudius, at Rome (Fig. 11). The aqueducts, as is well known, formed one of the marvels of ancient Rome; there were not less than nine of them, and that of Claudius was one of the finest. When these conduits crossed highways, they were often made to serve as barriers or gates, the arches being utilized for the purpose and converted into genuine motives, which were decorated in a monumental style. The Porta Maggiore, which furnishes an excellent example of such gates, was completed by Claudius, but begun by Caligula. The inscription dates from Vespasian. It is built of travertine.

Most of the ancient city gates bear a close resemblance to one another; they were nearly all on the same general plan; they were usually surmounted by a corridor, with arches pierced entirely through, so that the defenders could sustain an attack when necessary. This passage connected with that of the curtains. The towers in all cases projected prominently, and contained the stairways establishing communication with the story or stories serving as defences, which generally existed.

Upon the whole, the builders of antiquity — especially among the Romans, who were more apt to be the invaders than the invaded — in the construction of these gates seem to have devoted as much thought to the opening of ample passages for traffic, and to making a powerful impression upon strangers entering their cities by means of a decorative display indicative of the genius of the people, as to dispositions for their protection against a future invasion, which was hardly to be expected. For this reason, although all sorts of defensive works were thrown up in times of siege in front of the gates, it may be conceived that the latter were too inadequately covered and closed to withstand a regular, well-directed attack. The arrival of the Barbarians led, necessarily, to very important modifications in their construction. In fact, in the Gallo-Roman period, when the wild hordes from the northeast swept

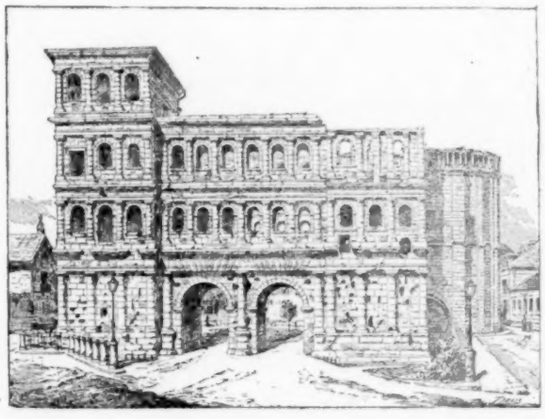


Fig. 10. Porta Nigra, Treves.

down upon the Gaulish territory, the city gate suddenly lost the character that it had hitherto maintained, a character analogous to that discussed above. The decorative element was relegated to a secondary place, and the defensive predominated to the exclusion of almost every other consideration.

[To be continued.]

CANADIAN PATENTS. — In 1892 there were granted a total of 3,471 Canadian patents, of which 2,227 were taken by American citizens, 671 by Canadians, 298 by Englishmen, 100 by Germans, 26 by Frenchmen and 89 by persons of other nationalities. It will thus be seen that nearly two-thirds of all the patents granted in Canada are to American inventors. It may be said that American inventors chiefly support the Canadian Patent-office. — *Invention.*

OFFICE-HELP FOR ARCHITECTS.[1] — XVI.

Gateway to a Bohemian Farmhouse. From *Architektonische Rundschau.*

SECTION III. — METAL TRUSSES:

§ 239. Types: — Metal trusses may be any of those shown in Chapter II.

§ 240. Proportioning: — See Chapter VI, Section I and Chapter II.

§ 241. Details: — Pin-connected trusses, small trusses for skylights, open ceilings and the like should have the tension-members of rods or small plates connected with each other and with the compression-members by pins. The compression-members should be made of channels or plates and ⌊s in pairs, with a cover-plate where necessary. Sometimes for very light trusses ⌊s may be used. Joints in compression-members should be made with fish-plates; joints between compression and tension members should be made with a plate and pin. Where the end of a post is too small to make an eye of proper size, plates should be riveted onto it to make the eye. Connections of floors to the lower chords should be made with hangers from the pins. Connections to the top chords should be made with shapes, ⌊s, plates, channels, etc., so arranged as to facilitate the use of the connecting plates (Fig. 65). All of the connections should have the lines through the centres of gravity of the several pieces intersecting in a common point. The length and thickness of the plates at a joint will be determined from the strains existing around the joint, and from the size necessary to give a sufficient bearing-value on the pin. The compression-members of trusses have so small an r that the safe fibre-strains are reduced much below the S_c of the general Table, and may be only one-third of that allowed on the pin. Where the thickness of the bearing-plates exceeds twice the thickness of the web of the compression-member, at least one of the bearing-plates must be made with flanges similar to the compression-member, and the rivets needed distributed over the flanges as well as the web, using the cover-plate to connect the flanges together. Where the tension-members are of good size, they should be made $\frac{1}{2}''$ thick and in two parts so as to make the grouping around the pin uniform, keeping the bending-moments on the pin a minimum. For size of pins for bending-moments, see Table XXII. All

[1] By George Hill, Consulting Engineer. Continued from No. 919, page 84.

ABBREVIATIONS AND SYMBOLS.

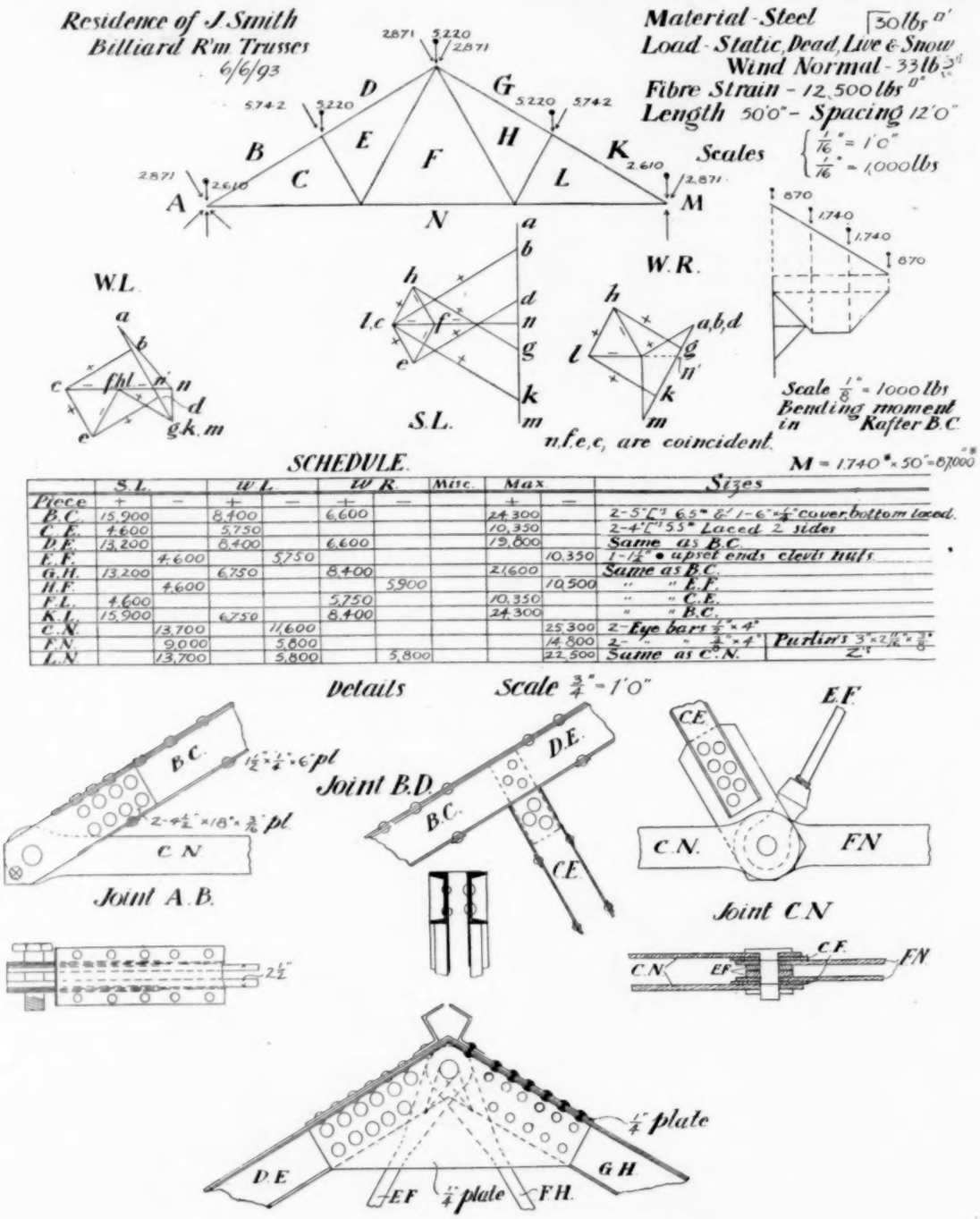
= equal to.	∴ therefore.
∥ parallel to.	□′ square feet.
÷ divided by.	□″ square inches.
× multiplied by.	8# read 8 pounds per lineal foot.
+ added to.	⊏ channel bar.
a^2 a multiplied by itself.	I I-beam.
$a > b$: — a greater than b.	T T-iron.
$a < b$: — a less than b.	⌊ angle iron.
$\frac{a}{b}$: — a divided by b.	⊥ deck beam.
	● round section.

I ton = 2,000 pounds as this is the conventional ton, the legal ton is 2,240 pounds, but is rarely used.
l = the length between supports of any beam or girder or height of any column, always in feet.
b = breadth of any beam or girder, always in inches.
d = depth of any beam or girder, or the least transverse dimension of any column, always in inches.
L = total load uniformly distributed coming on any piece in pounds.
L^{Gr} = " " " " per square foot in pounds.
W = concentrated load on any piece in pounds.
s = span of any arch or truss between centres of end pins in feet, or spread of footing courses.
A = area of any section in square inches.
M = maximum bending-moment in inch pounds.
n = distance of centre of gravity of section from either top or bottom edge in inches.
I = moment of inertia, neutral axis through centre of gravity.
R = moment of resistance of section.
r = radius of gyration, in inches.
Sc = safe compressive strain in pounds per square inch.
St = " tensile " " " " " "
Ss = " shearing " " " " " "
S = strain per square inch in extreme fibre.
P_e = upward reaction of support at left-hand end of beam.
P_f = " " " " " right " " " "
e = distance of centre of gravity of load from left hand of beam.
f = " " " " " " " " right " " "

diagonal and a few of the bottom tension-members should have turn-buckles (Table XXIII) in them to bring an initial strain on all of the parts when the truss is set up. All pin-holes should be punched and reamed true to 0.01″, when the metal is less than ⅝″ thick, and drilled for all greater thicknesses. The pins should be true to 0.01″ and should have large hexagon-head nuts. Connections should be made either with eye-bars (Table XXIV), or clevis nuts (Table XXV).

the upper plate should have a lip to keep out the dust, keep in the rollers and protect the lower one. (Fig. 66). Between the plates should be placed hard steel rollers of from 1″ to 2″ in diameter and of an aggregate length equal to 6″ of bearing for each 10′ 0″ of span of the truss. The sliding-shoe is usually held on the wall sufficiently by friction, but if the truss is very light it may be anchored with a couple of 1¼″ bolts.

In Figure 65, the compression in *B C* would indicate some-



Piece	S.L. +	S.L. −	W.L. +	W.L. −	W.R. +	W.R. −	Misc.	Max +	Max −	Sizes
B.C.	15,900		8,400		6,600			24,300		2-5″ [6.5* & 1-6″ × ¼″ cover bottom laced.
C.E.	4,600		5,750					10,350		2-4″ [5.5* Laced 2 sides
D.E.	13,200		8,400		6,600			19,800		Same as B.C.
E.F.		4,600		5,750					10,350	1-1½″ • upset ends clevis nuts
G.H.	13,200		6,750		8,400			21,600		Same as B.C.
H.F.		4,600				5,900			10,500	" " E.F.
F.L.	4,600				5,750			10,350		" " C.E.
K.L.	15,900		6,750		8,400			24,300		" " B.C.
C.N.		13,700		11,600					25,300	2-Eye bars ½″ × 4″
F.N.		9,000		5,800					14,800	2- " " ½″ × 4″ Purlins 3″ × 2″ × ⅜″ Z
L.N.		13,700		5,800		5,800			22,500	Same as C.N.

The anchor-plates should be so proportioned as to reduce the pressure per square inch put by them on the masonry within safe limits. The expansion-plate should be proportioned in the same way, but it should be made sufficiently long in addition to allow for a change in length of the truss of 1⅛″ per 100′ 0″. The top surface of the sliding-plate should be planed, as also should the under surface of the upper plate. The lower plate should have a raised lip to hold the oil and

thing like 2 square inches of section needed. The bending-moment in it and in each length of rafter would indicate a moment-of-resistance such as would come from a section of about a 6″ 13* I-beam. Since the compression in the top flange is increased by the bending-moment and the tension in the lower flange decreased, it is probable that something somewhat less, with the upper flange reinforced, would be sufficient. We therefore try two 5″ 6.5* [s. The area of the top and bottom

flange respectively of the two is 1.16 square inches. *I* will be 1.99, which divided into the length, 14′ 6″ gives a ratio of 7.5, and a safe fibre-strain according to Table XIV of 6,530 pounds. There is then required for compression 3.72

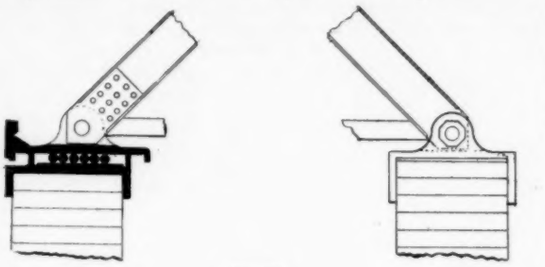


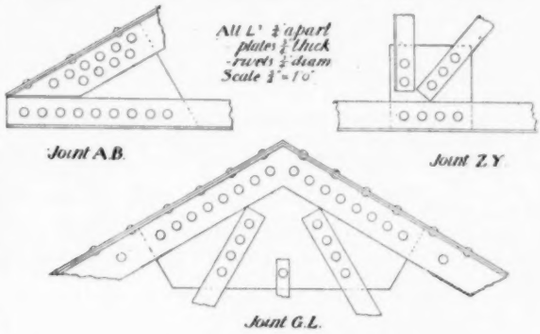
Fig. 66.

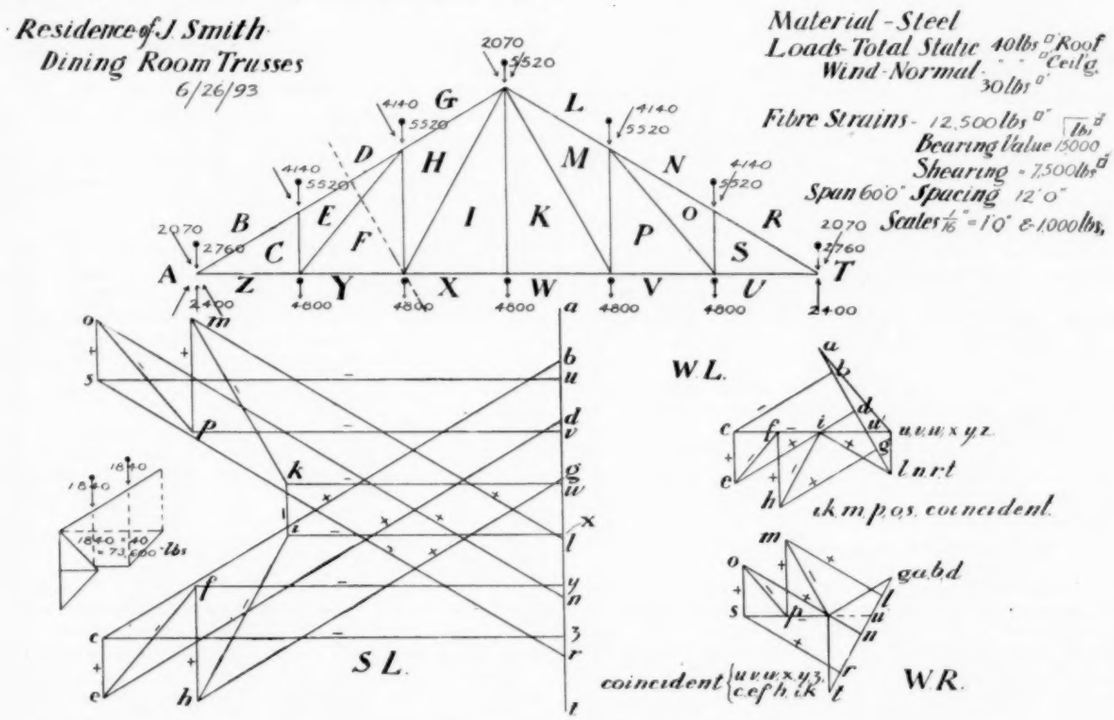
square inches and the combined area of the two [s, gives 3.8 square inches. The required flange-area to resist the bending-moment in this piece is 1.51 square inches. The actual flange-area being 1.16 square inches, if we leave the bottom flange untouched, the compression in it will almost entirely neutralize the tension. On the top flange 1.51 square inches must be added, and we therefore use a flange-plate of $6'' \times \frac{1}{4}''$. For the bottom, to keep the [s acting in the strongest way, straps are placed across $1\frac{1}{2}'' \times \frac{1}{4}'' \times 6''$ spaced 18″ centres and riveted up.

For *D E*, practically the same conditions hold, the strains would be uneconomical. We therefore use two 4″ 5.5* [s with $\frac{1}{4}''$ plates riveted to each end.

For *C N*, standard eye-bars are used. The tension in *C N* requiring 2.22 square inches, the required moment-of-resistance of a rectangular section to carry two men on its centre, as required in § 235, is 1.21 which corresponds with two bars $\frac{1}{2}'' \times 4''$. Moment-of-resistance of a bar $2'' \times 4''$ is 1.33. Therefore if we use two bars $\frac{1}{2}'' \times 4''$ one will be slightly stronger than is necessary for the stress, and the other slightly less strong than is necessary for the tension, the combination being sufficient.

For *F N*, the section required to take the tension is 1.18 square inches. The moment-of-resistance must be the same as before and we would therefore use two $\frac{3}{8}'' \times 4''$ eye-bars.





Piece	+ S.L.	−	+ W.L.	−	+ W.R.	−	Misc	+ Max	−	Sizes
b C	51,500		11,200		7,300			62,700		2-6″×4″×⅜″ L's - 8¾″×⅜″ pl.
C Z		44,600		15,200					59,800	2-5″×3½″×⅝″ L's
D E	51,500		13,500		7,300			65,000		Same as *B C*
C E	5,600		5,000					10,600		2-3″×2″×⅜″ L's
F E		13,800		6,500					20,300	2-½″×3″ pl.
F Y		35,500		10,800					46,300	Same as *C Z*
G H	41,200		11,000		7,300			52,200		" " *B C*
F H	10,800		7,200					18,000		2-3½″×2½″×¼″ L's
H I		17,800		8,200					26,000	2-¼″×3½″ pl.
I K		26,600		6,700					33,300	Same as *C Z*
I K		4,800						4,800		2-¼″×2″ pl.
				Purlins 3″×2⅛″×⅜″ Z's						Make bal. symmetrical

Fig. 67.

all being somewhat lighter; but it is cheaper to carry the rafter through full length, than to change its size.

For *C E*, two $2\frac{1}{2}'' \times 1\frac{1}{4}''$ 4* [s would do, but it would be difficult to make the connections at each end and it would involve special setting of the rolls to obtain this weight which

For *E F*, we would use a 1¼ inch square bar with eye welded at one end and with a clevis nut at the other, this giving us the means for adjustment of the members by the use of slight filler-plates at the joint *B D*, if necessary.

Joint *C N* has the various members packed around the pin

completely filling it. If we assume that the pin is held in position by the two parts of *C E* and is strained by *F N* and *C F* we obtain a bending-moment in it of 8,900 inch-pounds, which requires a pin $1\frac{3}{8}''$ in diameter according to Table XXII. We then use $1\frac{1}{4}''$ pins throughout for the connections.

Joint *A B* has a thrust of 24,300 pounds on the pin, requiring the addition of a $\frac{3}{16}''$ plate to the web of each [in order to obtain sufficient bearing area [See Table XXVI].

The chair or anchor shoe should be made of cast-iron with its supports coming closely outside of the [s, and a sleeve should be placed on the pin between the eye-bars *C N* to keep them apart.

The joint *B D* should be made by cutting the [s *C E* square across, riveting a $\frac{1}{4}''$ plate to their back, and riveting these plate to *B C*, interposing a plain filler-plate if necessary to secure a firm bearing of *C E* on the rafter.

The joint *C N* would be made by cutting off *C E* and riveting a $\frac{1}{4}''$ bearing-plate on the back, packing the members on the pin as shown in Figure 65.

Joint *D G* would be made by cutting the [s truly to the bevel, making a bearing for them in addition to the pin and then riveting a $\frac{1}{4}''$ connecting-plate to the webs as shown and also a $\frac{1}{4}''$ cover-plate on the top. The members *E F* and *F H* meet on the pin.

Usually each shop has its special methods of detailing and should be permitted to use them, the architects judging of the sufficiency by the example.

§ 242. Details of Riveted Trusses: — All trusses other than those mentioned in § 241 should be framed with T's, L's and [s. All connections should be made with a plate or plates placed between the parts to be joined and riveted to them. The number of rivets and the thickness of the plates will be determined the same as in § 241, (Fig. 67). The parts should be separated sufficiently to render access easy for inspection and painting. The riveting should be done usually by means of $\frac{3}{4}''$ rivets with the centre of the holes punched as far as practicable from the edge of the plate and then reamed out.

The pitch of the rivets should never exceed 6″ or sixteen times the thinnest outside plate, and should never be less than three diameters of the rivet. The distance between the edge of the piece and the centre of the rivet-hole must never be less than $1\frac{1}{4}''$ except for members less than $2\frac{1}{2}''$ wide, and when practicable shall be two diameters of the rivet. The diameter of the punched hole should not exceed that of the rivet by more than $\frac{1}{16}''$.

The use of the drift-pin should be restricted to bringing together the parts which form a member, being so lightly driven that the metal about the holes is not distorted. All holes should be made to a snug fit and to within 0.01″ of dimension. Rivets should be put in hot and the heads formed up, using a length of $1\frac{1}{2}$ diameters for the head. Enough pressure must be applied to the rivet to force it into the hole, filling it fully and drawing the parts together. All parts should be so perfectly fitted as to enable all rivets to be placed by hand.

The connecting-plates should be of sufficient size to afford ample bearing-surface for the rivets and area to resist the shear due to the loads. The grouping of the parts of a joint should be made with the axes of all the parts meeting in a common point both longitudinally and transversely so as to avoid any bending-moments in the connecting parts. To accomplish this it will often be desirable to make pieces in two parts, but it is better to do this than to develop a moment in the joint. Rollers for the free end of the truss are necessarily the same as for the pin-connected trusses and should be similarly proportioned. A riveted truss is much stiffer than a pin-connected one but costs more and for exposed work is not so graceful. If a truss is to be exposed to vibration it should always be riveted.

In Figure 67, we have assumed a truss of somewhat larger span supporting a ceiling at the panel points, and give the analysis and detail for it. It will be noted that the diagonals are in tension and the verticals in compression. This is the more economical way for the use of the metal.

The piece *B C* has a compression of 62,700 pounds, and a bending-moment of 73,600 inch-pounds in addition. If a member is made 6″ deep, there will be required a flange-area to withstand this bending-moment of 1.10 square inches. Since the tension in the bottom flange is neutralized by the compression thereon, and since L's form the shapes most easily connected in a truss of this description, we would try two $6'' \times 4'' \times \frac{3}{8}''$ L's placed back to back. The safe unit strain, from Table XIV, is 6,840 pounds, which requires an area of 9.15 square inches, the additional area to take the compression in the top flange is 1.1 square inches making a total of 10.25 square inches required in the section. Two L's give an area of 7.22 and a $8\frac{3}{4}'' \times \frac{3}{8}''$ plate gives an area of 3.26 square inches, making the total 10.48 square inches, and therefore sufficient.

For *C Z*, we have a tension of 59,800 pounds requiring an area of 4.78 square inches; to this must be added the area lost by the rivets equivalent to that of two $\frac{3}{4}''$ rivets in a $\frac{3}{8}''$ plate or .56 square inch. We also require an addition to the bottom flange-area, due to the bending-moment caused by two men on the centre, of 0.14 square inch or a total of 5.48 square inches, and this we obtain most nearly with two $5'' \times 3\frac{1}{2}'' \times \frac{3}{8}''$ L's.

For *C E*, if we make the trial of 7,000 pounds safe fibre-strain, we find about 1.5 square inches needed. This requires an *r* of about 1.00, and this we would obtain from two $3'' \times 2'' \times \frac{7}{32}''$ L's riveted up $\frac{3}{4}''$ apart.

For *D E*, we would continue the L's of *B C* right through.

For *E F*, we have a tension of 20,300 pounds requiring an area of 1.62 square inches, adding .56 square inch for loss in the rivet-holes, we would have a total required section of 2.18 square inches or two plates $\frac{3}{8}'' \times 3''$ each.

For *F H*, we have a compression of 18,000 pounds. The length being 11.5′, and *r* being in the neighborhood of 1, we would have a fibre-strain of 5,700 pounds corresponding to 3.14 square inches. Two $3\frac{1}{2}'' \times 2\frac{1}{2}'' \times \frac{9}{32}''$ L's give the required area, riveted $\frac{3}{4}''$ apart, and since a considerable fraction of this is wind-pressure occurring only occasionally, $\frac{1}{32}$ can be dropped and the usual $\frac{1}{4}''$ size used. The remaining pieces would be obtained on a similar basis.

For the joints, the joints at *A B* will be made with a $\frac{3}{4}''$ plate, because that is the distance apart that we determined on keeping the L's, and because the bearing value of the same is slightly in excess of the value of the rivets in double shear.

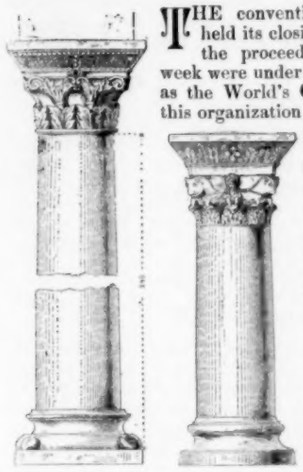
Passing down the rafter, we have a compression of 62,700 pounds which must be transmitted to the plate. Dividing by the shear value of the $\frac{3}{4}''$ rivets, 3,310 pounds, we find 19 rivets required, which, distributed through the two stems of the L's give 10 rivets. The proportion of the area between the flange and the reinforcing-plate and the stems of the L's is as 12 is to 30. We would therefore have 25,000 pounds compression in the stems and 37,000 pounds compression in the upper member, and this must be transmitted from the stem to the upper member where the two join, requiring that the rivets should be distributed over a sufficient length of the stem to make the shearing strength of the stem sufficient to transmit this strain. Taking the shear at 7,500 pounds per square inch, we find 5 square inches needed, which is equivalent to 13 inches length along which the rivets are placed. As we actually have a length of 25 inches no trouble need be apprehended.

For the tension-member of this joint, we have 59,800 pounds to transmit, which for the shear value of $\frac{3}{4}''$ rivets in single shear requires 18 rivets, or 9 in each L. The shear between the two members may be taken to be 59,800 pounds, which at 7,500 pounds requires 8 square inches, and this divided by the thickness of the plate, would call for a plate 11 inches long. As the plate along its least dimension is 25 inches, we have ample. A similar course of reasoning applies to the determination of the sizes in the other joints.

(To be continued.)

Improving the Sanitation of Naples. — A report that has just been published gives an account of the work that has been done by the Society for the Sanitation of Naples. From this it appears that the sum of £262,546 was spent during 1892 on the expropriation of property required for the improvements of the new quarters, which, added to the expenditure under this head in previous years, brings the total to £1,782,646. In the lower sections of the town 23,373 square metres of houses have been demolished, the total space cleared since 1889 being 123,528 square metres. On the other hand, 19,864 square metres of new buildings have been erected in the east end of the town, making a total of 86,665 square metres since the beginning of the Society's operations, exclusive of 87,886 square metres of dwellings for the poorer classes. No less than 27,194 inhabitants have been evicted from the demolished quarters since 1889, and of these 14,590 are occupying the new dwellings. In the work of the new drainage system in connection with the sanitation scheme, considerable progress is reported, more than one-third of the whole project having been executed. — *New York Evening Post.*

THE WORLD'S CONGRESS OF ARCHITECTS.



Capitals from the Church at Rasdorf. From *Zeitschrift für Bauwesen.*

THE convention of the American Institute held its closing session on August 1, and all the proceedings of the remainder of the week were under the auspices of what was known as the World's Congress of Architects. While this organization was entirely without any official relationship with the Institute, yet, from the commencement of its work, the committee realized that it could only advantageously and successfully work with the coöperation of the American Institute of Architects and with the various foreign architectural societies. Accordingly much of the work of organization and arrangement was worked up conjointly with the committee of the Congress and the convention committee of the Institute.

Correspondence was entered upon with the executive officers of all important foreign and local architectural societies, asking their official aid and inviting them to be present themselves, if possible, and to urge their members to make the trip to Chicago. Also they were requested to arrange, if possible, to obtain from their members a few short papers upon matters of general interest to the profession. Very numerous responses were received, and the following permitted the use of their names as the Advisory Board:

ADVISORY COUNCIL OF THE WORLD'S CONGRESS OF ARCHITECTS, AT CHICAGO.

FOREIGN MEMBERS.

Charles Garnier, Member of the Institute of France; George Soudon Bridgman, M. S. A., Delegate from the Society of Architects, London; M. Daumet, President of the Central Society of France, Member of the Institute of France; E. Salomons, F. R. I. B. A., President Manchester Society of Architects, England; M. Guadet, First Vice-president of the Central Society of Architects of France, Professor at School of Fine Arts; Charles Lucas, Member of the Central Society of Architects of France; W. Arthur Heazell, President Nottingham Architectural Society, England; F. Adolphe Bocage, Member Central Society of Architects of France; J. Macvicar Anderson, President Royal Institute of British Architects; William Emerson, Honorable Secretary R. I. B. A., London; Josiah Conder, F. R. I. B. A., Member of the Society of Japanese Architects, Tokio, Japan; Mariano Belmas, Director of the Department of Public Works, Madrid, Spain; Tatsuzo Soné, Special Representative of the Society of Japanese Architects, Tokio, Japan; M. Pangoy, President; M. De Foucauet, First Vice-president; M. Buyron, Second Vice-president; M. Reybaud, Secretary of the Society of Architects of Marseilles, France; Robert Walker, President of the Society of Architects, London; C. O. Glein, Member of the Association of German Architects; Herr Hinckeldyn, Chief Government Architect, Berlin; John Bobula, jor., Delegate of the Hungarian Government and Commerce; H. Ende, Government Architect, Berlin, Germany; Giusippe Toggi, Italy; the Presidents of the Architectural Societies.

UNITED STATES MEMBERS.

Edward H. Kendall, President of the American Institute of Architects; Alfred Stone, Secretary of the American Institute of Architects; the members of the Committee on Foreign Correspondence of the American Institute of Architects, Richard M. Hunt, Chairman; the Presidents of State and Local Chapters of the American Institute of Architects.

As a result among the papers obtained were two from England, two from France and one from Japan, as well as a large number from the United States, several of which were originally written for presentation at the convention itself, but later, upon further consultation of the two committees it was deemed best, that they, too, should be read at the Congress, really making the convention this year to consist mainly of the necessary routine work.

The weather during the greatest part of the week has been as near perfection as possible, and it is a very great pity that many of the architects have (according to their own letters) thought September a more agreeable month for them to visit Chicago and the Exposition, and made all their plans accordingly, and could not afford two trips; it is only to be hoped that for their own comfort they do not strike our "hot spell," which generally comes in September for a short time, and is the most uncomfortable period of the whole season. As a result of this, the attendance both at the Convention and the Congress has not been nearly so large as hoped for, and as a desire to keep up the *esprit de corps* of the profession should have brought together. The attendance at the Congress was decidedly variable as to numbers, the latter part of the week showing smaller audiences than at the first, much of which was plainly due to the fact of the very strong attractions of the White City, and the hope that the papers delivered could hereafter be read at leisure.

The Congress was opened by Mr. Burnham, as chairman of the committee, with the hall crowded with fully two hundred persons, — many of them standing. In a neat little address he expressed the idea that the presidency of this Congress should be in the hands of the man recognized by the American Institute of Architects as its official head, and, therefore, requested Mr. Kendall to thereafter fill that office, which he did, with the exception of those times when he called the distinguished representatives either of local Chapters or foreign societies to take his place. As a whole, the papers were of decidedly unusual interest, but many of them were so strictly technical with a large admixture of engineering data that the mere hearing of them read was not entirely satisfactory. In fact one wanted to sit down to them seriously and compare them with other authorities, and other data. All of the papers will be eventually published by the World's Fair Auxiliary, but unfortunately none of them were printed beforehand so as to permit of their being handed around.

The various papers on the Columbian Exposition probably evoked most general interest, and although they were necessarily filled with figures, yet the results so near at hand caused them all to be interesting.

M. Guadet's paper on "Public Competition," was read by M. Bocage of Paris, and while giving the general facts of the French system of competitions, yet suggested numerous ways in which it might be bettered, both for the profession and for the good of the client. Mr. Van Brunt's scholarly paper upon "The style that is gradually being developed by the ready adaptation of American architects to the modern requirements of buildings, and new systems of construction," was one of the pleasantest contributions read on the third day of the Congress.

During the entire Congress, one very noticeable feature was the large proportion of women present. Many of them were evidently wives and daughters of attending architects, but also there were numbers who simply came in and stayed during one or two papers and then left.

On Wednesday evening the visiting architects, with ladies, had a very enjoyable excursion on the lake for several hours, at the invitation of the Illinois Chapter. The view of the grounds and fireworks from the lake was the principal object of the trip.

The last day of the Congress had several quite noticeable papers, and the attendance was again fairly good. Mr. Sullivan's paper upon "Polychromatic Treatment of Architecture" (he, himself, in his remarks denominated it the "Psychological facts underlying architectural design") was followed by an extremely interesting talk from him upon the development of the ornamental from geometrical forms, and then finally their treatment in color, all illustrated by sketches and designs showing the peculiar methods of study by which Mr. Sullivan has arrived at some of his charming and unique schemes of decoration.

Mr. Soné, member of the Society of Japanese Architects, read Mr. Conder's paper upon "The Conditions of Architecture in Japan," postponed from Wednesday.

During the Congress, several papers were read by the Secretary for authors who were not present, and it frequently was necessary to change the order of exercises from that shown on the schedule.

Altogether the Congress has brought out a most valuable collection of papers, but their full worth will not be appreciated until they have been printed in full, and read at leisure, with necessary care and thought. While but few of the papers were too long in themselves for the proper treatment of the subjects discussed, yet when combined in number, even the most entertaining series became fatiguing from the very care and attention necessary to properly digest them. Personally, I think the Congress would have been more uniformly entertaining and more attractive if the number of papers *read* had been very materially reduced and all others *filed* for printing. The World's Exposition, with charming weather, was too great an attraction, and to keep and hold any great body of men day after day away from it was impossible. However, the Congress undoubtedly has done very considerable, and will do still more, towards making future meetings possible and profitable.

At the same time with the Architects' Congress, there have been running along in the Art Institute a series of other congresses upon art subjects, ceramics, photography, painting, sculpture and decorative art. This latter had several interesting meetings, notably the one in which Mr. Choya, the Japanese imperial representative, read a paper upon "Japanese Decorative Art," likening it to the sun (the national emblem) which was rising and now throwing its light over the entire world.

CORRECTIONS. — In our issue of May 27, 1893, in article on "Commemorative Monuments" on page 127 for "Column of Alexandria" read "Column of Alexander," and on page 128, for height of Column of Lima, read, "The total height is 21m. 40," the figures 7m. 40 given really represent the diameter of the platform.

ABSTRACT OF CHAPTER REPORTS PRESENTED AT THE TWENTY-SEVENTH ANNUAL CONVENTION, A. I. A.

Gateway to a Bohemian Farmhouse. From *Architektonische Rundschau.*

NEW YORK.

(*Chartered by A. I. A., March* 19, 1867.)

PAPER by Mr. De Lemos, on a trip to Norway and Denmark.

Special committee appointed, and in coöperation with other societies in New York, urged the preservation of the present New York City-hall.

Correspondence with the Ontario Association of Architects with reference to the licensing of architects.

Correspondence with reference to compensation for professional service, showing its good effect in several cases.

With reference to the publication of the *Proceedings* of the twenty-sixth annual convention of the A. I. A., and recommending confining the editing of future proceedings to the Secretary of the A. I. A., or a competent delegate nominated by him.

Expressing a wish to have a proper history of the Institute and its Chapters and kindred societies prepared by Mr. A. J. Bloor, and published at the expense of the Institute.

Declining representation or participation in the proposed Congress of Architects.

Postponing to another year the consideration of a plan to affiliate with the Architectural League of New York.

The report also gives, in quite full detail, the happy results of the work of the Willard Commission and the use of the collection by the students of the class in architecture in the Metropolitan Museum of Art, and those in Columbia College.

The financial condition of the Chapter is good and it is recommended by the Secretary that delegates from the various Chapters have an opportunity to receive the substance of the Chapter reports, with a view to comparison and possible improvement of regimen.

ILLINOIS.

(*Chartered previous to October* 9, 1871.)

Founded before the great fire, the first record in its minute-book is: "The records of the Chapter, together with the charter and all documents and papers, were destroyed by fire, October 9, 1871."

Chapter has been honored by the selection of a number of its members to design some of the principal buildings of the Columbian Exposition, and by a selection from its members of persons to revise the building ordinances.

Financial condition good. The Institute of Building Arts, where its meetings are held, is under the care of the Chapter.

Four papers have been read before it.

1. E. L. Ransome, on Twisted Iron Applied to Concrete Flooring in Buildings.
2. D. Adler, on Piles for Foundations.
3. F. Bauman, on Effect of Frost upon Buildings and Foundations.
4. R. Guastavino, on The Spanish Tile Arch.

PHILADELPHIA.

(*Chartered November* 14, 1869.)

No Report.

BOSTON.

(*Organized May* 22, 1867. *Chartered* 1870.)

Papers have been read before the Chapter as follows:

1. Mr. Partridge, account of his trip to Europe as a Rotch Travelling-scholar.
2. Messrs. Preston and Ware, an account of the twenty-sixth annual convention in Chicago and the World's Fair buildings.
3. G. L. Heins, an exhibition and explanation of the drawings of Heins & La Farge for the Cathedral of St. John the Divine.
4. R. A. Cram, "The Question of Style in Ecclesiastical Architecture."
5. R. C. Sturgis, "The Special Charm of English Architecture," illustrated by stereopticon, water-colors and prints.
6. W. P. P. Longfellow, on Bramante, illustrated by photographs.
7. W. R. Emerson, on his impressions of recent architecture in Europe.

The Chapter instituted a competition on the treatment of Copley Square, with gratifying results, and there is a strong hope that the square will receive adequate treatment by the City Government.

It also assisted in the selection of a Rotch Travelling-scholar, and W. H. Kilham was selected.

It mourns the loss by death of George Snell, a native of England and a member of the Chapter since 1875.

In good financial condition.

CINCINNATI.

(*Chartered January* 25, 1870.)

The Chapter has held monthly meetings, and in connection with its annual meetings a banquet, which has added much to its interest.

BALTIMORE.

(*Chartered December* 10, 1870.)

The Chapter has been requested by the Building Committee of the new court-house, to name three architects as professional advisers, to assist in determining the award of prizes in the competition for the same. The Chapter selected Messrs. D. H. Burnham, Edward H. Kendall and E. M. Wheelright.

RHODE ISLAND.

(*Chartered May* 10, 1875.)

The Chapter investigated a question which arose in regard to award of competition for Rhode Island State Building and approved the action of the Building Committee.

The Chapter has offered prizes for the best drawings of Classic work executed in the State prior to 1840, open to all draughtsmen of both sexes, with a view to preserving a record of the work still in existence, and as an incentive to original research and drawing from executed work.

It also has under consideration an exhibition of internal decorative work and furnishings.

SAN FRANCISCO.

(*Founded May*, 1881. *Chartered May*, 1882.)

The Chapter unsuccessfully attempted to secure the passage by the last legislature of a law regulating the practice of architecture.

It maintains classes in drawing and modelling for the benefit of students from the offices of its members, under the care of its President, Mr. George H. Sanders, who by his interest and exertion has been able to secure satisfactory and encouraging results.

INDIANAPOLIS.

(*Chartered February* 2, 1886.)

No report.

WASHINGTON.

(*Chartered September* 21, 1887.)

The Chapter has held regular monthly meetings in its own Chapter-rooms, and its financial condition is excellent.

BUFFALO.

No report.

ST. LOUIS.

(*Chartered March* 8, 1890.)

The Chapter has held monthly meetings, preceded by a lunch. Nothing of special importance to report, except that the Chapter is beginning to wield an important influence in public matters, and has published a code of ethics to govern general practice, as well as competitions of high professional standard.

The Chapter has been called upon to mourn the loss by death of P. P. Furber, who was also a member of the Board of Directors of the A. I. A., in the fortieth year of his age.

KANSAS CITY.

(*Organized October* 12, 1890.)

The Chapter has had a year of enthusiastic interest, has held eighteen meetings, at which important subjects relating to the profession and to the community where it is located have been discussed and has also taken a lively interest in the efforts to secure national legislation in regard to the designing of United States Government Buildings, and is ready to coöperate in any movement to secure a fair trial of the law which has been enacted.

WESTERN PENNSYLVANIA.

(*Organized March* 28, 1891.)

Has held five regular meetings. In good financial condition.

WISCONSIN.

(*Chartered September* 16, 1891.)

No Report.

OHIO.

(*Chartered September* 17, 1891.)

The Chapter to whom was entrusted the selection of an architect for the Ohio State Building at the Columbian Exposition, selected, unanimously, James W. McLaughlin.

The membership being distributed throughout the State, only annual meetings are held.

WESTERN NEW YORK.

(*Organized October* 29, 1887. *Chartered December* 5, 1891.)

Has forty-four Regular and six Honorary Members.

WORCESTER.

(*Chartered January* 26, 1892.)

Has regular monthly meetings from October to June, at which papers are read and discussions take place on topics of interest, and a lunch is served.

The Chapter is in consultation with the city officials relative to a revision of the building ordinance.

Two members have died during the year, Frank L. Wheeler and John B. Woodworth.

There is a movement on foot to increase membership by extending its limits to other and neighboring towns and cities.

SOUTHERN.

(*Organized February* 17, 1892.)

Extended in its territory it has had but few meetings, and at its annual meeting on January 10, twenty-four new members were enrolled, making a total membership of fifty-eight, ten of whom are members of the A. I. A.

MINNESOTA.

(*Organized February* 20, 1892.)

The year of 1892 was one of organization. The Chapter has a goodly number of members and is in good financial condition. The lack of enthusiasm before spoken of has diminished, and monthly meetings have been held. Papers of interest have been read, and competitions on twelve subjects among the draughtsmen, have been adjudged.

COLORADO.

(*Organized March* 27, 1892.)

The Chapter has taken an active part in regard to a lien law, and one licensing architects. The former was enacted, but the latter met the fate which has attended all similar efforts elsewhere. It is now considering a revision of the Denver City Building Ordinance, in coöperation with the Inspector of Buildings.

CLEVELAND.

The Chapter has held eight meetings, and informally discussed topics of architectural and professional interest.

MICHIGAN.

Holds monthly meetings and has done good work in the interest of the profession, preventing, by its influence, all local architects, both members and non-members, from entertaining a competition for a building to cost $350,000, because of the unworthiness of the conditions.

IOWA.

There has been a strenuous effort made by Eugene H. Taylor, the last President of the Chapter, to awaken interest and revive and keep alive the old Chapter, but the distances are so great and the number of architects in the State so small, it has not been possible to make any marked progress. It is, however, hoped that it is only a case of suspended animation, and that before long we shall have a report from a flourishing Iowa Chapter.

A TALE OF DECEIT. — The famous Farnesina Palace, at Rome, was originally built for Agostino Chigi, the wealthy banker of Pope Leo X, who, as the story goes, after a banquet that he gave there in honor of His Holiness, had the gold plate that was used at the entertainment flung into the Tiber in the Pope's presence, exclaiming that no one else should be permitted to use plate that had been eaten from by the Holy Father. The wily old banker had, however, taken the precaution of skilfully concealing a net in the river, so that after the Pope's departure he was able to recover his plate, which is still in the possession of the now princely house of Chigi. — *New York Tribune.*

MR. BURNHAM'S ADDRESS BEFORE THE WORLD'S CONGRESS OF ARCHITECTS.

Gateway to a Bohemian Farmhouse. From *Architektonische Rundschau.*

I DO not know who first advocated the holding of a World's Fair on the four hundredth anniversary of the discovery of America by Columbus, but by the summer of 1889, New York, Washington, St. Louis and Chicago had organizations at work, each in the interests of its city. The one in Chicago started to raise money by subscription. It sent a well-known railway manager, Mr. E. T. Jeffery, and an engineer, Mr. Chanute, to examine and report regarding the French Universal Exposition then being held in Paris. It also elected a committee to report on sites and this committee invited the writer to consult with them, which he did during the fall of 1889 and the winter following. Very little was accomplished, as the chief interest then centered in the contest before Congress by the cities interested in securing from the Government the location of the Exposition; but on April 9, 1890, the State of Illinois licensed the corporation, since known as the "World's Columbian Exposition," and on April 25th of the same year, the National Congress passed an Act naming this city as the one within whose limits the Fair was to be held.

The Act of Congress provided for a national body, to be known as the "World's Columbian Commission," to which was entrusted the custody and care of exhibits and all communications with foreigners and exhibitors, and it also provided for the local corporation I have mentioned, to which was entrusted the designing and building of the Exposition, and the custody and care of it to the end of the Fair.

The National Commission organized and elected a president, a secretary and a director-general. The Illinois corporation also organized and elected a president and secretary and appointed various committees; among them that of grounds and buildings.

For the rest of the spring and during the first two summer months much time was wasted over the question of a site in Chicago; various committees from the Corporation, the National Commission, the City Authorities and the Illinois Central Railroad, being engaged in the discussions, with little hope of a settlement. On August 20th, however, the first real step in the right direction was taken, and the local corporation then retained as Consulting Landscape Architects, the firm of F. L. Olmsted & Co., of Brookline, Mass. On September 2d, thirteen days afterward, Mr. A. Gottlieb was appointed Consulting Engineer, and Messrs. Burnham & Root, Consulting Architects. In the following October, Messrs. Burnham & Root resigned, Mr. Root then being elected Consulting Architect, and the writer being made Chief of Construction, all at one meeting.

These officers reported to the Grounds and Building Committee, which had "jurisdiction in all matters pertaining to grounds, leases, engineering, designs, plans, construction of buildings and works, maintenance of buildings and grounds; organization of guards, police, detective and fire-departments, gas, electric-lights, water-supply, medical service, application for space, telegraphy, insurance, etc." The Chief of Construction was made the Executive Officer of the Committee and the Consulting Architect, Landscape Architects and Engineers were ordered to report to him.

Early in the fall of 1890 the two controlling bodies selected Jackson Park and the down-town Lake Front as what was called the "Dual Site," it being stipulated that the Fine Arts Building, the Liberal Arts Building and the Music Hall should be kept "down-town," and all other buildings be in Jackson Park. This decision was reached after a careful report by Olmsted & Co. of all the sites tendered, and upon the advice of all the members of the Consulting Board.

The South Park Commission leased Jackson Park and Midway Plaisance to the World's Columbian Exposition and it was agreed between the parties:

1. That the grounds should be cleared of all buildings and turned back to the Commission on or before a certain date.

2. That improvements made by the Exposition were to be as far as possible in the direction of the permanent improvement of the Park.

The original designs of the South Park were made by Mr. Frederick Law Olmsted and Mr. Calvert Vaux, about 1870. When, therefore, we took up the study of the grounds for the purpose of devising a plan for the Exposition, Mr. Olmsted's familiarity with the site, and his superior knowledge of landscape effects caused us to be guided by him in general features. Mr. Codman, his partner,

was a man well trained in all matters relating to the setting and surroundings of buildings. His training, both here and in France, his extensive travel, knowledge and natural aptitude fitted him to be both adviser and executant in this important work.

The general scheme of land and water was suggested by Mr. Codman. The arrangement of the terraces, bridges and landings was suggested by Mr. Codman after the Architectural Board had adopted a style for the Grand Court. The size and number of the Exposition buildings proper was determined from the schedule made by the Classification Committee, the order of the chairman of the Building Committee being to plan for structures covering about one-third more area than those in Paris in 1889. The shape and disposition of the buildings was determined by Mr. Root and myself, the engineer, Mr. Gottlieb, being, of course, consulted as well. While I mention the particular part in which each led, it is true that all of us consulted together on questions that arose, and nothing was finally determined upon which did not have the approval of all. Several tentative plans were rudely drawn on the cross-sectioned lithographed maps of Jackson Park, and a final one early in December, 1890, which was then adopted by the National Commission and the Illinois Corporation as the plan of the Exposition, though it only dealt with buildings immediately around the Grand Court, the Horticultural, Fisheries and the Government space. This plan made no provision for State, Foreign or Woman's Buildings, for the Midway Plaisance, or the structures south of Machinery Hall and Agricultural Building. It was a suggestion, and it was not intended by us to present more than the mere central idea for the parts of the scheme then treated of. There was nothing original in it, except the introduction of the canal, the lagoons and wooded island, the Grand Court being the same arrangement as at Paris, with a water-basin in the centre and a dome at one end, in front of which was to be the great fountain. The plan was the work of us all. It was not due to an inspiration, but it was thought out logically, step by step, keeping in view the immediate purposes of the Exposition and the final treatment of the ground as a public park. It was a crude outline, without suggestion of architectural treatment or style. In fact, nothing was done or said as to the architecture proper, except idly and in a desultory way, Mr. Root at that time leaning to variety in style and color for the buildings of the Fair. On December 1, 1890, the status was as follows:

The Exposition was to be built on two sites, seven miles apart, and a sketch-plan for part of one of them had been officially adopted. It was necessary to take charge of nearly 700 acres of land, the larger part of which was swampy, to design and build the Exposition and place the exhibits in two years and five months.

For this purpose, it was necessary to quickly organize a competent force of architects, sculptors, painters, engineers, police, firemen, business men and clerks. Every moment was precious. It was out of the question for the firm of Burnham & Root to think of designing all or any part of the buildings, because of the relations its members had already assumed toward the enterprise. I therefore drew up the following memorial to the Grounds and Buildings Committee, which my *confrères* signed at my request. It was sent December 9, 1890, to the Committee on Grounds and Buildings.

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

"We recognize that your action in the matter will be of great importance, not only in its direct effect upon the artistic and commercial success of the Exposition, but scarcely less upon the aspect presented by America to the world, and also as a precedent for future procedure in the country by the Government, by corporations, and individuals.

"In our advisory capacity we wish to recommend such action to you as will be productive of the best results, and will at the same time be in accord with the expressed sentiments of the architectural societies of America.

"The following suggestions relate only to the central group of buildings in Jackson Park, it being the intention from time to time to designate other architects for the various important structures that are to be erected in addition thereto.

"That these buildings should be in their designs, relationships and arrangement of the highest possible architectural merit is of importance scarcely less great than the variety, richness and comprehensiveness of the various displays within them. Such success is not so much dependent upon the expenditure of money as upon the expenditure of thought, knowledge and enthusiasm by men known to be in every way endowed with these qualifications; and the results achieved by them will be the measure by which America, and especially Chicago, must expect to be judged by the world.

"Several methods of procedure suggest themselves:

"1. The selection of one man to whom the designing of the entire work should be entrusted.

"2. Competition made free to the whole architectural profession.

"3. Competition among a selected few.

"4. Direct selection.

"The first method would possess some advantage in the coherent and logical result which would be obtained. But the objections are, that time for the preparation of designs is so short that no one man could hope to do the subject justice, even were he broad enough to avoid, in work of such varied and colossal character, monotonous repetition of ideas. And again, such a method would invoke criticism, just or unjust, and would certainly debar the enterprise from the friendly cooperation of diversity of talent, which can be secured only by bringing together the best architectural minds of the country.

"2. The second method named has been employed in France and other European countries with success, and would probably result in the production of a certain number of plans possessing more or less merit and novelty. But in such a competition much time, even now most valuable, would be wasted, and the result would be a mass of irrevelant and almost irreconcilable material, which would demand great and extended labor to bring into coherence. It is greatly to be feared that from such a heterogeneous competition the best men of the profession would refrain, not only because of the uncertainties involved in it are too great and their time too valuable, but because the societies to which they almost universally belong have so strongly pronounced on its futility.

"3. A limited and fair competition would present fewer embarrassments; but even in this case the question of time is presented, and it is most unlikely that any result derived through this means, coming as it would from necessarily partial acquaintance with the subject, and hasty, ill-considered presentation of it, could be satisfactory and the selection of an individual would be open to the same objections made above, as to a single designer. Far better than any of the methods seems to be the last.

"4. This is to select a certain number of architects, choosing each man for such work as would be most nearly parallel with his best achievements. These architects to meet in conference, become masters of all the elements to be solved, and agree upon some general scheme of procedure.

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

"The honor conferred upon those so selected would create in their minds a disposition to place the artistic quality of their work in advance of the mere question of emoluments; while the emulation begotten in a rivalry so dignified and friendly could not fail to be productive of a result which would stand before the world as the best fruit of American civilization."

Signed, D. H. Burnham, *Chief of Construction.*
John W. Root, *Consulting Architect.*
F. L. Olmsted & Co., *Consulting Landscape Architects.*
A. Gottlieb, *Chief Engineer.*

This paper precipitated a heated debate. There were strong advocates for competition, and the Committee was solemnly warned by some of its members against choosing by any other method; but finally, through a narrow majority, the recommendation was adopted. The Committee then placed in my hands the selection of five architects to design the buildings around the Great Court. The rude plan I have spoken of showed two buildings where the Electrical and Mines now are, but their long axis ran east and west, instead of north and south, as at present. This arrangement would have left five buildings fronting on the Great Court, instead of six, as is now the case. I selected five men, or firms, and the Committee promptly confirmed them. I then sent to each of them the following letter:

"The inclosed recommendation was approved last night by the Board of Directors of the World's Columbian Exposition, and in the same resolution they empowered the Grounds and Building Committee to secure the services of five architects to design the main group of buildings at Jackson Park.

"The Committee authorize me to confer with the following gentlemen, namely: Richard M. Hunt of New York, McKim, Mead & White of New York, George B. Post of New York, Peabody & Stearns of Boston, Van Brunt & Howe of Kansas City with a view to your employment.

"It is intended to place the problem in your hands as to the artistic aspects only:

"1. Of the group as a whole.

"2. Of the separate buildings.

"The Committee are disposed to leave the method of designing to the five architects, and you may determine among yourselves whether to make a joint design of the whole as one, or each to take up separate parts to be modified to meet such views as shall be expressed in your conferences from time to time.

"This Bureau will be expected to supply you with all data about materials, sizes, general disposition and cost of buildings, and it is also to have charge of the constructional features, and, finally, of the execution of the entire work, but with the understanding that the artistic parts are to be carried out with your approval, and that you are from time to time to visit the work either in a body or separately as may be determined wise. Our Consulting Architect, Mr. Root, would act as your interpreter when you are absent, without imparting into the work any of his own feelings.

"I realize the hesitancy you may feel in assuming responsibility for design when you do not fully control the execution of it. The Committee feel, however, that strict economy of the two essentials, Time and Money, will be best subserved by keeping the actual control of the work in the hands of one man and his bureau; and I can assure you that your intents and purposes of design, once agreed upon by the Committee, shall be carried out as you wish, and that they shall not be altered or meddled with, and when exigencies arise, making any important change necessary, you shall be consulted and have the matter in charge the same as in original design.

"I will be pleased to hear from you by wire, if you think favorably of this proposition. I shall be here until Monday evening, and unless detained shall be in New York City Wednesday next, stopping at the Windsor. As in a personal interview it will be possible to make

matters much more plain, I hope to find a note saying that I may have the honor of seeing you. Those who accept should make a preliminary visit here together as soon as possible.

"Yours very truly,

"D. H. BURNHAM, *Chief of Construction.*"

This brought the time up to within a week of Christmas, 1890.

On December 22d I met in New York Messrs. Hunt, Post, Peabody and Mead, and secured an agreement from them, and by telegram from Mr. Van Brunt, that they would visit Chicago together on the 10th of January following. On my return to Chicago, the Grounds and Buildings Committee authorized me to select five architects from Chicago to design the other great structures of the Exposition. The men nominated and promptly confirmed were Burling & Whitehouse, Jenney & Mundie, Henry Ives Cobb, S. S. Beman and Adler & Sullivan. I called on each of them the next morning and obtained acceptance.

The architects met in the office of Burnham & Root on Saturday, January 10, 1891, there being present:

CONSULTING ARCHITECTS OLMSTED & CODMAN		HENRY VAN BRUNT	Kansas City
CONSULTING ENGINEER GOTTLIEB		DANKMAR ADLER	Chicago
RICHARD M. HUNT	New York	LOUIS H. SULLIVAN	Chicago
ROBERT S. PEABODY	Boston	F. M. WHITEHOUSE	Chicago
GEO. B. POST	New York	S. S. BEMAN	Chicago
WM. R. MEAD	New York	HENRY IVES COBB	Chicago
		W. L. B. JENNEY	Chicago

and myself. Mr. Root was absent from the city, but arrived during the afternoon, in time to meet those present and be introduced to those he was not acquainted with. An organization was effected by the selection of Mr. Hunt as Chairman and of Mr. Sullivan as Secretary, and an adjournment was taken until Monday. That night a banquet was given by the Grounds and Buildings Committee to the Architectural Board at University Club.

On Monday the Board met, but Mr. Root was missing. At noon word came of his illness, which terminated fatally on Thursday afternoon. Mr. Root possessed a mind remarkable for its artistic insight, quickness and clearness of apprehension, and deep sympathy with everything of value about him. Though filled to running over with his own suggestive thoughts, he never failed to grasp another's, and it was his every-day custom to coördinate the elements of discussions with a rapidity and finish that seemed marvellous. His very visions were as real to him as the actual objects of life are to the eyes of other men. He saw comprehensively and exactly, both through his natural eyes and those of his spirit, and his power of expression to the ears, the eyes or the hearts of others kept pace with his own vivid impressions.

I cannot, of course, believe that the architecture of the Exposition would have been better had he lived, but it certainly would have been modified and stamped with something of his great individuality. My own loss I cannot speak of. Our relations had been intimate, and even fond, from the week when first we met. We had lived together for eighteen years without a written agreement or a quick word between us. When he died, I remained with the Exposition only in deference to the judgment and wishes of my friends among the Directors.

The discussions of the Board extended through the week after the death of Mr. Root, the plan being modified by important changes, and at the end of the meeting I apportioned the work among the men as follows:

F. L. OLMSTED & CO.	Landscape Architects.
RICHARD M. HUNT	Administration.
PEABODY & STEARNS	Machinery.
MCKIM, MEAD & WHITE	Agricultural.
GEO. B. POST	Manufactures and Liberal Arts.
VAN BRUNT & HOWE	Electricity.
S. S. BEMAN	Mines and Mining.
ADLER & SULLIVAN	Transportation.
HENRY IVES COBB	Fisheries.
BURLING & WHITEHOUSE	Venetian Village.
W. L. B. JENNEY	Horticultural.

This was only twenty-one months before the date set by Congress for the dedication of the completed grounds and buildings of the Exposition. The work done by the Board at its January meeting was:

1. Confirmation of general scheme.
2. Settling exact sizes of court and canal.
3. Settling exact size and location of the following buildings: Agricultural, Manufactures, Electrical, Mines, Fisheries, Horticultural, Administration, Machinery, Transportation, Venetian Village.
4. The height of cornice around the main court.
5. The approximate height of terraces above datum.

On February 20th the Board met again, this time Mr. McKim coming instead of Mr. Mead, and the New York members being accompanied by Mr. Augustus St. Gaudens, the sculptor, who was retained as adviser. They then brought with them the rough sketches, each of his own building, and the landscape architects brought a full-scale plan of the grounds of Jackson Park, extending from north of the Fisheries Building to south of Machinery Hall.

The following week was one of interest to all the conferrees. Mr. Hunt presided in the meetings. Each designer displayed his sketches upon the wall, explaining the purpose and intent of his work, and submitting to the kindly criticisms of all the others. The Grounds and Buildings Committee spent a day in the room, where every design was carefully explained to them by its author; afterward the proper officers of the National Commission also met the architects, when the same process was gone through again. The whole work was then formally passed upon and adopted by the World's Columbian Exposition and the World's Columbian Commission, and this memorable meeting came to an end late in February, 1891. One of the most eminent artists who had been present at all of the meetings, on parting, remarked: "This has been the most important artistic moment of my life." The sentiment so expressed was echoed by every one present. Then, for the first time, one could commence to form an idea of the architecture which we are now familiar with. The strongest enthusiasm prevailed, and a high sense of the importance of the work dawned upon us.

During January, when the main plan of the work had been approved, the Chief Engineer let a contract for the excavation of the basin, lagoons and inlets, and while the architects were here in February the work commenced.

After the adjournment, it was determined by the Grounds and Building Committee to select an architect for the Woman's Building by competition, to be confined strictly to women. Twelve sets of sketches were submitted for the day appointed, and three prizes were given: the first to Miss Sophia G. Hayden, of Boston, the second to Miss Lois Howe, of Boston, and the third to Miss Laura Hayes, of Chicago. Miss Hayden was at once employed as the architect of the building, and since then has made the designs and overlooked the construction of the building. Examination of the facts show that this woman had no help whatever. The design was made by herself in her own home.

This brings the history of the enterprise down to about March 1, 1891. At this point, for the first time, the Chief of Construction was enabled to form an estimate of the work to be done. Roughly speaking, it consisted of reclaiming nearly seven hundred acres of ground — only a small portion of which was improved, the remainder being in a state of nature, and covered with water and wild-oak ridges — and in twenty months converting it into a site suitable in substance and decoration for an exposition of the industries and the entertainment of representatives of all the nations of the world. On its stately terraces a dozen palaces were to be built — all of great extent and highest architectural importance — these to be supplemented by two hundred other structures, some of which were to be almost the size of the Exposition Buildings themselves; great canals, basins, lagoons and islands were to be formed; extensive docks, bridges and towers to be constructed. The standard of the entire work was to be kept up to a degree of excellence which should place it upon a level with the monuments of other ages. The opportunity for gaining honorable distinction, however, made the duty of choosing men for the force comparatively easy, and in a very short time after the plans were finally adopted, the following were on the field of action, working with one object, the welfare of the great enterprise:

CHARLES B. ATWOOD	*Designer in Chief.*
WILLIAM PRETYMAN	*Director of Color.*
E. G. NOURSE	*General Engineer.*
FREDERICK SARGENT	*Electrical Engineer.*
J. C. SLOCUM	*Mechanical Engineer.*
WM. S. MACHARG	*Sanitary and Water Engineer.*
JOHN W. ALVORD	*Engineer of Grades and Surveys.*
EARNEST R. GRAHAM	*Assistant Chief of Construction.*
RUDOLPH ULRICH	*Landscape Superintendent.*
DION GERALDINE	*General Superintendent.*

Later the following changes occurred. Mr. Frederick Sargent assumed entire charge of all mechanical plants, Mr. Slocum going out and Mr. R. H. Pierce becoming Electrical Engineer, and in March of this year Mr. Sargent withdrew, leaving Mr. Charles F. Foster in charge as Mechanical Engineer, where he still remains. Mr. Gottlieb, the Chief Engineer, withdrew in the summer of 1891 and Mr. Edward C. Shankland took his place. Mr. W. H. Holcomb has since joined the force as General Manager of Transportation. Mr. Pretyman resigned in May, 1892, and Mr. Frank D. Millet took his place. Col. Edmund Rice, of the United States Army, assumed control of the Guard in May, 1892. Marshal Edward Murphy took charge of the entire Fire-department in December, 1892, taking the place of Mr. A. C. Speed, who had been in charge until then.

Mr. C. D. Arnold was made Official Photographer. Dr. John E. Owen was made Medical Director. Mr. Atwood came out to join me in my private practice in the spring of 1891, but the needs of the Fair were so great that he assumed the place of Designer-in-Chief instead.

The Venetian Village being abandoned, and it having been concluded to place the Music and Fine Arts Buildings in Jackson instead of in the down-town park, Mr. Whitehouse was urged to design the Fine Art Palace, but severe illness at the time prevented him from doing it. This building then went to Mr. Atwood. When the Venetian Village on the end of the pier in front of the Grand Court was abandoned, Mr. St. Gaudens suggested the thirteen columns as shown on the earlier plans of the work; but this being finally deemed to be inadequate, the Music-hall, Peristyle and Casino, as one composition, was entrusted to Mr. Atwood, and then Mr. Whitehouse also took up the very important work of designing the Festival Hall.

The following buildings have been erected in Jackson Park and Midway Plaisance. Those built by the Exposition, as follows:

Administration Building.
Machinery Hall and Boiler-house.
Pumping-Station.
South Colonnade.
Agricultural Building.
Forestry Building.
Dairy Building.
Freight-Houses.
Convent of La Rabida.
Stock-ring.
Company's Shops.
Company's Barn.
Sewage Cleansing Works.
Landscape Propagating-house.
Tank-house.
Saw-mill.
Peristyle, Music-Hall and Casino.
Manufactures and Liberal Arts.
Electricity Building.
Mines and Mining Building.
Transportation and Annex.
Terminal Station.
Grounds and Buildings, Headquarters.
Photographic Building.
Horticultural Building.
Horticultural Greenhouses.
Woman's Building.
Fire and Police Houses.
Fisheries Building.
Mechanical Offices.
Art Building.
City Police-Stations, Woodlawn and Hyde Park.
Art Institute, (down-town).
Leather Building.
Silos.
Model Building.
Stock-barn.
Custom-house.
Choral-music Building.
Entrances.
Music-stands.
Perron and Sheds.
Sheds for Empty Cases.
Children's Building.
Public Comfort.

These buildings aggregate 6,500,000 square feet.

The following States have built headquarters: Illinois, California, Colorado, Washington, South Dakota, Nebraska, North Dakota, Kansas, Texas, Utah, Iowa, Montana, Kentucky, Florida, Arkansas, Minnesota, Missouri, Louisiana, West Virginia, Pennsylvania, New York, Maryland, Delaware, New Jersey, Rhode Island, Massachusetts, Vermont, Connecticut, New Hampshire, Maine.

The State buildings occupy over 40,000 square feet.

The following Foreign Governments have built: Great Britain, Canada, Russia, Germany, Ceylon, France, Turkey, Hayti, Norway, Sweden, Brazil, Nicaragua, Colombia, Guatemala, Costa Rica, Japan, Venezuela, New South Wales, Spain and East India, covering an area of over 300,000 square feet.

The following concessionaires have built: Bedouin Encampment, Lapland Village, Ostrich Farm, Dahomey Village, Brazilian Concert-hall, Chinese Village and Theatre, Algerian and Tunisian Bazaar, Japanese Bazaar, Dutch Settlement, German Village, Street in Cairo, Ferris Wheel, Volcano of Kilauea, Captive Balloon, East Indian Village, American Indian Village, Hungarian Café, Austrian Village, Persian Concession, French Cider-press, Ice Railway, Eiffel Tower, Natatorium and Vienna Bakery, Irish Village, Irish Industries Village, United States Sub-marine Diving Company, Log Cabin, Reproduction of St. Peter's, Moorish Palace, Libby Glass Company, Turkish Village, Hagenbeck's Animal Show, Panorama of Bernese Alps, Venice-Murano Glass Company, Merck Drug Exhibit, Café de Paris, Electric Scenic Theatre, Adams Express Company, International Dress and Costume Company, Workingman's Home, Diamond Match Company, Clam-bake, Walter Lowney Chocolates, Walter Baker Cocoa, Van Houten Cocoa, Japanese Tea-house, Great White Horse Inn, *Puck* Building, White Star Steamship Company.

They will aggregate over 1,100,000 square feet. The total grand area of the buildings in the Fair is something less than 200 acres.

The artists engaged on the decorations were:

G. J. Melchers.
W. McEwen.
E. H. Blashfield.
C. S. Reinhart.
E. E. Simmons.
R. Reid.
W. Shirlaw.
K. Cox.
J. C. Beckwith.
F. D. Millet.
L. C. Earle.
E. E. Garnsey.
G. W. Maynard.
L. H. Sullivan.
W. L. Dodge.
D. M. Armstrong.
Turner.
J. A. Weir.
C. C. Coleman.
M. J. Cassatt.
C. Wheeler.
L. J. Millet and others.

The sculptors were:

D. C. French.
E. C. Potter.
L. G. Mead.
P. Martiny.
M. A. Waagen.
K. Butler.
C. Rohl-Smith.
A. P. Proctor.
L. Taft.
E. Yandell.
A. L. Rideout.
J. J. Boyle.
R. W. Bock.
Bock.
Pratt.
T. Baur.
J. A. Blankingship.
H. A. McNeill.
E. Kemeys.
R. Kraus.
J. Gelert.
O. L. Warner.
A. St. Gaudens.
F. McMonnies.

I cannot, in this paper, describe the works or tell you the amounts of material which have gone into construction. This must be done in an official report, which will take many months to prepare.

I can, however, tell you how, during the storms of summer, the frosts of winter, all day, all night, week in and week out, for two years, the little band of American boys ran the race for victory with Father Time, and won it. Without looking for or expecting compensation at all equal to the services they have rendered, without jealousy, with ready willingness, these men have been ever at the front, emulating each other in the amount and quality of the services rendered.

Though I cannot now pick individuals to be praised, I can congratulate all on the glory they have won through constancy and self-sacrifice such as no other country ever gained from her sons in time of peace. They have shown what, to me, is the greatest heroism — that of forbearance and constant helpfulness. I am most proud of having been associated with them.

A Silver Dome for the Denver Capitol. — Seven thousand square inches of the dome of the capitol building are to be covered with silver, two ounces to the square foot. — *N. Y. Press.*

SYENITE QUARRIES AT ASSOUAN.[1]

The only place in the East where syenite, or pink granite, is found in quantity is at Assouan, and from this quarry came the columns of the Greek and Roman temples at Constantinople, Rome and Baalbec. To get the proper idea of the size of this quarry, which has been drawn upon for material by all ages, it is best to ascend to its highest point, and to bear in mind that the sands of the desert have covered its greater portion in later years. Near the top of the quarry is an opening containing a monolith 12 feet square and 100 feet long, detached and raised up, but not removed. In the long after years from the time it was detached, the attempt has been made to break the monolith in two by cutting a groove around it, but the brains and hands of the masters who detached and raised it were not there and the trial of simply breaking it was a failure. The quarrying of one of these monoliths was a work of time. The top of the quarry having been dressed off, the outline of the monolith was laid off. Around this outline a channel about two feet wide was chiselled and broken out to the depth of the monolith. This channel was cut with a gouge or half-round chisel, about half an inch wide. A groove six inches deep was cut on each side of the channel and the granite broken out between the two grooves. The chisel marks left on the side face of the quarry vary, but are about six inches high or deep. Some of the cuts are perfectly uniform, showing the good workman; while others are irregular, showing the apprentice's hand.

After the first cut was started, a second workman started-in behind the first and took another six-inch cut; this process was followed by others until the bottom of the monolith was reached. All around the bottom of the block, square taper openings, three inches apart, about three and one-half inches high by five inches wide, were cut wedge-shaped about six inches inward, after which each hole was wedged and the monolith split off. These taper holes with their sharp square corners are a marvel. Any mechanic trying to cut a square hole through a piece of cold iron with a hammer and chisel will appreciate what it means to make these openings after he has broken some of his chisels. From the fact that the monoliths left in the quarries lie at an angle, it would appear as if they had resorted to tilting and blocking to elevate them. In the limestone quarries they took a cut about twelve inches deep, and much coarser, as the material, being softer, permitted the use of a longer chisel, or gouge; but with this hard, tough syenite, they had to use shorter chisels and take finer cuts. There is nothing in Egypt to prove the use of copper tools in stonework, but they undoubtedly had good steel tools. The conquerors who succeeded the Egyptians, having nothing but fanaticism and insolence for their portion, could not make a pound of iron or steel, and from that day to this have been destroying the works of the old masters, to rob them of the iron used in their construction. The result is that even the tools of the ancient workmen have disappeared.

In Egypt all work is done sitting down. They turn table-legs and all other woodwork on a lathe on the ground. The work is revolved back and forth by a large bow, worked with the right hand, the gouge or chisel cutting only when the work revolves forward. The left hand guides the outer end of the gouge or chisel, while the inner end is held to the steady rest between the first and second toe of the right foot. The first and second toe of an old turner lengthens out beyond the other toes, and the space between them increases. They grow like the thumb and first finger, as they gradually assume their new functions.

THE ILLUSTRATIONS

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

THE CHAMBER OF COMMERCE, BOSTON, MASS. MESSRS. SHEPLEY, RUTAN & COOLIDGE, ARCHITECTS, BOSTON, MASS.

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

COMPETITIVE DESIGN FOR THE MUSEUM OF ARTS AND SCIENCES, BROOKLYN, N. Y. MR. W. B. BIGELOW, ARCHITECT, NEW YORK, N. Y.

COMPETITIVE DESIGN FOR THE MUSEUM OF ARTS AND SCIENCES, BROOKLYN, N. Y. SUBMITTED BY MESSRS. W. B. CHAMBERS AND J. W. CROMWELL, JR., NEW YORK, N. Y.

To this design was awarded one of the three equal prizes ($500.00) in the first competition.

DESIGN FOR CATHOLIC CLUB-HOUSE, ST. LOUIS, MO. MESSRS. BARNETT & HAYNES, ARCHITECTS, ST. LOUIS, MO.

[1] Extracted from remarks made by John M. Hartman before the Franklin Institute, April 19, 1893.

HOUSE FOR JOHN W. PEPPER, ESQ., JENKINTON, PA. MR. WILSON EYRE, JR., ARCHITECT.

[Additional Illustrations in the International Edition.]

TWO OF THE ASTOR MEMORIAL BRONZE DOORS FOR TRINITY CHURCH, NEW YORK, N. Y. MR. J. MASSEY RHIND AND MR. CHARLES H. NIEHAUS, SCULPTORS, NEW YORK, N. Y.

[Two Gelatine Prints.]

EARLY in June were hung and swung for the first time the new bronze doors which are to close the north and south porches of Trinity Church, New York, and remain so long as the fabric endures: parts of the memorial which Mr. William Waldorf Astor has established to the honor of his father, John Jacob Astor second. The other portions of the memorial are the doors for the main porch which, because of his preoccupation on the sculpture of the Administration Building of the World's Fair, Mr. Karl Bitter has not yet been able to complete.

Of the completed doors now hung, cast and finished by the Henry-Bonard Company, the one for the north porch was modelled by Mr. J. Massey Rhind, a Scotchman by birth, one of several brothers who follow the same profession at home, and a sculptor amongst whose other works can be counted a large and elaborate temperance fountain which is nearly ready for erection at Albany. The door for the south porch is the work of Mr. Charles H. Niehaus, a sculptor of German descent but of American birth and largely of American training. The doors are, we understand, solid, not plated, and each valve measures 3′ 3″ x 12′, each of the panels measuring 23″ x 2′ 3″.

All that relates to the architectural adjustment and the alterations in the old porches made necessary by the new work was placed in the hands of Mr. R. M. Hunt.

The plates show only the bronze doors proper, but in each case the treatment includes a sculptured tympanum which, in the case of Mr. Rhind's work, shows the full space occupied by a group of three figures: Our Lord, the Good Shepherd, protecting a few sheep and lambs, supported on either hand by kneeling angels — all included within a trefoiled arch.

Mr. Bitter's tympanum is to include a standing figure of the Saviour supported by three kneeling angels on each side, while in the lintel below the tympanum is placed a row of niched figures of the twelve Apostles. Also, in addition to the panelled doors, his design includes a framing to the panel-work consisting of vertical canopied figures in high relief upon the styles, while the upper and lower rails are kept in harmony by the introduction of reclining figures, while heads in high relief fill-in the corners. In other words the scheme is, as it properly should be, a richer and more elaborate one than that employed for the side porches.

Mr. Niehaus fills his tympanum with the seated figure of an angel between whose outstretched hands runs a ribbon inscribed "King of Kings and Lord of Lords"; the figure is supported by the seals of Trinity Parish and of the Society for the Propagation of the Gospel.

In the north doorway Mr. Rhind confines himself to subjects drawn from Bible history, adopting the selection made by the Rev. Dr. Dix.

These subjects are, beginning at left-hand-top panel and reading downwards:

No. 1. A legend from Mrs. Jameson's "*Sacred and Legendary Art*," called, *Domini quo vadis*, where a vision of our Lord appeared to Peter, as he, Peter, was about to leave Rome, when Nero was persecuting the Christians. The quotation means, "Lord, wherefore do you go?" No. 2. The conversion of the jailer when Paul and Silas were released from prison by the Angel of the Lord (Acts xvi, 26–28). No. 3. The Feast of the Passover, where the father of the family wets the lintel of the door with the heart of the lamb, otherwise the Angel of the Lord would have killed the first born (Exodus xii, 23). No. 4. The blessed and the innocent entering in at the door of Paradise, with Peter standing with the keys and the angel pointing to the Crown of Glory (Revelations xxii, 14). No. 5. Peter healing the lame man on the steps of the Temple, with John beside him and a blind man wishing to be cured (Acts iii, 1–2). No. 6. The man fleeing to the City of Refuge with a guard at the door, and the pursuer in the distance or middle distance stopping when he sees the priest receiving the poor culprit (Deuteronomy xix, 1–6).

Mr. Niehaus, on the other hand, has drawn the subjects of his panels from the history of New York, particularly those which are interwoven with the history of the parish. In this case chronological sequence starts at the bottom and proceeds upwards in pairs. No. 1 shows Hendrik Hudson on the deck of the "*Half-Moon*" as he approaches Manhattan Island in 1609. No. 2 shows Dr. Barclay preaching to the Indians in 1738. No. 3 shows Washington about to enter St. Paul's, the chapel of Trinity Parish, and No. 4 shows a consecration of four bishops in the same chapel. No. 5 shows a procession entering Trinity Church soon after its completion in 1846. No. 6 shows the dedication of the Astor Memorial Reredos, in memory of William B. Astor, in 1877.

HEWELL GRANGE, BROMSGROVE, ENG.: THE ENTRANCE HALL. MESSRS. BODLEY & GARNER, ARCHITECTS.

WE have already given some illustrations of this residence, which is one of the most satisfactory examples of modern English work.

LANCASHIRE AND YORKSHIRE BANK, LIMITED, MANCHESTER, ENG. MESSRS. HEATHCOTE & RAWLE, ARCHITECTS.

THE position of this bank, which faces King Street, Manchester, demanded an imposing building, and the architects have carried out their commission so successfully as to make it necessary to rebuild a great many buildings in the neighborhood.

ST. KEVERNE CHURCH, CORNWALL, ENG. MR. EDMUND SEDDING, ARCHITECT, PLYMOUTH, ENG.

THIS is one of the largest, and certainly one of the most interesting of Cornish churches. St. Keverne, or St. Kieran, is supposed to be the same as St. Perran, one of the most celebrated of Cornish saints. This is the largest church of the four dedicated to him, and was originally connected with the monastery at Beaulieu, and there is ample evidence of the old style both in the work now standing and in the fragments that have been discovered in opening-out the rood-loft stairways and passages between the arcades. These fragments are of a very ornate character, and still retain their coloring. Some belong to an altar, some to a stone reredos. Only one fragment of a figure has been found. This is of carved stone, and exquisitely executed. The arcades are certainly unique in Cornish architecture, and it is easy to see what has been re-used from former work, while the missing parts were substituted by rude copies of former work. This rebuilding took place in the fifteenth century, when the church was much enlarged. There is part of a Norman window still extant, while all the piers on the north side are of thirteenth-century date, the south piers are of fourteenth-century date. The beautiful tower and spire were erected late in the fifteenth century. It is curious to find two sets of rood-loft stairs, the westernmost being about 1440, the other one being 100 years later. The work of restoration is in progress. The cost will be about 3,000*l*.

ST. SAVIOUR'S, DARTMOUTH, ENG. MR. EDMUND SEDDING, ARCHITECT, PLYMOUTH, ENG.

THE chancel of this church was restored by the late John D. Sedding a few years ago. It is now proposed to restore the nave. The church is brimful of interest, and is celebrated for its lovely chancel screen, which is beautifully colored; the pulpit is also well-known — an example of colored stonework, richly carved, of late fifteenth-century date. Dartmouth was besieged at the time of the Civil War, and the church suffered considerably.

Note: — Owing to custom-house delays, the issuance of the preceding four illustrations properly belonging to this number must be postponed to next week.

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.*]

A QUESTION OF COMMISSION.

BOSTON, MASS., July 31, 1893.

TO THE EDITORS OF THE AMERICAN ARCHITECT: —

Dear Sirs, — A matter of interest regarding professional fees has arisen with me on which I should like to ask your opinion.

Under peculiar circumstances and conditions, which I suppose need not be entered into here, I made a contract to furnish plans and specifications with details for a large building costing approximately $250,000.00 for the very moderate sum of $2,000.00. In the course of the work I found, as frequently happens, the owner desired to make modifications — much had to be redrawn, etc., for which I was obliged to ask an addition of $500, which was granted. The work was completed and the contract virtually ended with the delivery of my plans, etc. After the building was far progressed the owner desired to make a radical change in an important feature of the building — calling for considerable study — a number of experimental drawings made and set aside and finally the working-drawings, details, etc., of an elaborate tower.

The extra cost of this tower over and above what was at first designed, I have been told, was not far from $20,000 and the omitted work for which it was substituted would perhaps be $10,000 which of course added would bring the newly-designed part of the building between $25,000 and $30,000, actual value.

For designing this, I wrote the owner I thought I ought to receive the ordinary compensation of three and one-half per cent. He replies to me citing the original contract with its supplementary concession which I have mentioned (this had barely afforded moderate draughtsman's compensation), and he mentions a figure that he

is willing to pay which he thinks the service is worth — a figure that seems to be even less pro-rata than the original contract.

It is not the purpose of this letter to ask you to judge between us whether that figure, or more, or less, is a fair compensation. What puzzles me is the question: In strictest equity am I right to charge in this case as in the uniform custom of my office from which I rarely ever vary — three and one-half per cent — the standard American Institute rate? Had I been paid the ordinary rate for the entire work my compensation would have been over eight thousand dollars and there would not have been the slightest question about this final bill.

The contracts as they were, which gave me only $2,500, contained no provisions to prejudice or fix the compensation of any supplementary work.

Now, ought I in *full fairness* to consider it binding upon me to admit its pro-rata of percentage a precedent to fix my compensation for the new tower? Very truly yours, X.

[We are sorry not to be able to give X much comfort, but it seems to us that the value which he put on his services at the outset is that which his client has a right to regard as governing any extension of the transaction between them. If X, when he was asked to make drawings for the tower, had frankly told his client that the remuneration he had agreed to accept was inadequate, and that he must charge the regular three and one-half per cent rate for the additional work, his client would have been free to abandon the tower, or have some one else design it, and if he chose to keep on with X, after such an explanation, he could not, later, refuse to pay the three and one-half per cent; but we do not see how, without such notice, he could fairly be held to a change in the rate of compensation which had been agreed upon. — Eds. American Architect.]

NOTES & CLIPPINGS

A Novel Method of Electric Heating. — In the methods of electric heating now commercially practised — as, for instance, the Cowles electric furnace, the fusion electrolytic aluminium process, and Benados arc welding-process, and the Thomson low-tension welding-process — the object aimed at is the production of a point or plane or zone of high resistance, in a conductor otherwise of good conductivity. In some cases this is done by breaking the metallic circuit, and bridging the gap by an arc; while in others, as in the Thomson method, the imperfect contact of two pieces of metal, to be welded together, causes the resistance which produces the sudden drop of potential necessary for the immediate and local development of heat. A new method of effecting the same object has recently been introduced by Messrs. Eugène Auguste Clement Lagrange and Carl Hubert Auguste Hoho, of Brussels. These inventors attain their end by the very unlikely means of dipping the metal to be heated into liquid, such as water, and making it part of the electric circuit. If a piece of iron connected to one pole of a generator be dipped into acidulated water contained in a metal tank, which is itself connected to the other pole of the generator, an electrolytic action is set up. Oxygen and hydrogen are liberated, and deposited on the two electrodes. If matters are so arranged that the hydrogen goes to the iron, it quickly interposes a badly conducting medium between the metal and the water. If the electromotive force be high, sufficient current can be forced through this envelope of hydrogen to raise it and the skin of the metal to a very high temperature. The oxygen goes to the containing vessel, and being spread over a very much larger surface, does not cause any appreciable increase in heat. It is stated that a wrought-iron bar may be brought to a welding heat by this method, and that fragments of amorphous carbon can be detached from a carbon rod, showing that a temperature of 4,000 degrees C. has been attained. During recent experiments at Berlin a current of 220 ampères at a pressure of 120 volts was employed, and brilliant results obtained. It is evident that every atom of oxide will be cleared off by the action of the hydrogen, and a perfectly clean surface produced. The process presents possibilities yet to be investigated in the reduction of ores. A carbon crucible can be raised to a white heat in a bath, or the ores themselves made to glow in an atmosphere of hydrogen. At Essen, experiments are being made in the hardening of armor-plates, as an intense surface heat can be produced and quenched without the general body of the metal being affected. One great advantage is that fairly high electromotive forces can be employed, and hence the conductors, clamps and other apparatus can be of moderate section. — *Engineering.*

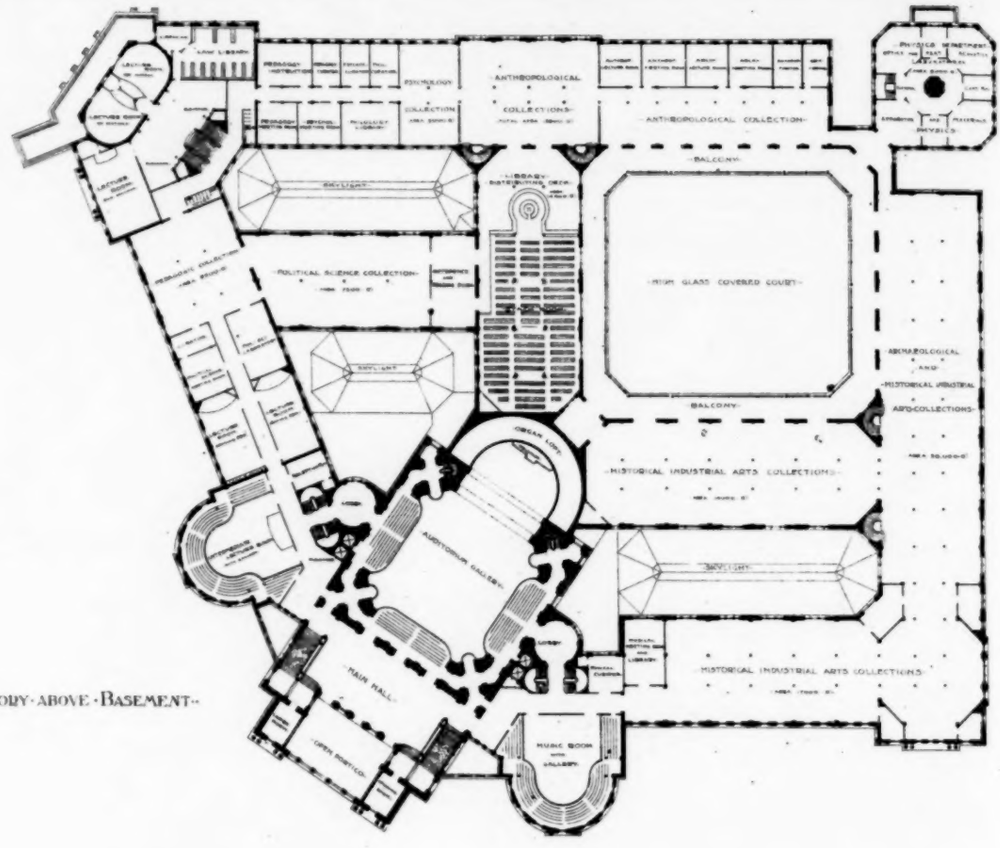
Cleaning and Transferring Frescoes. — In the opinion of Cornelius frescoes are best cleaned with bread. The mouldy appearance which sometimes shows itself can be removed with a wet sponge, unless it arises from saltpetre in the walls, in which case there is no remedy. These injuries must be provided against in the construction of the walls: the vertical progress of damp may be intercepted by covering one of the lower courses of bricks or stones with sheet lead, which must be protected on each side by a coat of pitch; the walls may be then continued as usual. Frescoes may be safely washed with a soft sponge and water, vinegar and wine may be used with safety, even frescoes that have been whitewashed over can be washed clean. The frescoes by Raphael, in the Stanze of the Vatican, of nearly two centuries of dirt, were washed with wine by Carlo Maratta. As many valuable frescoes, if left in their original localities, must have inevitably perished through the bad construction of the walls, unfit situations, or from other causes, the invention of some mode of removing them from their objectionable situations became an object of great interest, and several very ingenious methods of transferring frescoes from walls have been devised, and often practised with success. Mr. Ludwig Gruner removed and transferred to canvas in 1829, at Brescia, some frescoes by Lattanzio Gambara in the convent of St. Eufemia in the following manner: The first process was to clean the wall perfectly; then to pass a strong glue over the surface, and by this means to fasten a sheet of fine calico upon it. The calico, being made fast by the glue to the irregularities of the wall, was itself covered with glue, and some strong linen glued over it. "In this state heat was applied, which caused the glue, even on the fresco, to sweat through the cloths, and to incorporate the whole. After this a third layer of strong cloth was applied on a new coat of glue. The whole remained in this state two or three days (the time required may vary according to the heat of the weather). The superfluous cloth extending beyond the painting was now cut off so as to leave a sharp edge; the operation of stripping or rolling off the cloths began at the corners above and below, till at last the mere weight of the cloth and what adhered to it assisted to detach the whole, and the wall behind appeared white, while every particle of color remained attached to the cloth. To transfer the painting again to cloth a stronger glue is used, which resists moisture, it being necessary to detach the cloths first used by tepid water after the back of the painting is fastened to its new bed." Some frescoes by Paul Veronese in the Morosini Villa, near Castel Franco, were transferred by Count Balbi, of Venice. Cloth was fastened to the wall by means of paste made of beer and flour, and riveted to the irregularities of the surface by means of a hammer composed of bristles. — *The Architect.*

Trees in Paris. — Paris has 87,655 trees in its streets, and each tree represents a cost to the city of £7. This makes, in round numbers, £600,000 worth of trees in the streets. — *Scientific American.*

TRADE SURVEYS

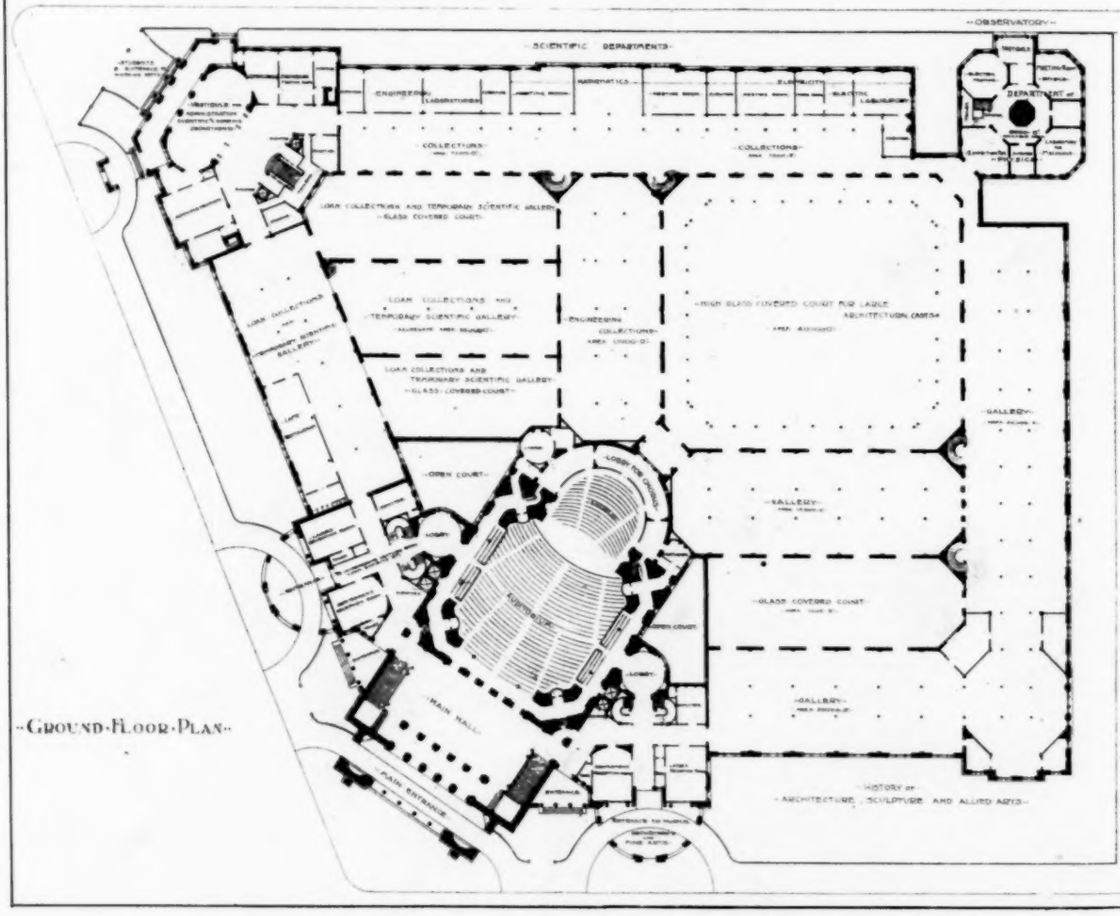
The volume of clearing-house exchanges so far this year is thirteen per cent less than for same time last year. General restriction, universal liquidation, are in progress. Fright has taken the place of apprehension in some quarters over increasing stringency. Currency is being hidden and bank funds are narrowing down. Financial reviews are contradictory and unsatisfactory. The attention of the people is directed to Congress for relief, but there is no present assurance of early action, despite the clamors of business and banking interests. Necessity will decide what shall be done, and not any mere arbitrary act. This necessity that is to determine our course through the financial tangle does not at present exist. It will be developed in the near future. It will be in the nature of a surprise to all. The requirements and the capacities of civilization are greater than the average business man or legislator conceives. They are trying to deal with the problems of to-day and to-morrow as they did ten or twenty years ago, forgetting that growth brings necessities and requirements foreign to those suited to infancy. Herein is the fundamental error of all argument and proposed treatment. The error will never be voluntarily corrected. Nothing but the irresistible pressure of stern necessity will bring about the results for which the whole nation expectantly awaits. The small volume of business done expresses the deep-seated fear prevailing. Conditions are better than would be supposed from surface indications. A reaction will necessarily set in to compensate for the repression of forces in all directions. That reaction can come only after the common sense of the great body of the people has been satisfied. The present depression came suddenly, and it will go as suddenly, but not until the evil which began to gather like a tumor thirty years ago is destroyed — that evil which makes producing and exchanging interests so much dependent upon mere instruments of exchange. The business world has taken warning, and is doing very little — only enough to keep the machinery of production ready to start full time at an hour's notice. Enterprise has retired. Speculation is on the alert to take advantage of the necessities of unfortunates. Disemployment is spreading. Wages reductions, although not sweeping, are quite frequent. Cost of raw material is low, and, in some instances, declining. Building operations have been suddenly curtailed. Mills and factories are running only to fill orders. Contracts for material for future use are not made. Current requirements only are being filled. Banks scrutinize paper. Extensions are grudgingly granted. On the other hand, there are some bright spots. Mortgage-indebtedness is lighter. Railroad rates are reasonable. Crops are encouraging, but prices are desperately low. In the industries proper, prices are for the most part stationary. Iron, steel, leather, hides, boots and shoes, clothing, wool, cotton and clothing of all descriptions seem to have reached a limit in the descending scale. The only present alternative is closing down. Print-cloths touched 2 3-4. Textile goods generally are firm, because there is no room for weakness. The smaller shops suffer less than the larger, especially in New England. In the Western States, where industries are less diversified, more distress prevails. But, it must be kept in mind, the managers of the country's interests know all this blackness will disappear. Last year was the best freight year the railroads ever had, the amount hauled being 4,392 tons per mile. The average haul per ton was 112 miles. The total revenues of our railroad system were $473,000,000, of which $239,000,000 was paid as interest and $83,000,000 as dividends. Germany and Russia are having a tariff war, each adding duties of imports. A scheme is under consideration to make Galveston a gateway to Europe for prairie products. There is renewed activity in several oil fields. Improving conditions are reported in Australasia. Mexico is taking radical and practical steps to increase the investment of capital in that country. Franchises and concessions are to be granted for five years, which will free property from taxes and permit free entry of goods and machinery to be used. The condition, however, is that the minimum of capital invested will be $250,000. Irrigation schemes are attracting capital in Mexico. The telephone is superseding the telegraph between London and Paris, and its use will soon be extended to other European capitals. The schemes to establish telephone lines between large cities in this country progress slowly just now, because of the uncertain commercial value of such lines. Truck-farming in the South is offsetting dulness in iron and coal, and creating a good volume of traffic for the railroads. Exporters anticipate increased wheat and flour exports to England because of the severe depression in England, reaching forty per cent deficit over last year. Serious labor disturbances continue in the mining regions of England.

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



FIRST STORY ABOVE BASEMENT

PROPOSED MUSE



GROUND FLOOR PLAN

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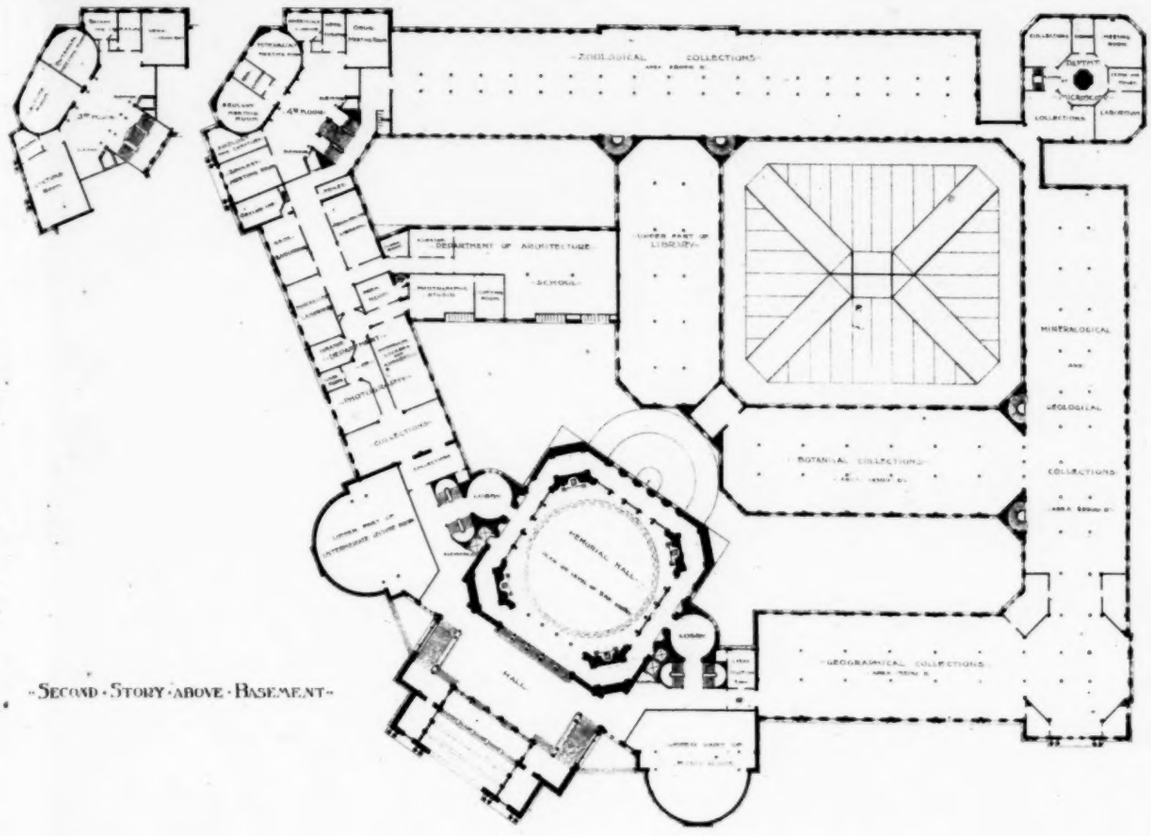
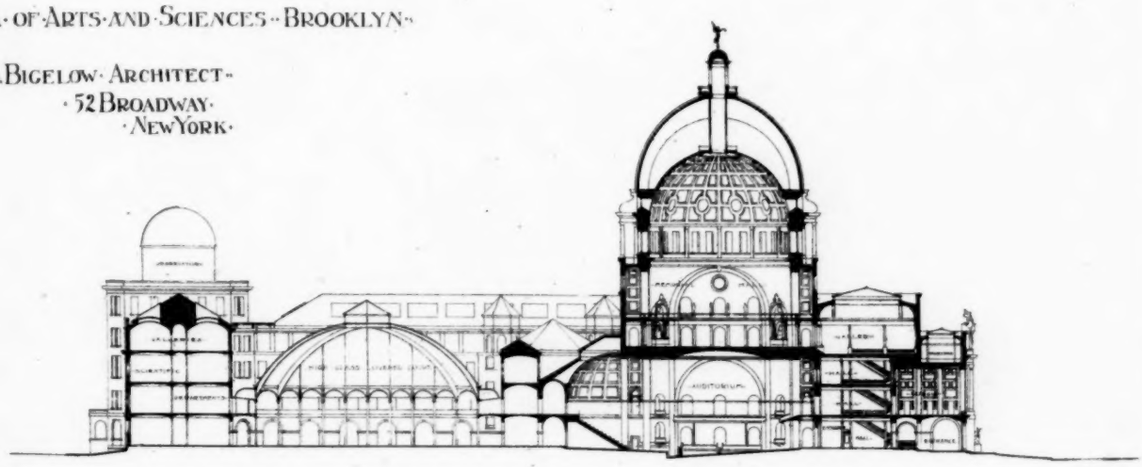


SECOND STORY ABOVE BASEMENT

OSED MUSEUM OF ARTS AND SCIENCES BROOKLYN

WM B. BIGELOW ARCHITECT
52 BROADWAY
NEW YORK



HELIOTYPE PRINTING CO. BOSTON

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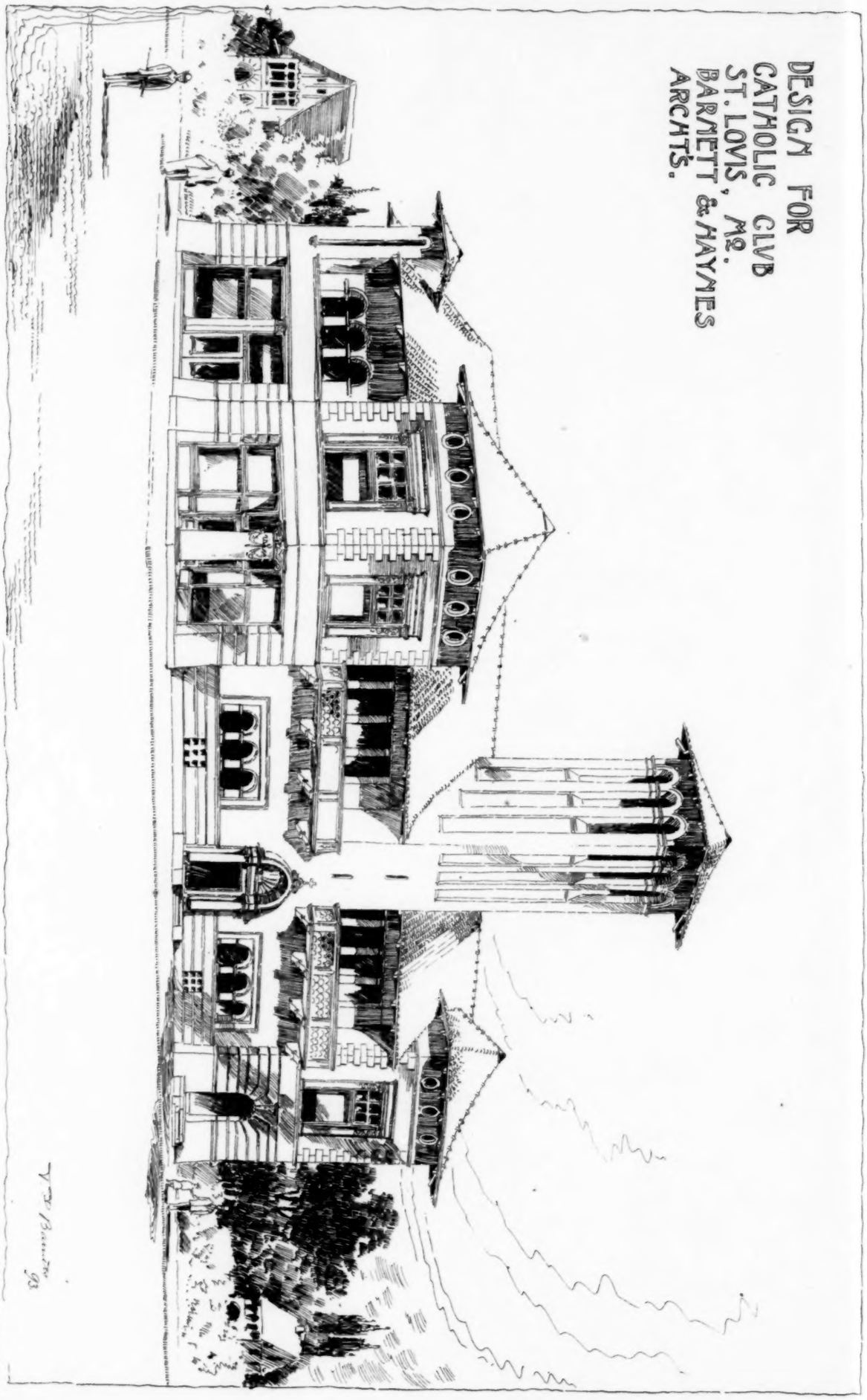
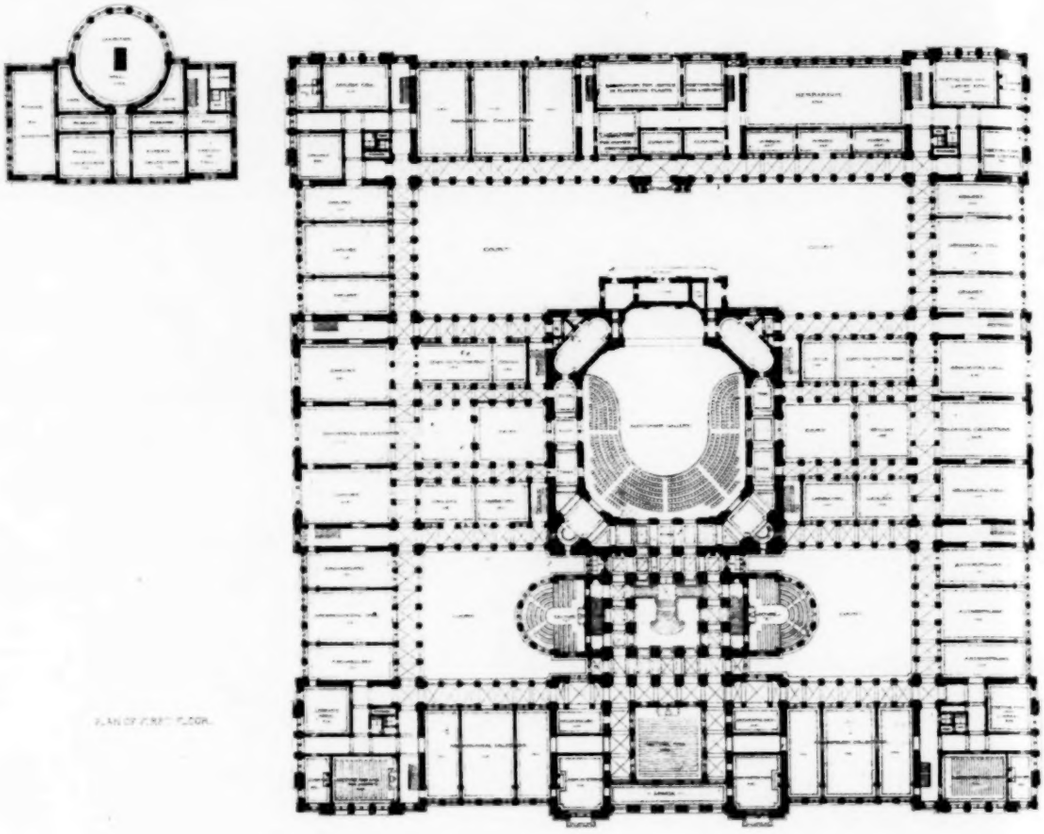
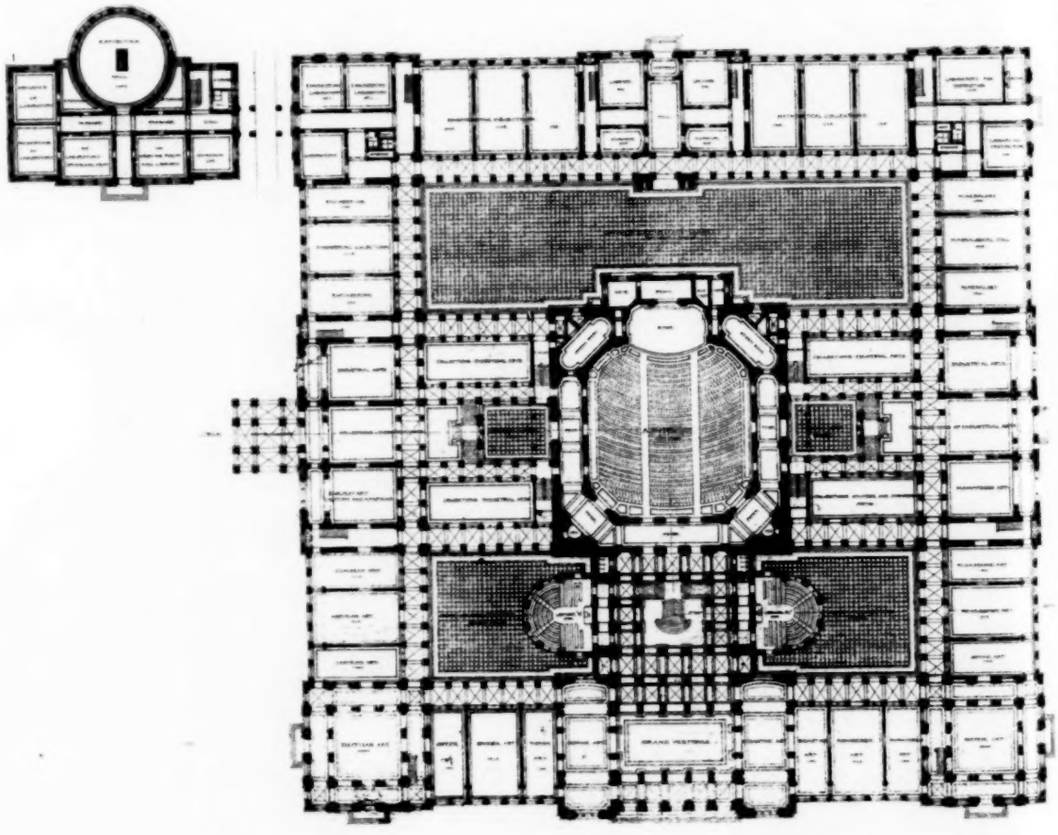
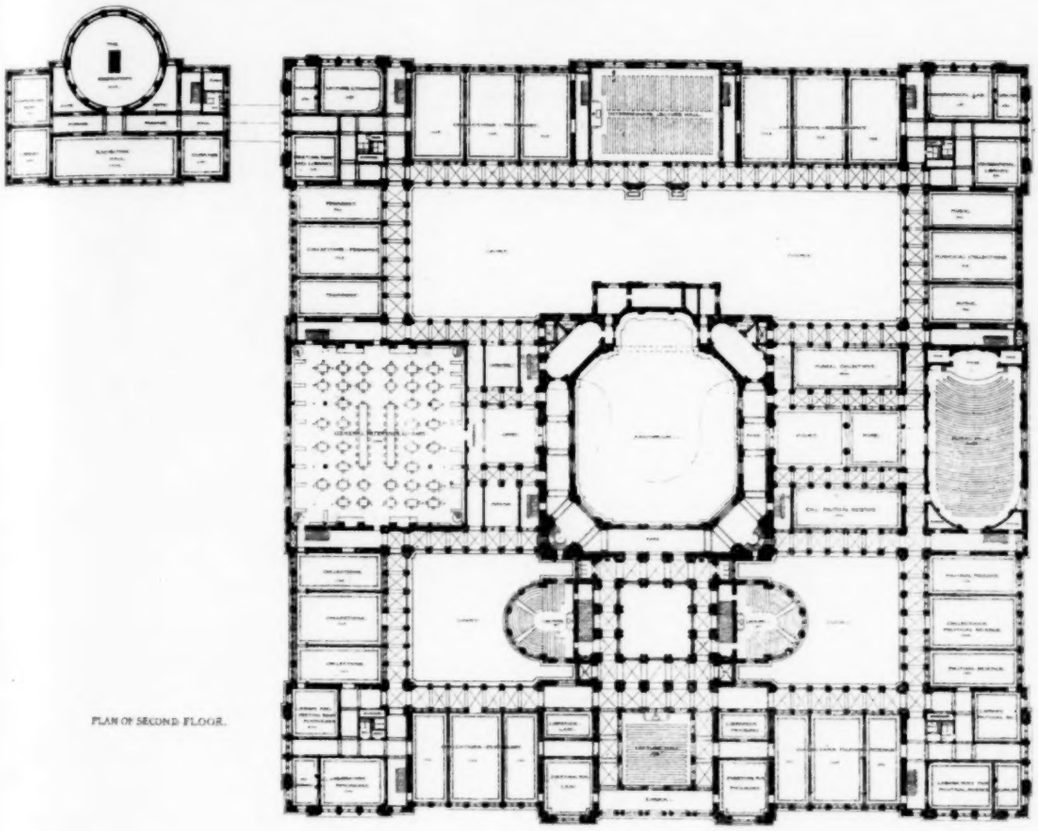
DESIGN FOR
CATHOLIC CLUB
ST. LOUIS, MO.
BARNETT & HAYNES
ARCHTS.



BOSTON LITHOGRAPHING CO. BOSTON.

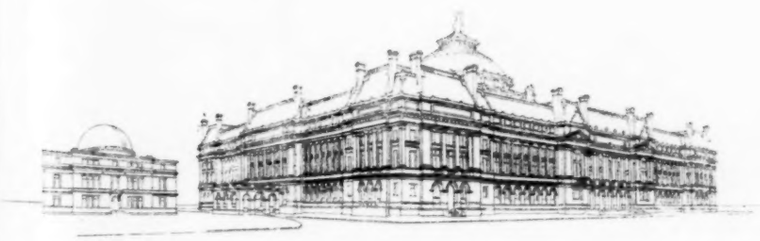


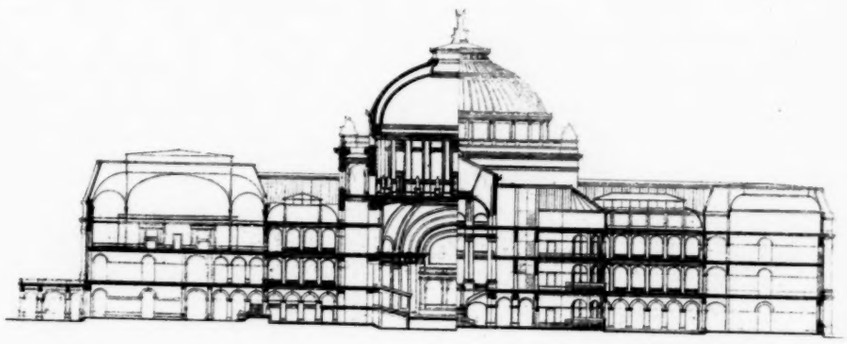




PLAN OF SECOND FLOOR.

PROPOSED MUSEUM OF ARTS AND SCIENCES BROOKLYN





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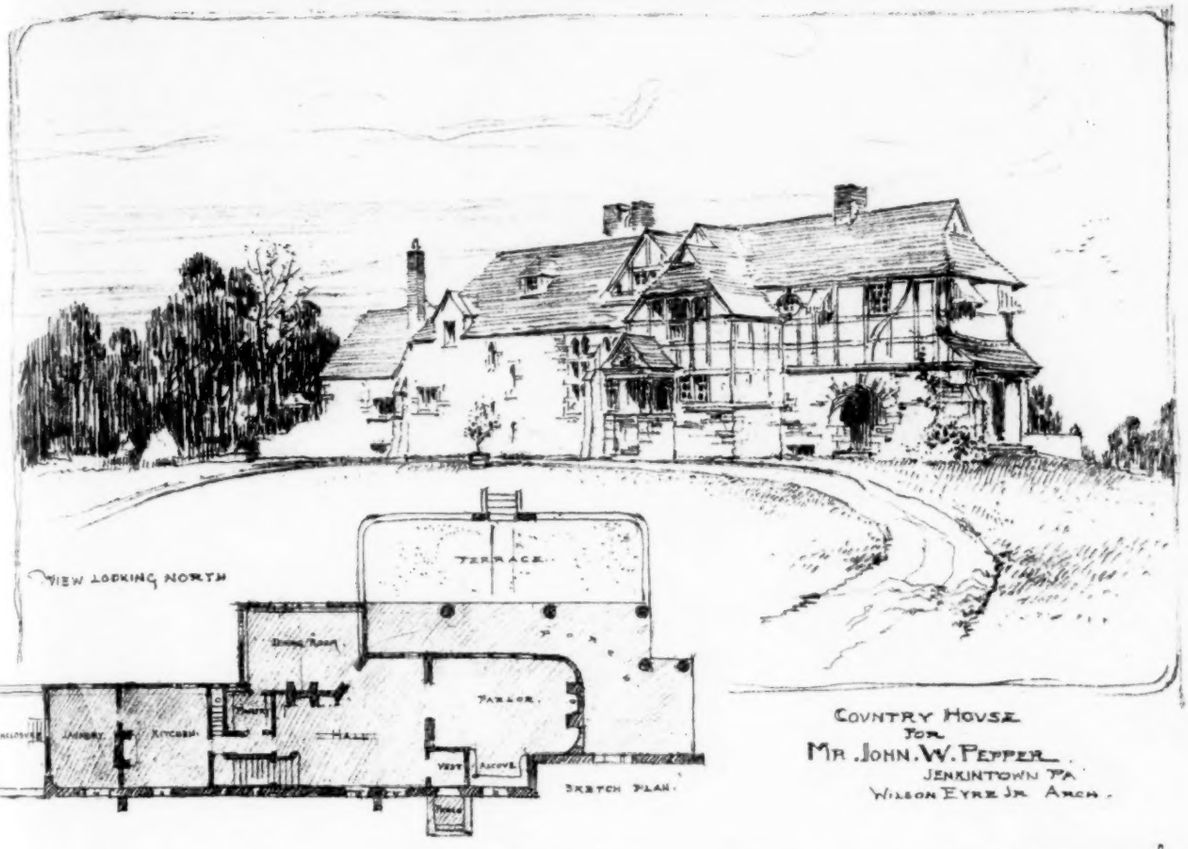

COUNTRY HOUSE
FOR
MR. JOHN W. PEPPER.
JENKINTOWN PA.
WILSON EYRE JR. ARCH.

(VIEW LOOKING SOUTH)
COUNTRY HOUSE, JENKINTOWN.

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