THE INLAND ARCHITECT AND NEWS RECORD

Vol. XXXVI. SEPTEMBER, 1900. No. 2

A Monthly Journal Devoted to

ARCHITECTURE,

CONSTRUCTION, DECORATION AND FURNISHING

IN THE WEST.

PUBLISHED BY THE INLAND PUBLISHING CO.,
609-610 MANHATTAN BUILDING, CHICAGO, ILL.

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TERMS: Regular number, $5 a year; Photogravure edition, $10 a year. Single copies, Regular number, 50c.; Photogravure edition (including 7 photogravures), $1. Advance payment required.

The columns and illustration pages of THE INLAND ARCHITECT are open to all alike, merit and availability only determining what shall be published. Contributions appropriate to its pages are always desired.

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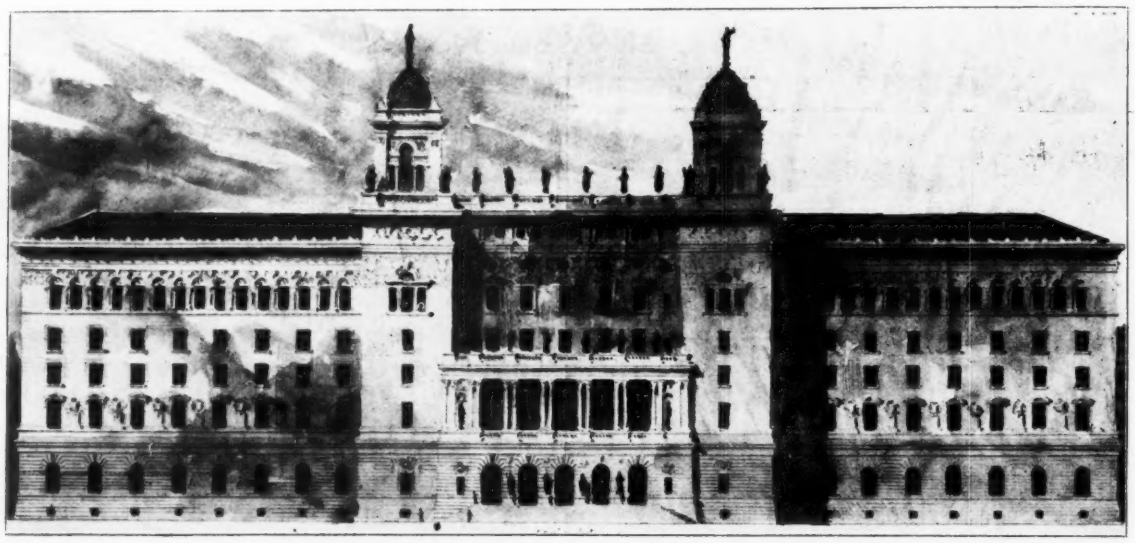
A States' Building at Washington.

The suggestion for a States' building, embodied in an article elsewhere, from the pen of Mr. F. W. Fitzpatrick, while of particular interest to architects, should commend itself to the careful consideration of every person interested in the proper management of public affairs, especially of municipal improvement. The article referred to gives but a very brief outline of what such a building would be in detail, the genesis of the idea, the method of exploitation and some of the essential fundamental features only being touched upon; yet the main thought, the public necessity of such a building, is clearly set forth. Mr. Fitzpatrick has been a prominent figure in architectural circles for years, is well and favorably known to architects everywhere. His position at Washington has not only given him ample opportunities for a practical study of the public buildings in that city, but has brought him in contact with the leading public men of the day and thus the necessity for such a building has been clearly brought to his attention. His suggestions, therefore, are from the viewpoint of practical observation and knowledge. That there is a demand for more room available for the use of Senators and Representatives is unquestioned. An enlargement of the Capitol has been suggested, but the plan has many objections to those who have given much thought to the matter. The project of erecting an entirely new building of such proportions as to accommodate the demands of the business incidental to the management of State affairs, not strictly within the legislative function, is an idea that is forcing itself upon public attention from the necessities of the case. The time must come, if it is not already here, when the question must be met and disposed of in the best practical manner and in keeping with American ideas of progress.

The Architect in Municipal Affairs.

The signs of the times indicate in no uncertain way that the general public is becoming possessed of a growing appreciation of the important relation the architect sustains to the welfare of society, both from the viewpoint of artistic merit and that of practical utility. While the special training of the architect has eminently fitted him for the position of counselor or adviser on general municipal matters, the public has not always been quick to accept the fact, and the present tendency to concede a larger measure of appreciation is due in no small degree to the fact that architects, individually and collectively, have manifested a proper interest and many times taken the initiative in subjects where municipal improvements and public art matters were the central idea. Occasions have thus been made where a practical demonstration of the architect's proper sphere has been brought into public prominence, and an increasing appreciation of his value has thus come to be more generally recognized. The continued growth of this feeling should be encouraged. Architects certainly will foster the idea in every way in their power, even at the sacrifice of much time and patience; for they recognize the fact that as like begets like, their interest in public matters will be reciprocated on the part of the public by an honest appreciation of their value as public benefactors. The condition is certainly indicative of progress.



FAÇADE ON NEW AVENUE.

A STATES' BUILDING FOR WASHINGTON.

BY F. W. FITZPATRICK, ARCHITECT.

THEY tell us that we number somewhere between seventy-five million and seventy-six million. Many hundreds of thousands of these millions visit this city during a year's time. They are here as strangers in a strange land, unless, of course, they can get hold of the poor, overworked Congressman from their district. In few other places is the sovereign citizen, the voter, made to so thoroughly appreciate the fact that he is the servant and the other fellows the masters. In fact, that sovereign citizen, whatever he may have thought before coming here, quickly finds out after visiting the Capitol and one or two of the departments that one seventy-five millionth of a whole is a blessed small quantity.

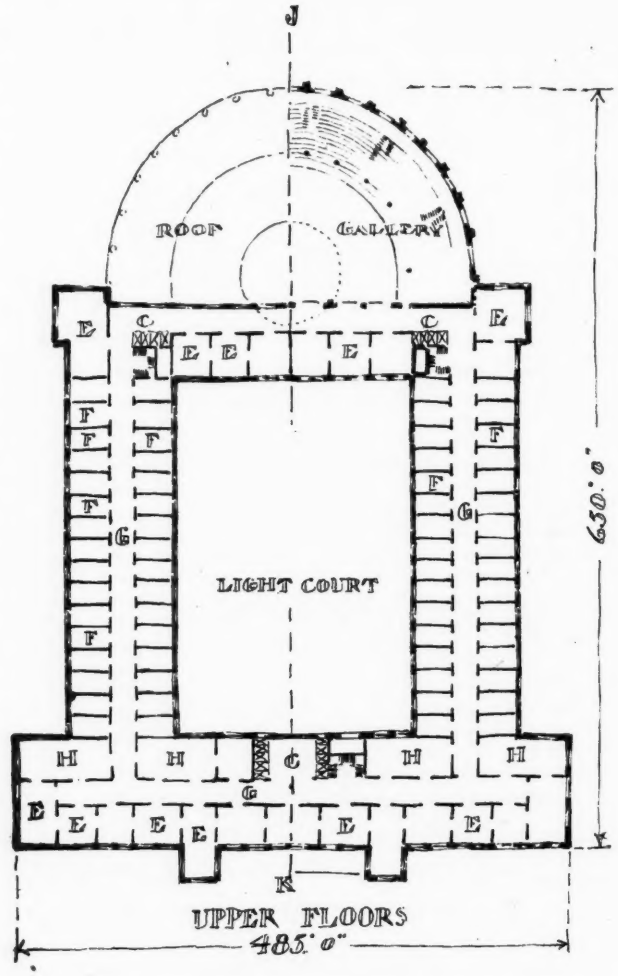
Then, too, one can find out here all he wants to know about the United States as units, but he will be somewhat aged when he has secured the information.

Other countries maintain Ambassadors and Ministers here to look after their several interests, and they give those officers quarters to transact their business in, and residences where they may make the other fellow green with envy by the excellence or extravagance of their entertainments. Now, while you may say that the Senators and Representatives in Congress represent their several States, you must realize that they are legislators and have other business on hand than showing their constituents about the city, telling them where to secure the cheapest board or finding out whether such or such a thing has been patented or not, and the thousand and one other things fired at most of our august statesmen; why, some people think they are errand boys.

These and many other reasons have led up to the notion that there should be a States' Building erected here, and soon after Congress assembles there will be presented a bill looking to the donation by the United States of the land required for such a structure, and then an active propaganda, or whatever you choose to call it, will be begun to get the different States to subscribe the necessary funds for that building, its maintenance and that of the necessary staff to carry out the purposes for which it is planned.

Briefly described, those purposes are set forth hereafter. But to assist in elucidating them I have prepared the accompanying sketches. Not to suggest that the building be so and so, particularly, for such a structure should be perfect and should only be awarded as a result of a perfectly managed competition — as if such a thing were possible! — open to all the architects of the country; but merely, as I said, to *elucidate* and as a basis, something to show, to arouse some interest among State legislators during that propaganda affair I have just mentioned.

To begin with, Congress should donate to the States the land for such a building; it would be a becoming mark of material esteem on the part of the United States. If Mr. Cobb's proposed Centennial avenue from the Capitol to the bridge (a scheme that I fully described in THE INLAND ARCHITECT of last March) is carried out, I would suggest that that patch of land now occupied by the old Central Market, almost opposite the projected Grand Union Railway Station, and entirely owned by the Government, be so donated. (On the map of that district shown in the March number, the City Hall is shown there. I would place this more important building in that block and the City Hall on one



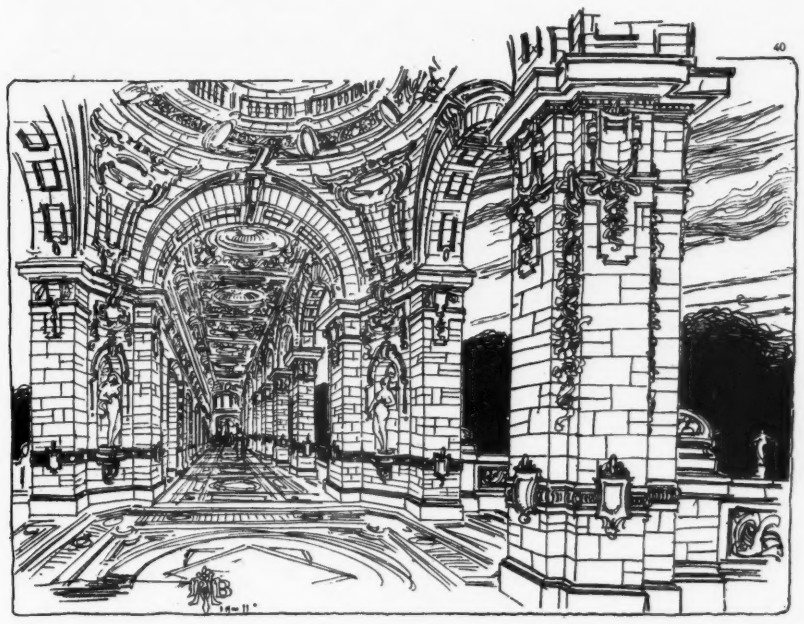
of the others.) It is a block nearly 900 feet on its long axis, north and south, by about 500 feet wide.

If this is not available, then let the Federal Government donate some other patch equally well situated and sightly. It has plenty.

Assuming that that market-place will be so donated and that I was asked to offer a rough suggestion for a building to put upon

it, I would front the business end of that structure upon the new avenue, the auditorium end upon Pennsylvania avenue, and side entrances at Seventh and Ninth streets.

Being fellow-craftsmen, you have but to glance at my plan and then go off and devise a far better one. Of course, I am keeping a far better scheme up *my* sleeve in case some one should make a mistake and ask me to compete!



But I am digressing. Let us get back to the *elucidation*. *A A* (on the plan, see illustration pages) are entrances, *C C* halls and elevators. The first floor I would open onto a grand central hall or court some 200 by 350 feet square; the second floor being a balcony around this court, would be cut up into smaller rooms *B B* than those *B B* of the first story, and all of them would be States' headquarters. These would be State postoffices, where any one might have his mail directed to while visiting here. There would be bureaus of information concerning railway time-tables, boarding-places, etc., and every man visiting here could feel he had a place to go to his very own in his State's headquarters, to meet his fellow-citizens, to read his home papers and feel at home in.

These headquarters would also have a business purpose. There would be gathered all the information on every point about each State, and it would soon grow into a vast clearing-house for States' affairs not connected with Federal matters, and would go far to forming a closer bond than now exists between States. In these rooms, and in allotted spaces in the great hall, during times it is not needed for other purposes, there could be limited exhibits of State manufactures, etc., and from these could emanate immigration literature and all sorts of other things for the greater glory of the State.

In fact there should be kept there a competent corps of assistants, under the direction of each State's delegation, whose business it would be to make it pleasant for the people of that State visiting here, to gather and exchange information with other States and to do anything and everything in the interest of that State that an Ambassador or Minister is expected to do here for the country he is accredited from.

The upper floors I would divide up into parlors, reading-rooms, smoking-rooms, etc., *H H*, committee rooms *E E*, and offices *F F*, for every Senator and Congressman in Washington.

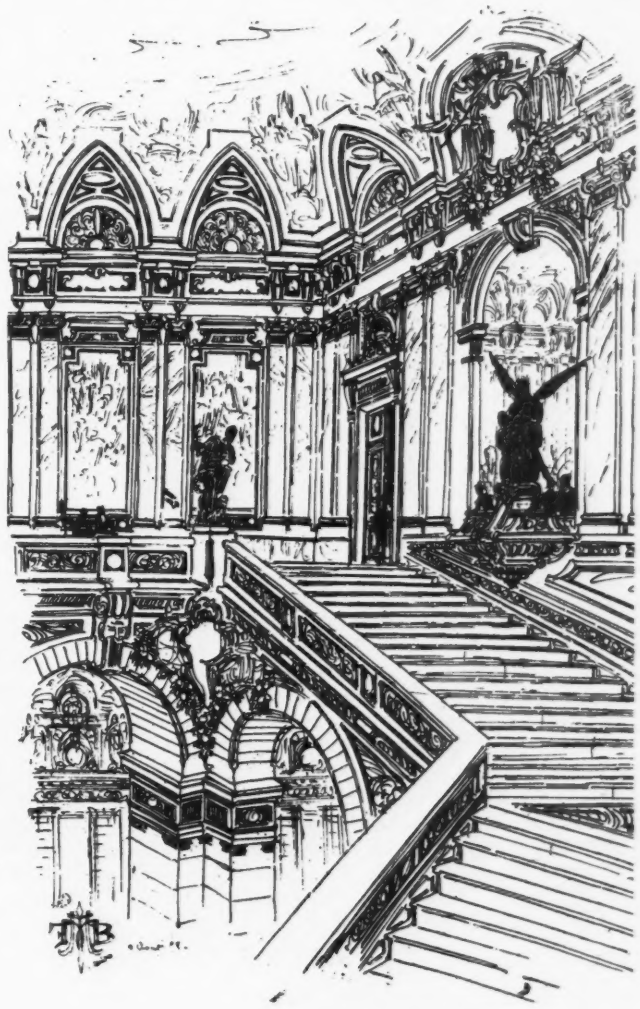
These men are here on public business, it can not all be transacted at the Capitol, so out of their meager pay they, most of them, have to rent offices to attend to the other than legislative work imposed upon them by their State and constituents.

Of course the chairmen of committees in Congress use those rooms for other as well as legislative business, and pretty nearly every Senator is a chairman of some committee or other. But there, again, Congress is contemplating building additions to the Capitol, to hitch on some eighty more rooms. Now, if this building is built, those committee rooms may better be in it and such space so used now at the Capitol could be turned into clerical and legislative room. That would do away with the necessity of adding to the Capitol or of renting additional buildings in its neighborhood, an added consideration for the Government's donation of the site.

Office room for its representatives is surely not too much to ask a State to do for men who are so perfectly willing to devote all their lives to their State's service. I was just wondering if those very men would not be perfectly willing to subscribe, or have their backers subscribe, a sufficient sum to erect this building if you would insure them against the ever-present possibility of not so devoting *all* their lives to that service; but that is neither here nor there. It would be a decided advantage to have them all under one roof and *accessible*, with no back ways to escape from nor pliant elevator boys to fib for them to their beloved constituents.

On a line with the first floor I would have the auditorium shown at the rear of the building. This with its two galleries would hold very large assemblages, conventions, States' meetings, national associations and what not. If judged advisable a handsome revenue could be derived from this auditorium, for Washington is a city of conventions and there is nothing here now adequate or suitable for that purpose. *N N* would be dressing-rooms, convention committee rooms, etc. Then at times the screens *D D* could be raised and that auditorium and grand hall thrown in together into one vast assembly-room capable of seating twenty or twenty-five thousand people. What a place for national conventions and for inaugural balls! Today when a President is inaugurated practically the entire business of the Pension Office has to be suspended for a couple of weeks while that building is being fixed and unfixed for that event — another consideration for the Government's donation of land.

This may be termed a summary, a sort of synopsis of the scheme and purposes of a States' building in Washington, an



embassy from every State at the national capital, that has recently been thought of and is to be very thoroughly exploited, with a strong probability, also, of its being consummated.

In the limits of this little space it would be impossible to tell you all the advantages, all the purposes of such a scheme. I have attempted to simply pave the way, giving you a few introductory remarks anent that scheme. You will see more about it in the daily press by and by and hear it discussed very generally. I wanted to give you a chance to be prepared for it architecturally, to show you what a splendid opportunity some one will have to "spread himself."

There are a thousand details you can be but remotely interested in now that will have to be thought out and settled before much is done; the manner of assessing the States — $250,000 per State would build a grand structure — the Board of Control composed of the Governors of the States, the Executive Committee and what not; but of all this more anon. For the present just think over a scheme of façades five hundred and eight hundred feet long and — twelve millions of large American dollars to spend!

BUILDING CONSTRUCTION.*

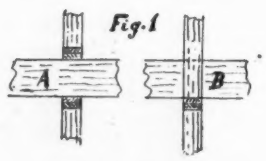
BY FREDERICK BAUMANN, ARCHITECT.

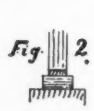
CARPENTRY.

BUILDING construction involves the application of means to an end. This is theory. In practice it has ever remained more or less stagnant till the arrival of the age of the steam engine and of modern steel industry. The therewith introduced rapid progress took building construction, and with it carpentry, in its train, and gave it a new stamp. At this day it is most essential to strictly observe the end and apply means accordingly. Criticised custom has been overcome.

BEARING PARTITIONS.

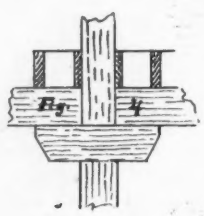
It appears to be self-evident that partitions within a building, which carry or support its floors, should be as firm as the inclosing walls. Our building law, accordingly, ordains that ends of floor joists within a building shall rest upon iron beams supported by iron columns. This wholesome rule, however, does not cover

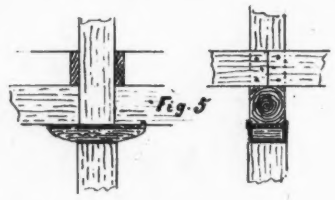




cases in which the floor joists extend from wall to wall, and are stiffened merely by means of stud-partitions. This is found to be the case in regard to single residences. Fig. 1, A, shows the absurd old, though still manifoldly employed (1)†, B, the improved modern way of doing it, by which this partition is placed *independent of the shrinkage of the joists.* "Settlement" is then possible only to a very limited extent, owing to a shrinkage of the plates merely. And this can still be reduced by making the plates of seasoned hardwood, double 1¼ inches thick, instead of double 2 inches. Hardwood being preferable also on account of its greater resistance to compression which takes place where a stud rests on longitudinal timber.

No such remedy can be had in cases where bearings are arbitrarily changed from story to story. Drying the timbers will have

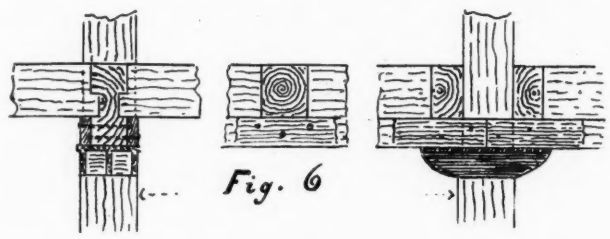




but an uncertain effect because they will absorb moisture and swell. Ordinary partitions crossing the bearing partitions should start upon an oak scantling bedded on a foundation, as shown on Fig. 2, and pass through between joists, which may be spiked to the studding. A proper deadening will intercept the otherwise open space. In case it is required to start such partition upon a floor, the joist bearing it should be doubled, having sufficient iron plate between as shown in Fig. 3. It should be kept in mind that the weight of a partition plastered on both faces is more than what a single 2 by 12 inch — more than 12 feet long — can carry without bending enough to crack the plastering. Cellar walls bearing floor joists should receive a hardwood coping for the purpose of placing thereon the studding. The old fashion of using timbers where such walls are to be avoided should be abandoned, iron beams to take their place; they do not shrink.

WAREHOUSE CONSTRUCTION.

The mode of constructing floors for a warehouse in fashion shown by Fig. 4 should be at once abandoned. Where also the girders, as formerly done, run through with posts on their top, the construction is doubly bad. It is pernicious for two reasons: *the timbers shrink;* they are also *compressed by the loaded joist* stand-

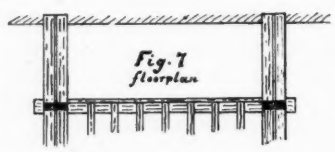


ing upon them. (2) Where there are but few stories to a building, a seasoned hardwood corbel not more than 6 inches thick may be allowed. In all other cases the corbel should be of metal.

Originally I used to employ an iron stool in addition, as shown in Fig. 5. This affords the advantage of a firmer bearing for the girder, and of allowing it to run through over two or three spans in one length. But it adds to the cost, and the later method can readily be made to answer in any case.

MILL CONSTRUCTION.

Considering mill construction so-called, it may be observed that it is not as yet what could be called a real workmanlike construction. This refers to the stirrups generally employed. Though recently made by machinery so as to be more true and accurate than in bygone times when made by hand, they still fail to afford an accurate — a workmanlike — fit for the timbers which ever will vary a trifle in regard to sizes. The stirrups also afford in all cases too short a seat for the floor beams if not made wastefully strong. I therefore suggest the abandonment of the stirrups and an adoption of a method of framing as shown in Fig. 6. (3)



The 2 by 6 inch or 2 by 8 inch or 10 inch sidepieces need merely be spiked on. Three to four spikes ⅝ inch square and long enough to reach through and for an inch into the opposite side plank, applied on either side, will be sufficient in the case. Bolts which reach through and through are applicable only in case their thread end has first been reduced to an accurate thickness, in order to allow the iron to tightly fit the augur-hole through which it is driven.

HEADERS AND TRIMMERS.

For store or warehouse purposes in particular it is important that a floor be of *uniform* solidity throughout. Headers for ordinary stairways should be short, not exceeding 7 feet in length, and ascent of steps made to suit. Generally, however, it will be found required to resort to extraordinary, nevertheless simple means of construction. Stirrups, so generally used, are out of question, especially as to any securing of tailjoists to a header. Stirruped headers will slightly cant the trimmers; tail joists will do it more so to the header. In all such cases this mode of framing is far behind requirements. To remedy this defect I have adopted a construction exemplified in Fig. 7. The timbers may readily be had of adequate sizes. The canting tendency is entirely obviated, and all other difficulties are readily overcome. Even appearances

*Continued from February, 1900, number of THE INLAND ARCHITECT.

†For explanation of this and similar reference figures, see "Addenda," at end of this article.

are improved. There can be no difficulty in adopting this method for mill-constructed floors also.

RELATIVE STRENGTH OF TIMBERS.

I intend to give herewith a common understanding of a few simple formulas which do not fully agree with those furnished by the reference-books, nor with precise theory, though approximating it. Fig. 8 shows a beam of length L, width B and depth H, rigidly secured at one end and loaded with W at the other. The

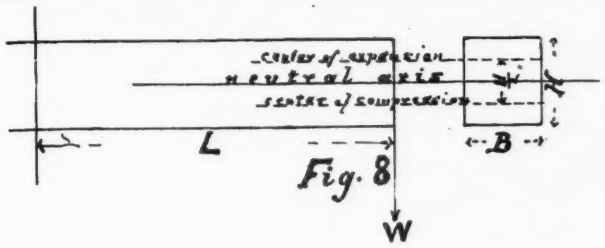


Fig. 8

action of this load is on the assumption of equality between the expansive and compressive qualities of the wood fibers—an expansion of all of those located above the *neutral axis*, and an equal compression of all located below this axis. The resistance of wood fiber per square inch to the action of expansion or compression is introduced as value C, which in safe practice may be assumed equal to 1,000 pounds. The distance of gravity centers in both upper and lower half of the timber, is $= \frac{1}{2} H$.

The load W, as may readily be conceived, acts on the extreme end of the lever L against its short end $\frac{H}{2}$. Its action is resisted by this short end of the lever multiplied by the product of the sectional area of the beam (square inches) in the value C. This gives the equation: $W . L = H . B . C . \frac{H}{2} = \frac{H^2 B . C}{2}$, so that $W = \frac{H^2 B . C}{2 L}$. Assuming a beam $10' = 120''$ long, $10''$ wide, $16''$ deep, it would carry a safe load of $\frac{16^2 . 10 . 1{,}000}{2 . 120} = 10{,}666$ pounds, attached at the extreme end. Considering a timber uniformly loaded and supported at both ends, we find that one-half of its load is at once carried by the supports, while the other half is acting as though it were pushing up at its center. One-half of this

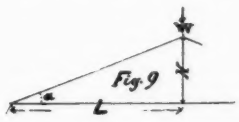


Fig. 9

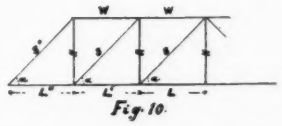


Fig. 10

half load is thus found acting at each end in an upward direction, and on half of the length, so that our formula would read $W = \frac{8 H^2 B . C}{2 L}$. The result is that the beam above introduced, supported at both ends and uniformly loaded, could be intrusted with a permanent load of some 85,000 pounds.

I have followed the above practical formula in all cases under my practice.

TRUSSES.

A truss may be compared with a very deep timber, with central part omitted so as to leave a mere upper and lower chord for action against compression and expansion. It is an old practical rule to never allow the height of a truss to be less than one-eighth of its span.

Fig. 9 exemplifies a truss of simplest form. Calling the half span L, the height H, the strain on the chord $P . C$ (wherein C, as above, represents a practical figure of 1,000 pounds), and the angle between the chord and strut a, the strain on the chord caused by the load on the truss, is expressed by $P . C$ tang. a. This, since tang. a is $= \frac{H}{L}$, would be W (load) $= \frac{P . C . H}{L}$, or $P . C = \frac{W . L}{H}$, and $P = \frac{W . L}{C . H} = \frac{W . L}{1{,}000\ H}$. In case we assume the truss to be uniformly loaded with 100,000 pounds, the live action of this load at each end would be like 25,000 pounds. Assuming $L = 20$ and $H = 5$, the equation would be: $P = \frac{25{,}000 . 20}{1{,}000 . 5}$ which is $= 100$, meaning square inches. The strain on the strut is equal to that on the chord multiplied by cosec a, or about $\frac{8}{7}$ of it, as here the case is.

The more complicated truss, Fig. 10, is readily resolved on the principle above stated. Assuming a load of 20,000 pounds per span, $L = 20$ and $H = 20$, we have $P''' = \frac{10{,}000 . 20}{1{,}000 . 20} = 10$, $P'' = \frac{30{,}000 . 20}{1{,}000 . 20} = 30$, $P = \frac{50{,}000 . 20}{1{,}000 . 20} = 50$. This would make the sectional area of chord $L'' = 50$ square inches, that of $L' = 50 + 30 = 80$ square inches, and that of $L = 50 + 30 + 10 = 90$ square inches. The corresponding top-chords would require a sectional area of 50, respectively, 80 square inches; the braces would require a corresponding area multiplied by cosec a, which for an angle of 45 degrees is $\frac{2}{\sqrt{2}}$, or a trifle more than $\frac{1}{4}$. In practice it will be required to adjust the figures obtained from equations, especially in regard to crushing strains, which impart a buckling tendency. Trusses applied on what may be termed *quiescent* structures may well be constructed without counterbraces. Where *movable* loads are had, as is the case with bridges, counterbracing is imperatively required.

THE FRAMING OF TRUSSES.

The practical framing of a truss should be very simple. Good sense forbids every sort of playwork beyond harmless adornment where such is desired. Short trusses should receive a chord in *one length*. With longer trusses it becomes necessary to splice the chord. It should, however, be strictly kept in mind that the *splice*

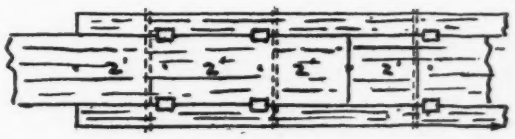


Fig. 11

is required to have the full strength of the chord proper. There is nothing gained by framing the ends into each other or overlapping them. They should be cut off square and clasped by proper additional parts. A small sort of a truss, say 60 feet long, with a strain of 70,000 pounds on its chord, may have the two butt ends of this chord clasped as shown in Fig. 11. The chord being 9 inches deep, the clasping pieces may be best *selected clear* lumber 3 by 9 inches keyed, bolted and spiked. The keys to be 2 by 3 inches seasoned maple (or iron) most accurately fitted. Larger and stronger trusses, however, require to be spliced by means of iron. Assuming the chord to be composed of double timber 7 by 15 inches with a strain of 200,000 pounds thereon, the connecting irons should have an aggregate area of not less than 10 square inches and applied as shown in Fig. 12. The connecting irons to be not less than 16 feet long (to overcome the unstable factor of parallel cohesion) by 10 inches wide, the central one $\frac{1}{2}$ inch, the others each $\frac{1}{4}$ inch thick. The upright irons of $\frac{3}{4}$ by 4 by 15 inches, each of which will be subjected (they require to be *perfectly* fitted to their places) to a strain of $\frac{1}{16}$. 200,000 = 12,500 pounds, should be firmly secured to the connecting irons, each by means of 4 adequate flush rivets. In case it be impossible to obtain chord timbers equal in length to one-half of the span, a limited deficiency may be

Fig 12

overcome by an additional timber between the central ends of the main chord, and the length of this timber to be added to the length of the connecting irons. Otherwise two full splicings of the kind and strength described will be required.

The extreme ends of all trusses should receive a very firm bearing on the wall. It is well to attach a hardwood saddle-plank under their ends. Fig. 13 shows the seat of the truss above assumed. The strain of 200,000 pounds on the chord must be balanced. The bolts at each side should be sufficient for at least three-fourths of this strain, since the joggles could scarcely be trusted with more than one-fourth of it. This would subject them

each to a strain of 75,000 pounds, hence they should be about 2½ inches in diameter. The end-plates through which they pass are required to be of steel 10 by 18 by 2 inches. A corresponding mode of armature to be adopted for trusses of any span.

Arched trusses with spans of 150 to 200 feet and iron rods in place of ties, have been made for depots and skating rinks. Steel

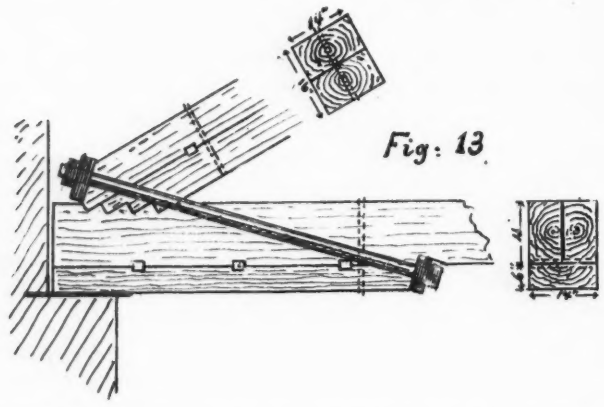


Fig. 13.

has taken their place as to depots, and skating rinks have gone out of fashion. It would require too much space to here give them a proper consideration.

TRUSSED BEAMS.

A long beam may be upheld by means of suspension rods, as shown in Fig. 14. The load will enact on the rod a strain $S = W.\ \text{cosec.}\ a = \frac{W.\ L}{H}$, so that, assuming $W = 20{,}000$, $L = 20$ and $H = 5$, the strain on the rods would be $\frac{20{,}000\ .\ 20}{5} = 80{,}000$ pounds, while the compression on the beam is obtained by multiplying this with the fraction $\frac{L'}{L}$. The case is not materially varied by introducing two supports from the rod, as may readily be observed on a glance at Fig. 15. Assuming the beam to be double 4 by 16 inches, three times $20 = 60$ feet long, the rods between them

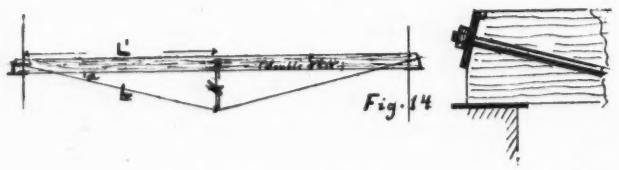


Fig. 14.

equal to 4 square inches, or good for a permanent strain of not exceeding 80,000 pounds, and the distance from center line of beam to that of the rod 4 feet, we have $W = \frac{4\ .\ S}{L} = \frac{4\ .\ 80{,}000}{20} =$ 16,000 pounds, which is, as may readily be computed, equal to 48,000 pounds uniformly distributed on the entire beam. The resulting compression strain of about 70,000 pounds on the beam would be equal to 546 pounds per square inch, extravagantly ample but for the fact that another strain is added by the load acting on each 20 feet clear span of the timbers. This additional strain is, as may readily be computed, not less than 60,000 pounds, or 460 pounds on a square inch.

In case two such trusses are had for a rolling carriage with a moving engine thereon, for purposes of lifting and shifting materials, the greatest occasional load may well be twice the sum above given, in spite of the fact that a moving load acts with about double the force of a quiescent one. The loads are but transient, not permanent, so that it may be considered safe to even lift and shift an occasional load of twenty tons on such carriage. The rods should be connected as shown in Fig. 16. The plate between the rods to be of best steel. It is by all means required to avoid a mere splicing of the rods. Even the *usual* swivels should in extreme cases not be depended upon.

DECAY OF TIMBER.

The albumen substances contained in timber have the property of converting its fiber into an incoherent substance. This conversion, however, as a chemical action, which it is, can not take place in any timber which is kept *perfectly* dry. Chemical action requires dampness. Perfection being beyond human control, a limited decay will ever take place, though delayed, as may be, for a course of centuries.

Timber subjected to alternate moisture and dryness is known to decay within a brief span of time. Wooden porches and balconies of buildings subjected to the weather, have an average life of but twenty years. Ground floors of buildings in proximity to the unprotected soil, may also be of a rather limited duration, in case the space between them and the soil is not well ventilated. If not ventilated at all the timber will be subject to *dry rot*, which completely destroys it in a brief span of time (4). Covering the ground with a concrete and thoroughly ventilating the space are the most effective common remedies.

Heavy timbers, especially hardwood, though freely exposed to dry air, are apt to get their centers rotten. Hence the present custom of core-boring posts and of making girders in two halves. It is well to expressly ventilate the hollow cores, and delay painting of the exterior. A good whitewash, which does not so fully exclude the air as does paint, would seem to be preferable.

The usual decay of timbers in contact with masonry ought always to be an item closely considered. The more air there is allowed to play around them the better. Many very simple contrivances readily suggest themselves to this effect. Where girders or beams are bedded on iron or stone, this material in particular should on its surface receive a number of minute furrows for letting air pass through to an open space left behind the end of beam.

Timbers permanently immersed in water are known to be free from decay. They even, during long time, become filled with substances dissolved in the water, and thus grow harder during the

Fig. 15.

course of centuries. Timbers of the kind obtained from ancient piles have been an object of careful investigation. Hence it is an old rule in regard to piling, that all such timbers must ever be kept positively below the lowest permanent water level in the ground.

ADDENDA.

I hope to be excused for here correcting a statement made by a young architect under the heading: "Truth in Design" (February number of THE INLAND ARCHITECT). He says: "The Greeks and *Goths* were lovers of truth" in a manner as though the Goth had actually been the fathers of what is called Gothic Architecture. This is a most fatal error. The conglomerate of germanic tribes called Goths were wiped out from the field of history: the Ostrogoths in Italy at the latter part of the sixth, the Visigoths in Spain at the beginning of the eighth century. The former had been masters of Italy for about a century, and though their king, Theodoric, had used all possible means for conciliation, the cultured Italians were ever disposed to hate them as rude barbarians. This hatred having been nursed by them during generations, for many centuries, they *nicknamed*, after a lapse of about seven centuries, the last outcome of mediæval architecture by calling it "*Gothic*," because all their original art-feeling and

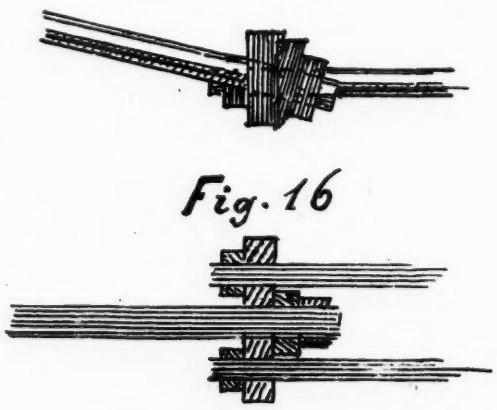


Fig. 16.

impulses were so radically averse to this style. And, singular to say, this nickname has been accepted by all nations as a proper name, and held high ever since.

(1.) It is sad to contemplate how little attention there is paid to plain facts in nature. Every "chick and child" knows that timber shrinks, yet the construction A seems to prevail even today in a majority of cases. I have found third floors of a number of buildings, thus afflicted, bent down to as much as four inches. Plastering was everywhere badly cracked and openings turned out of square. Are then such buildings, no matter how elegant their finish and outfit, from the start any better than a wreck?

(2.) But recently I examined a light four-story warehouse constructed as shown in Fig. 4. Its pine corbels were twelve inches deep, and the upper story

was a complete dish of four inches in depth. Many years ago I observed in an old-fashioned grain warehouse the heavy hardwood corbels crushed down, by the posts standing upon them, so fatally that it became necessary to replace them.

(3.) I have built quite a number of stores with a similar girder construction. This having been at a time when oak could readily be had of any sectional dimensions to a length of twenty feet and more, I could afford to employ it exclusively. The center timbers varied from 17 to 26 inches in depth, as demanded by load and span. The side planks bearing the joists were 3-inch oak, *merely spiked on*, some of the spikes being square wrought iron, reaching through and through. The construction proved sufficient in all cases, even where loaded to 500 pounds per square foot, on girder spans of twenty feet. A store with seventeen feet span between posts, built for dry goods, had been rented for a steel warehouse. The girders were bent by the enormous loads upon them, but the side pieces *kept firmly attached*. This would, probably, not have been the case had pine been used in place of oak. Hence the new idea of tenoning into the pine girder-beams.

(4.) In our climate the result is *dry rot*. In other countries, where the atmosphere is charged with more humidity, the rot is decidedly moist. In Germany it is termed "*schwamm*," — *sponge*. The timber is covered with a white spongy film.

AMERICAN ART AT PARIS.*

BY EMIL LORCH, SECRETARY ARCHITECTURAL LEAGUE OF AMERICA.

THE American fine arts section at the Paris Exposition of 1900 has been greeted with general approval. The fact is again established that we need have no hesitation in sending to foreign exhibitions such collections of art works as will be fairly representative of the average achievement of our painters, sculptors and illustrators. The American works at the present exposition have not suffered in the inevitable comparison with the splendid, serious productions of Norway and Sweden, Austria, Holland, Germany and Great Britain.

Our art collection at Paris is, most gratifyingly, an evenly good one, and distinguishes itself from the one sent to the exposition of 1889 by its greater freedom, power and poise. Deep sincerity of purpose and excellent artistic workmanship characterize these works, and especially those of men like Winslow Homer, Abbott Thayer, George de Forest Brush and William M. Chase, who, while having profited by foreign study and ideas, have yet been willing and courageous enough to live and work among their countrymen, and therefore it is their and other like works reflecting this our life and interpreting our ideals which most truly represent "American" art at the exposition of 1900. These works, too, must always have for our people a more vital interest than those that have been painted abroad by our artists, and which thus lack the larger significance of the real art work. No foreign artist who has settled in France has ever reached the honest, sturdy and sympathetic characterization of the peasants of Millet and Breton.

It is with much regret that some have learned from the exposition the fact that many of the leading American pictures and sculptures are from the studies of American artists permanently residing abroad, and that the number of the artists so living has largely increased since 1889. Some of the artists who, it was then thought, would soon return to the United States, and thus become potent influences in our art development, have, except for occasional visits, remained abroad, and now have come to be regarded as what the French call "cosmopolites"; and it is with a sense of a national loss that many point to the French master who, after travel-study, returns to his native country, there, by teaching and example, to assist in the training of the rising generation of artists. Yet these same Franco-American artists, living, as they do, in that much-prized atmosphere of art, have, Greek-like, continued to gather the precious knowledge of art, and incorporating it in their works, they hand it on to their brethren at home, when their works come to this country for exhibition. Thus, through their productions, have Whistler, Sargent, Melchers, Alexander, Harrison, and the other members of that brilliant advance guard been helping American art during the last ten years, and to their cool judgment and directive influence must be credited some of the general excellence of our art at this time. Had they failed to resist the freakish tendencies which periodically manifest themselves in Paris, American art would now be in a much less healthful and promising condition, and the showing at Paris would not be so splendid a one.

The easy mastery and lead and dominating influence of the French is, however, the note which most clearly emanates from the American section, and, to a certain degree, from the European sections; they are all eloquent of French artistic learning and skill, of the superior draftsmanship, painting and modeling of that gifted people. Nearly all the artists represented in our section have at some time studied in Paris, and during the last ten years a larger number than ever before of American art students have enjoyed like advantages; scholarships have also been endowed in some of our cities to send to Paris our most promising students, and our art schools have been more intimately influenced by French methods of instruction. We may, then, expect that the near future will even more clearly affirm our debt to the art of France.

American architecture, represented by a few drawings and photographs at the exposition, after passing through a refining wave of Italian renaissance, is already, especially in the East, beginning to echo the French point of view, and much of our furniture and other industrial or "applied" art design shows like influences. In fact, much of the so-called American art at the exposition, as at home, clearly demonstrates our condition—a most natural one — of transition, our seeking for ourselves in the work of others. Our designers have hardly studied the rich resources of our plant life-long and patiently enough to evolve national types of ornament. The art craftsmanship of the French, English and Belgian shows, with two notable exceptions, that in these fields of application and creation we are yet in our infancy. The beautifully wrought electrolier of the German workman shows a loving care, hardly a-tune with our general processes of production.

The art educational work being done in the United States is one of our strongest steps forward at the exposition, and is unusually full of promise for the future of this country's art. Strange as it may appear, a careful study of the art instruction in the public schools of European countries demonstrates the important fact that in this extended field we now lead in the excellence of our methods and results. In the drawing and color work of the various Chicago public school students will be found a refreshing spontaneity and an individuality, a directness of attack, and freedom of execution, quite foreign to the public school work of Great Britain, France or Germany. Nor will the work of our leading art schools up to a certain point compare unfavorably with that of the best foreign academies. The art schools of New York, Philadelphia, St. Louis, Boston, and Chicago are certainly second to none in their preparatory departments, and the strength of the original studies by students of the Art Institute of Chicago exhibited in Paris will be a surprise to those who are not fully acquainted with the resources of this and other home institutions. Better than any of the American schools, the Art Institute stands for education in art joined with academic training, and in uniting practice and theory provides a proper basis for the broad, rational development of the art student.

From the excellent art work being done in the public schools throughout this country, the high and rising standards of the special schools of architecture, painting, sculpture and design, continued exhibitions of art works of superior merit, public lectures, and other taste-molding influences, there must eventually follow a general and genuine appreciation of true beauty in all its varied forms; and this love of art, keeping pace with the development of our education, industry and science, closely affecting the life of our people, will manifest itself in the more appropriate design and decoration of our private and public buildings, in works of utility as well as in greater paintings and sculptures, just as our present state is expressed by the establishment of art institutions, societies and commissions, and thus gradually realize that new American ideal — the "City Beautiful."

Considering, then, the fundamental, formative activities and forces now actually at work, our rate of growth since the Paris Exposition of 1889, and our present degree of development as defined at the Paris Exposition of 1900, we have surely every reason to believe, whatever special direction it may pursue, that the flowering of our American art will be one of commanding virility, beauty and power.— *Chicago Tribune, August 12, 1900.*

*In the direction of a better understanding of architecture, painting and sculpture by the general public, the Chicago *Tribune* has recently published articles on these subjects. That on architecture was from the pen of Louis H. Sullivan. The article on American Art at Paris is here reproduced in full.

PAINTS IN ARCHITECTURE.

MOISTURE VERSUS PAINT.

IT is an unfair and unwise test of any paint to apply it to unseasoned lumber or in damp weather. Special water-resisting paints are made, and resist more or less successfully these trying conditions; but ordinary house-paint is not calculated to resist moisture until the coating is dry, and then only atmospheric moisture which falls upon, and by properly constituted paints is shed from, the surface coating.

When a linseed oil paint is applied to imperfectly seasoned wood or to wood moistened by a humid atmosphere one of several things may happen; the moisture may be absorbed by the paint, it may be imprisoned beneath the paint, or it may pass through the paint and evaporate from the surface. In a paint of which the pigment forms a chemical union with the oil (as in the case of the hydroxides) the first result is likely to occur; in a paint of which the oil remains practically unchanged (as with the simple oxides, etc.) the second result may be anticipated; while, all paints being, in their undried condition, more or less pervious, the last result may be expected to a greater or less extent with paints of all kinds.

The absorption of water by a paint is likely to induce disintegration and crumbling, commonly known as "chalking" in the case of white lead; the retention of water beneath the paint leads to blistering and peeling; while the transpiration of moisture through any paint skin generally gives rise to cracking and reticulation, commonly known as "checking."

No form of house paint in common use will long withstand the presence of moisture between itself and the wood, and paint applied to moist surfaces is simply material wasted. But a properly constituted paint on a dry surface should withstand for a long time the effects of atmospheric moisture. To this end the surface produced should be smooth and glossy, and not inclined to become chalky or porous in texture. The chief defect of pure white lead is its tendency to become absorbent

on the exterior surface; and this defect is remedied in the better grades of combination paints by the intimate incorporation of varying volumes (in the most approved practice an equal volume) of zinc white. The latter pigment increases the relative proportion of oil on each unit of surface, and produces a glossy, resistant coating. CHARLES JOURDAIN.

REALITY IN ARCHITECTURE.

THAT certain unwilling materials have been thrust into certain specific places does not make architecture.

The singular and characteristic helplessness of the modern architect when brought face to face with the realities of time, place and people must, some day, give the educator pause, and must likewise some day excite the curiosity and the wonder of the general public. For it certainly is curious enough to be worthy of comment and critical analysis that, whereas the architect, to all intents and purposes, stands aloof from his people and his time, American inventiveness, ingenuity, adaptability and versatility are proverbial in so many pursuits.

But current architectural practice may not be called a pursuit; on the contrary, it is a running away, an evasion of plain duty, a dodging of the manifest issue.

This issue is not be obscured by a mist of conventional and shop-worn phrases, for it is as plain as the daylight to any unbiased mind that, when an architecture gives a reflection of the true life of the people it is a natural, a real art; that, when it fails so to reflect that life, it is artificial, unreal, and therefore not only negatively useless but positively pernicious.

Closeted for generations in the musty school, this art which needs as nurture the fresh air and the sunshine of green fields and limpid waters, the rejuvenance of springtime, has languished and faded in the poverty of neglect.

The remedy is self-evident — a return to natural, simple, wholesome, and sympathetic ways of thinking; a liberation of the creative impulse; an entente cordiale between architect and people — that he, as an artist, may interpret their true feelings in the natural language of his art, and express them with the eloquence and ardor of a poet — not, as now, to misrepresent them in the expressly cultivated cynicism of irrelevant mental attitude.

That there is need of such a change, and that the change is imminent, is keenly felt today by the younger generation of architects. The convention of the Architectural League of America, held in this city early in June, represented a movement in architectural thought so significant that it may easily be held the most important avowal of principles in the architectural history of the country. These principles, briefly stated, stand for "the encouragement of an indigenous and inventive architecture for America," as opposed to the imported fashion plates representing the art and the lives of nations centuries ago. In other words, an art for us, by us; not an art for us, by others.

The demand, then, is for architects of such breadth of culture and delicacy of perception, such art of expression, that from their hands may come a new phase, a new expression of the eternally youthful art of architecture that shall in turn be unique in the history of the fine arts.

It will be an art filled with optimism and humanity, in contrast with the pessimism of the past.— *Louis H. Sullivan in the Chicago Tribune.*

WANTS OF THE ARCHITECT.

WHAT does the architect want? He wants recognition as an artist and as a scientist; he wants to be placed in his rightful position before the public he desires to serve; he wants to work for fame as well as fortune. Wealth is not everything in this life; a little well-fed and well-feed pride and vanity is very acceptable now and then, and very often the best efforts and best qualities of a man are brought out by a little — ever so little — well-timed praise and commendation.

He wants to be believed in and trusted; he wants his client to feel that in employing him his best interests will be subserved and his work faithfully performed; he wants to be as promptly paid for his services as a mechanic is for his; he wants the same rights as are given the mechanic — a lien upon the building his patience and skill have caused to be erected. While his modesty may be too great to admit of his forcing himself into prominence, he wants to feel that he is somebody, and that he will be somebody; let him feel that anybody can be he, and he will soon be nobody, if he has any pride at all about him; and when he has finished his work and indulges in a commendable pride upon surveying his own creation, he wants to have the full credit of the design, and not have the wind taken out of the sails by such expressions from the secretly gratified owner:

"Oh, well, you know I designed the building myself, but just got my architect to put it in shape for me."

Yes, I often wonder when I am compelled to listen to such foolish boasts, what the building would have been had the architect not put it "in shape."

Now, what an architect does not want is to be classed with the "jacklegs" who never did learn the business nor never could. He does not want to be invited to go into competition where he is expected to put a dollar "in the slot" and take out a nickel. It is all very well to say, "competition is the life of trade," and that it ought to bring out the best points of an architect. Experience does not bear out the statement: "The battle is to the strong" — the man in the ring. The race is to the swift; the fellow who does the most drumming.— *Toledo Bee.*

MOSAICS.

GOLD MEDALS AWARDED AT PARIS.— McKim, Mead & White, Boring & Tilton. Silver medals — Cope & Stewardson, Frank Miles, Day & Bro., Flagg, Benson & Brockway, Peabody & Stearns, George B. Post, Shepley, Rutan & Coolidge, Whitney Warren. Bronze medals — Daniel H. Burnham, Bruce Price, Hayden & Shepard.

THE Milwaukee Architectural Club was formed at a meeting of forty-five of the architects of Milwaukee, which is about eighty per cent of the total number in the city. Primarily its objects are social, the movement being one intended to bring the local members of the profession in closer touch with each other. There are two National bodies, the American Institute of Architects and the League of American Architects, but the Milwaukee Club has not affiliated with either and such a course is not at present considered.

The officers elected last night are: President, Alexander Eschweiler; Vice-President, Elmer Grey; Secretary, William Schuchardt; Treasurer, H. W. Buemming; Directors, Howland Russel, Armand Koch, Peter Burst.

THE following named architects have been invited by Assistant Secretary H. A. Taylor, of the Treasury Department, to submit competitive plans for the United States Courthouse and Postoffice Building, Indianapolis, Indiana: Andrews & Martindale, Vonnegut & Bohn, Oscar Bohlen, Louis H. Gibson and Adolph Scherrer, all of Indianapolis; Wing & Mahurin, Fort Wayne; Eames & Young, St. Louis; Ferry & Clas, Milwaukee; J. L. Silsbee, Chicago; Rankin & Kellogg, Philadelphia; L. J. Thomas, Canton, and Andrews & Jaques, Boston. The following have been selected as judges: D. H. Burnham, Chicago; Henry Van Brunt, Kansas City; Edward Green, Buffalo; H. Langford Warren, Boston, and James Knox Taylor, Supervising Architect of the Treasury.

THE second monthly meeting of the executive board of the Architectural League of America was held August 7, 1900. There were present Joseph C. Llewellyn, president; Richard E. Schmidt, vice-president; August C. Wilmans, treasurer; Emil Lorch, corresponding secretary; Hugh M. G. Garden, recording secretary, and Prof. Newton A. Wells and Robert C. Spencer, Jr., members of the board.

The chief business transacted was the assignment of the standing committees of the League, as follows: Publicity and Promotion — The Chicago Architectural Club; Ethics and Competition Code — The Architectural League of New York; Exhibition Circuit — The Cleveland Architectural Club; Foreign Exhibit — The T-Square Club, Philadelphia; Current Club Work — The St. Louis Architectural Club. The Committee on Education will be appointed at a later date.

The monthly meeting of the executive board is held the first Tuesday of each month at 5 o'clock, at 1218 Association Building.

OUR ILLUSTRATIONS.

Salle des Fêtes, Paris Exposition, 1900.
Turkish Pavilion, Paris Exposition, 1900.
Belgium's Building, Paris Exposition, 1900.
Hungary's Building, Paris Exposition, 1900.
Entrance, Optical Palace, Paris Exposition, 1900.
Entrance, Palace of Fabrics, Paris Exposition, 1900.
The Elliptical Hall, Palace of Fine Arts, Paris Exposition, 1900.
Perspective View, Palaces on Esplanade des Invalides, Paris Exposition, 1900.
Design for Church. E. G. W. Dietrich and Henry La Pointe, architects, New York.
Competitive Design for United States Customhouse, Baltimore, Md. Solon S. Beman, architect, Chicago.
Accepted competitive design for United States Customhouse, Baltimore, Md. Hornblower & Marshall, architects, Washington, D. C.
Diagram in illustration of proposed location of suggested States Building, at Washington, D. C.; outlined in article in this number.
Photogravure Plate: Knights Templar Temple, Milwaukee. Ferry & Clas, architects.

PHOTOGRAVURE PLATES.

Issued only with the Photogravure Edition.

Fifth Ward School Building, Milwaukee, Wis.
Hospital Building, Lake Forest, Ill. Frost & Granger, architects, Chicago.
View in Upper Hall, Residence, Cincinnati. Elzner & Anderson, architects.
Colonial House, Evanston, Ill. Waid & Cranford, architects, Brooklyn, N. Y.
Interior View, Dining-room, Residence, Cincinnati. Elzner & Anderson, architects.
Residence of William H. Ison, Kenilworth, Ill. Geo. W. Maher, architect, Chicago.
Dormitory Building for Lake Forest University. Frost & Granger, architects, Chicago.

MONTHLY SKETCH PROBLEM

of the

ATELIER FITZWILLIAM

AUDITORIUM BUILDING, CHICAGO

These problems are to be worked up as sketches and not as finished drawings, the problem being spontaneous in execution and the detail in the nature of indication rather than that it should be laboriously drawn.

One sketch problem is given each month from September to June. The program for the month of October, 1900, is announced below. Send your design and $1.00 at any time during the month of October, and on November 1 it will be remailed to you, postage prepaid, with a written detailed analysis, critical of its faults and touching upon the merits of the design. In addition to this will be sent whatever prize (if any) its rank deserves.

For the month of October, 1900, there will be twenty-five cash prizes, as follows:

One first prize of $30.00 — Two prizes of $15.00 each — Three prizes of $10.00 each
Four prizes of $5.00 each — Five prizes of $3.00 each — Ten prizes of $2.00 each

PROGRAM FOR OCTOBER — A COUNTRY CHAPEL

A Protestant congregation in a rural district has decided to demolish the frame building now used by them as a place of worship, the object being to replace it with another structure of about the same size and seating capacity, but of more substantial material and modern design.

The congregation is one appreciative of good architecture and they can afford sound construction, but excessive cost should be avoided in the solution of this problem. The new chapel will stand alone in a clearing in the heart of a grove; being thus placed in total isolation from other buildings, the effect of each separate façade should be considered by the designer. Provision shall be made on the exterior of the chapel for erecting in a suitable manner a bell to announce the hours of service, and this feature may be in the form of a tower or otherwise. The church membership numbers 200, but seats for 100 additional should be arranged; this capacity may be with or without a small gallery, bearing in mind that 85 feet is the limit which the greatest dimension of the plan shall not exceed.

DRAWINGS.—A floor plan, and one perspective showing the front and one side of the chapel, all at the scale of $\frac{3}{32}$ of an inch equals one foot. The rendering of the problem is left to the discretion of the designer, but the paper must be cut to the uniform size of 10 x 18 inches.

Send drawings, unmounted, to the Atelier Fitzwilliam on or before October 31, 1900, and do not deviate from the instructions given above.

THE INLAND ARCHITECT AND NEWS RECORD

Vol. XXXVI. ADVERTISERS' TRADE SUPPLEMENT. No. 2

TRADE NOTES.

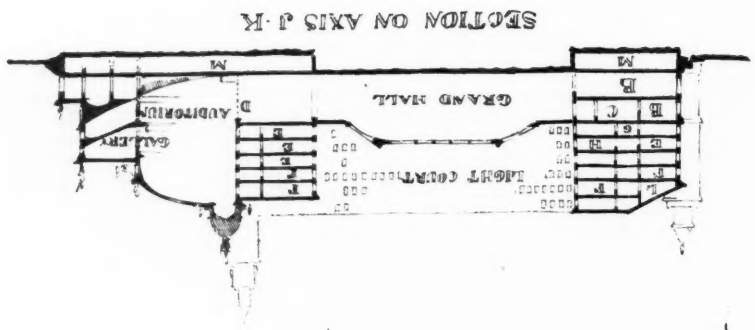
A PAMPHLET entitled "Drop in Alternating Current Lines," supplemented by a short description of Westinghouse Type F compensator is received. The first section of the publication treats of a method for calculating drop in alternating current circuits. This information is given in very good form and should be of considerable interest to engineers who have such calculations to make. The description of the compensator includes tables for the setting and instructions for the adjustment of the instruments. Those who may be particularly interested in the subject can secure the publication by application to the Westinghouse Companies' Publishing Department, Pittsburg, Pennsylvania.

A COPY of a recent publication entitled "Electric Power" is received. This book is issued by the Westinghouse Companies' Publishing Department, Pittsburg, Pennsylvania, and is intended for distribution at the Paris Exposition. It is printed in four languages — French, English, German and Spanish — and embodies a collection of views of Westinghouse motors applied to stationary service. The purpose of the publication, as is stated in the introduction, is to tell by pictures rather than words of some of the many ways in which Westinghouse motors are used for industrial purposes. A copy of this book may be had on application to the publishers.

IN one after another of the Besse Syndicate of New England stores the Frink system of show window and store lighting has been installed. As the work has extended for a period of two years, the proprietors have had ample time to test the efficiency and economy of the system, and it is a noteworthy fact when once a mercantile concern has used this system it never goes back to another, either in building new stores or remodeling old ones. Among other recent important contracts reported by I. P. Frink are thirty of the Woolworth five and ten cent stores in different parts of the country, in which the window reflectors are being installed. Rogers, Peet & Co., whose old store at the corner of Warren street and Broadway was burned last year, have installed the Frink reflectors in their new store on the same site, after having used and tested them in their store at Thirty-second street and Broadway. The May stores at Denver, St. Louis (The Famous) and Cleveland, and particularly the six stories of show windows of the Cleveland store, brilliantly lighted by the Frink system, we have referred to before in these columns; it is the same story — once tried in one store these reflectors are rapidly put into all the other stores under the same management.

ACTIVITY IN THE GLASS TRADE.

The glass industry, in common with others, is in a state of prosperity which promises to be permanent. In fine glass products Chicago is well to the front. At the head of the industry in Chicago is the Flanagan & Biedenweg Company. Their facilities for the production of art glass of all varieties are unequaled; they can be relied upon to fill orders with the utmost dispatch, and their financial responsibility is of the highest. They manufacture under such favorable conditions that they are able to make the lowest prices consistent with good quality and workmanship. The care this company takes with all orders, large or small, the skilled mechanics they employ, and their modern facilities and equipment, rank them as leaders in their line of manufacture. The testimony of leading contractors and expert mechanics throughout the country commends the Flanagan & Biedenweg Company to all those desiring to purchase glass for any purpose. Write them for catalogue or for special designs for such windows or transoms as you desire to fill with art glass, and your expectations will be fully realized.



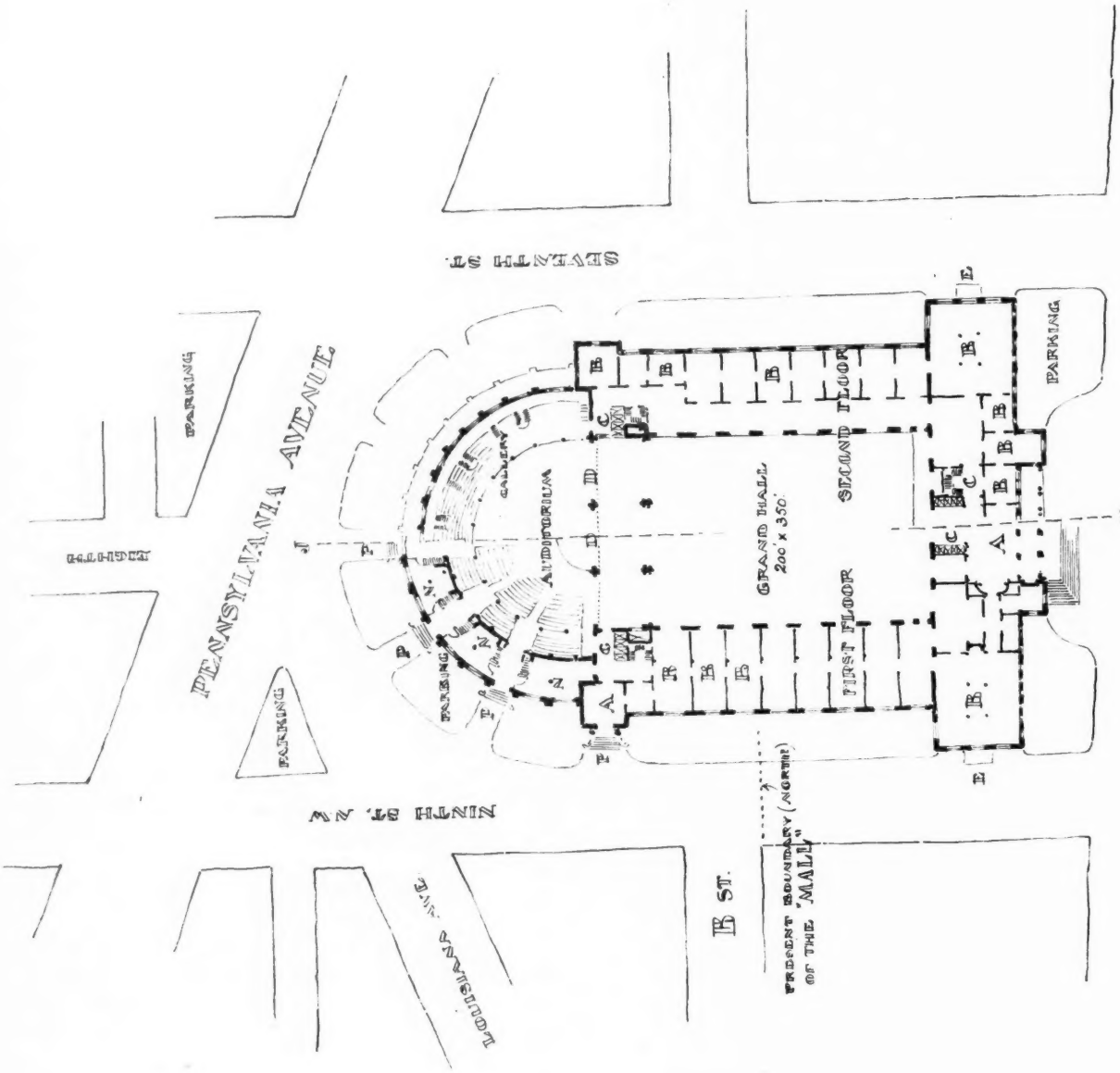


DIAGRAM IN ILLUSTRATION OF ARTICLE IN THIS ISSUE ON A PROPOSED STATES' BUILDING AT WASHINGTON, D. C.

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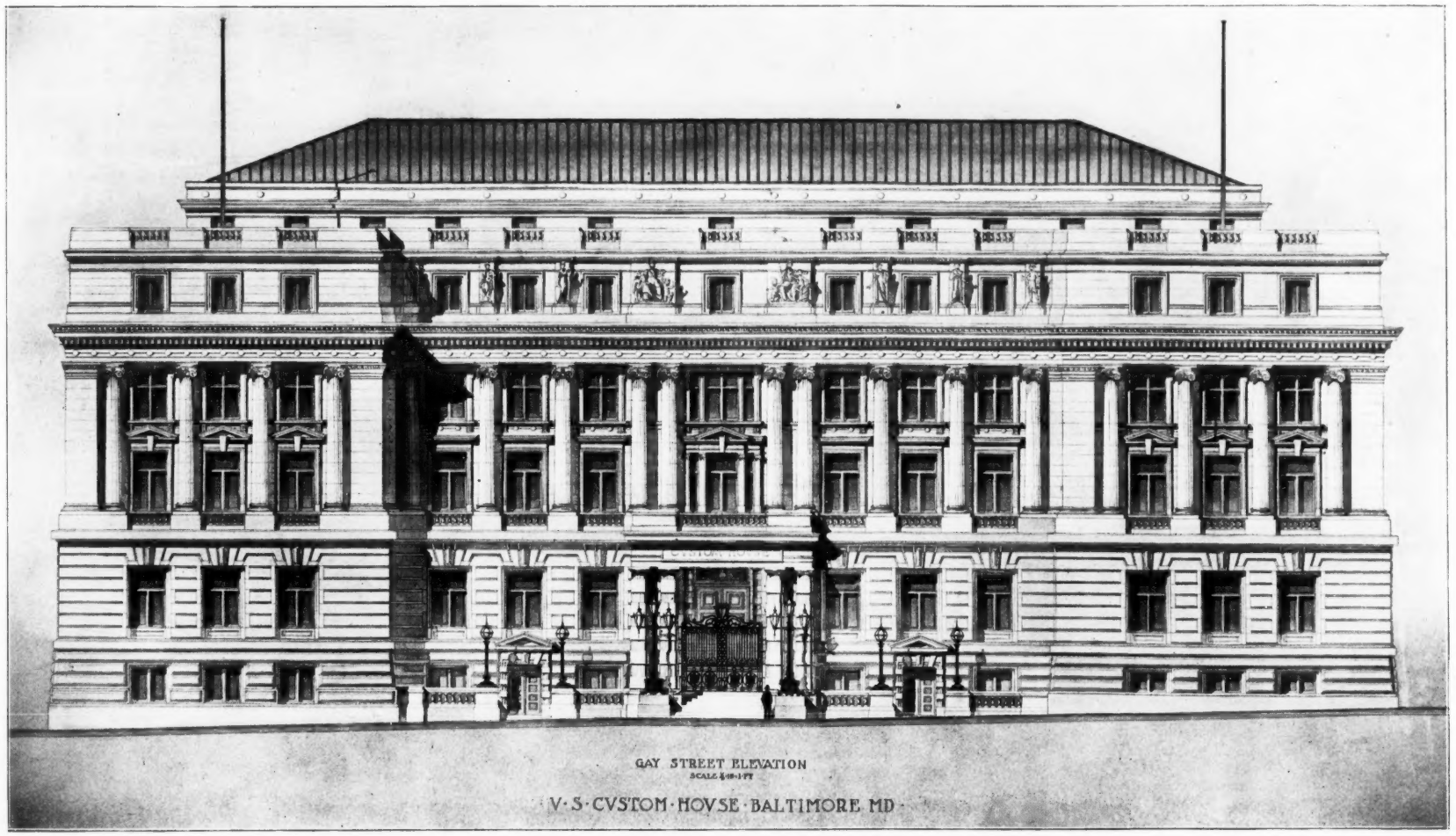
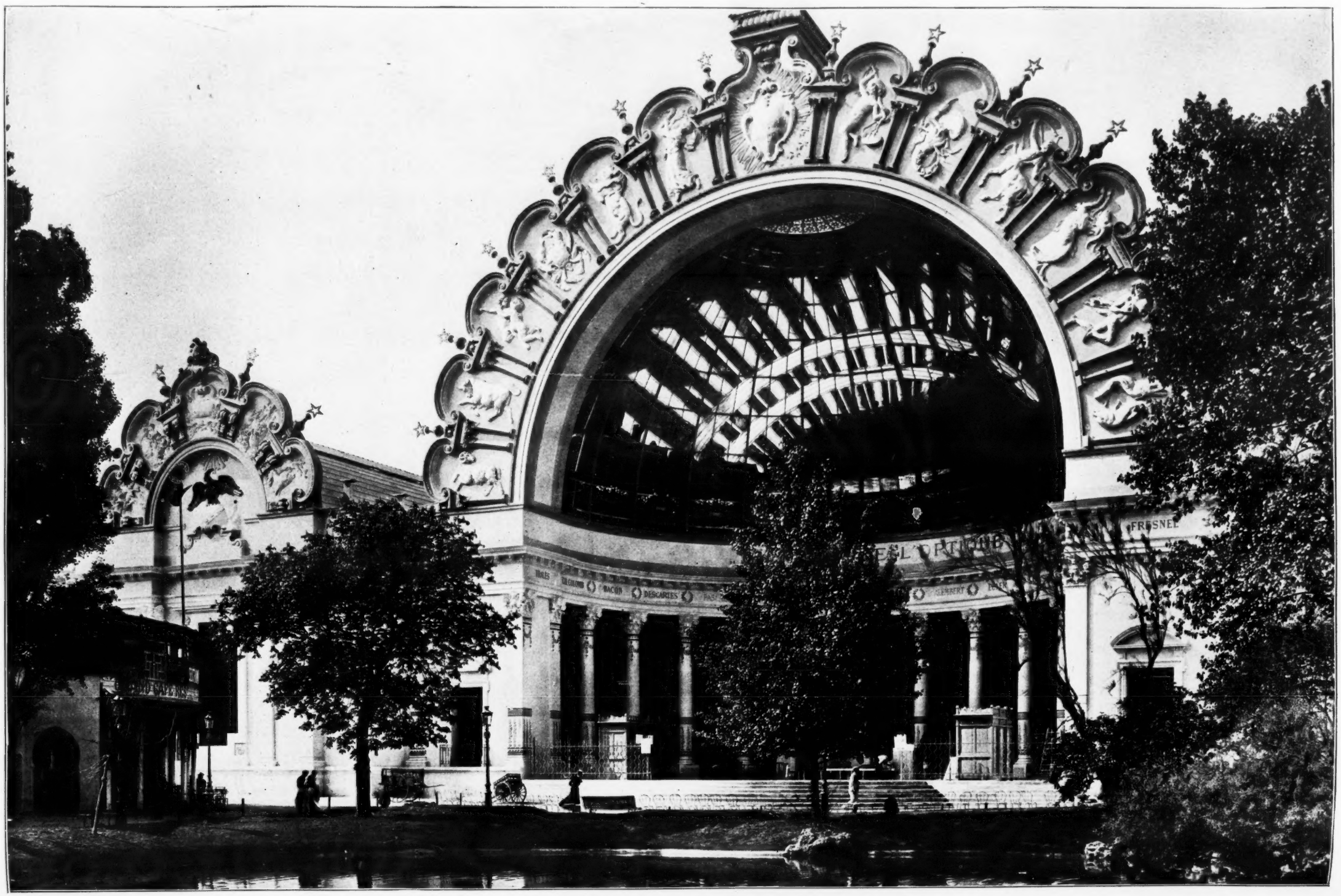


COMPETITIVE DESIGN, U. S. CUSTOMHOUSE, BALTIMORE, MD.

SOLON S. BEMAN, ARCHITECT, CHICAGO.



ENTRANCE, OPTICAL PALACE, PARIS EXPOSITION, 1900.

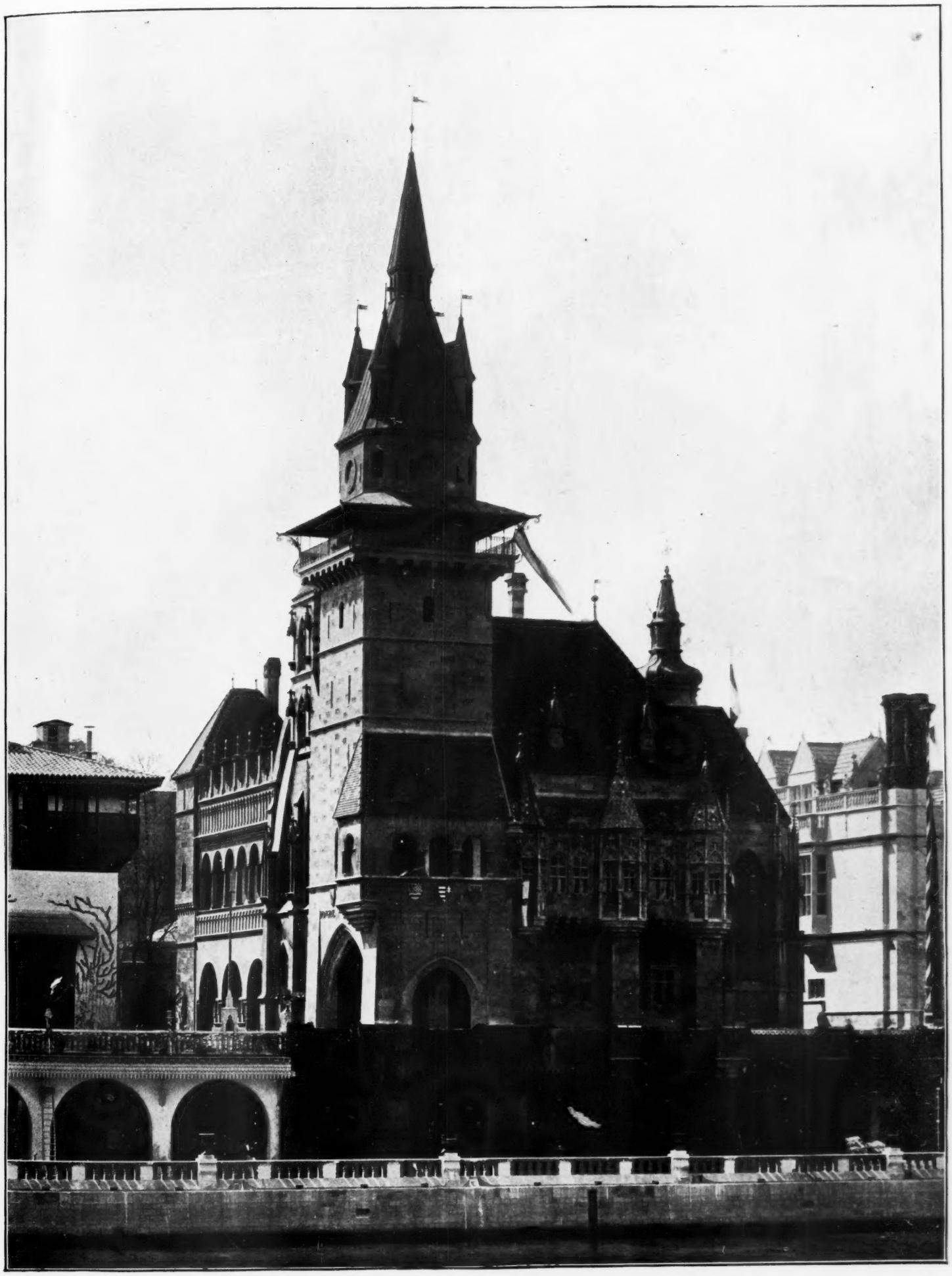
ENTRANCE, OPTICAL PALACE, PARIS EXPOSITION, 1900.

THE ELLIPTICAL HALL, PALACE OF FINE ARTS, PARIS EXPOSITION, 1900.

TURKISH PAVILION, PARIS EXPOSITION, 1900.

TURKISH PAVILION, PARIS EXPOSITION, 1900.

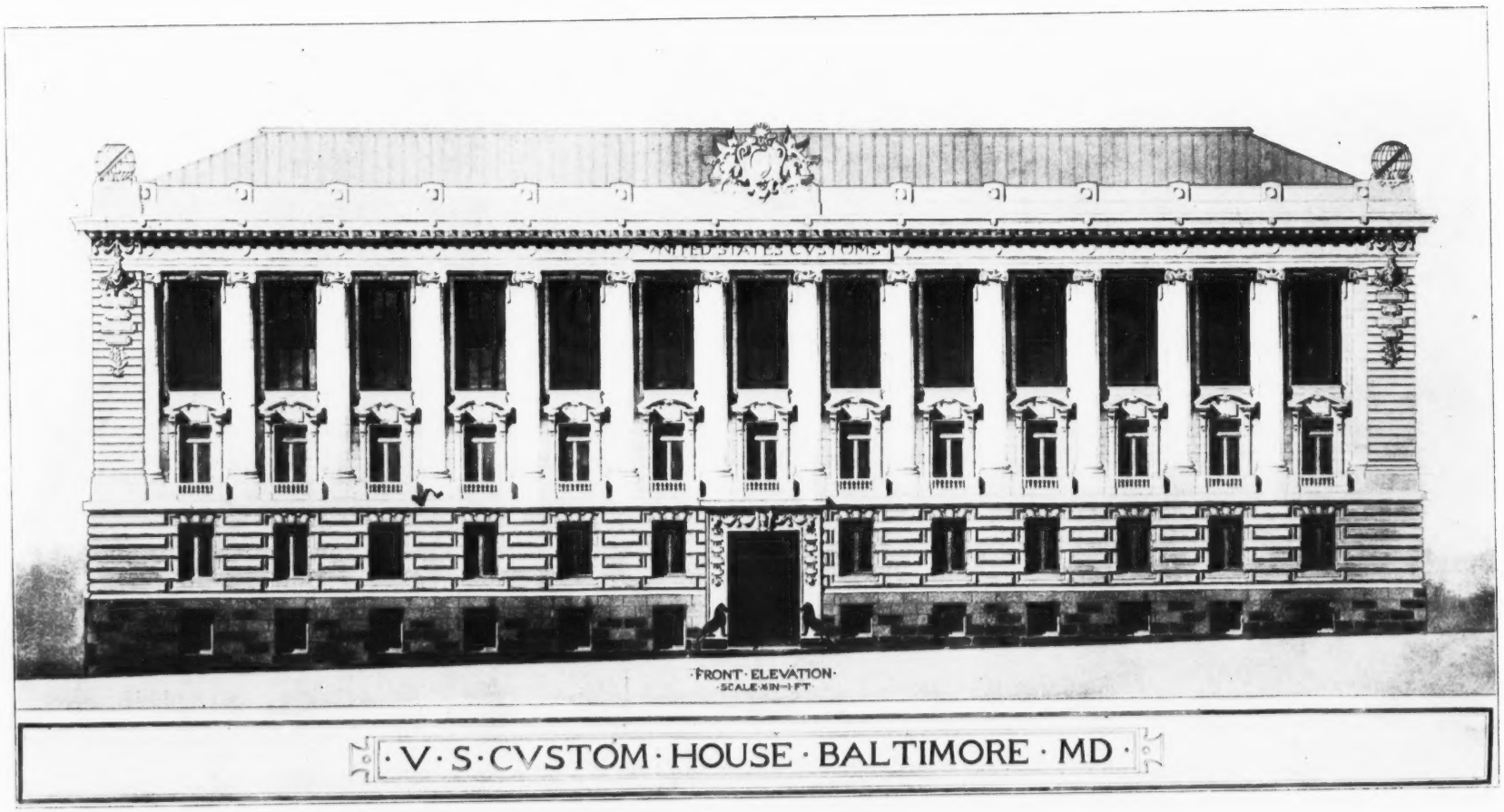
BELGIUM'S BUILDING, PARIS EXPOSITION, 1900.



HUNGARY'S BUILDING, PARIS EXPOSITION, 1900.

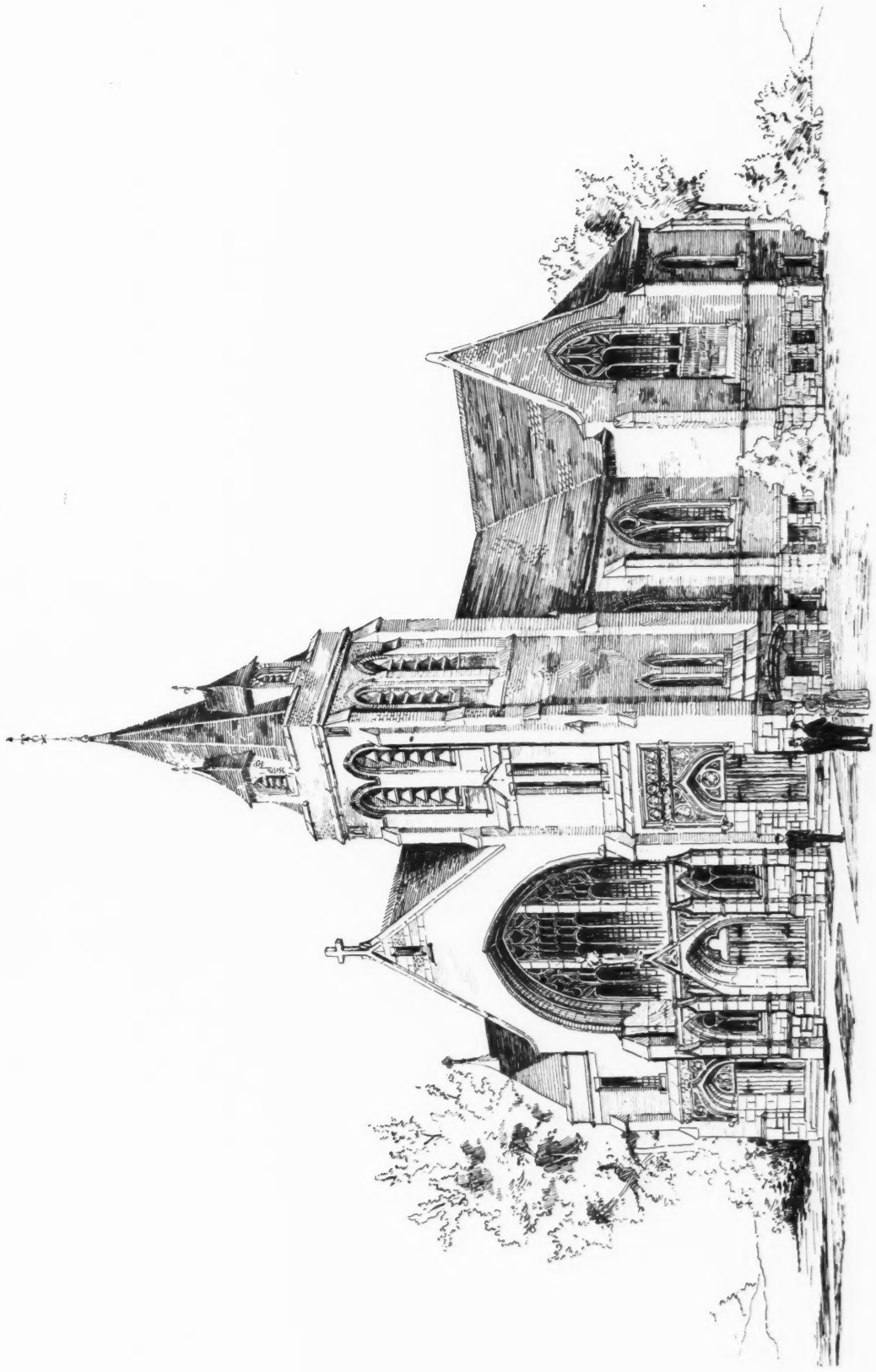
ENTRANCE, PALACE OF FABRICS, PARIS EXPOSITION, 1900.

PERSPECTIVE VIEW, PALACES ON ESPLANADE DES INVALIDES, PARIS EXPOSITION, 1900.



ACCEPTED COMPETITIVE DESIGN, U. S. CUSTOMHOUSE, BALTIMORE, MD.

HORNBLOWER & MARSHALL, ARCHITECTS, WASHINGTON, D. C.



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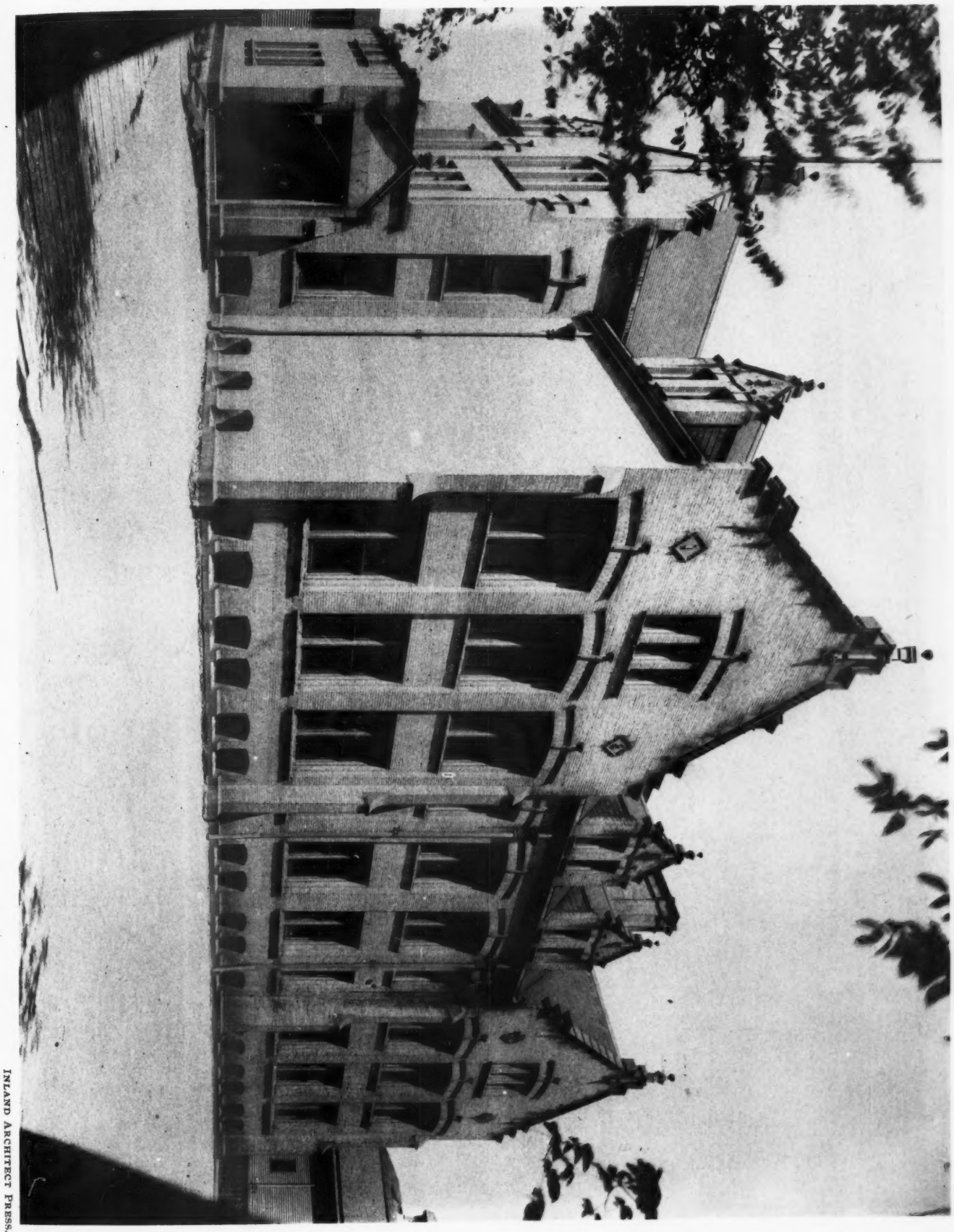

SCHOOL BUILDING, MILWAUKEE, WISCONSIN.

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WOMEN'S DORMITORY, LAKE FOREST UNIVERSITY.

FROST & GRANGER, ARCHITECTS, CHICAGO.

CITY HOSPITAL, LAKE FOREST, ILLINOIS.

FROST & GRANGER, ARCHITECTS, CHICAGO.

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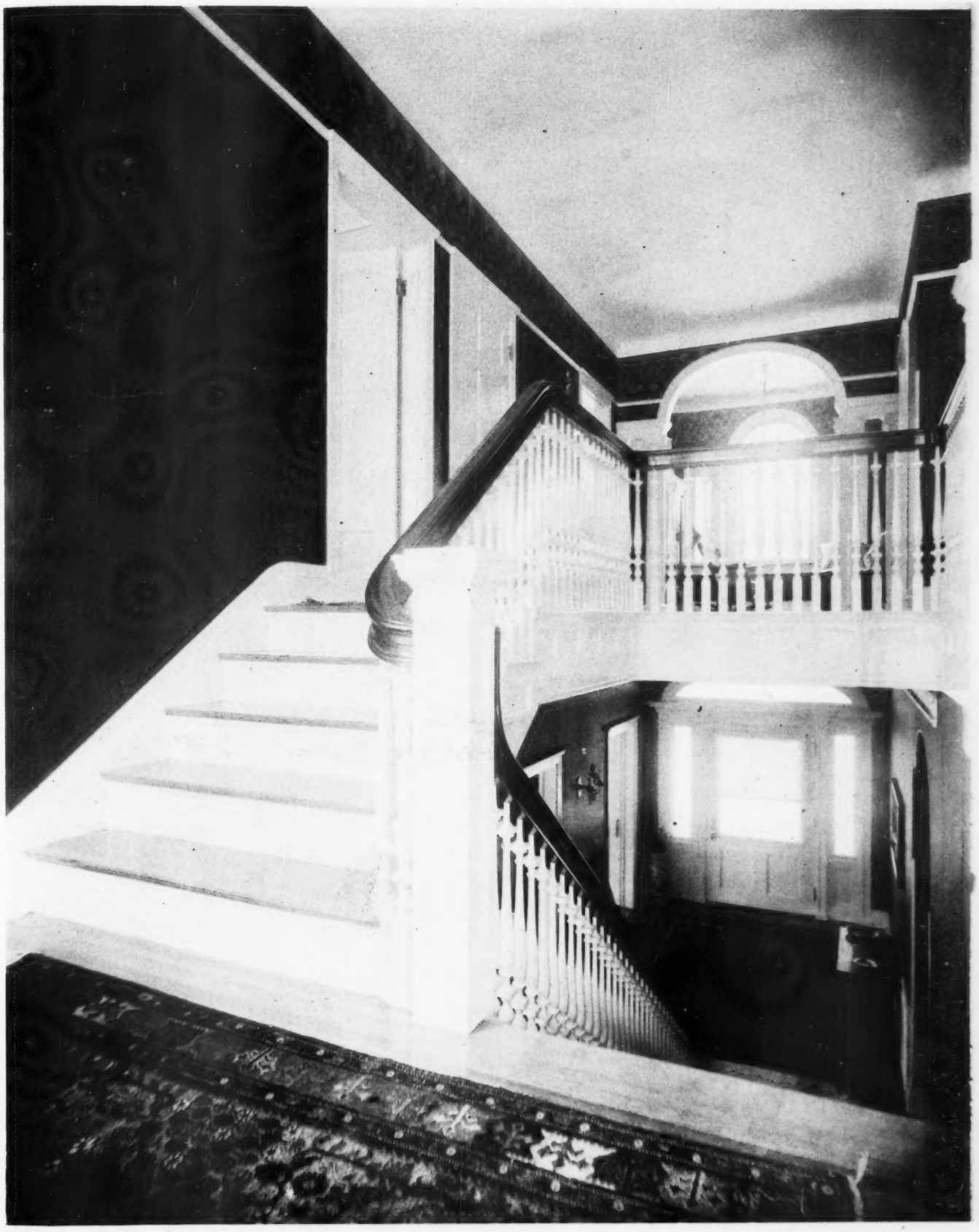

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