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CONTENTS.

SUMMARY:—

The Annual Convention of the American Institute of Architects announced for December.—The Consumption of Water by the New York Fire Department.—Curable and Incurable Waste of the New York Water-supply.—The Demand for a Cooling Process adapted to Domestic Use.—Instruction in Cold-storage.—Investigating the Causes of Malaria.—A New Decimal System.—The Distribution of Business amongst Lawyers. 49

THE HORIZONTAL LINES OF THE PARTHENON COMPARED WITH THE SEA HORIZON. 51

THE PRACTICE OF LETTERING. 52

THE SIMPLON TUNNEL. 54

BOOKS AND PAPERS. 54

ILLUSTRATIONS:—

A Competitive Design for the Lady Chapel of St. Patrick's Cathedral, New York, N. Y.: Three Plates.

Villa designed by Herren Spittler & Kronfuss.—First Prize Competitive Design for Central Cemetery Chapel, Vienna, Austria.

Additional: Two Competitive Designs for the Lady Chapel of St. Patrick's Cathedral, New York, N. Y.: Six Plates.—House of E. W. Harral, Esq., Bridgeport, Conn. 55

NOTES AND CLIPPINGS. 56

THE Annual Convention of the American Institute of Architects will be held this year later in the season than ever, as it will not be held until December, the precise date not yet being announced, and in Washington, according to the now established custom of holding the even-year conventions in that city. The object in deferring the date to a season when the days are nearing their shortest and out-door conditions are more than likely to be unfavorable to those excursions which have always been attractive features of these annual occasions is, that the meeting may be held at the time when the capital city is celebrating the one hundredth anniversary of its foundation. If the postponement were only for the sake of enabling visitors to see and enjoy what there is enjoyable in an American city *en fête*, the delay would seem to us needless and regrettable, but the Institute's convention committee hope that by holding the convention at this particular time, and when Congress, too, is in session, some effect may be had upon two or three very important matters that are likely to be under official consideration at that time, and largely occupying public and private attention. These matters are the remodelling of the White House, the adoption of a plan for the improving of the city, the proper grouping of Federal buildings, and the approach to the Potomac Memorial Bridge. With these special matters in view, the committee is preparing to be as helpful as possible by providing papers which deal with landscape architecture and the treatment of the urban plan, and will gather an exhibition of drawings which will have a bearing on these particular topics. Although it can hardly be hoped that Congress will adjourn and attend the Institute meetings *en masse*, it seems more than likely that members of the important committees can be induced to listen to the papers and discussion, and hearken patiently to the explanation of such drawings as may be shown, so that we are disposed to think the scheme an admirably helpful one, and to feel that the members will be glad to forego the social pleasures of out-door excursions for the sake of attempting to do a work of serious usefulness.

THE exigencies of municipal politics or, what is more to the purpose, the personal requirements of party bosses are such that it is altogether likely that the great "Ramapo water steal" may yet be accomplished, and the citizens of New York City be needlessly robbed of a large part of the two hundred million dollars involved in the scheme. But if there is anything that can rouse the public to take an effective stand against this nefarious job it is such letters as that which Mr. Francis C. Moore, President of the Continental Insurance Company, and an American citizen of the highest type, has written to the New York *Tribune*. Turning his attention to the fact that the promoters of the job urge as one of the chief arguments in its support the allegation that more water must be had for the sake of securing an adequate supply for fire-protection, Mr. Moore shows, by figures drawn from the official reports of the Fire Department, the puerility of this particular argument. He shows that in the years '96,

'97 and '98 the annual consumption of water by the Fire Department was almost exactly thirty-five million gallons, and that, almost as exactly, twenty-five per cent of this amount was salt water drawn from the rivers, while in the year '99, although the water used amounted to nearly one hundred million gallons, more than fifty per cent of it was river water. These last figures show not only that a salt-water fire-service might wholly supersede the use of fresh water but that already the fire-boats are effecting a very appreciable economy in the present water-supply. Further than this, Mr. Moore states that the entire annual consumption of fresh and salt water by the Fire Department is less in amount than the domestic consumption by the citizens for *one single day*, a statement which shows clearly that instead of being a main factor in the argument the needs of the Fire Department are one of the least. Brief, direct and simple as Mr. Moore's letter is, we doubt, as he does, whether it will have much effect. The present Water-commissioner is committed to the Ramapo steal and it would be very easy for him to so manipulate the supply, shutting it off here and letting it waste there, as to produce what would seem, to those who have not time or interest to investigate and reason for themselves, like a short and failing supply under present conditions.

ON the other hand, Mr. John R. Freeman, an hydraulic engineer employed as expert adviser by Comptroller Coler, of New York, who seems on the whole to be really opposed to the Ramapo steal, develops some figures which are not altogether reassuring, and largely because of the large amount of what he calls "probable waste, curable and incurable." Deducting this and also the "metered flow" for manufacturing and commercial purposes, which flow amounts to twenty-four gallons a day *per capita*, he arrives at the conclusion that the present system provides for domestic consumption only twelve gallons daily for each inhabitant. Perceiving that these figures must be meaningless to most men, he shows that in Fall River, Mass., where seemingly all water is metered, the use of water amounts to eleven and two-tenths gallons daily for each of the seventy thousand inhabitants. And as this, too, is somewhat meaningless, he shows that the meters used in three hundred and thirty-nine apartment-houses in Boston indicate a daily consumption of over thirty-five gallons for each inhabitant thereof, while in buildings of a similar character in New York it reaches fifty-nine gallons. The main point of interest in his report—that relating to curable and incurable waste—is, unfortunately, vague, and the factor is so large a one that it affects all deductions. Based on observation of the flow from the Central Park reservoir between one and four o'clock in the morning, he reaches the conclusion that this probable waste is at least eighty gallons a day for each inhabitant; then, apparently scared by his own figures, he declares that, as there are no means of definitely determining this waste, it must, at any rate, be "upwards of fifty gallons per inhabitant per day." It seems to us that an expert retained in favor of the Ramapo scheme could hardly have applied a factor-of-safety with more nonchalance.

THE bodily distress that has been caused by the hot spells of the last few weeks must have caused many a man to wonder why the race is so tolerant of a discomfort which human ingenuity should be able to palliate. Heat and light have been brought fairly under control and can now be distributed from central stations and consumed by enough customers to produce a satisfactory income for the owners of the plant, but the distribution of cool, fresh air from a central station, or what would to some degree have the same effect, the abstraction of heat-units at distant points through the operation of a central force, has, until now, eluded solution. The problem is one of the most difficult that can be laid before the man of science, since it contains not only physical but sanitary conditions of the gravest importance. The small electric-fan used as a cooling fan is a great boon to the few within the radius of its action, but as a sanitary agent it is very defective, and there is no great relief in being pelted hour after hour with a stream of the same foul and moisture-laden particles, and the larger power-fans are not much better, although they do help things somewhat, since they do make a real change in the atmosphere, while the small fans may simply stir about the same befouled medium. The few attempts to provide cooled

air by passing it slowly through underground tunnels or galleries, one such attempt having been made in Kansas City some years ago, we believe, have failed, largely because of the difficulty of getting rid of the excess of humidity at times present in the atmosphere, but largely because enough customers could not be found to support the undertaking, for in most towns it is only on few days and at widely scattered and irregular intervals that the excesses of the natural temperature are so great as to lead one to be willing to pay any sum for relief. Perhaps someone may be willing to repeat with city-water, and tell us how it works, the device adopted by a Swiss engineer, who framed his house with pipes and carried through them water from an underground supply which flowed all the year round at an even temperature. The commercial manufacture of liquid air seems to hold out possibilities of relief, and office-workers and householders may some day regularly "take in" buckets of liquid air as they now take in blocks of ice. Until that time, we in the northern cities cannot but wonder how it is that architects and draughtsmen in, say, Atlanta and New Orleans manage to do their work in the summer-time.

THE business of the maker of refrigerating-plants, already a large industry, received, it is said, a great impetus this spring because of the way in which the ice-trust of New York undertook to squeeze consumers, as one of the first results of the attempted extortion was to induce hotel-keepers, provision-dealers and other large consumers of ice to order private refrigerating apparatus of various makes and sizes. The business, already a prosperous one, is likely to be still further benefited because of increasing demand due to the instruction in cold-storage which is to be given at the School of Practical Agriculture and Horticulture at Briarcliff Manor, N. Y., a new course of instruction which is likely to be of great and widespread benefit, as one of the objects is to show how cold-storage plants can be established on the farm and so enable the preservation of perishable fruit and vegetable crops, which now either are allowed to go to waste or are all sent to market at the same time and so produce a glut and decline of price below the income returning-point. We hope the instruction may also cover the ways and means of affording to the hard-working farmer's wife a little physical cooling comfort in the hot August days.

JOKING about the New Jersey mosquito has long been a favorite amusement of the newspaper paragraphers, but a few lines in the New York *Evening Post*, not at all humorous, show that the creature is one to be taken very seriously. These few lines declare, on the authority of Professor Celli, Director of the Hygienic Institute of Rome, that there are now living in the Roman Campagna fifty thousand peasants worse off now than their fathers were in the times of the Roman Empire, for not only are they in a generally starving condition, but for this large population there are only some five hundred houses, some of them mere wigwams in which one hundred and fifty individuals shelter. How far, if at all, the mosquito is responsible for this state of things, we will not presume to guess; but it is beyond question that the condition of these people is due to the miasm of malaria exhaled from these marshy lands, once drained, perhaps, but now dangerous to any human being who even passes over them after sunset. Modern medical science has seemingly made up its mind that malaria, if not caused by, is at least disseminated by the mosquito, and to prove or disprove this assumption two young English physicians have undertaken one of those heroically self-sacrificing tasks of which the success, and the failure no less, have shed so much lustre on a hard-working, tender-hearted, self-sacrificing profession. To determine how far, and in what way, human life can be guarded against malarial infection, these two young doctors, physically in perfect condition, have established themselves in a hut on the edge of a swamp about three miles from Ostia, known to be a particularly deadly spot, and here they propose to stay and pursue their bacteriological study of the disease, and make examination of the insect and reptile life of the place: these things mainly for their distraction, as their main duty is to carry on an experiment *in corpore vili* and to watch for and observe "symptoms," each his own as well as his companion's, and then record the stages of the disease as it develops. Much helpful information is hoped to be secured from this investigation, and it should be much to compensate the risk, since malaria, even when not immediately fatal, is one of those recurrent-diseases which sap a man's vitality and make his life unproductive and a burden.

MR. A. LINCOLN HYDE, of Cleveland, Ohio, publishes a little pamphlet on a new decimal system of weights and measures, which has a serious interest. Although the metric system is now prevalent through the greater part of the civilized world, it has great and acknowledged disadvantages. The worst of these is the inconvenient character of the standards. A person of ordinary height, holding one hand in the middle of his breast, can reach with the extremities of the fingers of the other hand a distance of about a yard; and dressmakers often roughly measure goods in this way; while to reach a metre is impossible, and the addition, by the eye, of a little more than three inches to the yard measure is difficult. The foot also, and the inch, although no one now has feet a foot long, or thumbs an inch wide, can be judged with tolerable accuracy, while the centimetre is a difficult standard to keep in the mind. Again, while the quarter or eighth inch is easily judged, and constantly employed, the millimetre is too small for ordinary use, and the substitution of three millimetres for one-eighth of an inch is more complicated, and more likely to lead to mistakes. In the same way with measures of capacity: while a fluid ounce is easily judged by the eye, cubic centimetres are much less readily estimated, and as soon as the standard must be habitually multiplied to reach a quantity of practical utility, an opportunity is afforded for errors. Even in the countries which have used the metric system for a century, many of the old measures still persist, in consequence of their superior convenience. Probably more people still reckon in France by sous than by centimes, for the simple reason that a sou is a current coin, large enough to buy something, while a centime is merely a scientific expression, or, at most, a numismatic curiosity; and, in the country districts, bread and similar commodities are still sold more generally by the livre, or pound, than by the half-kilogramme, which would be nearly the same quantity, but is an awkward thing to speak of. Mr. Hyde, recognizing these advantages of the old standards over the new, proposes to keep one of them, the inch, and multiply and divide it by ten, squaring and cubing it as required. We cannot say that we approve of the nomenclature which he proposes, and think that, in ordinary writing, there would be endless mistakes between "cubids" and "cubiks;" but this is a trifling matter. The main point, of the retention of the inch as a unit, instead of adopting the centimetre, is of great importance to our manufacturers and machinists, whose plant is based on the old standards, and could only be changed at great expense, and it is quite possible that a compromise of this sort may prove of much value.

A CONTRIBUTOR to the *New York Law Journal* has made an inquiry into the present distribution of business in the legal profession which might be paralleled by one made into the manner in which "trade" is divided amongst architects nowadays. He has examined the last calendar of the Supreme Court and finds that less than twelve thousand cases were in the hands of some twenty-two hundred lawyers, nine hundred and twenty-nine of them having but a single case each to his credit, while only a dozen lawyers had as many as five cases each. Of course, these are jury cases and prove nothing as to the magnitude of chamber practice, but the figures have all the air of proving that a very large percentage of lawyers find difficulty in making a living. On the other hand, one firm had six hundred and nineteen cases amongst those entered in the calendar, while other leading firms had large shares in the total amount; but still there were only five firms that had each as many as fifty cases. The explanation lies partly in the fact that the legal practice is changing in this country, the English discrimination between barrister and solicitor becoming more generally observed here, and that the class of lawyers who only plead in court, taking briefs from their brother lawyers who do not, is getting an increasing number of cases and an apparently larger proportion of business. It also lies in part in the growth of the practice of specialization that pervades modern life. It is from this point-of-view that instructive information might be derived by a similar analysis of the building-permits issued in any large city. Such an examination would probably show that a large number of architects had but a permit or two to their credit, and it would probably show that where an architect had a large number of buildings under his charge an explanation could be found in the fact that they were all buildings of a single class, in the erection of which the architect had become a specialist.

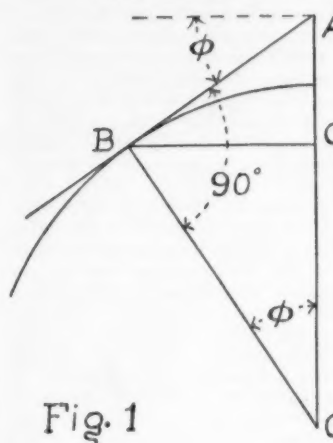
THE HORIZONTAL LINES OF THE PARTHENON
COMPARED WITH THE SEA HORIZON.

Fig. 1

It is a well-known fact that the principal horizontal lines of the Parthenon are not straight, but have an upward convexity amounting to several inches. This strange departure from the ordinary method of building must have added considerably to the difficulty of construction, and would hardly have been chosen by the architects of this great masterpiece of the building art without some good reason. Attempts have been made to show that the curvature of the stereobate was necessary to ensure good drainage; but such explanations are unsatisfactory, for it is evident that an equally good system of drainage could

have been devised without the necessity of using curved lines. To a large number of those who have studied the matter, it has seemed probable that these curves were employed for the purpose of satisfying some highly refined, artistic sense possessed by the ancient Greeks, which modern architects either do not recognize or think it not worth while to consult.

The reason for the upward convexity of the entablature lines under the pediments is doubtless to be found in the desirability of counteracting the optical illusion caused by the slanting lines of the pediments meeting the horizontal lines at an acute angle, such a relation causing a straight horizontal line to appear curved downward. No such theory can, however, be applied to the horizontal lines of the flanks of the temple.

Early in the present century, Dr. Emil Braun advanced the theory that the Greek builders endeavored to make their horizontal lines harmonize with the curve of the sea horizon as seen from the temple; but, so far as the writer knows, Dr. Braun made no attempt to prove the truth of this theory, and the attempt of Penrose to apply Braun's theory to the flank-lines of the Parthenon gave such an unsatisfactory result that the theory seems to have been then abandoned so far as it might have been thought to apply to the lines of this temple.

In the attempt of Penrose and others to test the truth of Braun's

observe how it varies with the point-of-view. From a vessel far out from shore, or from a small island distant from other land, the horizon may be seen as a complete circle; but because our point-of-view is so near the plane of the circle, and we view the line at such an acute angle, a small section of the horizon appears nearly straight. If, however, we could by some means ascend to a considerable height, the curvature of a given arc would appear much increased, and it is possible to conceive of a height where the horizon would appear as a small circle within the limits of a single view.

The sea horizon may be defined as a circle passing through the points where the visual rays from any point-of-view become tangent to the surface of the sea. The radius of the horizon circle for any given point-of-view may be found by means of the following formula:—

$$BC = AC \times \cot. \phi$$

Where BC equals the required radius, ϕ , the angle made by the visual rays with the horizontal, and AC , the vertical distance of the point-of-view above the plane of the horizon, which for heights less than one thousand feet may be taken as twice the elevation of the point-of-view above sea-level. It will be seen from Figure 1, where A represents the point-of-view, B a point in the horizon, and O the centre of the earth, that the angle ϕ is the same as that between the radius, BO , and the vertical, AO , from the point-of-view.

In this and the following figures, the elevations and angles have been shown much exaggerated in order to avoid confusion of lines, and show the method more clearly.

Figure 2 may be supposed to represent a perspective view of Figure 1, with a section of the horizon line passing through B . Here is shown, at FEG , a view of the horizon line, somewhat as it would appear from the point A ; the short line, ED , representing the greatest deflection of the curve from a straight line, FG , joining its extremities.

Now, to return to the natural horizon, any one who has visited

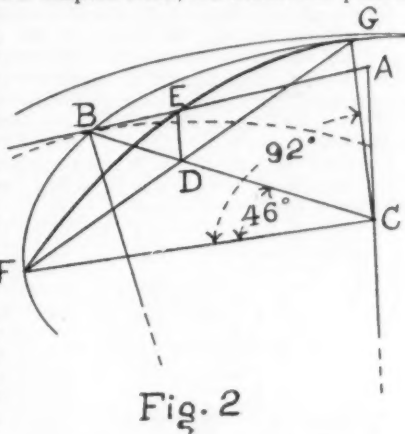
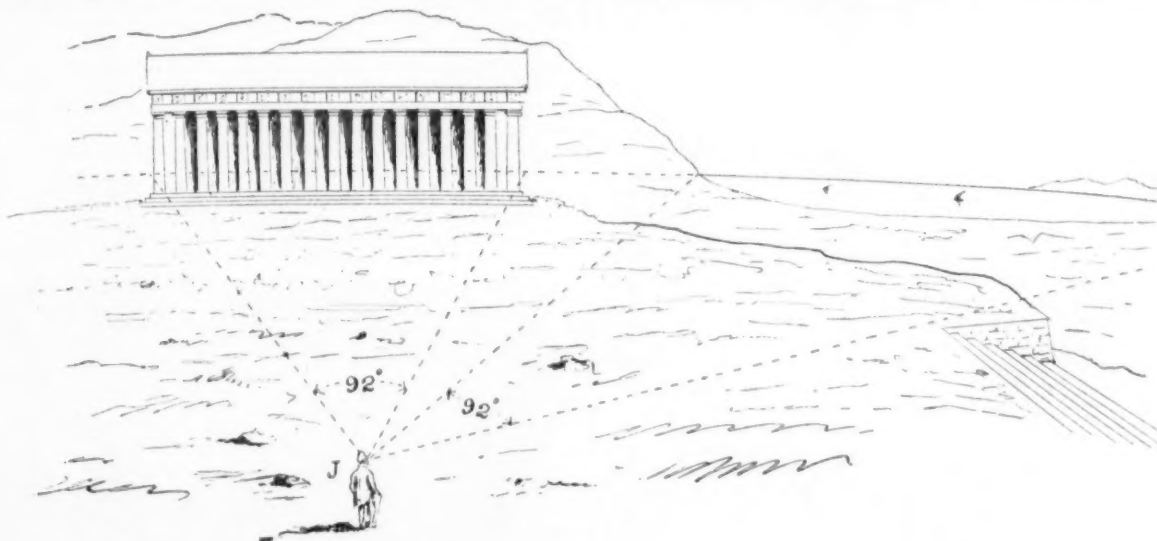


Fig. 2



theory, the mistake seems to have been made of comparing the Parthenon lines with an arc of the horizon limited by the natural visual angle of 60 degrees. What methods were used in making the tests referred to, the writer is unable to state, but the result obtained by Penrose showed but little more than one-half as much deflection in a 60-degree arc of the horizon as in the flank-lines of the Parthenon.

The following calculations will show that Dr. Braun's theory was right, so far as it went. But, furthermore, I propose to show that not only do the flank-lines of the Parthenon harmonize with the curve of the sea horizon, as seen from the Acropolis, but that the curves are really parallel when the correct point of observation is chosen and the whole length of the sea horizon visible from that point is considered.

In order to make the method of my calculations clear, let us note—first, some of the characteristics of the sea horizon, and

the Acropolis at Athens must have been impressed by the magnificent view of the sea which appears towards the southwest. A very clear impression remains in my mind of this view as seen from the platform of the Nike temple, in the spring of 1897. On a clear day, the horizon may here be traced from the slope of Hymettos, towards the east, to the shore of Salamis on the west, broken only by the island of Ægina, and one or two other small islands. To be sure, the heights of Corinth appear above the horizon towards the west, but as the shore-line is here below the horizon, the curve is continuous until it strikes the shore of Salamis. The length of this arc of the horizon I have ascertained to be about ninety-two degrees.

When the extreme refinement displayed by the Greek architects in the delicate entasis of their columns and in the correction of slight optical illusions is considered, it seems to me a reasonable assumption that, in the matter of horizontal lines, they should have

taken as a basis this conspicuous and sharply defined natural line, which is the true horizontal, rather than the shortest distance between two points—which is the common practice to-day.

As has already been said, the curvature of a given arc of the horizon varies with the height of the observer. In the following calculations the elevation has been assumed to be 485 feet, which is, as near as I am able to ascertain, the height above sea level of the Nike temple platform, where one has the best view of the horizon that can be obtained from any part of the Acropolis or of the city.

The mean radius of the earth being 20,898,240 feet, we may compute the length of AB , or of a visual ray from the given elevation, by means of the following formula:—

$$\begin{aligned} AB &= \sqrt{AO^2 - BO^2}, \\ &= \sqrt{20,898,240^2 + 485^2 - 20,898,240^2} \\ &= 142,378 \text{ feet, then} \\ AC &= \frac{AB^2}{AO} \\ &= \frac{142,378^2}{20,898,240 + 485} = 970 \text{ feet, very nearly,} \\ \text{and } BC &= \frac{BO \times AC}{AB} \\ &= \frac{20,898,240 \times 970}{142,378} = 142,376 \text{ feet.} \end{aligned}$$

Now, the length of the arc of the horizon under consideration being 92 degrees, we have, Figure 2,

$$\begin{aligned} BD &= \text{Vers } 46^\circ \times BC \\ &= .30536 \times 142,376 = 43,463 \text{ feet.} \end{aligned}$$

We have, also, by similar triangles,

$$\begin{aligned} ED &= \frac{AC \times BD}{BC} \\ &= \frac{970 \times 43,463}{142,376} = 296.1 \text{ feet,} \end{aligned}$$

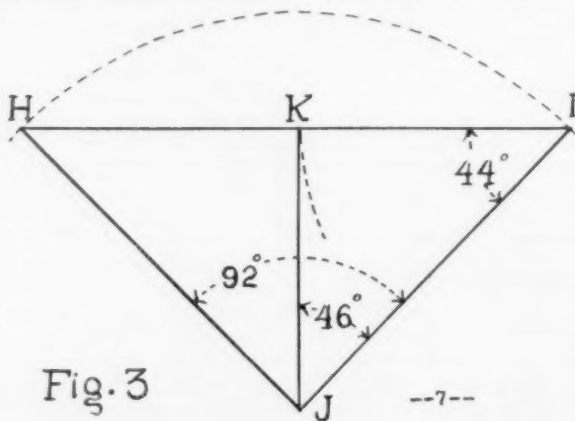
which is the actual deflection, in feet, of the horizontal line between Hymettos and Salamis, from a straight line joining the extreme points; viewed, however, from a distance of more than eighteen miles.

Let us now suppose that the northern flank of the Parthenon is being viewed from a position where the length of the flank will be subtended by an arc of 92 degrees described about the point-of-view as a centre. The length of the flank being 228 feet, we have, Figure 3, the point-of-view, J , at a distance JK , directly in front of the middle of the flank.

It will be seen that

$$\begin{aligned} JK &= \tan 44^\circ \times KI, \\ &= \tan 44^\circ \times 114 = 110.08 \text{ feet.} \end{aligned}$$

In order to compare the deflection of the horizontal lines of the Parthenon with the deflection of the arc of the horizon, that we



have been considering, we need to note the relative angles of the visual rays. We have assumed such a point-of-view in front of the Parthenon, that the horizontal visual angle is the same as that which includes the limits of the arc of the horizon under consideration. The vertical visual angle, in our view of the horizon, will then be measured by ED , in Figure 2; but ED is distant 142,376 minus 43,463 = 98,913 feet. To find XY , the corresponding measure for the same visual angle at a distance of 110 feet, we must apply the proportion:

$$\begin{aligned} XY : ED &:: 110 : 98,913, \text{ or} \\ XY &= \frac{296 \times 110}{98,913} = .329 \text{ of a foot.} \end{aligned}$$

which is within two thousandths of a foot, or considerably less than

one-thirty-second of an inch, of the exact mean between the deflection of the entablature and stylobate lines on the flanks of the Parthenon, as given by Penrose. Or, in other words, the horizontal lines of the Parthenon, as viewed from a point 110 feet distant from the middle of the north flank, correspond almost exactly with the curve of the horizon, as seen from the most favorable position for viewing it in Athens. Reference to a plan of the Acropolis will show that the position taken as a point-of-view is one of the most favorable that could be chosen for viewing the northern flank of the temple, and that no such good view of the southern flank can be obtained from the Acropolis, on account of its nearness to the precipitous slope on that side.

At the time the Parthenon was built, the Propylaea, which now somewhat interferes with the view of the horizon from the point indicated at J , had not been erected, so that an observer stationed at that point could then see both the Parthenon and the horizon line without changing his position, and the view of the horizon thus obtained would not vary appreciably from the one on which my calculations are based. It would have been an easy matter, with straight edges and movable ordinates, for two or three men to have taken a pattern, as it were, of the sea horizon at the distance of 110 feet from one of their number stationed at J , and then to have transferred this pattern a little to the left, where it could have been used as a base-line for the building under construction.

The writer has been told that the pioneers of the West often levelled their houses by sighting over the horizon of the prairies, which is a far less accurate method than that available to the Greeks, with the sharply defined sea horizon in full view.

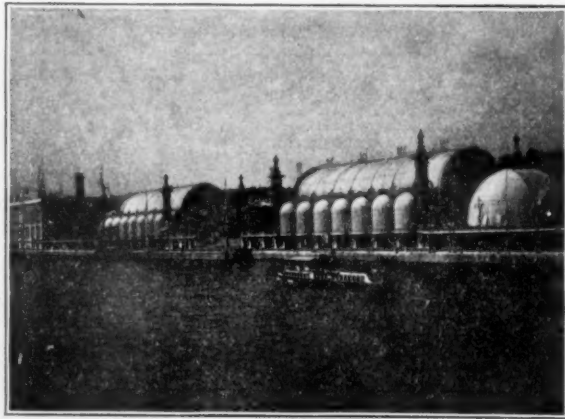
Although the curvature of the stylobate lines, as they exist to-day, may be easily measured, it is necessary to estimate, in part, the curvature of the entablature lines of the flanks, on account of the ruined state of that part of the temple. Taking this into consideration, as well as the fact that I have been unable to measure altitudes and angles with perfect accuracy, it may be considered remarkable that the result of these calculations comes so near the mean of the deflections of the lines of the Parthenon, as previously measured and estimated by Penrose and other observers.

During the long period of more than twenty-three hundred years that has elapsed since the building of the Parthenon, though Nature's line has not changed, various causes have altered the lines of the building beyond any man's power to restore perfectly. It would, therefore, be useless, in their present state, to attempt to determine whether or not they belong to any class of Conic Sections. Penrose, however, states that the Parthenon curves approximate arcs of circles, while we know that the horizon line is a perspective view of an arc of a circle, which would vary only slightly from a true arc within the limits taken. Equal portions, therefore, of the horizon and of the Parthenon lines, such as would be included within the natural visual angle of an observer stationed at the point J , would appear parallel so long as the deflection from the straight line is the same in both cases for an arc of 92 degrees, which the result of the above calculations shows to be true.

I believe, therefore, that it is safe to conclude that the builders of this matchless structure, sensible of the beauty of that long, sweeping curve, laid their horizontal lines parallel to the great natural line that was always before them, regardless of extra labor, so long as perfect harmony with Nature might thus be secured.

WILBUR F. DECKER.

THE PRACTICE OF LETTERING.¹



The Horticultural Buildings, Paris. Gaudier, Architect.

IN this paper I have no new discovery to bring before your notice, and no new process of study to advise. My subject is that one, next to the faculty of intelligible speech, most intimately bound up with the life of every person of elementary education, and my object in bringing it before this Society is to endeavor to gain some supporters for a movement against certain tendencies of the day,

¹ A paper by Edward F. Strange, read before the Society of Arts and printed in the *Journal of the Society*.

which appear to many of us to be ugly, unnecessary — the terms are almost synonymous — and fraught with great danger to the younger generation of artists and craftsmen.

I need not take up your time with a catalogue of the various faults of the most modern lettering. There is hardly a street in which you may not see bad letters displayed with all the frankness in the world; there is hardly a publication in which you will not find type or drawn letters calmly devoid of any pretensions to beauty; there is hardly a public building which does not possess some weakly pretentious inscription in which the carelessness or vanity of the writer is set forth in a way he hardly intended. And my whole object on the present occasion is to try and point out how easily these things might have been better done, and how greatly a little thought, a little modesty, a little good taste would have assisted the makers of these bad letters in the objects they had in view when they produced them.

Now the first element of a cure is to ascertain the origin of the disease. In this case I am convinced that much of the trouble arises from an idea that students and craftsmen seem to be continually getting into their heads that they have to design the letters of the inscriptions on their works. Now that is precisely what they must be warned against. You cannot design a letter. You may burlesque it. You may mutilate it by breaking its back in unexpected places. You may complicate it with weird growth of a more or less fungoid nature. But you cannot design it, for design implies invention, and no one can be said to invent what already exists; while any attempt to give new forms to the letters in current use can only be compared for audacity with deliberate experiments in the making of new words — I would even go so far as to say new languages.

For let us consider shortly what the letter really is. It is the accepted medium of intellectual exchange, the current coin of educated civilization. It bears its value on its face — the form agreed on by the millions who use it. No man may measure the process of imperceptible refinement by which these twenty-six symbols have arrived at their present state of almost world-wide acceptance. Wherever the Latin races have gone these letters are the daily tools of written intercourse. Wherever the Anglo-Saxon sets his foot he carries with him this great bond that unites him to his fellows. Some nations, indeed, stand out against them; those of Northern and Southeastern Europe for example. But even among them our alphabets have no little currency, and the adoption of European methods of education in science, art and literature is putting a heavy strain on the literary patriotism of Oriental nations — as, for instance, Japan — which are seriously setting themselves the task of coming into line with us.

Now, if a craftsman lays himself out to give a letter a new shape he is paying himself the compliment of asking several hundred millions of persons to accept his image and superscription instead of that which many generations of themselves have already agreed upon. It would be sublime if it succeeded. But in practice it is simply ridiculous.

I must guard against being misunderstood on this subject. I have said that you cannot design a letter — the form stands. But it must be made absolutely clear that this statement applies only to essential structure. It is impossible for any one who possesses any individuality whatever to express himself in any medium without endowing it with character. That may be seen in handwriting, slipshod and utterly bad as most of our seraws are. If we want to be understood there is always a point beyond which we may not go. However our training, our carelessness, our physical peculiarities may warp them, we must always keep recognizably close to the accepted forms of the written letter, or our purpose in writing fails, we do not convey our thought to the intended recipient of it, we have simply spoiled paper with futile and illegible marks.

But as to character. This means, for us, a certain personal singularity in the making of letters which gives distinction — individuality anyway — to the accepted, and still easily understood, letter. I would instance to you the types made by William Morris, and especially the Roman type on the basis of that of Jenson. There is nothing to prevent a craftsman from getting his character into his lettering — if he has any — and takes pains enough to develop it. But it will not be done by setting to work as I see so many do, who simply sit down at the last minute to hunt up a convenient model for the hated but necessary lettering, copy it more or less perfunctorily, put in a few eccentricities or excrescences on the spur of the moment, and then wonder why the result does not look well.

So far I have dealt with the abstract drawing of the letter, but there are other considerations of high importance. But before passing on to them, I wish to draw your attention to an example of definite form, which is not only historically interesting but of the greatest practical value. This is the alphabet of square capitals from the "Geometria" of Albert Dürer, A. D. 1525. Each letter is placed in a square, and a relative scale of proportion is worked out to one side thereof. Thus the thickness of the main shafts of the letters is one-tenth of a side. The great curves are struck from circles nine-tenths of a side in diameter, the smaller curves from circles respectively one-third, one-fifth and one-tenth of a side in diameter, and the distance of the uprights from the side is generally one-tenth again. Now I know I must face a protest against a mechanical hard-and-fast rule for the drawing of letters. But the objectors, if such there be, must not too hastily conclude that this example is nothing more. To begin with, it will be seen to be a singularly good

alphabet. And a little consideration will show that Dürer — the last man one would expect to tie himself down to a formalism — did not invent the construction to produce the letter; but seeing that the letter was good, worked out the natural law of its excellence, and set it down for the benefit

of his fellows. There is no ground for the common habit of looking on Dürer as the originator of it in any sense; for this alphabet with construction is to be found, essentially the same, in nearly all the copy-books of the period. Only one explanation is possible. The form of the letter was, as I have said, practically invariable. Up to the invention of printing it had been a workshop tradition handed on by rule of thumb from master to apprentice. But as soon as a generation had well learned to read, the multiplication and cheapening of printing processes at the end of the fifteenth century created a demand for the means of



Dürer's Alphabet.

learning to write, and the result was the production of the copy-book in the beginning of the sixteenth century, and the publication of methods which, as my examples, I hope, will prove, were not new, but only now for the first time made easy of access to those interested.

The influence of material on the form of the letter is a matter that the craftsman can only work out for himself. It is impossible to give him rules or teach him limitations. For the very fact that he is entrusting himself with the making of an inscription implies a mastery of his tools, and if he has acquired a good form of letter those tools will do the rest. Yet it is necessary — with so inconsiderate and light a heart does a man often set about a serious operation — it is necessary to point out one danger. He must not take a style of lettering which is good in one material and for one purpose, and try to adapt it by brute force to other circumstances. His method of study must be a genuine one, and, it goes without saying, somewhat laborious. I can give it in no better words than those used by William Morris in describing the means by which he arrived at the first of the Kelmscott types. Having decided on Jenson's type as his model, he set to work to learn it, "Drawing it over many times," said he, "before I began designing my own letter, so that though I think I mastered the essence of it, I did not copy it servilely." That, indeed, is the crux of the whole matter of learning to make good letters. The essential form of a good model must be acquired till it can be produced without conscious effort, and, as it were, automatically. The personality of the craftsman and the materials with which he is working will then react on this, giving it interest, beauty, or character, according to his talent.

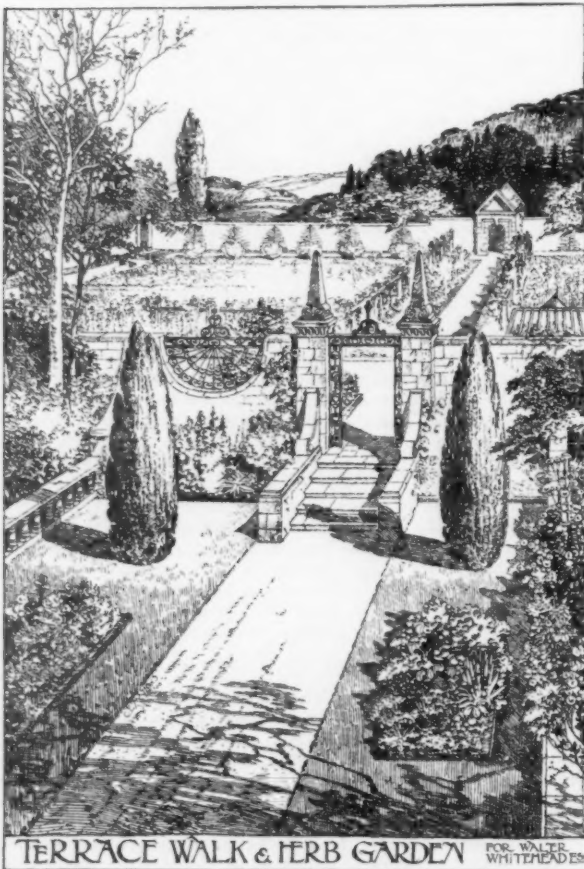
Before I leave the discussion of the form of letters to deal with one or two points in the application of them, I must needs touch upon a branch of the subject which, to some extent, overlaps both these questions, viz, type. This alone has furnished material for many notable papers which have been read in this room, and it would be impossible, even if it were necessary, for me to treat it adequately in the short space at my disposal. I exhibit a series of examples of type, chiefly for comparison with letters executed under other conditions, and to show what necessary modifications the demands of the printer make on the original form. I need not repeat the well-known qualities of good type; I need not review at length the merits of the early types of Caslon, or of those of Morris. But I do desire to take this opportunity of entering a protest against the fancy types beloved of the compositor, and the uses he makes of them. No age has yet seen such an array of ugliness as is offered by the average advertisement-page of a magazine, or the lettering on a bill-head or trade-circular. The soul of the printer delights in variety. It is his idea of art. A small octavo hand-bill issued to announce some recent lectures of mine on this very subject contained no less than thirteen different fonts of type in about fifteen lines of matter; but I did not design it, and was, on the whole, rather glad to have a bad example so easily placed in my hands. Fat, ugly forms, letters shaded to look like masonry, mere shading alone, as it were the ghost of a letter, ornament without backbone; all these are in daily use and very much admired. Some of the recent developments, especially those imported from America, are particularly vile and irritating.

Their designers are, indeed, well up to the advice given to students by a recent writer on the subject, to "mark what is characteristic in the letter; to develop what is peculiar to it; to curtail, or it may be to lop off, anything which tends to make this confound it with another; to emphasize in short the individuality of each individual letter and make it unmistakable." The consequence is that we have letters like H, M, N set upon ungainly stilts; the rotundity of O and C made to cover the meanness of the letter which follows; while the curliness of the tails of those letters which possess them is fearsome

and bewildering to contemplate; or else the poor tails themselves are "lopped off." I do plead for simplicity and modesty in letters made for public use. Nothing is more irritating or defeats its own end more thoroughly than an eccentricity in the form of the letters which withdraws your attention from the word which they are used to make. For this is, after all, one of the greatest faults of the modern maker of letters: he is so eaten up with his ingenuity or phantasy as to forget that his letters are only the elements of what should be a legible announcement.

It should be unnecessary, even ridiculous, to remind craftsmen that the purpose of making letters is to convey information and not to advertise their own dexterity; but the examples of every-day life seem to show the former to be too often the last consideration. The modern poster depends, as a rule, on a design of weird tints, which may or may not be capable of suggesting anything to the beholder save a pardonable desire for color-blindness. The lettering, very often tied in an inextricable knot, dances drunkenly across a portion of the design: or in great misshapen masses makes it top-heavy. No one seems to dare to try the experiment of extreme simplicity: a good, bold, well-chosen letter, spaced with regard to the relative value of the different portions of the announcement and free from any complications of pattern of any kind whatsoever. Yet, surely, it is one of the highest canons of fine-art that beauty and force are dependent upon simplicity rather than elaboration. The fact is that too much attention is given to the letter as a unit. It must be considered in relation to its fellows, the whole alphabet as a whole, for it is only after you have settled the shapes of your letters that your designing begins, when the question arises as to what you will do with them.

THE SIMPLON TUNNEL.



From Building News.

ON November 13, 1898, work was begun on the Simplon Tunnel. The contract calls for its completion in five and one-half years, and the price to be paid is 69,500,000 francs (\$13,413,500). It will have a length of 20 kilometres (12.4 miles), and will be the longest tunnel in the world. When completed, it will be the third one connecting Italy with outlying countries by direct rail, and will accomplish a saving of 77 kilometres (43.5 miles), or from 7 to 8 per cent on travel from Paris to Milan, as compared with the Mont Cenis or St. Gothard tunnels. The Mont Cenis Tunnel has a length of 13 kilometres (8 miles) and the St. Gothard a length of 15 kilometres (9.3 miles).

When in the fifties the wonderful project of drilling the Mont Cenis Tunnel was undertaken, fathered by the courageous Italian Minister of State, Cavour, no machines for drilling were in existence, and it was calculated that a period of twenty years would be necessary for every 5 kilometres (3.1 miles) of tunnel drilled. Then Engineer Sommeiller, in charge of the work, constructed the first

drilling-machine, and, although crude, it was satisfactory enough to accomplish ten times the work done by manual labor, and enabled him to finish the tunnel in eleven years. The St. Gothard Tunnel was finished in from eight to nine years.

The Simplon Tunnel begins in Switzerland near the little town of Brig, in the valley of the Rhone, Canton Wallis, and ends in the valley of the Diveria, on the Italian side near Isella. It will be perfectly straight, except for a small curve at the ingress and egress. The contract for the tunnel provides for a fine of 5,000 francs (\$965) per day if the time limit is exceeded, while a gratuity of the same amount per day is to be given if it is finished before the stipulated period. A little computation will show how disastrous strikes will be. A strike of ten days has just ended.

The fundamental principle in tunneling always has been to drive the hole, excavate, and follow it up with the finishing masonry, making provision, of course, for ventilation, which is generally sufficient at first, but which becomes insufficient when the work progresses towards the centre, when the incoming fresh air mixes with the outgoing gases. The methods employed by Engineer Brandt, who has been in charge of the undertaking, is to drive two holes parallel within the radius of the excavations, leaving a dividing-line, one hole being excavated about 17 metres (55½ feet) in advance of the other. These are built for a single track, and later on the dividing-wall can be broken through for double tracks if necessary. At distances of about 200 metres (656 feet) transverse connections between the tunnels are made through the dividing-wall and are provided with doors. To obtain sufficient ventilation, powerful air-blasts are blown into one side of the tunnel, which return through the other side of the divide, and thereby conduct outward all foul air and bad gases. When the air in the interior increases in heat, it is cooled by showers of cold water which has been led from the exterior of the mountain under high pressure. Through practical experiments in the mines of Spain, Engineer Brandt has proved that air at 50° C. (121° Fahr.) by this means can be reduced to 15° C. (59° Fahr.). These same streams furnish 1,000 horse-power for driving the drills. The miners, therefore, always work in an artificial atmosphere of cool, fresh air.

Engineer Brandt's invention is a hydraulic rotary drilling-machine, by which it is hoped to complete the tunnel in less than contract time. It is used singly and in battery form. Prominent engineers come from far and near to examine this powerful mechanism.

Another of Mr. Brandt's inventions is a machine for loosening and removing the debris after the explosions and blasts. It throws a powerful stream of water in a jerky manner into the stones loosened by the force of the blasts, thereby washing away the dirt. This makes excavation easier. These machines run on rails, and when in use follow each other in rotation.

The historical museum of the Kaiserlich und Königlich State Railroads in Vienna possesses the first hydraulic rotary machine invented by Brandt, which he used in tunneling through the Arlberg, in Austria, in 1867.

During November, in which ten days were lost on account of the strike, there was drilled at the south side 144 metres (472 feet) and at the north side 123 metres (404 feet). The total, since the commencement of the work, is 3,574 metres (about 2½ miles) — 2,148 metres (1½ miles) at the north side and 1,426 metres (nine-tenths of a mile) at the south side.

ADOLPH L. FRANKENTHAL, U. S. Consul.

BERNE, December 12, 1899.

BOOKS AND PAPERS

THE "Architectural Annual,"² for which the Architectural League of America at its last meeting declined to stand sponsor, is the very creditable, if not wholly successful, accomplishment of a very ambitious undertaking, one of those undertakings which none but the tyro in matters of publishing would ever dream of attempting without some sort of reliable guaranty-fund behind him. Doubtless, the announcement that the publication of this first number had entailed a loss of several thousand dollars was enough to decide the League to decline to attempt to maintain the "Annual" as an official publication, but we cannot help feeling that the egoism of the editor, as displayed on his title-page, caused some members to vote against the proposition advocated by him.

Excellent as this first number is mechanically, we hope that in the following years the editor may come a little closer to our conception of what such an annual publication ought to be, and our conception is, briefly, that the chief function of the editor of an annual is to look back rather than forward, to put the history of the past year into chronological sequence, to bring together the loose ends left by the weekly and monthly journals, — which have to attempt to keep up

¹ An illustration of the machine accompanied the report, and is filed for reference in the Bureau of Foreign Commerce.

² The "Architectural Annual," published under the auspices of the Architectural League of America and edited by Albert Kelsey, late holder of the Travelling-scholarship in Architecture of the University of Pennsylvania; former President of the T-Square Club; Delegate to the International Congress of Architects, Brussels, 1897; Member of the Committee on Works of Art of the Fairmount Park Association, and President of the Architectural League of America. Issue of 1900. Philadelphia. The "Architectural Annual," 931 Chestnut St. Price \$3.50.

with the record of the beginnings of things, the real importance of which can only be revealed by the passage of time, — to review and record rather than to exhort and admonish. It is far easier, of course, and more entertaining to an editor to fill up his space with his own lucubrations and vague speculations rather than spend his time in digesting and boiling down to a record of proper compass the doings and sayings of other people; but it seems to us that such an annual should be of so definite a character that one would know that in turning to it for information he would find only information of a definite and restricted character, that the third volume would be like the first, and the fourth like the third, so far as the plan of the work is concerned. He ought not, it seems to us, to find it a mere miscellany, and in that no different from a bound volume of any magazine, a miscellany that is a mixture of one kind this year and a hash of dissimilar ingredients next year. It ought not to be merely a magnified exhibition-catalogue of the modern kind — sophomore essays and an unorganized array of illustrations. We believe that if the editor will work in the direction we suggest he will accomplish something of worth and value, something from which he will derive that sufficient support which alone will enable him to feel sure that the "Architectural Annual" can make its appearance in good form year after year. From our point-of-view, the greater part of the text-matter in this publication is out of place. What possible reason can one have for expecting to find in an annual an essay on the "Marquise," or "Bismarck's Birthday Monuments," or "Baron Haussman," or "Commercial Architecture," or biographical sketches of living men, in short?

We regret very much the advent of the architectural Boswell — though it is rather a slur on that gossip sycophant of great men to so name the modern extoller of the deeds of living men, young men too, though very admirable ones, of course, for he at least had the decency to publish his fulsome flattery only after the death of his chosen subject, while these modern architectural biographers seem to possess neither conscience nor modesty, and the worst of it is that they make the reader feel that the chosen subject is equally lacking in these desirable qualities. The familiar adage *de mortuis nil nisi bonum* stands for proof that it is at least difficult to speak the truth about those whose susceptibilities can no longer be wounded by frank truth-telling. As for the living, an autonym might be invented running somewhat after this form: "*De vivendis verum non potest diceri.*"

The "Annual" contains two biographical sketches; one, the tender obituary sketch of Arthur Spayd Brooke, brought the moisture to our eyes because of the obvious sincerity and feeling with which it was written; the other a more ambitious treatment of Mr. Wilson Eyre's work, and though it is far from being ill-done, — infinitely better than those strange psychological expositions that Russell Sturgis and Montgomery Schuyler are employed to write about "great American architects," — we cannot but regret that the notice was written and published. Of Mr. Eyre the writer says, and we believe it very strict truth that he writes, "His aspiration is not to make a stir in the world, but to do what he does worthily." Why then inflict on him or on other people who have the same genuine aspiration — and there are many such — such publicity as this? Publish an architect's drawings by all means, singly or collectively, but let the living man himself alone, or, if he is "that kind of a man," let him blow his own trumpet in the daily papers. As for Mr. Eyre's work, we regard it as almost always the product of a feeling, and a feeling is a too complex thing to be analyzed.

The *Quarterly Bulletin* of the American Institute of Architects, on the other hand, is very properly conceived and is likely to become a useful publication, supplementing as it does the annual publication of the *Convention Proceedings*, and may help to keep alive in the organization that feeling of common interest and purpose that, until now, has rather waned and dwindled between one annual gathering and another. As it professes to be a society publication, and as that society is but a small part of the profession, the *Bulletin* can be of but restricted usefulness, and must, or should, confine itself to the doings and interests of its own society and eschew the attempt to keep track of and record the doings and sayings of the larger architectural world.

If this is to be its task, we think it will strike most observers that, as had been supposed, the Institute with its various Chapters is a very ineffective and inactive organization, else the editor could have discovered more things to record than the single action of the New York Chapter, which seeks to learn from its own members what theories they hold, or what practice they follow, in the employment of expert service.

THE SCOTT CIRCLE STATUES IN WASHINGTON. — At Scott Circle, in this city, workmen are now putting up an elaborate granite base for a statue of Dr. Hahnemann, in the midst of a grassy triangle facing the side of the equestrian statue of General Scott. On the corresponding triangle on the other side stands the heroic bronze figure of Webster, recently unveiled. The other day two citizens were passing, when one remarked that it was a pity to give that space to the founder of the homœopathic practice. "It ought to have been reserved for Henry Clay," he added. "Ah," responded his companion, "you don't seem to understand the scheme. What they want to do is to typify three great divisions of the Executive Government: the State," pointing to Webster; "the War," pointing to Scott, "and the Interior Departments." — *Evening Post*.

THE ILLUSTRATIONS

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

A COMPETITIVE DESIGN FOR THE LADY CHAPEL OF ST. PATRICK'S CATHEDRAL, NEW YORK, N. Y.: THREE PLATES. MESSRS. CRAM, GOODHUE & FERGUSON, ARCHITECTS, BOSTON, MASS.

IT should be borne in mind that the ground at the rear of St. Patrick's Cathedral is at present in part occupied by two nearly symmetrical structures, one the Archbishop's palace, and the corresponding structure, on the northeast corner, occupied by the clergy in residence. These present structures it is the intention to retain for the present, though it is more than supposed they will be removed. Competitors, therefore, could avail themselves only of the middle space between the two buildings, the size and location of which will be found indicated in skeleton on the ground-plan furnished the competitors, who were instructed not only to design the Lady Chapel as if the two buildings were non-existent, but told that they were entitled to use even the last inch of space between them. It is, therefore, not the least interesting feature of these several designs that they show so many ways of utilizing a very restricted space.

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

VILLA DESIGNED BY HERREN SPITTLER & KRONFUSS.

This plate is copied from *Architektonische Rundschau*.

FIRST PRIZE COMPETITIVE DESIGN FOR CENTRAL CEMETERY CHAPEL, VIENNA, AUSTRIA. MAX HEGELE, ARCHITECT.

This plate is copied from *Architektonische Monatshefte*.

[Additional illustrations in the International Edition.]

A COMPETITIVE DESIGN FOR THE LADY CHAPEL OF ST. PATRICK'S CATHEDRAL, NEW YORK, N. Y.: THREE PLATES. MESSRS. HEINS & LA FARGE, ARCHITECTS, NEW YORK, N. Y.

In studying this problem the point most difficult to solve was not so much the design of the chapel itself, as a suitable arrangement for the necessary sacristies and vestries, and a suitable entrance to the chapel.

The only entrance feasible from the floor of the Cathedral to the chapel was through the present vestry in the south aisle of the choir. If this south aisle is to be used as a passageway to the chapel, it would have to be abandoned as a robing-room, for which it is in any event not well suited.

The arrangement shown in the design contemplates utilizing the entire crypt or basement below the chapel as sacristy, robing-rooms, etc., for the choir. The present clergy-sacristy directly behind the high-altar has been retained with slight enlargement. This sacristy should properly be on the same floor-level as the choir, and it would seem desirable at some future time to build an addition beyond the aisles of the choir to provide for this purpose.

The floor of the Lady Chapel is shown raised a few steps above the choir-floor, in order to diminish the descent to the choir-sacristy below.

The architectural character of the design is based upon the French-Gothic at the full period of its development, just before the flamboyant influences were felt. It is expected that the chapel will not be out of harmony with the existing structure, and yet, by a somewhat more elaborate ornamentation and greater delicacy of detail, it will assume that importance in the whole design to which its function and position properly entitle it.

Only slight changes in the existing east wall will be necessary. The entrance would be placed in the east wall of the south aisle and the existing windows above be shortened in order to allow for the roof over the side-entrances to the chapel. The lower centre-window of the east wall would, of course, open into the chapel, but this window is practically masked by the high-altar, so that the difference would not be perceptible from the body of the Cathedral.

Especial care has been given in so arranging the junction between the old and new work that there should be no objectionable pockets where snow could collect.

The estimated cost is as follows: —

Construction, including architect's fees (this item includes ornamental carving, as well as the entire construction, heating and ventilating, lighting, etc.).....	\$134,000
Sculpture and figure-carving.....	16,000
Fresco and mosaic work, including floor-mosaic.....	10,000
Stained glass.....	20,000
Altar.....	15,000
Incidentals and contingencies.....	5,000
Total.....	\$200,000

These figures are reliable, because they are based upon actual proposals lately received for other work of almost identical character.

A COMPETITIVE DESIGN FOR THE LADY CHAPEL OF ST. PATRICK'S CATHEDRAL, NEW YORK, N. Y.: THREE PLATES. MR. WILLIAM SCHICKEL, ARCHITECT, NEW YORK, N. Y.

HOUSE OF E. W. HARRAL, ESQ., BRIDGEPORT, CONN. MR. J. W. NORTHROP, ARCHITECT, BRIDGEPORT, CONN.



CHESTER SEWAGE-SCHEME.—An important Local Government Board Inquiry was held on the 13th inst. by Gen. H. D. Crozier, R. E., into an application of the Chester Town Council for a loan for the purposes of sewage-disposal. The engineer, Major H. Tulloch, C. B., R. E. (past Engineer-in-Chief to the Local Government Board), described the scheme in detail, stating that it was an absolute necessity to pump the sewage. The main sewer would be extended about fifty yards in a straight course, and at the end of that extension the sewage would flow into a sunk well, across the centre of which would be fixed a screen. From the other side of the screen the sewage would be pumped by means of centrifugal pumps into a conduit which would convey it to a long inlet channel to be constructed adjoining the precipitation-tanks. From the inlet channel the sewage would be conveyed into circular precipitation tanks, each tank having the capacity of about sixty-eight thousand gallons; and as these would be eight in number, the total capacity of all the tanks might be taken at nearly five hundred and fifty thousand gallons. During storms the tanks would be capable of dealing with nearly five times the dry-weather flow of sewage (1,250,000); that was giving the sewage two hours' rest in the tanks. The clarified water would flow into a long channel, by the side of which would be placed eight roughing filters, having a total area of 888 square yards, whose object was simply to further clarify the sewage before it passed on to the circular aerobic polarite filters, each of which are 50 feet in diameter, and each having a superficial area of 218 square yards, or a total area of nearly three thousand five hundred square yards. Before being passed over the filters the sewage would flow into a small chamber, from which, when filled to the required height, it would be discharged onto the surface of the filter, the size of the chamber being so adjusted that it would hold sufficient sewage to flood the surface-filter to the depth of from two-and-a-half inches to three inches. The discharges would take place intermittently and automatically. By placing the filters in two tiers it would be quite possible to secure double filtration. In all filters which worked successfully, large quantities of carbonic-acid gas were evolved by the destruction of the organic matters contained in the sewage. Dr. Carter Bell had analyzed for him four different samples of the gas at the bottom of the filter, and it was found that it contained about ten times as much carbonic-acid as the atmospheric air. It was evident, therefore, that if they could remove that gas from the bottom of the filter the atmospheric air would rush in from above the surface of the filter to fill the vacuum, and would occupy the innumerable interstices between the grains of the filtering-materials. The aerobic bacteria would, in fact, be better supplied with oxygen, and would perform their functions of destroying the organic matter contained in the sewage in a much more expeditious and satisfactory manner. He proposed to make use of the purified effluent from the upper tier of filters to drive a small turbine and fan, which would draw out the carbonic-acid gas from the bottom of the filters. With reference to the sludge, each precipitation-tank would be fitted at the bottom with a perforated revolving-arm, worked by simple gearing on the surface, so that all the sediment on the floor of the tank could be drawn off at will, through a pipe brought up to nearly the top of the tank, and could be discharged wherever it might be desired to deliver it on the land. The liquid from the sludge would flow back by gravitation to the pump-well, to be pumped and treated again. He was satisfied that by the proposed works a very high standard of purification would be attained. Mr. Hibbert, Alderman of Chorley Town Council and a member of the Ribble Joint Committee, described the working of a similar system of polarite filters at Chorley. The scheme for Chester was an improvement on the one for Chorley, and he would not hesitate to say that, if it was properly managed, it would be almost possible to produce drinking-water. Reginald Arthur Tatton, C. E., chief inspector of the Mersey and Irwell Joint Committee, gave it as his opinion that the system put forward produced good results. The scheme was also supported by the city engineer. — *Engineering*.

THE WATER-SUPPLY OF ANCIENT ROME.—Sextus Julius Frontinus, water-commissioner of the city of Rome some eighteen hundred and twenty-four years ago, tells in his history of the water-supply of that city that there were in his day nine aqueducts which supplied it with water. These were built at different elevations, ranging from thirty-five to one hundred and fifty-eight feet above the Tiber. Their aggregate length was about two hundred miles. On gauging their flow, he found that they received daily from their several sources of supply about one hundred and fifty million gallons. The water-registrar's books, however, accounted for a delivery of only 76,500,000 gallons a day. On looking up the list of water-consumers, he discovered that the actual visible consumption was 84,000,000 gallons daily, of which only 54,000,000 gallons were used in the city, leaving 30,000,000 to be accounted for. This was set down as being lost by leakage from defective structures, or stolen by farmers who lived along the line, or by surreptitious consumers in the city. Much water was also lost from leaks in the distribution-pipes, the existence of which (says Frontinus) it is possible to infer from the fact that in many of the city's wards you meet with water of fine quality which has leaked from the conduits. Whereupon he checked waste by repairing the aqueducts, cutting off unauthorized taps, causing the senate to pass more rigid laws as to stealing the water, and enforcing the laws in a rational way. — *Fire and Water*.

A CAPITOL FULL OF CENTIPEDES.—The magnificent granite State Capitol building here has become infested with centipedes of great size. These poisonous insects are to be found in every department of the State building. A few days ago one was seen in the Governor's private office, and after a lively chase it was killed. It measured 7½ inches long, and is the largest centipede ever seen in this part of Texas. Sheriff George Womack, of Cooke County, came across one of the insects in the corridor of the second floor of the building recently. It was captured alive and placed on exhibition in a local drug-store. It was over six inches long. A few days before that clerks in the State Treasury Department were counting money in the great steel vault when a gigantic centipede ran out from under a package of banknotes. It was cornered and captured alive, and now inhabits a bottle on the counter of the cashier of the department. — *Austin (Tex.) Correspondence, Chicago Record*.

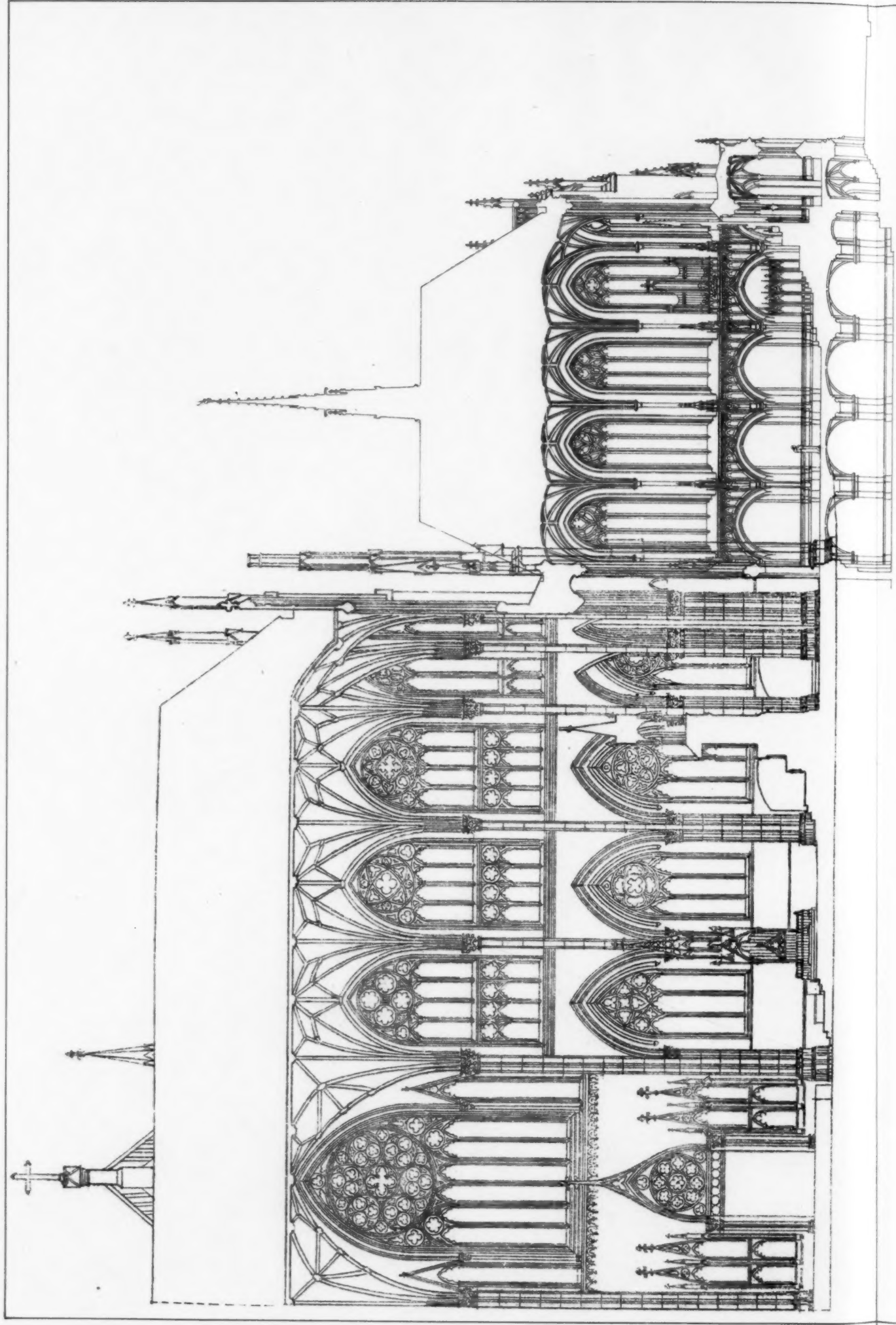
EXPANSION OF METAL UNDER COLD.—One of the most familiar laws of nature is that which dictates an increase of volume with a rise of temperature, and shrinkage with cold. There are exceptions to the rule, however, and these may be more numerous than have been suspected. Water, for instance, shrinks as it cools, until it reaches the temperature of 39 degrees Fahr. It then begins to expand. Ice is lighter than the water in which it floats, partly on this account and partly owing to air-bubbles. The statement is now made that iron and steel exhibit the same reversal of the law that water does. An English engineer who has wintered in Siberia writes to the *Engineering Times* that during the intense cold of January and February he has seen rails on the railway jammed together by an expansion such as he had been accustomed to suppose was the result of heat alone. According to this authority, a temperature ranging from 12 to 40 degrees below zero Fahr. would not appreciably affect the length of rails, but severer cold than that would be attended with expansion. The man who sends this statement to the *Engineering Times* declares that others beside himself are familiar with the facts. The Russian engineers have observed the phenomenon, he says, but hesitate to report it to St. Petersburg because of the apparent conflict with accepted ideas. There are regions in Minnesota, North Dakota, Montana and Manitoba where the temperature often falls 40 degrees below zero during a winter of average severity, and sometimes goes 10 or 15 degrees lower. And there are railroads up there, too. Even though the cold is not so intense as that of Siberia, it would seem as if the phenomenon just mentioned should be perceptible there. Perhaps it has developed, but has been overlooked. Now that attention has been directed to the matter, however, the truth or falsity of the story about Siberia can probably be determined in America.

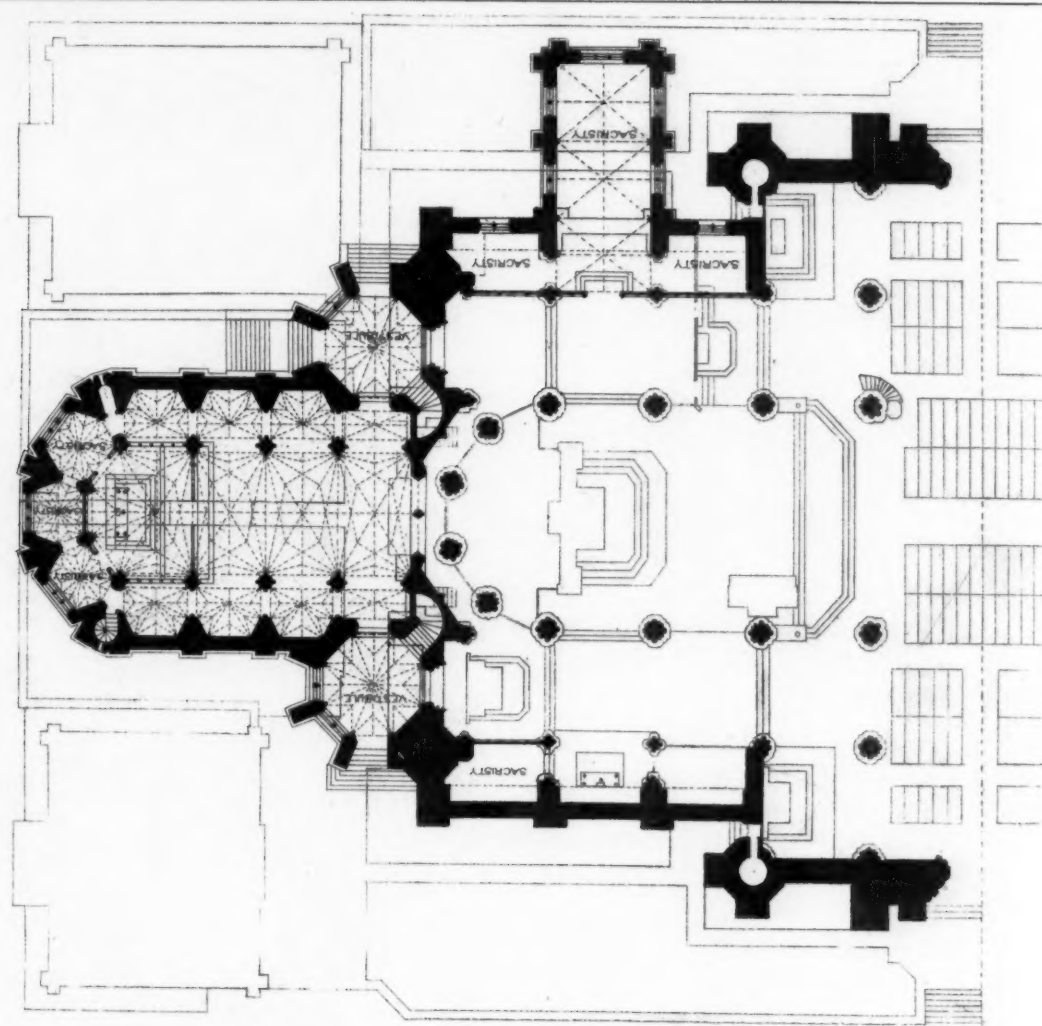
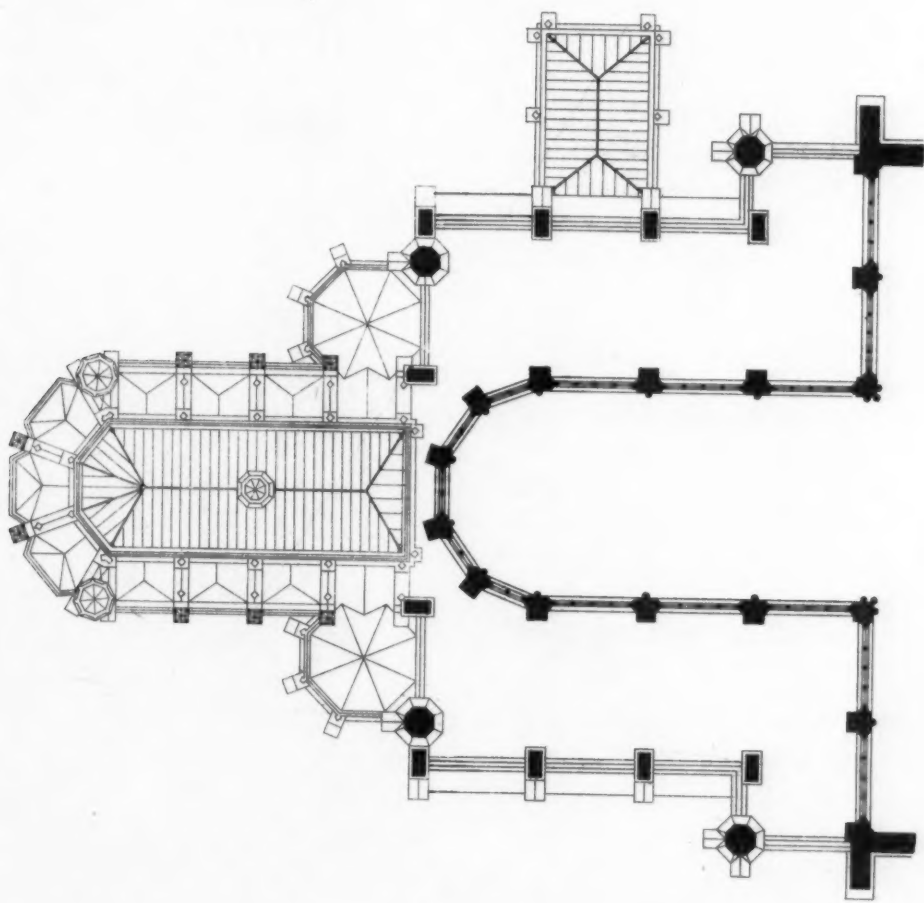
THE UNITED STATES CAPITOL.—Probably Uncle Sam will be lucky if he gets off with a disbursement of \$3,000,000 for the new porticos and "aprons." According to the statement of Architect Clark, the items of expenditure to date are as follows:—

Cost of old Capitol.....	\$2,750,000
Enlargement of site.....	685,000
Rebuilding after British invasion.....	700,000
New dome.....	1,250,000
Senate and House rooms.....	8,000,000
Works of art.....	1,400,000
Furnishings.....	2,750,000
New terrace and approaches.....	1,200,000
Improvements of grounds.....	800,000
Total.....	\$19,235,000

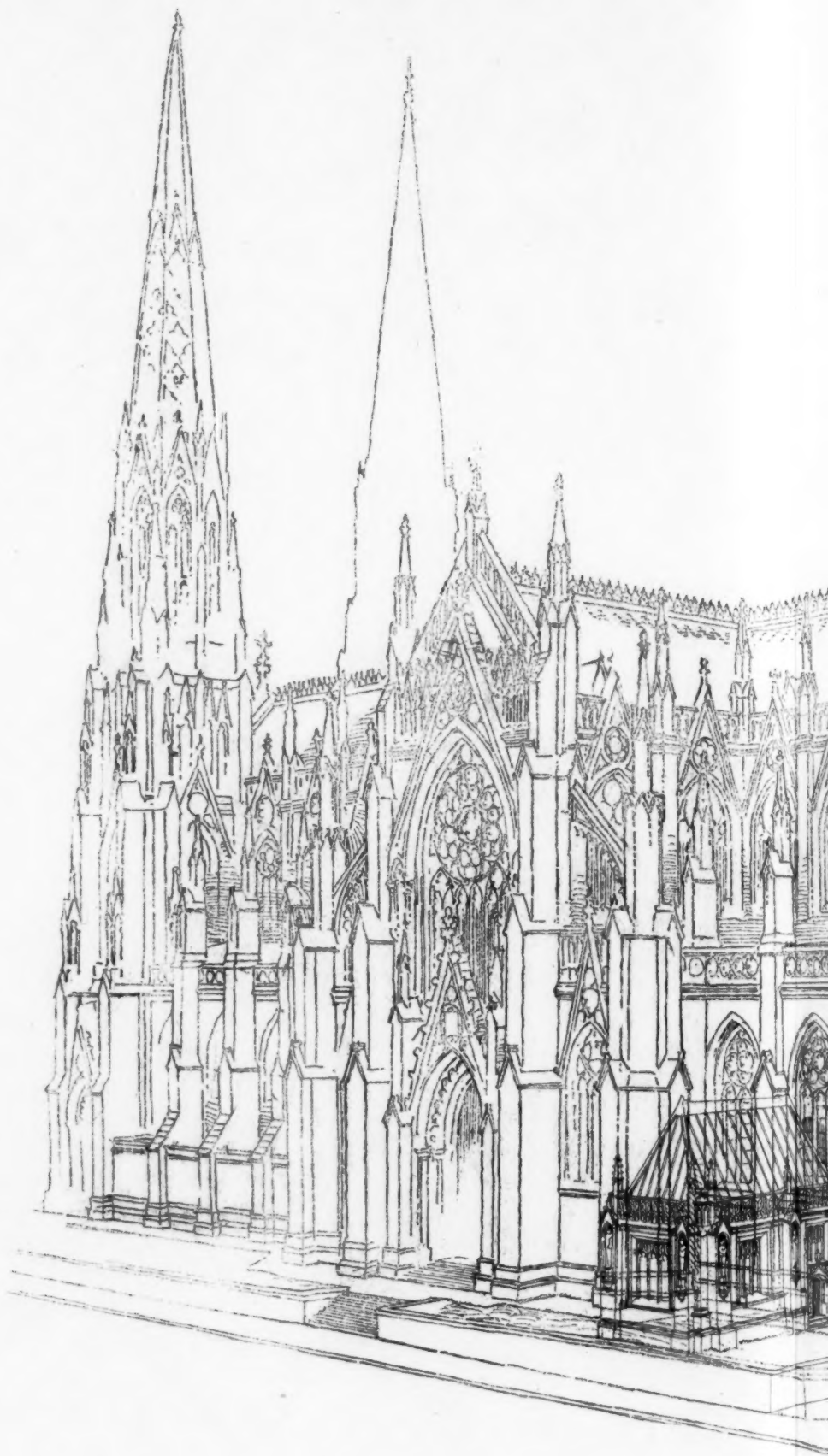
When the Congress at Philadelphia instructed Washington and three commissioners to see to the erection of a suitable public building for a legislative hall at the national capital, an advertisement for designs was published, specifying that the structure was to be of brick, with a conference-room and a room for the Representatives, each to accommodate three hundred persons, with a lobby; a Senate room of 1,200 square feet of area, a lobby and twelve small rooms for committees and clerks. A prize of \$500 and a building-lot were offered for the best plan; and the winner was William Thornton, of Philadelphia. He was not an architect, and so his idea was turned over to Stephen Hallette, of the same city, who was appointed architect. The work of construction was begun in 1795, and history relates that Andrew Ellicott got \$5 a day and expenses for marking out the foundations, by the aid of astronomical instruments, so that the building would face exactly to the east. In 1800 the rooms now occupied by the Supreme Court and the law library were fitted up for the use of the Senate and House of Representatives. By 1811 the building of the dome was ready to be begun when work was stopped by the war with Great Britain. At that time the Capitol consisted of two detached fragments standing far apart, a long wooden shed providing a covered alleyway from one to the other. This space was to be occupied by the dome. Finding the structure thus incomplete, the British thought they would wipe it out entirely, and so piled a quantity of wood inside of it and applied the torch. The damage done was not very great, fortunately, and restoration was easily accomplished. The freestone pillars in the Chamber of the House, now Statuary Hall, were much injured, and were replaced with the pillars which now stand there, composed of a curious conglomerate marble from Maryland. The cost of rebuilding the portion destroyed by the British was \$700,000. By 1827 the structure was completed, with its rotunda and original dome, and there was no further change of importance until forty-nine years ago, when it became apparent that more room was necessary, and the two great wings were proposed. This alteration was promptly begun, and in 1855 the old dome was removed, work on the new one being carried on throughout the four years of the Civil War. In 1861 the wings were completed, and two years later the figure of Freedom was placed in position on the top of the dome. The original dome was squat, in shape like an inverted bowl, and entirely lacking the grandeur of the present one. Iron is the material of the new dome, which is considered one of the most beautiful in the world. The latest addition to the Capitol was the great marble terrace, finished in 1891. — *René Bache in the Boston Transcript*.

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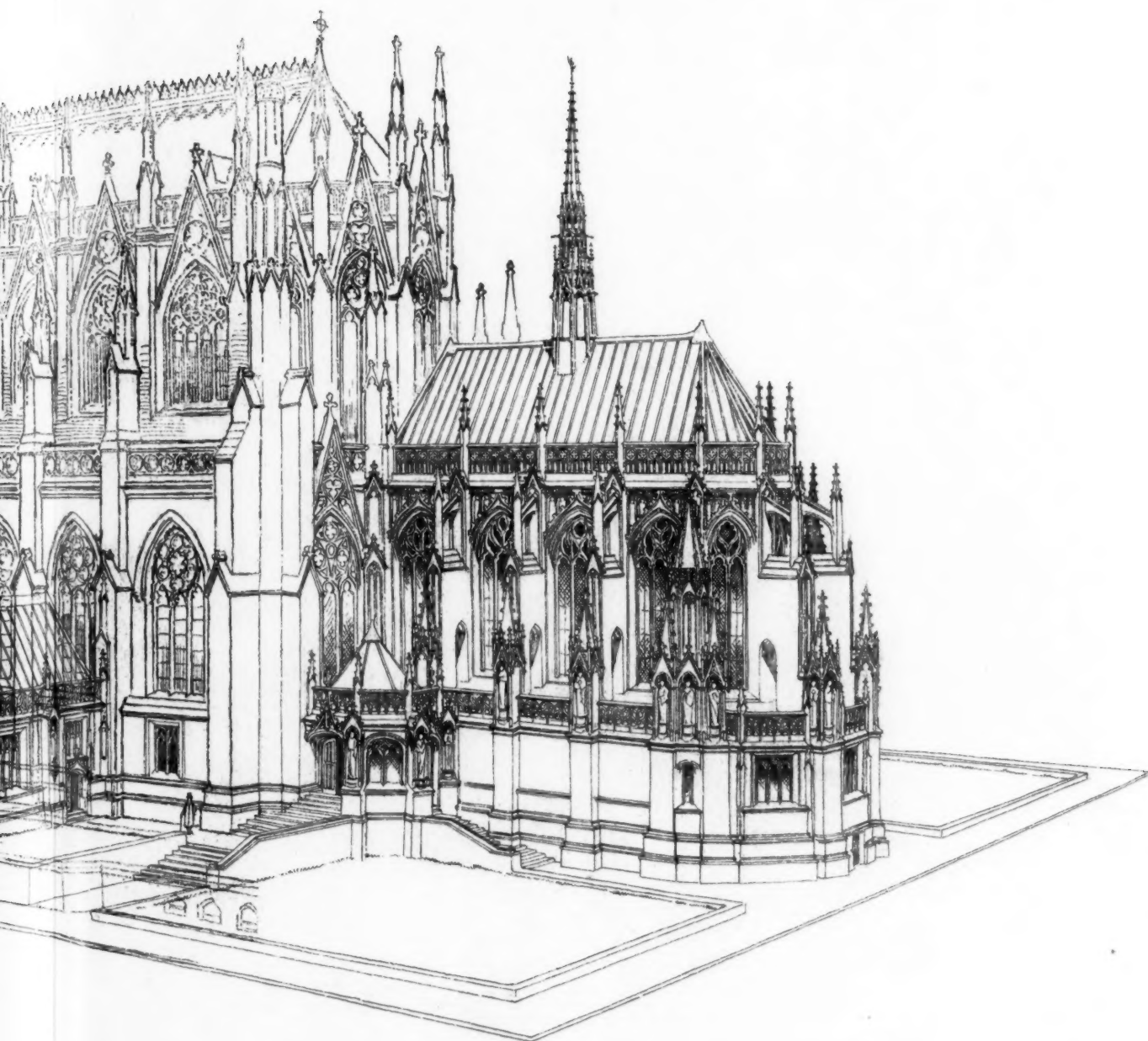


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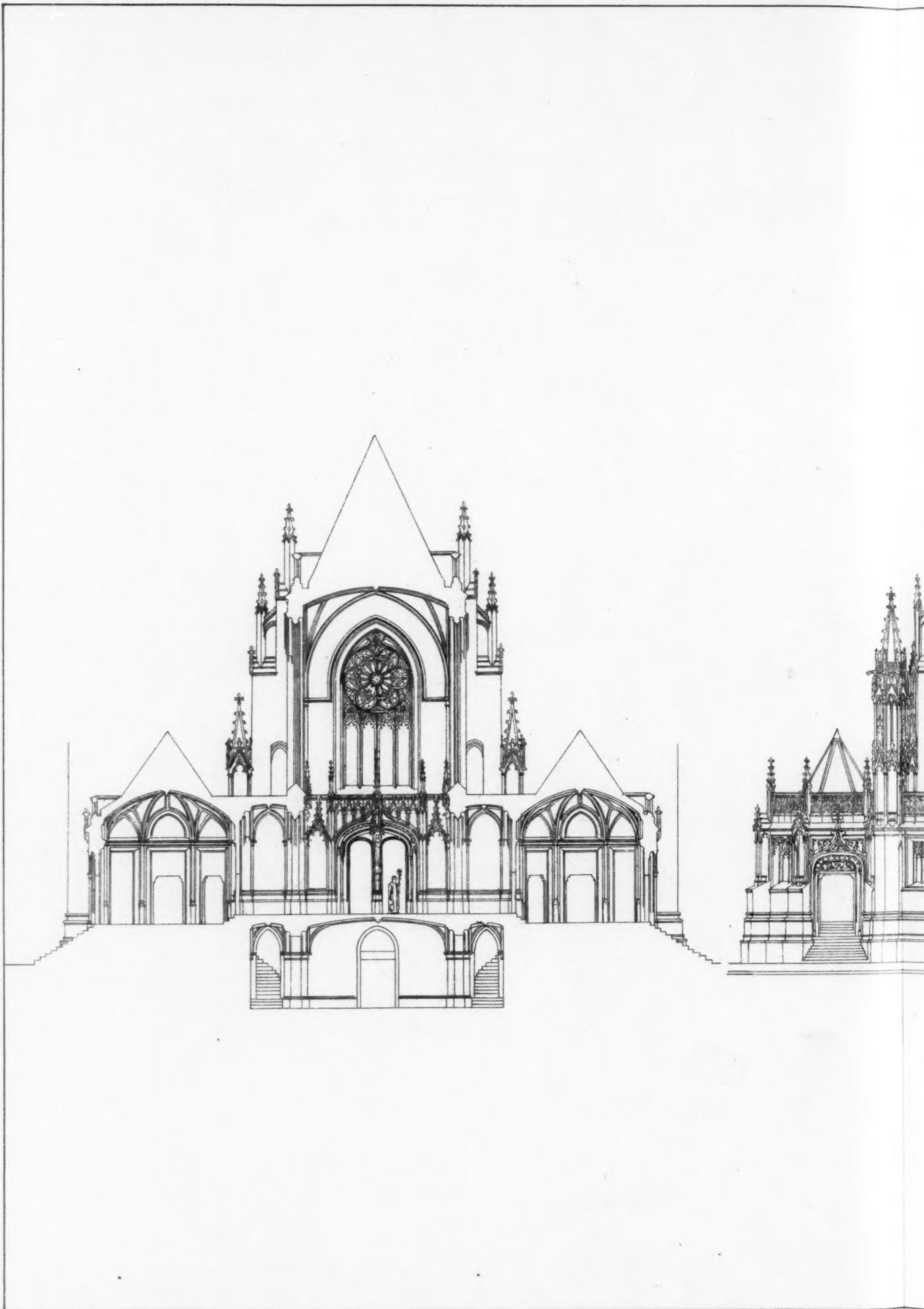
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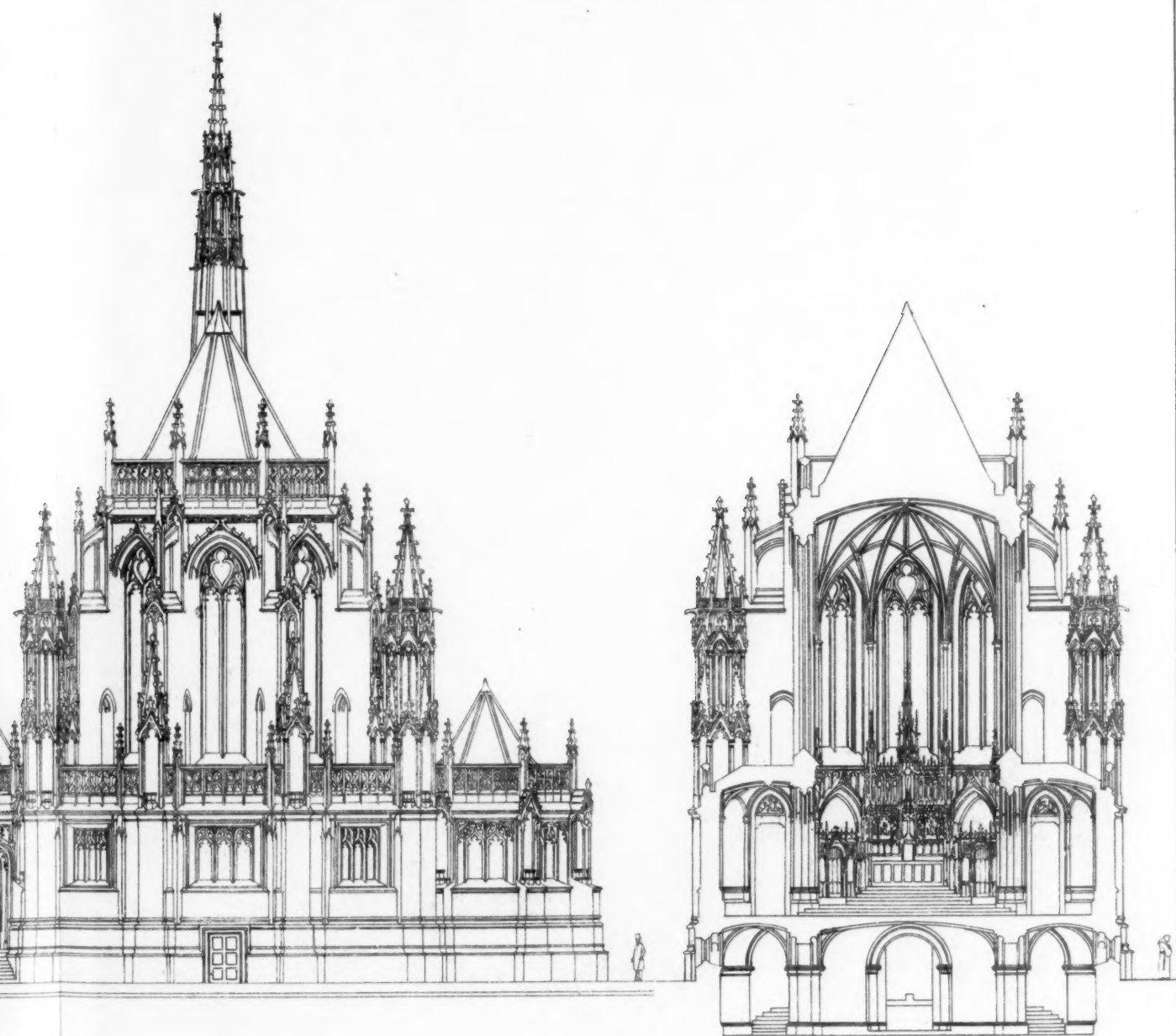
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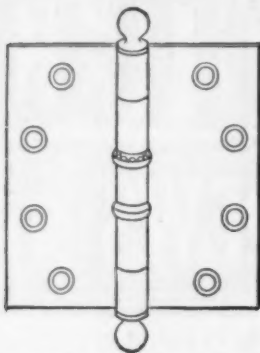


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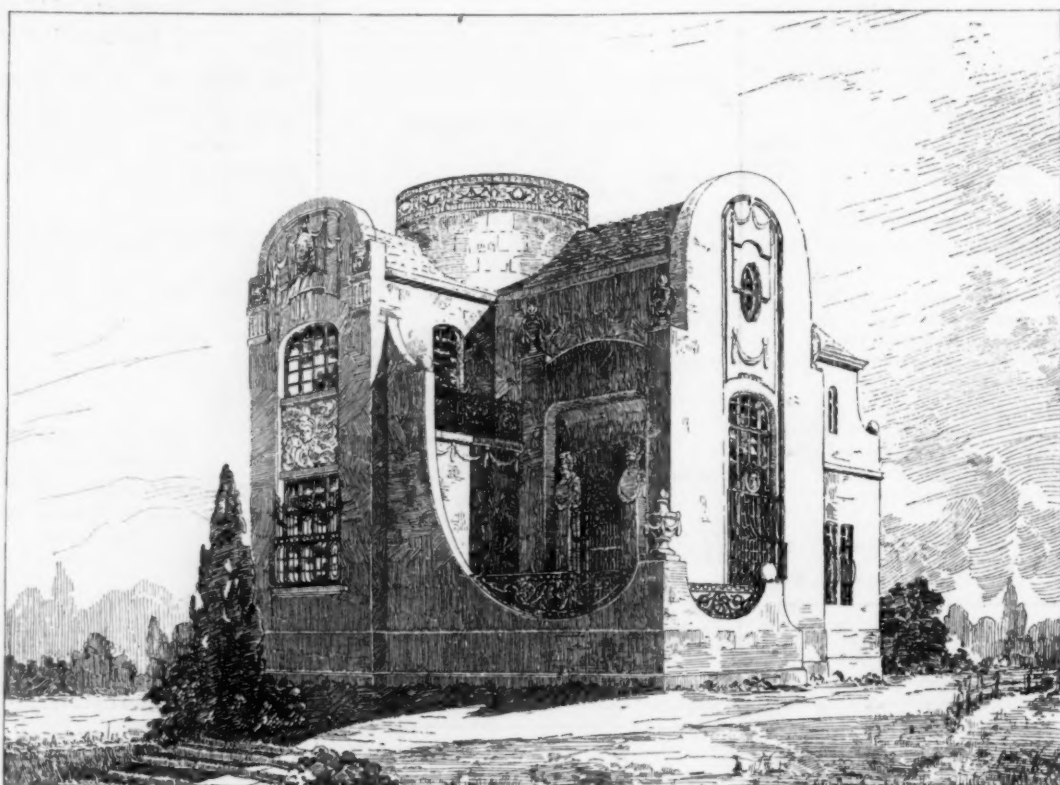
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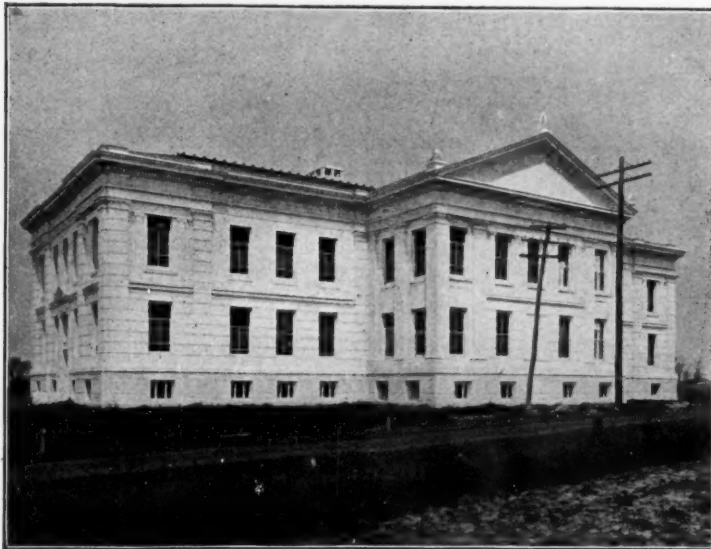
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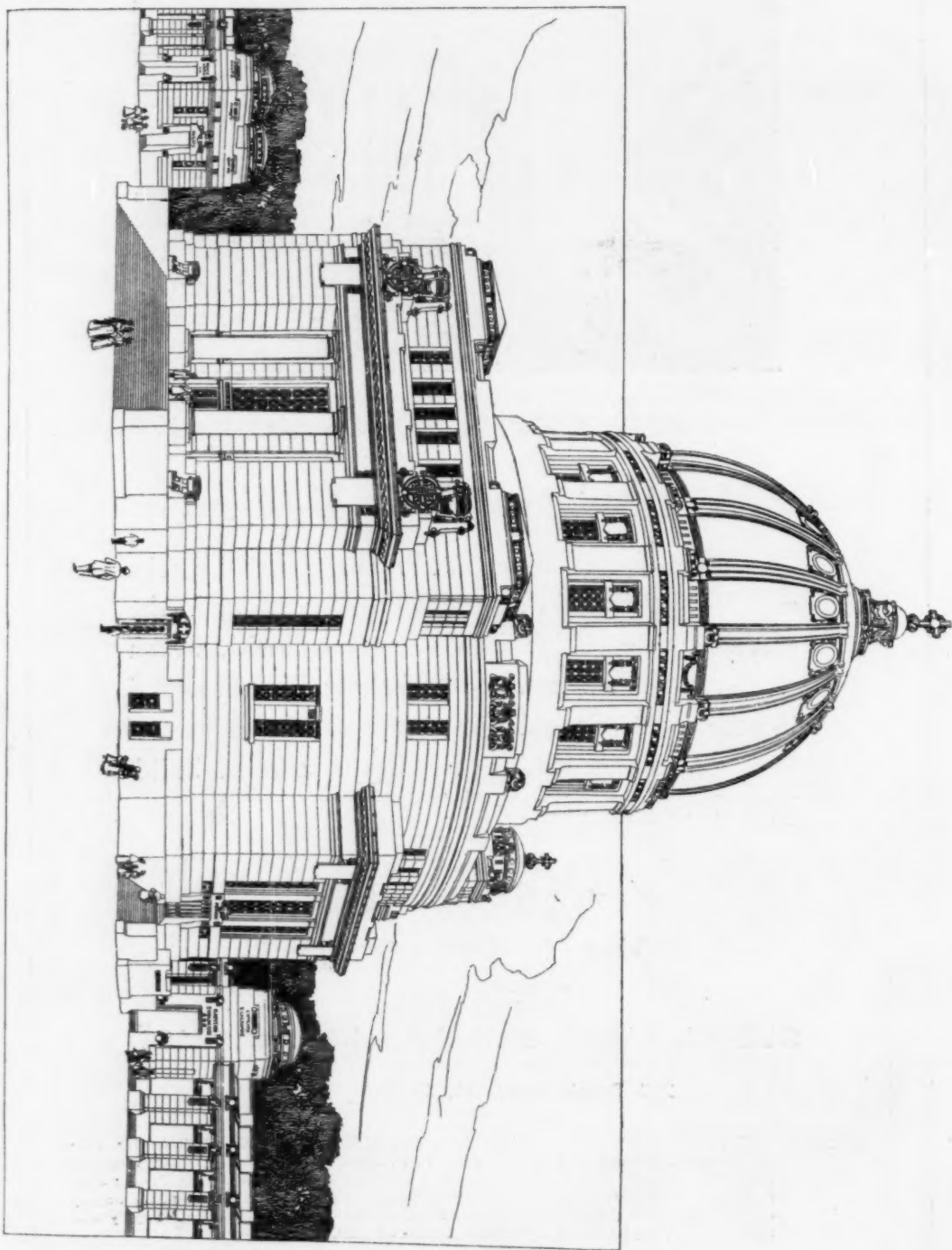
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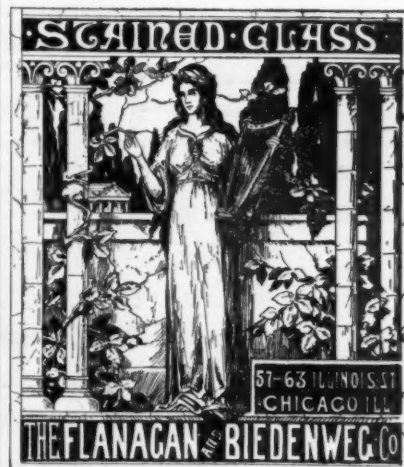
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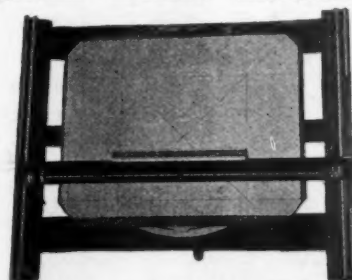
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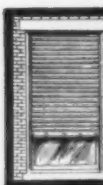
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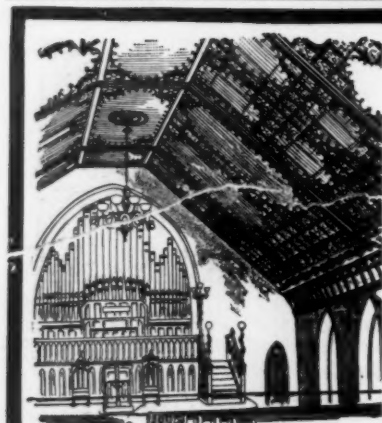
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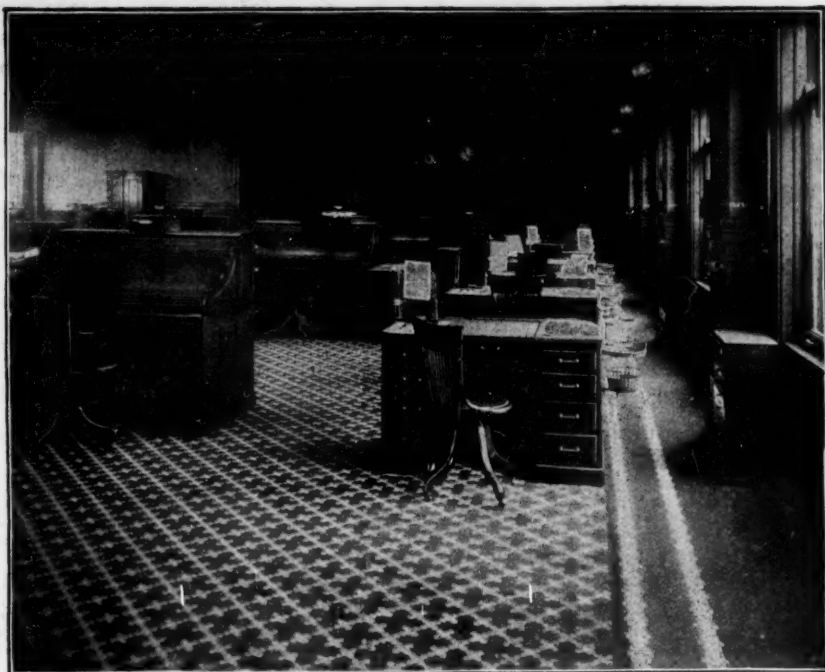
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BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

Galena, Kan.—A lodge building, costing about \$25,000, will be built by the A. O. U. W.

Hagerstown, Md.—Bruce Price, of New York City, is preparing plans for a stone and iron public library building. Cost estimated at about \$25,000.

Hartford, Conn.—The Connecticut Mutual Life Insurance Co. will erect a stone, brick and steel office-building, eight stories high; 140 feet front, 103 feet deep; on the north side of Pearl St., adjoining the Connecticut Mutual Building; estimated cost, \$500,000.

Hoboken, N. J.—A site has been purchased for the new school at a cost of \$19,400.

Indianapolis, Ind.—The Fellowship congregation will erect an \$18,000 church at Alabama and 22d Sts. Rev. Mr. Holming, pastor.

Jackson, Miss.—Report states that a \$50,000 opera-house will be erected.

Kansas City, Mo.—F. G. Bonfils, Denver, Col., will erect a three-story, 48' x 120', brick building at the corner of 8th St. and Grand Ave., after plans by Geo. Matthews; cost, about \$60,000.

Lake Geneva, Wis.—The School Board voted to erect new buildings to cost \$18,000.

Lawrenceville, Pa.—Plans have been prepared for a \$50,000 two-story gymnasium building for the Lawrenceville Preparatory School.

Lewiston, Idaho.—The Sisters of St. Joseph will build a \$10,000 or \$15,000 hospital here. Plans have not yet been prepared.

Lincoln, Neb.—The City Library Board has accepted plans submitted by Fisher & Lawrie, of Omaha, for the Carnegie Public Library Building. Construction will begin as soon as working plans can be prepared; cost, \$68,000.

Los Angeles, Cal.—The Pacific Art Manufacturing Co., recently organized, will erect a \$350,000 plant for the manufacture of tiles. Charles Ernest, architect. G. J. Griffith, president.

Louisville, Ky.—Architect J. B. Hutchings, Columbus Building, has prepared plans for a \$12,000 addition, 45' x 85', to the Columbia Trust Co.'s building.

Armour & Co., of Chicago, Ill., have plans for a \$250,000 packing plant to be erected in this city if a suitable site can be secured. If the plant is established here it will be later enlarged by the addition of other buildings, which will bring the total outlay to \$1,000,000.

Lowell, Mass.—The Massachusetts Corporation is preparing to build one of the largest storehouses in New England on Bridge St., on the site now occupied by corporation tenements which are to be torn down.

The High St. Congregational Society contemplates disposing of its present church property and building a new edifice at the corner of Nesmith and Wyman Sts. The John St. Congregational Society is also interested in the move and a union church may be built.

Lynchburg, Va.—Wilson & Seay were awarded

BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

the contract for erecting the new \$25,000 bank and office building for the Lynchburg National Bank.

Maryville, Mo.—The local Odd Fellows, Knights of Pythias and Masonic lodges will build an opera-house and lodge building, to cost about \$25,000.

Memphis, Tenn.—It is reported that the Christian Scientists have purchased a site for the erection of a \$35,000 church. Mrs. Francis J. King, reader.

Milwaukee, Wis.—The contract for a new building for Concordia College has been let to C. Schoknecht, 1212 Second St.; estimated cost, \$40,000. Gimbel Bros. will erect a \$200,000 building of steel construction.

Otto and Adolph Pletsch, of the Pletsch Dye Works, have taken out a permit for the erection of a four-story brick building on W. Water St., near Wells, to cost \$25,000. It will be 40' x 100', to be used for store purposes and dye works.

The Norwegian Evangelical Lutheran Independent congregation will erect a brick veneered church, 38' x 60', at Madison St. and 12th Ave.; cost, \$8,000.

Monessen, Pa.—Adolph Boas, 5th Ave., will erect a four-story brick hotel costing about \$21,000.

Muscatine, Ia.—The citizens have voted to accept a gift of a \$30,000 library building from P. M. Musser. Contracts have not yet been let.

New Haven, Conn.—President Arthur T. Hadley of Yale states that several contracts for new buildings will be awarded at the next meeting of the Yale University corporation in October.

New York, N. Y.—The Committee on Buildings, Board of Education, has awarded contracts as follows: For erecting school 175, Boro. of Bronx, to H. M. Weed & Co., 2585 Broadway, at \$118,895; and for erecting schools 134 and 131, Boro. of Brooklyn, to John Thatcher & Son, 54 Park Ave., Brooklyn, at \$127,300 and \$132,500, respectively.

The Sinking Fund Commission will issue bonds to the amount of \$200,000 for an armory for the First Battery, and \$60,000 bonds for an armory for the Second Naval Battalion.

Norristown, Pa.—H. M. Simpson has been awarded the contract for the new \$25,000 stone church for the Central Presbyterian Society.

North Tonawanda, N. Y.—Local press reports state that Wm. Allen has received the contract for the erection of a school, including heating, for \$74,724.

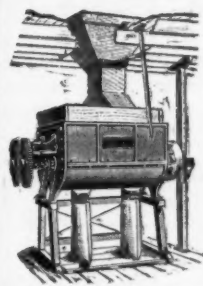
Oakville, Conn.—A four-story brick factory building, 50' x 125', is to be built by the American Pin Co., of Waterbury.

Ogontz Park, Pa.—Lawrence V. Boyd, Harrison Building, Philadelphia, is preparing plans for two \$15,000 houses for W. T. B. Roberts.

Omaha, Neb.—Chas. Cleaves has prepared plans for P. E. Slee for a \$60,000 building to be erected at 11th and Howard Sts.

Pascoag, R. I.—A \$12,000 three-story brick library will be erected here, which will be known as the Jesse M. Smith Memorial Library. Albert S. Greene, Charles L. Steere et al., trustees.

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BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

Philadelphia, Pa.—The contract for the erection of a fire-house at Park Ave. and Cambria St., has been awarded to Geo. W. Pierson, for \$29,795.

Architect W. W. Slack is working on preliminary plans for a \$15,000 stone church for the English Lutheran congregation of this city.

Architects Perot & Bissell, Bourse Building, are preparing the plans for a new stone and granite parish building for the Church of the Messiah, of this city. It will be two and a half stories high and measure 40 x 80 feet. Estimates will be requested next week.

It is stated that a handsome and commodious theatre will be erected on the site of the old Baldwin Mansion, 1112-1120 Chestnut St., to be leased by B. F. Keith. According to present plans the theatre will run north from Sansom St., a distance of about 125 feet. There will be an entrance to the playhouse 40 feet wide, leading from Chestnut St., and two stores on either side.

Drawings and detailed specifications by Architects Newman, Woodman & Harris, Real Estate Trust Building, for the new armory, at 23d and Chestnut Sts., have been completed. Bids to be in August 25.

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BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

Architect Joseph M. Huston has plans for estimates for constructing a seven-story fireproof hotel on the site of the Pennsylvania Railroad's former depot at Atlantic Ave., Chelsea, for the Atlantic City and Chelsea Improvement Co. The proposed structure will be of steel, and will be 175 feet square. The walls are to be built of terra-cotta, and it will have 400 rooms. It will contain all modern improvements, including hot and cold salt water. Bids close August 15.

Thomas M. Seeds, Jr., will build a \$20,000 brick and stone residence for William H. Wanamaker at 1917 Walnut St. The front will be of Indiana limestone.

Pittsburgh, Pa.—Architects Beezer Brothers, Liberty National Bank Building, are preparing plans for a \$15,000 brick church for the Carron Street Baptist congregation of the East End.

The congregation of the recently organized Calvary Lutheran Church of Wilkesburg has decided to build a church on Ross Ave., and work on the structure will be commenced at once; cost, \$25,000.

Architect Sydney F. Heckert, 341 Sixth Ave., has prepared plans for a \$40,000 parish school, to be erected at 21st and Smallman Sts., for St. Stanislaus congregation.

Pocatello, Idaho.—The plans prepared by W. E. Ware, of Salt Lake City, Utah, have been accepted for rebuilding the opera-house; estimated cost, \$15,000.

Fort Clinton, O.—Architect J. A. Downey, National Union Building, Toledo, is preparing plans

BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

for a stone church, 55' x 100', for the Catholic congregation.

Rankin, Pa.—The American Wire & Steel Co. will spend about \$75,000 in repairs and enlargements to their plant.

Rhinolander, Wis.—St. Mary's Catholic Church, lately burned with a loss of \$20,000 will be rebuilt.

Richmond, Va.—Improvements to the extent of \$15,000 will be made in the Virginia Hospital, in this city. Noland & Baskerville are preparing the drawings for a new wing which will contain clinical wards and a new surgical amphitheatre. It will connect with the newer portion of the University College of Medicine, which was designed by the same architects. There will be another story added to the hospital proper, to give rooms for the nurses.

Plans for the erection of the Second Baptist Church are now undergoing modifications in the office of the architects, Noland & Baskerville. This building will cost \$50,000, and its erection will soon commence.

Rock Springs, Wyo.—The Union Pacific R. R. will build a \$10,000 station.

Scranton, Pa.—Conrad Schroeder has been awarded the contract for the new armory at \$128,185.

Sea Gate, N. J.—Ludlow & Valentine, New York City, have completed plans for a cottage, 48' x 60', for Harris K. Smith.

Seattle, Wash.—The Hemrich Brewing Co. will erect a \$200,000 brick and steel plant.

BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

Charles Bebb will furnish plans for a four-story brick block to be erected on 1st Ave., near Jackson St., by Samuel Squires; cost, \$15,000.

William Nottingham, Syracuse, N. Y., will erect a six-story building at 1st Ave. and Spring St., after plans by Max Umbrecht; cost, \$50,000.

Selma, Ala.—A Masonic Temple is to be erected here to cost not less than \$30,000. It will be in charge of Selma Fraternal No. 27, and will be built on a lot on Broad St. The structure will be three stories and basement; the first floors will be used as stores.

Sioux City, Ia.—Andrew Roth, architect, has plans in preparation for a school-house to be erected near here, to cost about \$10,000.

Sooy Smith & Adgate will erect a store-building after plans by Burkhead & Reese. It will be a three-story brick and stone structure, 50' x 150', costing \$29,000.

Sleepy Eye, Minn.—Anton Dehman, Milwaukee, Wis., has drawn plans for a stone church to be erected for St. Mary's Congregation; cost, \$40,000.

Spokane, Wash.—C. D. Bibbins has had plans prepared by C. F. White, architect, for a three-story brick apartment-house. It will contain 12 apartments of two to five rooms each. Will have steam heat, etc.; cost, \$30,000.

Stonington, Conn.—Reports state that the Stonington Building Co. will build a \$12,000 addition to the plant of the American Velvet Co.

Terre Haute, Ind.—The First Congregational Society has accepted plans prepared by W. H. Floyd, Opera-house Block, for a \$25,000 church. Dr. L. J. Weinstein, chmn.

Reports state that the Maple Ave. M. E. Society has accepted plans for a \$15,000 church. Rev. E. S. Shumaker, pastor.

Troy, Kan.—Plans have been prepared by H. M. Hadley, Topeka, for opera-house, to be built for C. Leland, Jr. It will be constructed of pressed brick, stone and terra-cotta, and will cost about \$15,000.

Waltham, Mass.—\$30,000 has been appropriated for a school-house to be erected on Chestnut St.

Wildwood, N. J.—Willis G. Hale, Weightman Building, Philadelphia, Pa., is preparing plans for a \$150,000 five-story brick and frame hotel, 76' x 156', to be built here.

Wilkesburg, Pa.—The Calvary Lutheran Society will erect a \$25,000 brick church from plans by I. A. Raisig, Penn and Wood Sts. Rev. J. Bradley Markward, pastor.

HOSPITALS.

Montclair, N. J.—Plymouth St., 24-story fr. office, dwell. & hospital; \$15,000; o., Dr. R. P. Francis; a., Bigelow, Wallis & Cotton, 1153 Broadway, New York City.

HOTELS.

Buffalo, N. Y.—Delaware Ave. and Bertel St., two-story bk. & st. hotel; \$30,000; o., Pan-American Syndicate; a., V. Emile Thebaud.

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No. 601,436, Mar. 29, 1898
No. 608,540, Aug. 2, 1898
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HOUSES.

Bloomington, Ill.—N. Clinton St., two-st'y fr. dwell., 34' x 34', slate roof, hot water; \$5,000; o., John P. Walker; a., Paul O. Moratz.

Boston, Mass.—Bennett Ave., Nos. 20-22, Ward 6, 2 four-st'y bk. dwells., 16' x 20' x 35', flat roofs, stoves; \$13,000; o., Rosie Rudwick; b., James Rudwick, 114 Mt. Vernon Ave.

Bennington St., cor. Byron St., Ward 1, three-st'y fr. dwell., 24' x 50', pitch roof, hot water; \$4,000; o., Margaret McCarthy; b., J. N. Thisland, 91 Homer St., E. B.

Wentley St., nr. Bickford St., Ward 19, three-st'y fr. dwell., 24' x 45', flat roof, stoves; \$4,500; o. & b., John F. Costello, 1394 Columbus Ave.; a., Rob't A. Watson.

E. Cottage St., nr. Dorchester Ave., Ward 16, 3 three-st'y fr. dwells., 24' x 50', flat roofs, furnaces; \$12,000; o. & b., Boyd & Berry, 8 Grant St.

Harwood St., nr. Willowwood St., Ward 24, 2-st'y fr. dwell., 24' x 36', pitch roof, furnace; \$4,500; o. & b., A. H. Green, 19 Lauriat Ave.

Calumet St., nr. Hillside St., Ward 19, 2 three-st'y fr. dwells., 24' x 62', pitch roofs, stoves; \$12,000; o., Frank Normile; a., T. J. Desmond, 2 St. Alphonsus St.

Brookdale St., nr. Raneleigh Road, Ward 25, 2-st'y fr. dwell., 28' x 32', pitch roof, furnace; \$5,000; o., W. N. Parsons; b., John S. Ourlish, 26 Hobart St.

Brookline Ave., nr. Longwood Ave., Ward 19, 2 three-st'y fr. dwells., 19' x 15' x 40', pitch roofs, furnaces; \$6,000; o., N. G. Nickerson; a., Rand & Skinner, 336 Boylston St.

Fessenden St., nr. Chestnut Ave., Ward 22, two-st'y fr. dwell., 29' x 45', pitch roof, furnace; \$4,000; o., Mary J. Scott; b., H. P. Oakman & Sons, Neponset.

Webster St., No. 116, Ward 2, three-st'y fr. dwell., 13' x 21' x 76', flat roof, stoves; \$5,000; o., Agnes Finkelstein; b., Abram Finkelstein, 533 Bennington St., E. B.

White Terrace, nr. Lauriat Ave., Ward 24, 2-st'y fr. dwell., 33' x 38', pitch roof, furnace; \$4,500; o. & b., Benj. F. Crosscup, 62 Ballou Ave.

TENEMENT-HOUSES.

Boston, Mass.—Grove St., No. 42, four-st'y bk. flats, 30' x 45', flat roof, stoves; \$12,000; o., Jacob Goodman; a., Fred'k A. Norcross.

Minneapolis, Minn.—S. Eighth Ave., Nos. 616-630, two-st'y & base. flats, 53' x 140'; \$16,000; o., Wm. Peet, agent; b., John Fagerstrom; a., F. B. & L. L. Long.

MISCELLANEOUS.

Boston, Mass.—Union Ave., Ward 23, two-st'y bk. storehouse, 57' x 75', flat roof; \$30,000; o. & b., B. F. Sturtevant Co., on premises.

COMPETITIONS.

ARMORY.

[At Key West, Fla.]

Plans and specifications are wanted September 6 for a 60 x 80-foot brick armory, to cost not over \$15,000. Address all communications to GEO. W. REYNOLDS, county clerk. 1286

SCHOOL.

[At Key West, Fla.]

George W. Reynolds, county clerk, will receive plans, specifications and bids until September 6 for a brick school to cost not over \$20,000. 1286

HIGH SCHOOL.

[At Buffalo, N. Y.]

Competitive designs will be received until September 26 for West Side High School. R. G. PARKSONS, Secy. Bd. Pub. Wks. 1286

COMPETITIONS.

LIBRARY.

[At San Antonio, Tex.]

Designs for Carnegie Library will be received at the office of W. W. Johnson, city clerk, until September 17. For prospectus giving full information, conditions, etc., address E. G. TRUEHEART, city engineer. 1287

PROPOSALS.

LIBRARY.

[At Sedalia, Mo.]

Sealed proposals will be received by the Board of Trustees, Carnegie Library, for the erection of a library building. LEE MONTGOMERY, sec. 1286

PUBLIC BUILDINGS.

[At Boston, Mass.]

Sealed proposals, in triplicate, will be received at the Depot Quartermaster's office, 170 Summer St., until September 4th for constructing at Fort Strong, Boston Harbor, Mass., one barrack, two double officers' quarters, one stable, one bakery, one storehouse, one double non-commissioned staff quarters, one hospital and one hospital steward's quarters. J. E. SAWYER, Depot Quartermaster, U. S. A., Boston, Mass. 1287

COURT-HOUSE.

[At Beloit, Kan.]

Sealed bids will be received until September 3d for the erection of a court-house. COMMISSIONERS MITCHEL COUNTY. 1287

SCHOOL-HOUSE.

[At Urbana, O.]

Sealed bids will be received by the Board of Education until September 1st for the erection of a school-house. O. F. W. AMBROSE, clerk. 1287

Treasury Department, Office Supervising Architect, Washington, D. C., August 13th, 1900. Sealed proposals will be received at this office until 2 o'clock P. M. on the 17th day of September, 1900, and then opened, for the construction (except heating apparatus, electric wiring and conduits) of the U. S. Post-office building at Menominee, Michigan, in accordance with the drawings and specification, copies of which may be had at this office, or at the office of the Postmaster at Menominee, Mich., at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect. 1287

Treasury Department, Office Supervising Architect, Washington, D. C., August 9, 1900. Sealed proposals will be received at this office until 2 o'clock P. M. on the 12th day of September, 1900, and then opened, for the construction (except heating apparatus, electric wiring and conduits) of the U. S. Post-office and Court house at Beaumont, Texas, in accordance with the drawings and specifications, copies of which may be had at this office, or at the office of the Postmaster at Beaumont, Texas, at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect. 1287

Treasury Department, Office Supervising Architect, Washington, D. C., August 8, 1900. Sealed proposals will be received at this office until 2 o'clock P. M. on the 19th day of September, 1900, and then opened, for the superstructure, interior finish, plumbing, approaches, etc., for the U. S. Public Building at Cheyenne, Wyoming, in accordance with the drawings and specification, copies of which may be had at this office, or the office of the Postmaster at Cheyenne, Wyoming, at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect. 1287

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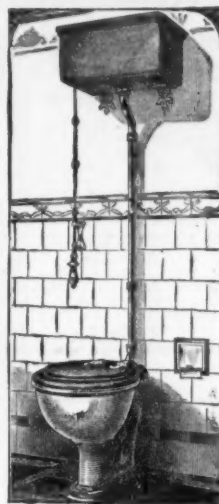
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PROPOSALS.

CITY-HALL.

[At Marshfield, Wis.]

Bids will be received until August 21st for the erection of a city-hall. W. L. LITTLE, city clerk. 1287

SCHOOL-HOUSE.

[At Cleveland, O.]

Sealed bids will be received by the Clerk of the Board of Education until September 10th for furnishing labor and material to complete the school building at Tod and Waterman Sts. 1287

SCHOOL-HOUSE.

[At Seattle, Wash.]

The Board of Directors of District No. 1 will receive sealed proposals until September 7 for the construction of a senior grammar school. LYMAN BANKS, secretary. 1286

ADMINISTRATION BUILDING.

[At Fort Washington, Md.]

Sealed proposals, in triplicate, will be received until August 21st for erection and completion of an administration building and guard-house at Fort Washington, Md., at the office of Constructing Quartermaster, 419 N. Washington St., Alexandria, Va. ARE S. BICKHAM, major and quartermaster, U. S. Vols. 1286

BATH-HOUSE.

[At Boston, Mass.]

Bids are wanted September 4 for erecting a public bath. ISIDORE WACHSMAN, Clk. Bd. Contract and Supply. 1286

OFFICERS' QUARTERS.

[At West Point, N. Y.]

Sealed proposals, in triplicate, will be received here until 12 M., September 1, 1900, for construction of three double sets officers' quarters as per plans in this office. U. S. reserves right to accept or reject any or all proposals or any part thereof. Forms and specifications furnished upon application. Address Q. M., U. S. A. 1286

CHURCH.

[At Chicago, Ill.]

The Building Committee of St. Paul's M. E. Church, corner of Ashland Ave. and Harrison St. will receive bids until August 23 for the erection of a stone and brick church. Plans may be seen at the church or at the office of Architects Brown, Burton & Davis, 910 Neave Building, Cincinnati, O. REV. M. B. WILLIAMS, 314 S. Marshfield Ave., pastor. 1286

CHURCH.

[At Wheaton, Ill.]

The Building Committee of the Gary M. E. Church will receive proposals until August 24 for the erection of a stone and brick church. Plans may be seen at Wheaton or at the offices of Architects Brown, Burton & Davis, 910 Neave Building, Cincinnati, O. E. H. GARY, Wheaton, Ill. 1286

Sealed proposals will be received at the office of the Light-house Engineer, Tompkinsville, N. Y., until 12 o'clock M., August 18th, 1900, and then opened, for furnishing the material and labor of all kinds necessary for dredging the basin at the U. S. Light-house Depot, Tompkinsville, New York. Information furnished on application to D. F. HEAP, Lieut. Colonel, Corps of Engineers, U. S. A. 1286

Treasury Department, Office Supervising Architect, Washington, D. C., August 6th, 1900. Sealed proposals will be received at this office until 2 o'clock P. M. on the 27th day of August, 1900, and then opened, for the construction (except heating apparatus, etc.) of the outbuildings for the U. S. Bureau of Engraving and Printing at Washington, D. C., in accordance with the drawings and specification, copies of which may be had at this office or at the office of the Superintendent at the Bureau, at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect. 1286

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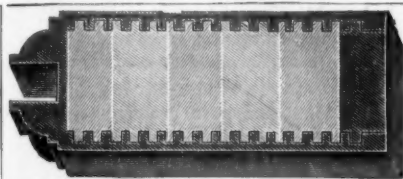
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SECTION 1. No Member should enter into
partnership, in any form or degree, with any
builder, contractor, or manufacturer.

SECTION 2. A Member having any ownership
in any building material, device or invention,
proposed to be used on work for which he is
architect, should inform his employer of the
fact of such ownership.

SECTION 3. No Member should be a party to
a building contract except as "owner."

SECTION 4. No Member should guarantee an
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SECTION 5. It is unprofessional to offer draw-
ings or other services "on approval" and
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SECTION 6. It is unprofessional to advertise in
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special branch (if such) of practice.

SECTION 7. It is unprofessional to make altera-
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tect, within ten years of its completion,
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SECTION 8. It is unprofessional to attempt
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SECTION 9. It is unprofessional for a Member
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SECTION 10. It is unprofessional to furnish de-
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SECTION 11. No Member should submit draw-
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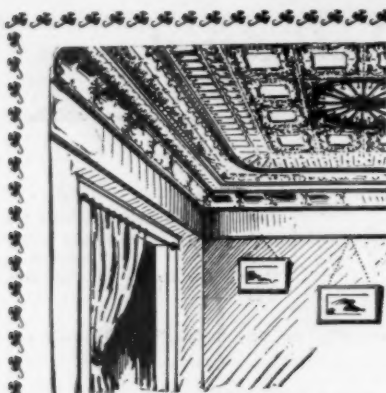
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SECTION 14. It is unprofessional to enter into
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tect who has been dishonorably expelled from
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SECTION 15. The assumption of the title of
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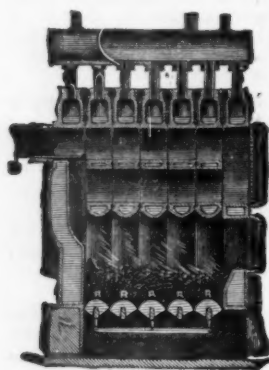
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