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SUMMARY:—

The Coöperative-Apartment Craze of a Score of Years ago.—
The present Rage for Syndicate Building.—The proposed
Memorial at Washington to Abraham Lincoln.—Accident
to a New York Subway Contractor.—Two Elevator Acci-
dents.—The Origin and Symbolism of Church Ornaments.—
M. Bénard made Professor at the Ecole des Beaux-Arts. . . 97

NOTES ON IRON AND STEEL CONSTRUCTION.—VIII. 90

ILLUSTRATIONS:—

House of James B. Castle, Esq., Honolulu, Hawaii.—Stair-
case: House of James B. Castle, Esq., Honolulu, Hawaii.—
A Competitive Design for the Soldiers' and Sailors' Monu-
ment, Philadelphia, Pa.—Hanna Hall, Kenyon College,
Gambier, O.—Dormitory for Kenyon College, Gambier, O.
Isometric Study: View of Gardens, House for Thomas B. Fitz-
patrick, Esq., Brookline, Mass.;—Parlor: House of James
B. Castle, Esq., Honolulu, Hawaii. 103

COMMUNICATION:—

The Status of the Lowell Mill-Operative. 103

NOTES AND CLIPPINGS. 103

IT would take a very strong and nearly unanimous appeal from our subscribers to induce us to continue the form of publication which, during the current quarter, has been given experimentally to our International Edition. We are not satisfied with the practical working of the new method, which seemed to have the promise of many desirable possibilities in its favor, and believe that no mistake will be made in returning at the earliest practicable moment to the original form of publication. From the first issue for July, therefore, subscribers to the International Edition will again receive their copy in its familiar blue-covered weekly form.

THE present fashion, we might almost call it a craze, for syndicate building, has much in common with the rage for coöperative apartments which seized New York twenty years ago. At that time, the apartment, or "French flat," had been newly imported from Boston, where it was popular long before it occurred to the New Yorkers that fashionable people could live in anything but a separate dwelling-house, and the new idea was, as usual, dressed in appropriate costume for local acceptance. As an apartment-house on Fifth or Madison Avenue was a much more expensive affair than the modest Hotel Hamilton, or Hotel Agassiz, or Hotel Kempton, which housed the good society of Boston, it was necessary to devise unusual means of financing such an enterprise, and a special Act of the New York Legislature was passed, to enable people to hold a portion of real-estate separated from neighboring portions by horizontal, as well as vertical, divisions. In point of fact, this law was not much used, the device of vesting the title to the structure in a stock-company, ownership of shares in which carried with it the right to occupancy of a certain portion of it, being found simpler. Such stock-companies multiplied, and were, for a time, very successful, a score or more of large houses having been erected in this way. It was the ordinary practice to mortgage the property to about sixty or sixty-five per cent of its value, so that a stockholder, in paying for his stock, took it subject to a lien to at least an equal amount. This circumstance led, perhaps, to the decline of the system. Naturally, the mortgage interest on property of the kind, and the expense of maintenance, always heavy in a first-class apartment-house, required a large income, which was usually provided for by reserving a portion of the apartments in the building to be rented to persons not owning stock; and if tenants could not be found for these apartments, the stockholders had to make up the deficiency. With some of the houses, unfavorably situated, or unattractive in other ways, this state of affairs was not long in coming to pass, and, after a few years of struggling, the mortgages were foreclosed, of course cutting off the interest of all the stockholders. The mortgagees, on assuming control of the property, naturally took what they could get in the way of rent of the apartments, and the competition of the foreclosed houses still further increased the perplexities of the owners of the solvent ones. Now, although there are no more foreclosures, and the better-managed houses are still occupied by the successors of the original stockholders, or by their

sub-tenants, no coöperative apartments have been built for many years, and no more are likely to be built, at least in New York.

WHETHER the fashion of syndicate office-building will have a similar career remains to be seen, but there are many reasons why it is desirable to be cautious in following it. As real-estate men know, the office population is very fluctuating. When business is brisk, and new enterprises numerous, offices are in demand; but after a panic, when everybody imagines that no revival of speculation is possible, the promoters of new schemes disappear, leaving their offices vacant. At the same time, the expenses of maintenance continue, and many an office-building has shown, at certain times, a very small margin of income over expenditure. For well-situated and conservatively managed buildings, the chances would always be in favor of a small return on the investment, even in the worst times; but, for those situated at a distance from the business centre, heavily mortgaged and cheaply built, it is quite conceivable that there might come a time when repairs, expenses and mortgage-interest would more than consume the income from rents. Then the troubles of the certificate-holders would begin. The wiser ones would undoubtedly sell their interest at the first sign of danger, preferring to take a small loss, rather than risk a greater one, and those who were left would have to meet the deficiency. It is said that in syndicates of this kind, which are virtually partnerships, the law makes each certificate-holder individually liable for all the partnership debts, and this consideration, while it should be encouraging to the mortgagees, is not likely, in time of distress, to please the richer certificate-holders, and foreclosure would, of course, cut off all subordinate interests in the property, even if it did not leave a deficit to be paid by certificate-holders in addition to the loss of their investment. So far, there has been little trouble of the kind. A few office-buildings, injudiciously financed, have been sold under foreclosure, but the better class have prospered, and their managers, we hope, have been wise enough to lay up a reserve against contingencies.

THE so-called McCreary Bill, authorizing a Commission to prepare plans, and a report on site and design, for the proposed memorial to Abraham Lincoln in Washington, has been passed by the House of Representatives. The members of the Commission thus authorized have been already selected, and have agreed to recommend the site contemplated in the Burnham-McKim-Olmsted general plan for the improvement of Washington, at the intersection of a line drawn through the centre of the Capitol and the Washington Monument with the north bank of the Potomac. In this position, the Lincoln Memorial will not only add immensely to the effect of the Washington Monument, which is now out of relation with anything else, but will serve as an introduction to the bridge which it is proposed to build from this point to Arlington, on the Virginia side. What will be the character of the Memorial is not yet decided, but several suggestions have been considered, and it is hoped that a decision may be made very soon, so that the cornerstone of the structure may be laid on the occasion of the meeting of the Grand Army of the Republic in Washington in the autumn.

EVERY one will regret the last misfortune which has attended the excavation in the Park Avenue section of the New York subway, and is likely to prove fatal to the brave and able contractor for the work, Major Shaler. It will be remembered that, soon after work on this section was begun, a collision took place in the New York Central railway-tunnel near by, by which nineteen persons were killed, and thirty-six injured. Nineteen days later, a quantity of dynamite, stored for use in the work, exploded, nearly destroying the Murray Hill Hotel, killing six persons, and injuring about ninety others. Less than four weeks afterwards occurred the fire in the Seventy-first Regiment Armory and the Park Avenue Hotel, close to the opening of the tunnel, by which seventeen persons were killed, and work on the tunnel greatly interfered with; and, four weeks later still, a slip of the rock excavation damaged four houses on Park Avenue to the amount of about one hundred

thousand dollars. It is said that Major Shaler, as contractor, was financially ruined by the dynamite explosion and the giving way of the ledge, but he bravely persevered with the work until, a few days ago, while standing in the excavation with the engineers of the Rapid Transit Commission, he was struck by a stone falling from the roof of the tunnel, forty-five feet above him, his skull fractured, and his back seriously injured, so that paralysis has set in, and it is believed that he cannot recover.

TWO elevators, crowded with people, fell recently in New York, fortunately without fatal consequences. In one case, twenty-two men and three girls crowded into the elevator of a clothing-factory. The weight seems to have been too much for the machinery, for, although the ropes did not break, the car descended so rapidly as to tear away the iron gates at the landings, striking the bottom of the shaft with such force as to injure seriously one man and a little girl of eleven, and cut or bruise about a dozen others. In the second case, an elevator in Macy's department-store, carrying a large number of persons, fell from the third story to the cellar. Eight or more of the passengers were injured, but none very seriously. In neither case is anything known, as yet, of the cause of the accident.

THE *Builder* gives a report of a discourse on the "Origin and Symbolism of Church Ornaments," delivered not long ago in London, before the Church Crafts League, which suggests the idea that a book on this subject, treated in the modern critical spirit, and with the aid of modern archaeological knowledge, might be extremely useful, not merely in elucidating a subject of real importance, but in dissipating the clouds of sanctimonious absurdity by which it has been surrounded by the people who find in their own illuminated intelligence the explanation of the symbolism which they profess to discover everywhere. Of inspired expounders of this class there seems to be no end, and the incalculable mischief that they do to rational religion might perhaps be better counteracted by a book, written with real learning, and decent respect for historical truth, than in any other way. Of course, the foundation of all modern works on religious symbolism is the book of Durandus, but the worthy Bishop of Mende, if he was too good a Christian to presume to find in his own moral consciousness the explanation of the sacred mysteries, was very credulous, and lacked the wider and more exact knowledge of antiquity, and of ecclesiastical history, which we now possess; so that the subject might very well be treated as one altogether new. As one of the elementary questions for discussion might be mentioned that of the orientation of churches, which, although certainly as practical a subject as history or architectural ecclesiology affords, is in a state of almost hopeless confusion. We know the facts, that the churches of northern Europe, for at least fifteen centuries, have almost invariably been planned with the altar at the east end, and that the feeling in favor of this disposition is still very strong among the races of Germanic descent, while the churches of Italy, the cradle of Christianity, show an uncertain orientation, the altar being quite as frequently at the west as at the east end; and we know, again, that many of the early Greek temples had their sanctuary at the west, their principal door opening toward the east; while the entrance-doors of the Pyramids of Egypt open toward the north; but what is the explanation of all these dispositions, or whether they have any connection with each other, remains to be discovered. The modern view, that the early Greek temples were devoted to a modified and poetic form of sun-worship, and that the orientation was such that the first rays of the sun, on the morning of the longest day in the year, fell, through the open door of the temple, upon the statue of the god at the other end, is both reasonable and scientific, and investigation and inference, of the kind which has led to this explanation of the orientation of the Sicilian and Greek temples, might be applied to other religious traditions with great profit. In the same way, the inclination and direction of the entrances to the Pyramids are such that, when they were built, the North Star could be seen at all times from them, and this circumstance at least suggests interesting possibilities in connection with the elucidation of Egyptian history. On the other hand, when we come to Christian churches, we fall at once into a fog of ignorant assumption. We are told that the Christians put their altars in the east, because the heathen had theirs in the west; a theory which loses, to say the least, much of its force in view of the circumstance that the largest and oldest Christian churches

have also their altars in the west. We have also been told, with some probability, that, as the ancient inhabitants of northern Europe were originally sun-worshippers, they were accustomed, in their open-air ceremonies, to bow down to the rising sun, which they saw, naturally, in the east; and that, in consequence, after they became converted to Christianity, they found it more consonant with their inherited religious habits to worship their new Divinity also with their faces turned toward the east. This hypothesis is open to various objections. While it is true that the ancient inhabitants of Europe were probably sun-worshippers, they were quite as much so in the South as in the North. In fact, some of the peculiar rites of sun, or, at least, of fire worship are practised to this day in the Pyrenees, as well as in the remote parts of Brittany, and, more particularly, in Sardinia; yet in none of these regions has the eastward orientation of Christian churches ever been much regarded. Moreover, even if the Christian missionaries, who regarded the heathen gods as demons, had been willing to preserve the heathen disposition of religious structures, merely substituting the Cross for the grinning image of Thor or Loki, which is extremely unlikely, it remains to be explained how the sun-worshippers could have accepted, as a substitute for an enclosure open to the rays of the rising sun, a building which often had not even a window to the eastward, and from which, with the curious, and possibly significant, exception of England, the sun at early morning could not be seen at all.

IN regard to many other details of church arrangement there is the same need of common-sense discussion. The lecturer before the Church Crafts League informed his audience, as a specimen of the way in which "the highest thoughts" were expressed by symbols, that "Going back to the early Egyptians, they found the crocodile deified, and when they inquired why, they found the crocodile could see through the muddy waters of the Nile, and was a tongueless animal, and consequently it was taken as symbolic of the all-seeing eye of God and the voiceless God." How the distinguished canon explained, on these principles, the symbolism of the cat, which was deified by the Egyptians at least equally with the crocodile; or how he made his interpretation of the symbolism of the crocodile fit the circumstance that the animal, if it has no tongue, has a very loud voice, while its capacity for seeing through muddy water is by no means proved, we will not undertake to say; but the lover of truth, in psychological as well as historical science, is not likely to derive much edification from such discourse. Coming down to matters architectural, the distinguished lecturer informed his audience that the chancel-screen was "symbolic of the drawing back of the veil," and, "therefore," "in the early days the screens became the finest objects of art in the cathedrals." As a matter of fact, in "the early days" of the Church there were no chancel-screens, and the cathedrals of the most ancient foundation, which might be supposed to retain most fully any symbolical traditions, have never had any. On the contrary, the high screen peculiar to the Northern churches, in all probability, was originally erected to protect the Benedictine missionaries during service from assault on the part of the more zealous heathen in the half-converted congregation; and its subsequent development as an ornamental feature simply followed the general artistic development of church architecture. It may be observed that ecclesiastics, although they seem to think that symbolic mysticism is good for the laity, pay very little attention to it themselves, and the slaughter of a priest at the altar, which was by no means an infrequent incident of the conversion of the Northern tribes, was far more likely to have suggested the building of a stout fence across the church than any consideration of "veils." Even the reverend lecturer himself showed a little of the utilitarian spirit which, fortunately for their flocks, is really more congenial than mysticism to the clerical mind, by suggesting that the ancient Hebrews, although they were "of a highly poetic nature," in his opinion, used incense "as a disinfectant." The idea that incense could be advantageously replaced by carbolic acid is one which will strike a good many people as novel, if not highly poetical.

THE friends of M. Bénard, the distinguished winner of the competition for the buildings for the University of California, who, as our readers know, resigned the commission, on account of the difficulty of attending to his duties in Paris and California at the same time, will be interested to learn that he has been appointed Professor of Elementary Architecture in the School of Fine-Arts, in place of M. Coquart, deceased.

NOTES ON IRON AND STEEL CONSTRUCTION.¹—VIII.

HAVING decided upon the structural rolled shapes that are to be used in the column, and the best arrangement for them in order to secure an economical column-section, and one that is readily utilized for rigid girder and beam connections, it is necessary to consider the design for the base of the

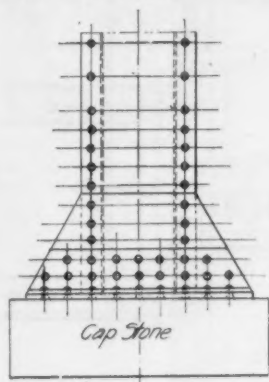


Fig. 51.

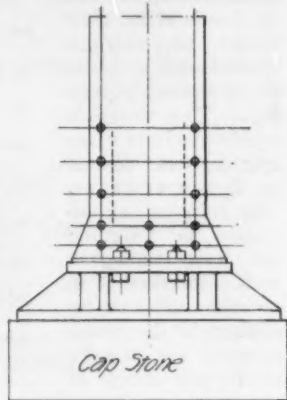


Fig. 52.

column, the manner in which the floor-beams and girders are supported, and the spacing of the rivets, that the rolled shapes and plates may be adequately secured to each other so as to act in unison under the load.

The base of a structural-steel column may rest either directly upon the top of the capstone of the foundation-pier, or upon a cast-iron base-plate. In any case, the end of the column must have ample bearing-area, and must be reinforced so that there is no danger of failure by the plates and rolled shapes separating or spreading at the ends.

When the column rests directly upon the capstone, the form of base shown in Figure 51 is usually adopted, and consists of a heavy bearing-plate, from $\frac{3}{4}$ inch to 1 inch in thickness, held securely to the end of the columns with angle and gusset plates, as designated, the rivets holding the plate to the column being countersunk and chipped on the under side so that a level bearing may be obtained for the column upon the capstone.

Where the structural-steel column depends upon a cast-iron base for the distribution of the pressure upon the capstone or pier, the design shown in Figure 52 is frequently adopted. It will be noted in this figure that the column is held to the cast-iron base with the necessary bolts through angle clips, riveted to the end of the column. It is not usual, however, to secure a cast-iron base to the capstone or pier by anchor-bolts, for this practice is now considered entirely unnecessary. Where a column rests in this manner upon a cast-iron base it is necessary to face both the top of the base and the end of the column. It is not, however, usual to rivet to the bottom of such columns a steel-plate bearing between the end of the columns

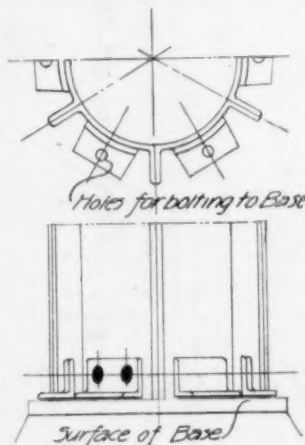


Fig. 53.

as well as the end of the column, would preclude such work being done. The elevation in the figure shows the clips kept back from the end of the column, and clear of the face of the base-plate.

The floor-beams may be secured to the column in many

ways, and great care and ingenuity have been exercised in the design of these connections. It has become the practice, however, to endeavor to provide bearings for these beams upon a bracket riveted to the column, and to make no attempt to support the beams by the web and through the shear of rivets

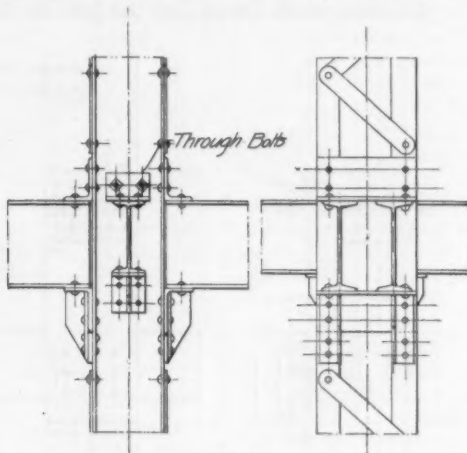


Fig. 54.

through the web and angle-clips riveted to the column. The most practical connection, and one generally used, is designated in Figures 54 and 55; in the former is shown the principal girder and beam connections to a channel-bar column, while in the latter is designated the same character of floor-beam connections to a Z-bar column. The brackets supporting the column are made of angle-iron reinforced by a web, likewise formed of angles; the beams are held in place, top and bottom, by rivets through angle clips. This form of connection is most rigid, as it gives a framing which provides considerable resistance against lateral motion and offers the greatest possible leverage for this resistance where knees or other forms of wind-bracing are not used.

This connection is far preferable to that shown in Figure 56, for while the latter has the advantage of being economical, it certainly offers less rigidity to lateral motion.

Outside columns of buildings must have specially designed connections for the support of the curtain-walls. These connections are usually quite complicated, as, besides providing support for the curtain-walls, there is usually required adjacent thereto a connection for the floor-girders. The usual and simplest connection is designated in Figure 57.

Besides the design of the beam-connections, the splicing of the columns in the tiers of the several stories requires careful consideration. Owing to the difficulty in shipment and handling, and also to the fact that structural shapes are limited in length, the columns must be spliced at several places throughout their length from foundation to roof. Numerous splices should be avoided, and structural-steel columns should be designed of as great a length as convenience in shipment and

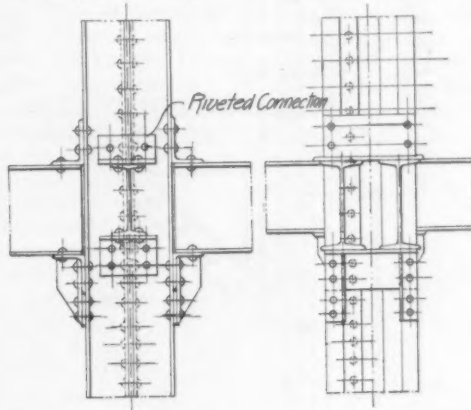


Fig. 55.

erection will allow. Where it is possible, a column should run through several stories without a splice, and the splices upon the different sets of columns should break joints. Where it is necessary to splice the column it is usual to make the connection between the upper and lower column close to a beam-connection, in order to facilitate the erection of the column above

¹ Continued from No. 1379, page 70.

and the riveting of the splice. In fact, the splice-plates often carry the beam-connections as designated in Figure 58. The ends of the abutting columns should be milled or faced, and it is usual to place between them a plinth-plate, as designated at *a* in Figure 58; the flat sides of a column are held between two splice or fish plates which extend past the joint for from 18 to

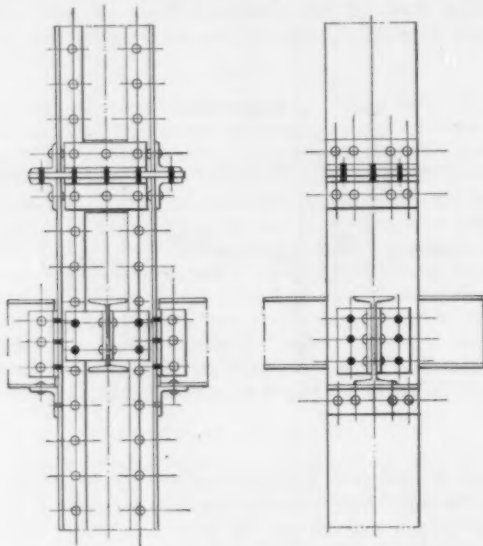


Fig. 56.

24 inches upon each column. These plates are securely riveted, usually to the lower column in the shop and necessarily to the upper column in the field. In angle columns the plinth-plate and connecting angles are sometimes omitted, and instead of the side-splice plates web-splice plates are used. This makes a very rigid connection, but it is not frequently employed.

In spacing the rivets throughout the length of the column, the rivets holding together the several rolled shapes forming the shaft of the column should be spaced at the minimum pitch for a distance of from 2 to 3 feet from the bottom and adjacent to the floor-beam and girder connections; through the balance of the shaft of the column they may be spaced the maximum distance for compression-members, namely sixteen times the thickness of the thinnest outside plate, provided such a thickness does not exceed 6 inches.

At the beam and girder connections the brackets should be

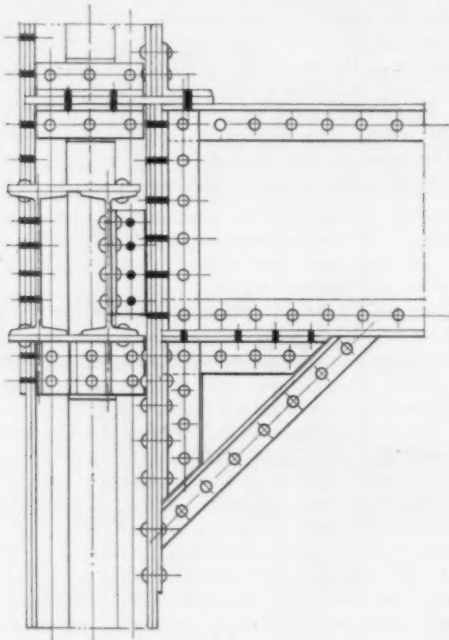


Fig. 57.

held to the shaft of the column with sufficient rivets so that their safe allowable shearing-strength will take care of the reactions at the ends of the girders. In designing connections a rivet should never be considered in tension. Where a connection requires by its design such a means of securing a plate,

angle or clips, bolts should always be used. The reason for this is that very little dependence can be placed upon the heads of rivets, especially when driven in the field, as they are often driven at a low heat and are partially crystallized, in consequence, where the shank joins the head.

If there are any bending-moments upon gusset-plates forming an important member of a connection, they should be carefully studied and provided for by riveting or bolting. The rivets in splice-plates are spaced from 2½-inch to 3½-inch centres. The principal consideration in designing the rivet-spacing in such connections is to provide sufficient resistance in the rivets to equal the strength of the net section of the plate.

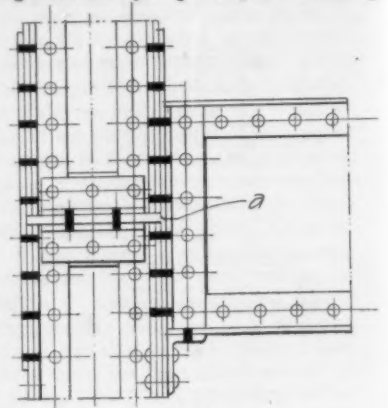


Fig. 58.

There is no more important matter in the design of tall buildings, outside of the foundations, than the lateral or wind bracing. It is a well-conceded fact that the floor-systems and the usual fireproof partitions as constructed in high buildings do not provide adequate lateral resistance against vibration of moving machinery, jars and shocks from accidental causes, and particularly from the wind-pressure upon the large area which the sides of such buildings offer. The different methods of bracing a building of the skeleton-construction type are practically five, and they may be enumerated as follows:—

First.—The connections of the floor-beams and girders to the columns may be so rigid as to provide all of the stiffness required. Rigidity is obtained in such connections when the floor-principals are of deep beams or plate-girders, securely

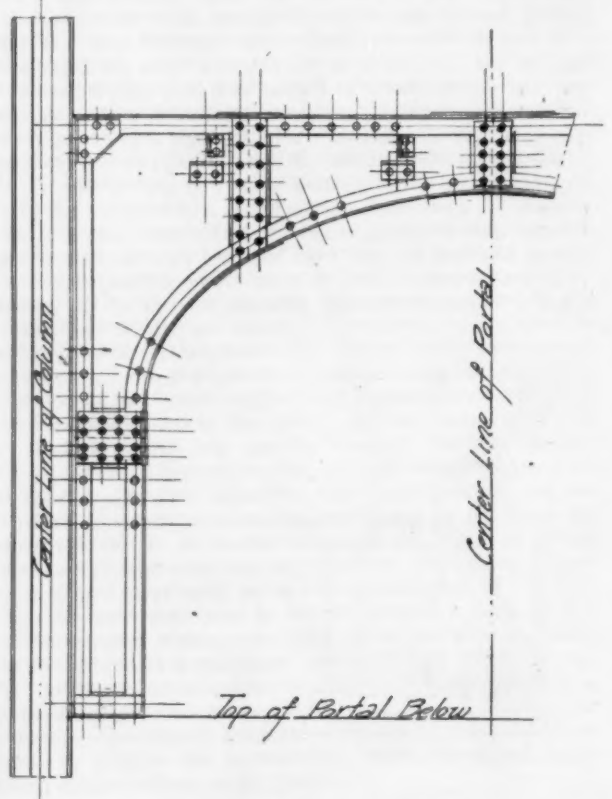


Fig. 59.

bolted or riveted to the columns. For buildings whose height is limited to two and one-half times their least base, it is probable that such connections offer the necessary resistance to lateral movement. Such connections may be employed in buildings as high as three times the length of their least base

when the exterior walls are substantially built, and when the building is braced by several brick partitions.

Second.—The most usual form of lateral bracing for buildings of moderate height is the gusset-plate or corner-brace.

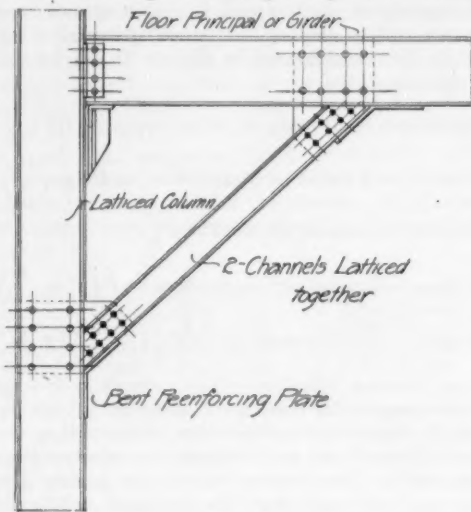


Fig. 60.

This consists of bracing the floor-principals to the column at its junction with this member by means of a triangular plate, usually reinforced with angles, extending at an angle of 45 degrees with the flange of the beam or girder, and the vertical axis of the column. A typical detail for such a connection is shown in Figure 57.

Third.—A system of lateral bracing has been evolved from the gusset-plate, which consists of a steel arch formed between the structural-steel columns, as designated in Figure 59. This detail of construction is known as portal-bracing, and is used in the lower stories or other certain sections of very high buildings. It furnishes great rigidity, but the cost is considerable, and it is open to the objection that it can only be used where the portal or archway is a feature of the architectural decoration.

Fourth.—A system of knee-bracing that is sometimes used is shown in Figure 60. It is efficient, but produces great bending-stresses upon the columns, a stress which is always an objection upon members subjected to compression, and of as much importance as the columns in a tall building.

Fifth.—Sway-bracing, which connects the cap of one column with the foot of the other by means of tension-rod crossed

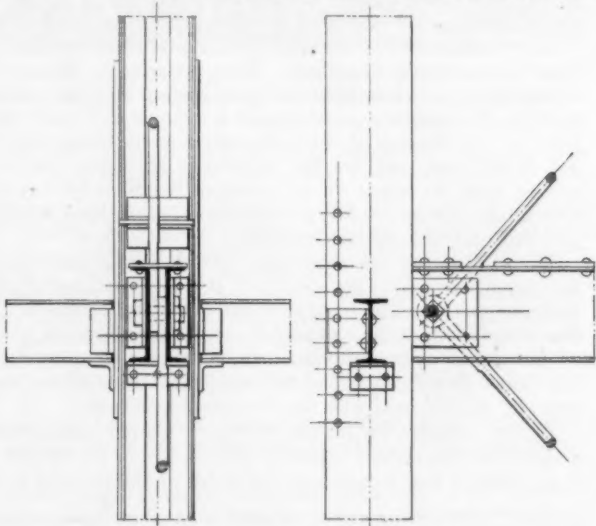


Fig. 61.

diagonally between the panels formed by the columns and the floor-principals, is, undoubtedly, most economical in material and construction. It makes of each set of columns a cantilever truss, its support being the foundation of the building, and its load the pressure of the wind against the area depending di-

rectly or indirectly for lateral support upon these columns. The objection to this system of bracing exists in the fact that the diagonals or tension-rods are an inconvenience in placing of doors or other openings; but usually this system of bracing is arranged so that the tension-rods or supports are contained within a partition. This type of bracing is shown in Figure 61.

It is not necessary in tall-building construction to place a lateral bracing in bay, but it is usual to provide a system of bracing at several points throughout the length of the building. In a narrow building having a length of 100 feet or so, and a considerable height, it is usual to provide lateral bracing between two tiers of columns near the centre of the building. In a building of great length and of extreme narrowness, several systems of bracing would be required, which would be placed about one-fourth of the distance from the end of the building each way. In the location of the bracing much depends upon the situation of the building, and upon the plan, or interior arrangement—that is, the position of the partitions, or hallways.

In determining the stresses in the bracing for high buildings it is usual to assume a lateral wind-pressure of from 30 to 40

pounds per square foot of vertical surface. Since it has been determined that the maximum wind-pressure of 40 pounds upon a vertical surface is seldom realized, and is hardly probable, even if attained, to extend over a large surface, a pressure of 30 pounds per square foot is usually adopted. The stresses in the wind-bracing are maximum when the direction of the wind is normal to the external wall—that is, in a plane parallel with the bracing. In the consideration of the stresses in a braced frame of this character, any rigidity from the floor-construction or partitions that might be given to the building must be disregarded, for they are indeterminate. The floor systems can, however, be depended upon to transmit the direct horizontal shear due to the wind. Since even a pressure of 30 pounds per square foot is seldom attained, and also because, while the lateral rigidity imparted by partitions and floors must be disregarded, it still exists, and a low factor-of-safety is used in the design of the wind-bracing. The factor-of-safety usually employed is 3.

The method of determining the stresses in the several forms of wind-bracing differs somewhat, and though the solutions assume theoretical conditions, any errors are upon the side of safety. The determination of the stresses in the several methods of bracing may be taken up successively as follows:—

Before the stresses in any system of wind-bracing can be computed, it is necessary to determine the horizontal shear at each story due to the wind-pressure, acting normal to the exposed surface of the side of the building.

This shear is practically the same as would exist from a uniform load on a cantilever girder and is the accumulation of the loads at each story or tier of beams. For instance, in Figure 62 let the skeleton-diagram represent a cross-section through an eighteen-story building. The horizontal shear at the top floor is that

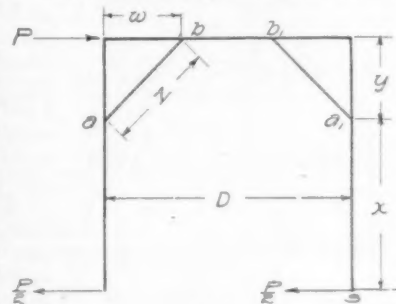


Fig. 63.

due to the wind-pressure on the surface above *a* and including any horizontal pressure upon the parapet-wall or the sloping roof, but the shear horizontally at *b* is not that alone on the surface included between *a* and *b*, but includes as well the shear accruing from above the point *a*. Likewise, the horizontal

shear at *c* is equal to the pressure on the area from *b* to *c*, including the shears at *a* and *b* respectively, while the shear at the point *d* is equal to the pressure upon the area *c d* plus the sum of the shears at *c*, *b* and *a*.

Assume that the length of the exposed surface on the side of the eighteen-story building shown in the figure is 20 feet and that the distance between floors is 12 feet, excepting the bottom story, which is 20 feet high, and the top story, which is 18 feet to the top of the parapet-wall, also that the horizontal wind-pressure per square foot of vertical surface is 30 pounds and that the pressure upon the sloping roof which must be taken care of by the bracing is 4,000 pounds. The horizontal shear at the several stories determined by the notation just described will then be as follows:—

Shear at point <i>a</i>	= 18 × 20 × 30 + 4,000	= 14,800 pounds.
Shear at point <i>b</i>	= 12 × 20 × 30 + 14,800	= 22,000 pounds.
Shear at point <i>c</i>	= 12 × 20 × 30 + 22,000	= 29,200 pounds.
Shear at point <i>d</i>	= 12 × 20 × 30 + 29,200	= 36,400 pounds.
Shear at point <i>e</i>	= 12 × 20 × 30 + 36,400	= 43,600 pounds.
Shear at point <i>f</i>	= 12 × 20 × 30 + 43,600	= 50,800 pounds.
Shear at point <i>g</i>	= 12 × 20 × 30 + 50,800	= 58,020 pounds.
Shear at point <i>h</i>	= 12 × 20 × 30 + 58,020	= 65,400 pounds.
Shear at point <i>i</i>	= 12 × 20 × 30 + 65,400	= 72,600 pounds.
Shear at point <i>j</i>	= 12 × 20 × 30 + 72,600	= 79,800 pounds.
Shear at point <i>k</i>	= 12 × 20 × 30 + 79,800	= 87,000 pounds.
Shear at point <i>l</i>	= 12 × 20 × 30 + 87,000	= 94,200 pounds.
Shear at point <i>m</i>	= 12 × 20 × 30 + 94,200	= 101,400 pounds.
Shear at point <i>n</i>	= 12 × 20 × 30 + 101,400	= 108,600 pounds.
Shear at point <i>o</i>	= 12 × 20 × 30 + 108,600	= 115,800 pounds.
Shear at point <i>p</i>	= 12 × 20 × 30 + 115,800	= 123,000 pounds.
Shear at point <i>q</i>	= 12 × 20 × 30 + 123,000	= 130,200 pounds.
Shear at point <i>r</i>	= 20 × 20 × 30 + 130,200	= 142,200 pounds.

When such a calculation has been made and the resulting horizontal shear has been obtained as above, and when the type of bracing has been decided upon, the calculation for the size of the several members entering into the design of this element in the structure may be found from the following formulas for the different cases.

Case I, the Gusset or Knee-brace.—A skeleton diagram of this system of bracing is designated in Figure 63 and the accumulated wind-pressure at the story under consideration is represented by *p*. This force *p* is assumed to be transmitted equally to the foot of the uprights or columns, so that at these points there will be a reaction equal to $\frac{p}{2}$ acting in opposition to *p*. The force *p* acting at the top of the frame tends to distort the panel to the leeward, and the result of this tendency is to create tension in the member *ab* and compression in the member *a₁b₁*, and these forces while of different kinds are assumed

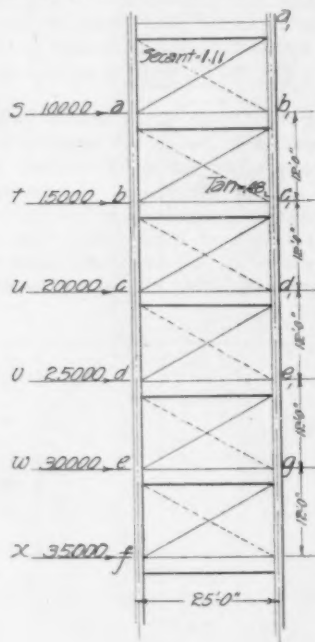


Fig. 64.

as equal, and as there is under ordinary conditions as much likelihood of the wind blowing from one side of the structure as the other, whether gussets or knee-braces are used they must be proportioned to resist tension and compression. Under tension the member *ab* tends to pull downward upon the floor-beam or girder at *b*, and under compression *a₁b₁* tends to push the beam or girder upward at the point *b₁*. These forces require opposing reactions at these points, *b* and *b₁*, which must be furnished by the stiffness of the beam against flexure so that the wind-pressure acting on the frame causes bending in the floor beams or principals. Similar forces are exerted by the knees or angle-braces at *a* and *a₁*, so that the columns are subjected to bending as well as the floor-principals. Besides these several forces and their attending stresses the horizontal wind-pressure *p* tends to revolve the entire structure about the point *s* and, in consequence of the overturning tendency the left-hand, or windward, column is subjected to an uplifting tendency which must be resisted by tensile stress, while the right-hand, or

leeward, column is subjected to a pressure corresponding in amount to the tension in the windward column and which creates additional compression in this column other than that due directly to the statical load from the live and dead floor loads.

The amount of these several forces or stresses created in the different members may be determined by the following formulas in which the notation used in Figure 63 has been adopted in the expressions:—

$$\text{Knee-braces. — Tension or compression} = P \left(\frac{1}{2} + \frac{x}{4y} \right) \frac{z}{w}$$

$$\text{Columns. — Tension or compression} = P \left(y + \frac{x}{2} \right) \frac{1}{D}$$

$$\text{Columns. — Bending-moment} = P \frac{x}{4}$$

$$\text{Girders. — Tension or compression} = P \left(1 + \frac{x}{4y} \right)$$

$$\text{Girders. — Bending-moment} = P \left(\frac{1}{2} - \frac{w}{D} \right) \left(y + \frac{x}{2} \right)$$

These formulas being exceedingly simple in their application need no examples for their demonstration. After the required stresses in the several members are obtained they may be proportioned by the rules and formulas for columns, beams or tension-members. The dimensions of the girders necessary to sustain the floor-loads must be increased sufficiently to take care of the bending-moment due to the wind, and in proportioning the columns the unit compression for the combined dead, live and wind loads must not exceed the unit compression allowed by the following formulas:—

$$\text{For high buildings } s = 20,000 - 75 \frac{l}{r}$$

$$\text{For shed including mill buildings } s = 18,000 - 75 \frac{l}{r}$$

In both of these formulas *r* equals the least radius-of-gyration and *l* the length of the column in inches.

By inspection of the bending-moment in the column at *a* and *a₁*, it would seem that the bending-moment would equal $\frac{p a}{2}$, but it must be remembered that the columns are rigidly fixed at the top and bottom so that the bending-moment at *a* and *a₁* is about one-half this amount, or $\frac{p a}{4}$.

Case II, Sway or Diagonal Wind-bracing.—The skeleton of this system of bracing is shown in Figure 64, and by inspection it is clearly evident that where the diagonals are designed only to resist tension only one set is in action at the same time; the set not in action when the wind is to the left is shown by dotted lines.

The calculation for this system of bracing is quite simple and, as previously stated, involves the principles by which the stresses in a trussed cantilever are obtained.

The accumulation of the loads at the several stories are first found as previously described. Then referring to Figure 64, which shows a cross-section through a portion of a sway-braced building, the loads are as designated at *s t u v w* and *x*, and these loads are the amount of the compressive stress transmitted by the floor-system and for the resistance of which additional section must be added to the principal beams or girders connecting the columns, unless it is assumed that the floor construction will provide sufficient resistance.

The stresses on the sway-rods bear the same ratios to the horizontal stresses or the stresses in the horizontal members as their length is to the length of the horizontal members. So that if the width of the building or the distance between centres of columns in a plane parallel with the bracing is considered as the radius, then the diagonal will equal the secant of the angle made by the diagonal with the horizontal members.

In the instance designated in Figure 64, the length of the diagonal is theoretically equal to $\sqrt{12^2 + 25^2}$, or 27.73, and the ratio between this length and the width of the building or the distance between centres of columns is equal to $\frac{27.73}{25}$, or 1.11.

The stresses in the diagonal members *a a₁*, *b b₁*, *c c₁*, etc., referring to the figure, will then be as follows:—

Stress in diagonal <i>a a₁</i>	= 10,000 × 1.11	= 11,100 pounds.
Stress in diagonal <i>b b₁</i>	= 15,000 × 1.11	= 16,650 pounds.
Stress in diagonal <i>c c₁</i>	= 20,000 × 1.11	= 22,200 pounds.
Stress in diagonal <i>d d₁</i>	= 25,000 × 1.11	= 27,750 pounds.
Stress in diagonal <i>e e₁</i>	= 30,000 × 1.11	= 33,300 pounds.

With the wind on one side of the structure as designated in the figure, and where the construction is similar to a cantilever-trussed girder with its support at the foundations, the columns at the windward side are in tension, while the columns at the leeward side are in compression. These stresses in the columns must be provided for in their design, and their increment bears the same ratio in each tier to the amount of the horizontal stress as the height of the columns from brace-connection to brace-connection bears to the width of the building or the distances from centre to centre of columns.

The length of the column with respect to the width of the building is equal to the tangent of the angle made by the diagonal with the horizontal, and the value of the tangent in this instance equals $\frac{1}{2}$, or .48, so that the stresses in the columns, whether compressive or tensile, are obtained by the following calculations:—

Stress in <i>ab</i> = $10,000 \times .48$ + Increment =	4,800 pounds.
Stress in <i>bc</i> = $15,000 \times .48$ + 7,200 =	12,000 pounds.
Stress in <i>cd</i> = $20,000 \times .48$ + 9,600 =	21,600 pounds.
Stress in <i>de</i> = $25,000 \times .48$ + 12,000 =	33,600 pounds.
Stress in <i>ef</i> = $30,000 \times .48$ + 14,400 =	48,000 pounds.

In the design of the details for sway-bracing or diagonal-bracing the pin-connections at the ends of the diagonals should be carefully proportioned to resist both bending and shearing. Turn-buckles should be provided on all sway-rods and preferably they should be placed about 3 feet above the floor so that they may be conveniently tightened during erection. Where it is necessary to omit a diagonal in order to provide a door or window opening, the remaining rod in the panel should be proportioned for compression as well as tension.

Case III, Portal-bracing.—The principles of determining the stress in this system of bracing are much the same as those employed in the calculations of Case I for a gusset-plate or knee-brace, as it is readily observed that the portal-bracing is merely a form of the knee or gusset-plate bracing.

The horizontal reactions at the foot of the column in each tier are equal to $\frac{p}{2}$ when *p* equals the horizontal at the floor-level above. This reaction produces a bending-moment throughout the portal which may readily be determined by the principles of moments and it only remains to provide sufficient section throughout the portal to resist the resulting bending-moments. Besides these bending-moments, as in the case of knee-bracing, there is tension in the windward column and compression in the leeward one which is amply provided for in the large amount of excess metal necessary to employ in this type of bracing.

M. M. SLOAN.

[To be continued.]

ILLUSTRATIONS

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

HOUSE OF JAMES B. CASTLE, ESQ., HONOLULU, HAWAII. MR. O. G. TRAPHAGEN, ARCHITECT, HONOLULU, H. T.

FRAME-BUILDING situated on the ocean-beach at Diamond Head, near Honolulu. Finish throughout the interior is hard woods, including mahogany, curly birch, bird's-eye maple, native koa wood, curly redwood and oak, etc. The dimensions of large drawing-room, or salon, on first floor are 50' x 60'. A feature of the house is the continuous lanais, or verandas, on each story, overlooking the ocean. The plumbing, electrical equipment and decoration of this building are of the finest character, expert workmen having been brought to Honolulu from New York to execute these branches.

STAIRCASE: HOUSE OF JAMES B. CASTLE, ESQ., HONOLULU, HAWAII. MR. O. G. TRAPHAGEN, ARCHITECT, HONOLULU, H. T.

A COMPETITIVE DESIGN FOR THE SOLDIERS' AND SAILORS' MONUMENT, PHILADELPHIA, PA. MR. ELLIOT LYNCH, ARCHITECT, AND MR. FERNANDO MIRANDA, SCULPTOR, NEW YORK, N. Y.

HANNA HALL, KENYON COLLEGE, GAMBIER, OHIO. MR. C. F. SCHWEINFURTH, ARCHITECT, CLEVELAND, O.

DORMITORY FOR KENYON COLLEGE, GAMBIER, OHIO. MR. C. F. SCHWEINFURTH, ARCHITECT, CLEVELAND, O.

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

ISOMETRIC STUDY: VIEW OF GARDENS, HOUSE FOR THOMAS B. FITZPATRICK, ESQ., BROOKLINE, MASS. MR. WM. G. PRESTON, ARCHITECT, BOSTON, MASS. MR. FRANKLIN BRETT, LANDSCAPE ARCHITECT;—PARLOR: HOUSE OF JAMES B. CASTLE, ESQ., HONOLULU, HAWAII. MR. O. G. TRAPHAGEN, ARCHITECT, HONOLULU, H. T.

COMMUNICATIONS

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

THE STATUS OF THE LOWELL MILL-OPERATIVE.

BOSTON, MASS., June 23, 1902.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Dear Sirs,—In your review of the conditions of the cotton-factories of Lowell you have stated the conditions under a misapprehension. You remark that the cotton-manufacturers thought it necessary in order to reduce the cost of production to lower wages to a point which would attract only the most destitute and ignorant operatives. The facts are that when cotton-manufacturing had become well established in Lowell, it was a step in advance for the daughters of New England farmers to leave the isolated, arduous life of the farm and to enter the factory, where they worked 13 hours a day in a low-studded, ill-ventilated, badly-lighted and badly-heated building. The machinery, being far from automatic, required the constant attention of a very intelligent person. In 1840 the average earnings of all the hands—men, women and children—in one of the best of the mills of the Lowell class averaged \$175 a year. The average product per hand was less than 10,000 yards a year of 36-inch heavy sheeting. In what purports to be the same mill, of which nothing but a part of the foundation is the same, a high-studded, well-lighted, well-ventilated and moderately-heated building, the foreign operatives of to-day, who could not have worked the machinery of 1840, are now employed 10 hours a day with Saturday afternoon free, earning double the wages per hour, very nearly double the wages per day, as compared with the farmers' daughters of 1840, the average product per hand being nearly 40,000 yards a year. The cost has been diminished, the wages have been augmented, the price has been lessened, the profit required per yard to yield six per cent upon the capital has been reduced to about one-fifth of what it was in 1840. The farmers' daughters of New England and others of similar type and capacity have passed out of the factory into much less arduous and more attractive work at very much higher wages.

Progress in all these directions has been continuous, decade by decade, throughout the sixty years, subject to occasional fluctuations in times of commercial depression. That is the law of competition under which the working-people of the country, in the sense in which that term is commonly used, secure to their own use and enjoyment an increasing share or proportion of a constantly increasing product, this law only being interrupted in its course by the interference of trades-unions in their effort to keep the standard of earnings at the standard of the least capable among the workmen and women, attempting to prevent the capable from reaping the reward of their own superior ability. Yours very truly, EDWARD ATKINSON.

NOTES AND CLIPPINGS

DECREASE IN NUMBER OF NEW YORK STABLES.—A census taken by the Department of Health of the number of horses and stables in the city shows that there has been a decrease of 8,660 in the horse population from December, 1896, when it was 73,746, to June, 1902, when it is 65,086. The number of stables in December, 1896, was 4,649, and in June, 1902, 3,326, a falling off of 1,323. — *N. Y. Evening Post*.

MUSIC AND "FROZEN MUSIC."—George R. McKenzie, a sewing-machine manufacturer, built two Presbyterian churches in Jersey City and gave them to the congregations on the agreement that no musical instruments should ever be heard within their walls. The prohibition was fatal to both churches. The congregations dwindled down and down, and the last of them has just been closed because of non-support. Both buildings will be sold and the money used in aid of other Presbyterian churches. — *Exchange*.

VENTILATING LONDON'S TUNNELS.—As a result of the recommendations of Sir Benjamin Baker, practical steps have now been taken to ensure the efficient ventilation of the twopenny tube-tunnels in London. A powerful fan has been placed at the base of the left shaft at Bond Street Station, which will remove the vitiated atmosphere from the permanent ways, fresh air taking its place at the various halting-places under ordinary pressure. The fan, which is 48 inches in diameter, and electrically driven, displaces 30,000 cubic feet of air a minute, and is thus capable of entirely exhausting the whole of the tunnels in a fraction over 3 minutes. — *N. Y. Tribune*.

ANCIENT ITALIAN MONUMENTS.—In the course of a recent visit paid by the King of Italy to the Roman Forum, Signor Boni, director of the excavations, pointed out to His Majesty the incongruity of leaving the site of the Roman Senate covered up by a comparatively modern Spanish convent. The view of Signor Boni has commended itself to a number of Italian public men, who have drawn up a motion calling on the Minister of Public Instruction to provide means for the demolition of the convent and the excavation of the site. The motion will be discussed by the Chamber during the examination of the estimates for public instruction. At least a hundred signatures had been affixed to the motion, and it is practically certain that Signor Nasi, Minister of Public Instruction, will make no objection to its adoption. Thus, within the next year, it may be hoped that the remains of the old Roman Senate will be brought to light after having been buried for so many centuries. This is not the only proof of the new interest which the Italian Government and, in particular, the Fine Arts and Antiquities Department of the Ministry of Public Instruction are taking in the preservation of ancient Italian monuments. Efforts are being made, and, as a rule, successfully, to prevent a recurrence of the blind demolition of venerable remains that went on in Italy 20 years ago. The Director-General of Fine Arts and Antiquities constantly sends to the various regional offices of his department the strictest and most precise instructions as to the treatment of archaeological remains, and in the majority of cases the local officials show great zeal in executing the orders received. But in Italy the greatest obstacle to any efficacious control and preservation of ancient monuments is the perverse belief that the desire to preserve them is due exclusively to archaeological mania. By degrees the advance of education is removing this prejudice and is ensuring a more general respect for the claims of history and civilization, and it is satisfactory to note that nearly every battle undertaken for the preservation of some historical fragment terminates nowadays in the defeat of the vandals. One illustration of this is the action of the Ministry of Public Instruction on behalf of the old walls of Bologna. It was proposed to destroy the ancient structure almost entirely, as a result of the growth of the city. The Ministry has succeeded in obtaining the suspension of the demolition, which had begun at three points, and has made sure that any partial demolition that may be rendered necessary by the growth of traffic and the need for more direct communications shall in no way harm the monumental value of the old walls. At Genoa the Ministry of Public Instruction has averted the danger that threatened the beautiful cloister of Sant' Andrea. The Genoese municipality wished to buy the cloister from the Prisons Administration, to which it belongs, in order to sell the area to private speculators. The Ministry of the Interior, at the request of the Ministry of Public Instruction, has, by its intervention, prevented such a misfortune. Similar intervention at Novara has saved the Sforza Castle from being sold to the municipality and damaged. At Verona a regular campaign has been necessary to prevent the distortion of the famous Piazza delle Erbe, where local vandals wished to erect a large modern theatre. The Piazza Civica at Pistoja is still threatened by the promoters of a monument to Garibaldi, who wish it to be placed alongside the statue to Cardinal Portoguerri. Here, again, the Department of Antiquities is gradually persuading the local enthusiasts for Garibaldi not to spoil the symmetry of the piazza with a modern monument, but to place their statue elsewhere. It seems strange that in a country like Italy, which draws such a considerable part of its prosperity from foreign tourists and visitors, who are attracted to the country by its ancient monuments, there should be so little respect for the records of the past. The only explanation is that ignorant familiarity breeds contempt. The hope of students must be that with the gradual disappearance of ignorance familiarity may yet breed reverence. — *Correspondence of the London Post.*

THE CUENCA CATHEDRAL ACCIDENT.—The Madrid correspondent of the *Times* writes under date April 15th:—"The catastrophe which befell the Cathedral of Cuenca the day before yesterday will not be without some good result if it stirs the authorities to take a little more interest in the reparation of ancient buildings which lie outside the general track of visitors. Cuenca, some 60 miles east of Aranjuez, though an inconsiderable town itself, possesses a fine Gothic cathedral of the sixteenth century, but little known on account of its distance from the most frequented centres of Spain. It would appear, from a question asked in the Senate yesterday by the Count de San Luis, that the dangerous condition of the cathedral tower was recognized so long ago as 1888, when a grant of 100,000 pesetas was solicited from the Government for its repair. The money was not forthcoming, and no adequate measures have since been taken to ensure the safety of the tower. It has now fallen, causing the death of some six or seven people, chiefly children, and threatening the further collapse of a great portion of the cathedral itself. As a matter of fact, the burden of repairs should properly fall upon the municipality, but it is a duty which can hardly be efficiently performed by the *ayuntamientos* of small and impoverished towns, and it would be well if, in their case, the Government could come to their aid."

ELECTRICITY IN BUILDING-WRECKING.—Cutting-up tanks electrically is being done in the Auditorium Building, Chicago, by Mr. J. E. Haschke. According to the *Western Electrician*, four elevator-tanks, 12 feet high and 24 feet in circumference, had to be removed, and the noise of the work, if done in the usual manner, would be highly objectionable to the music-teachers and theatre-goers in the building. The electrical cutting is done at the rate of about 1 foot in 2 minutes. The current is supplied at 110 volts by the electric-plant in the building, and is reduced to 30 volts by apparatus of which the design is a secret. One terminal of the circuit is connected to the tank to be cut, and the other to an anthracite carbon 1 inch in diameter, the metal being heated by the arc between it and the carbon. — *Building News.*

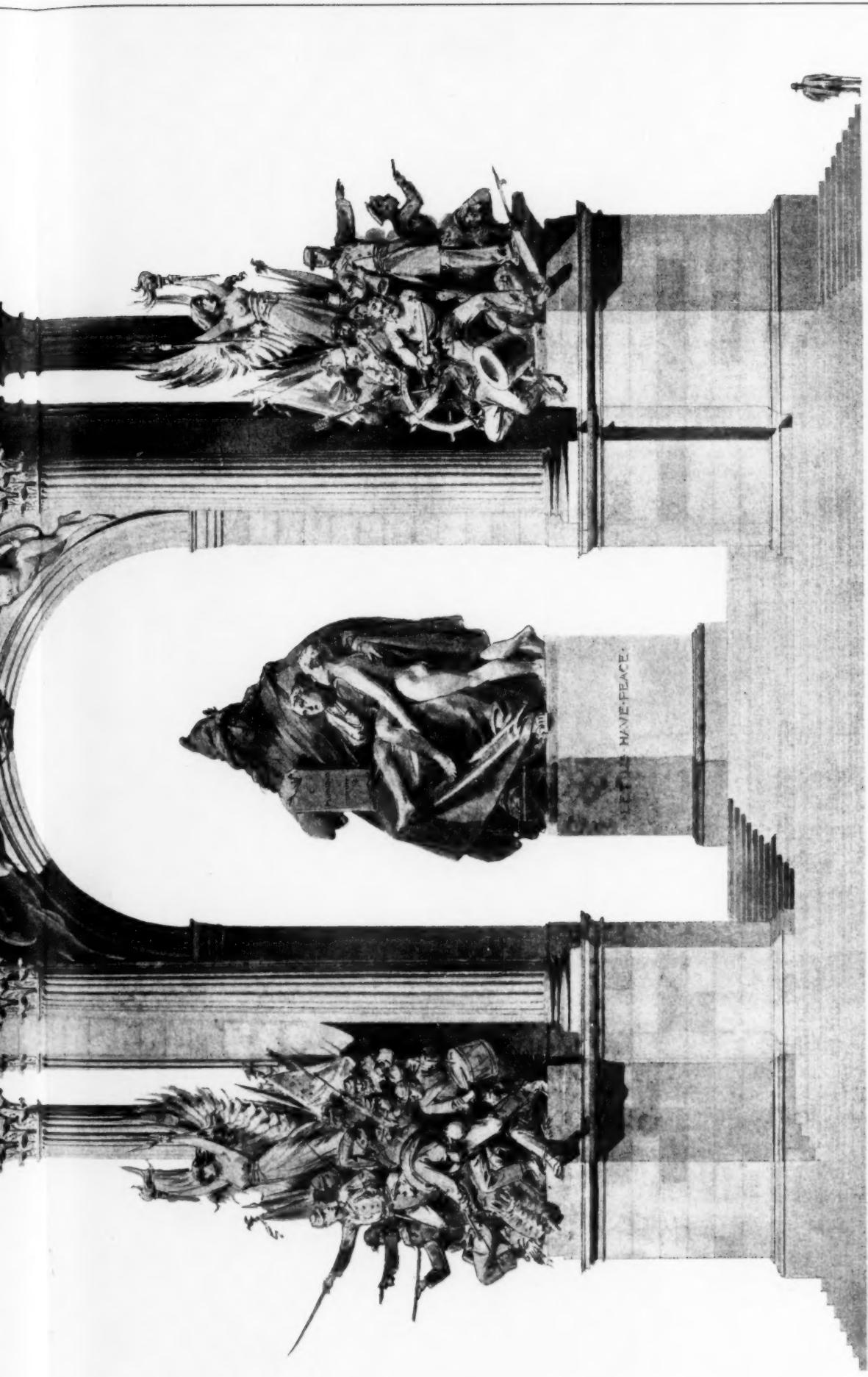
GERMAN OLD-AGE PENSIONS.—Emperor William is considering the extension of the old-age pension legislation. Conversing with a recent American visitor about the conditions of labor in the United States, His Majesty said he was determined to make employers contribute to the support of their work-people when the latter were old and invalided. They should not be thrown aside like old shoes after having given all their best years to their employers' interests. Germany already has a fairly comprehensive old-age scheme in operation, but the doles guaranteed are not sufficient to maintain the receivers without private aid. What the Emperor apparently intends is to secure enough to keep the aged people beyond want. Of course they will have to contribute a portion of their wages, throughout their lives, which the State will invest, supplemented by a regular quota from their employers. — *N. Y. Tribune.*

PREHISTORIC VILLAGE IN WISCONSIN.—From discoveries recently made in ploughing up the soil for what is known as the Mitchell Park Addition to Milwaukee, Wis., the place was evidently the site of a large village centuries ago. Grooved stone axes, hammer-stones, arrow and spear heads, and great quantities of flint-chips have been found, and indicate that stone weapons were manufactured on the spot in numbers. Several members of the archaeological section of the Wisconsin Natural History Society have visited the place and made a superficial examination, and they have come to the conclusion that there must have been a prehistoric village there, covering 150 or 200 acres. Further investigations will be made, and it is believed that something more definite regarding the inhabitants of the village will be learned. — *N. Y. Evening Post.*

AMERICAN ART-PURCHASES.—The art critic of the *Vossische Zeitung* complains that American millionaires have sent up the prices of paintings to such a point that European collectors are now unable to compete with them. The fact that pictures go to the United States, says the critic, does not mean their loss to the world, as European artists often assert, and many of the older American collectors often showed genuine appreciation and understanding of art. Quincy Shaw recognized the merit of the Fontainebleau school when its pictures could not be given away in Paris. Mr. Shaw made a larger collection of the paintings of that school than all the French collections put together. The critic of the *Vossische Zeitung* also mentions Henry G. Marquand and Allan Marquand, of New York, and Mrs. Gardner, of Boston, as discriminating picture-collectors. He deprecates, however, the invasion of the art-field of the younger generation of American millionaires, whom he declares to be without real artistic appreciation, saying they make it possible for picture-dealers to increase the price of pictures tenfold and thus shut out European buyers.

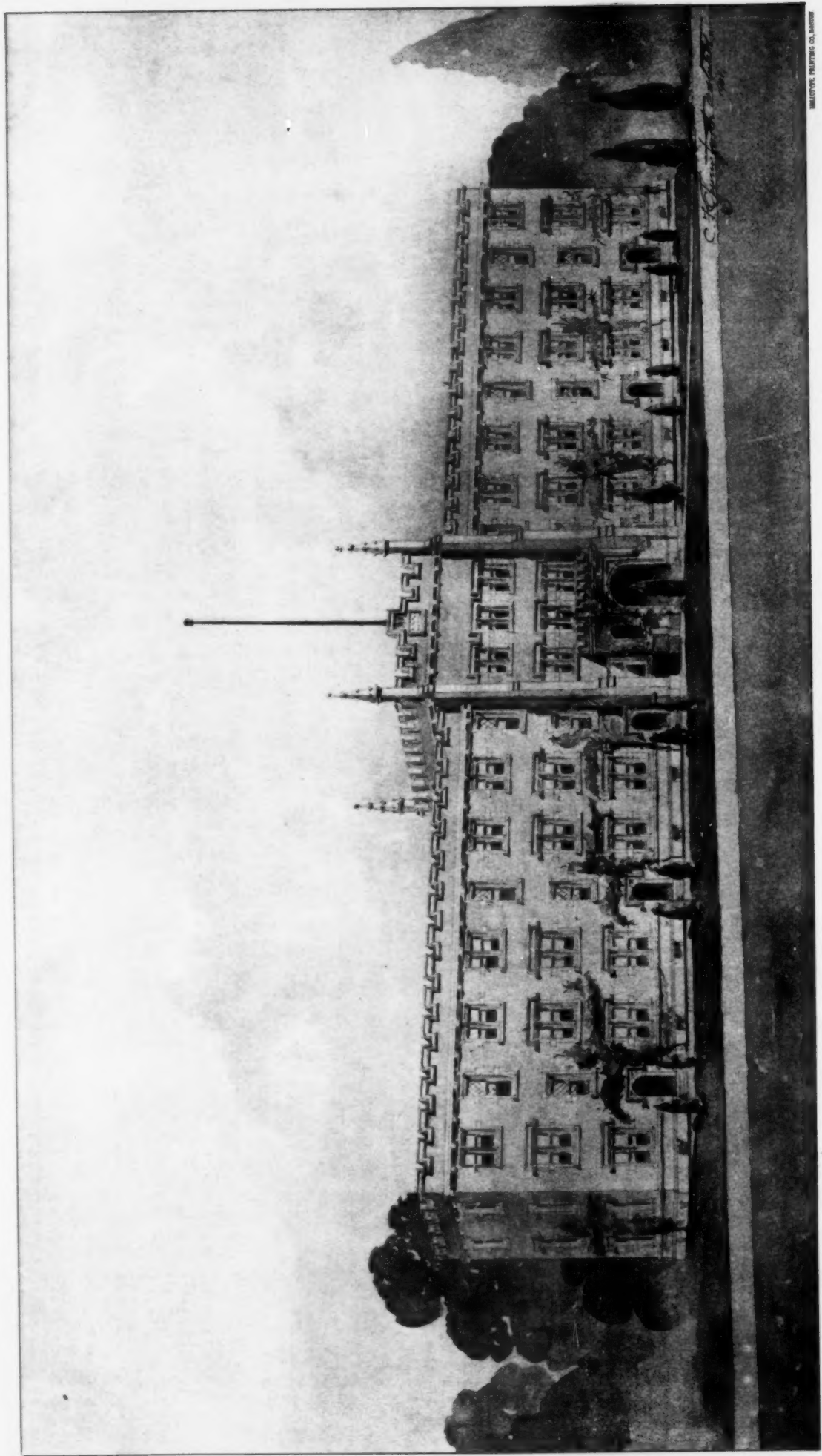
OLD WOOD-CARVINGS.—Although in the Priory at Christ Church, Hants, at Westminster Abbey, Salisbury Cathedral, and in a few other of our ancient minsters, there may be seen to-day miserere seats and (as at Salisbury) other small portions of stalls dating from the middle of the thirteenth century, the oak in each of which is as sound now as it was in the days when the respective monarchs of the forest bowed their sturdy heads to the woodman's axe, the palm, as regards seniority, is claimed, and justly so, by Exeter Cathedral. Therein, in the choir, may be seen fifty miserere seats, every one different, cleverly carved and enriched by figure and by foliage, the oak in each and every one of them perfectly hard and solid, and altogether innocent of the least indication of rot or decay, carved under the direction of Bishop Bruere (tenth Bishop of Exeter), who ruled over this diocese from the year 1224 to that of 1244. Taken as a whole, they are not only the most perfect examples of early thirteenth-century work in this country, but also in any cathedral or church in the world. Bruere (or William Briwere, as he is sometimes called in ancient manuscripts) was for nearly 5 years away in the Holy Land. This accounts, no doubt, for the altogether Eastern character of some of the figure-carvings upon these superb misereres. One of them represents an elephant, and is of exceptional interest, in that it is the earliest carved representation of that quadruped in existence in England. It is curious, too, in that its carver, apparently never having seen such an animal, has represented it with the hind legs of a dog, although, as we all know now, an elephant's hind legs possess hocks precisely the same as do the fore ones, and hence its ability to kneel down like a Christian. But, after all, we are but a new people; and what with us appears to be ancient history is very modern indeed, when we come to compare ourselves with some other countries—Egypt, for instance. The most ancient carved-wood figure—it is of sycamore—known to exist may be seen in the Museum of Gizeh, at Cairo. It dates from B. C. 3900, so is very nearly 6,000 years old, and still the wood is sound and good. This precious old statuette was found at Sakkarah, and is supposed to represent one of the overseers of the workmen engaged in building the pyramids which abound in that immediate neighborhood, and, by comparatively recent discoveries, have been proved to be the oldest of all the pyramids of Egypt. The statue is known as the "Sheikh-el-Beled," or "Sheikh of the Village," a name given it by the Arabs who found it, because its features represented very closely those of the man who was then their own sheikh. In this we get a wonderful instance of how human nature, through the roll of thousands of years, keeps on repeating itself. The statue is distinctly a portrait, showing a jolly, well-fed, closely shaven man of fifty summers or thereabout, altogether nude, save for a cloth bound by a leather girdle about his lusty loins, and reaching down to his knees. He stands erect, and in the right hand grasps a staff, but I do not think the latter is part of the original. The exact height of the statuette is 3 feet 8½ inches. A careful cast in plaster-of-Paris of this wonderful old carving was made early in 1894, and may now be seen in one of the Egyptian Galleries of the British Museum. This, then, is the oldest known existing example of the wood-carver's craft. — *The London Woodworker.*





A COMPETITIVE DESIGN FOR THE SOLDIERS' AND SAILORS' MONUMENT, PHILADELPHIA, PA.

ELLIOTT LYNCH, ARCHITECT. FERNANDO MIRANDA, SCULPTOR.



WILLIAMSON, BRADY & CO. BOSTON

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The American Architect.
June 28, 1902.
No. 1383.



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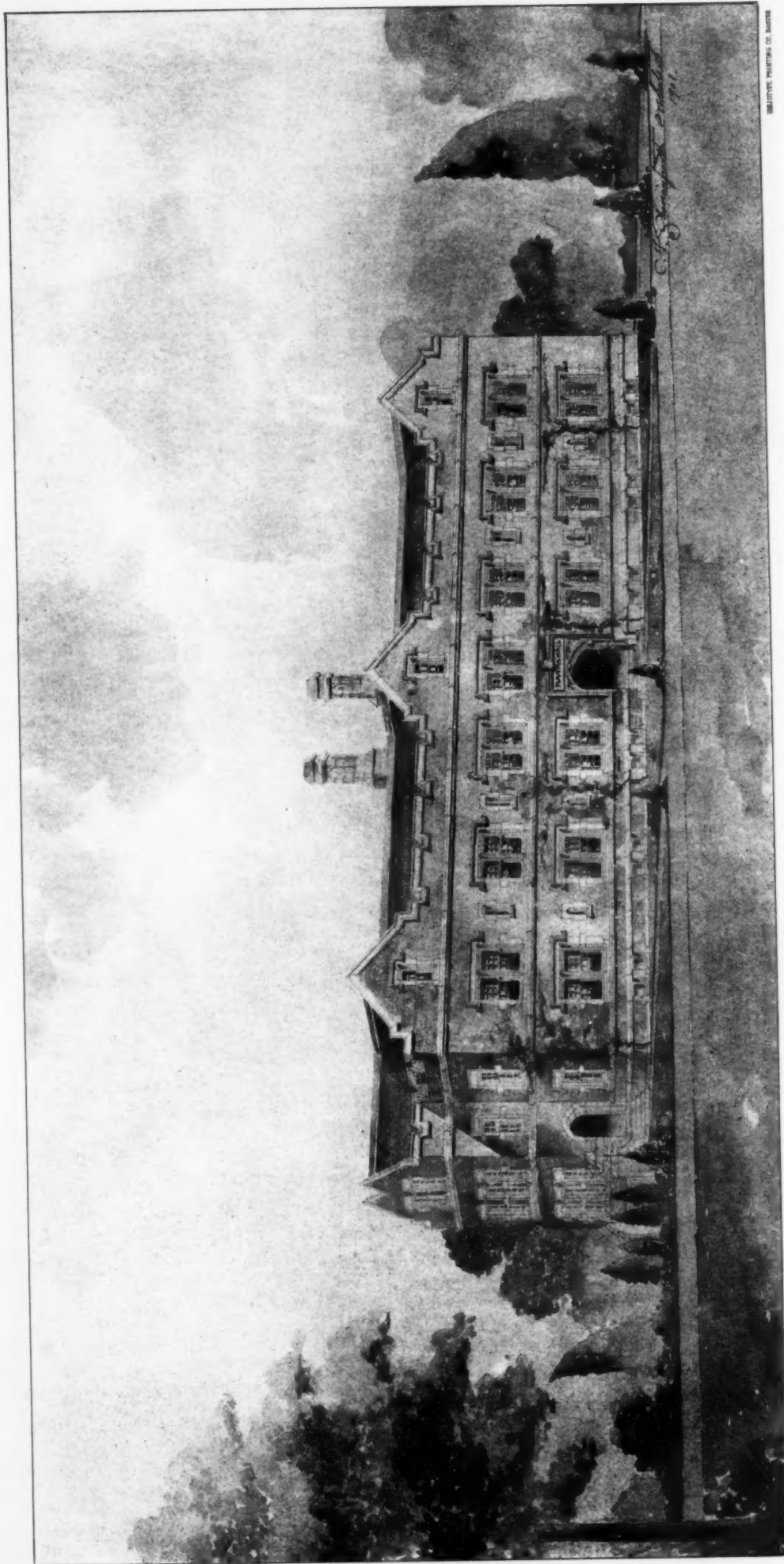
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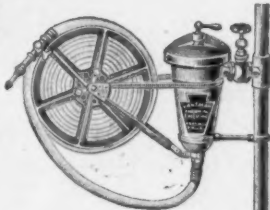
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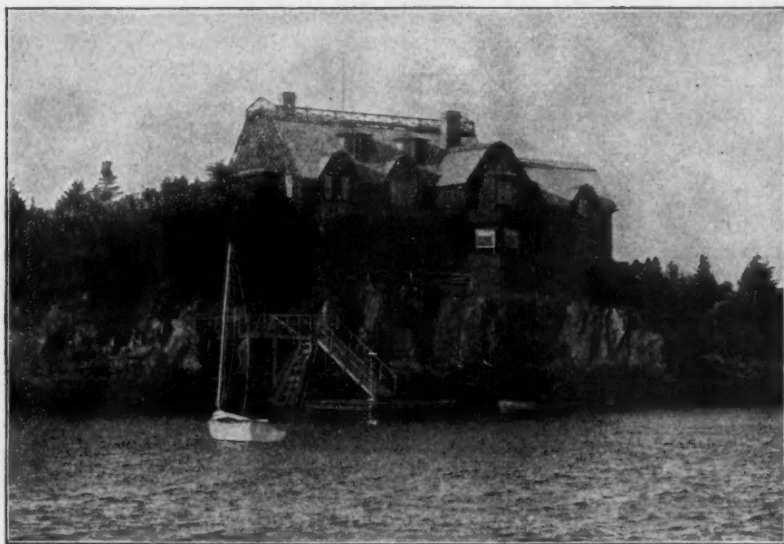
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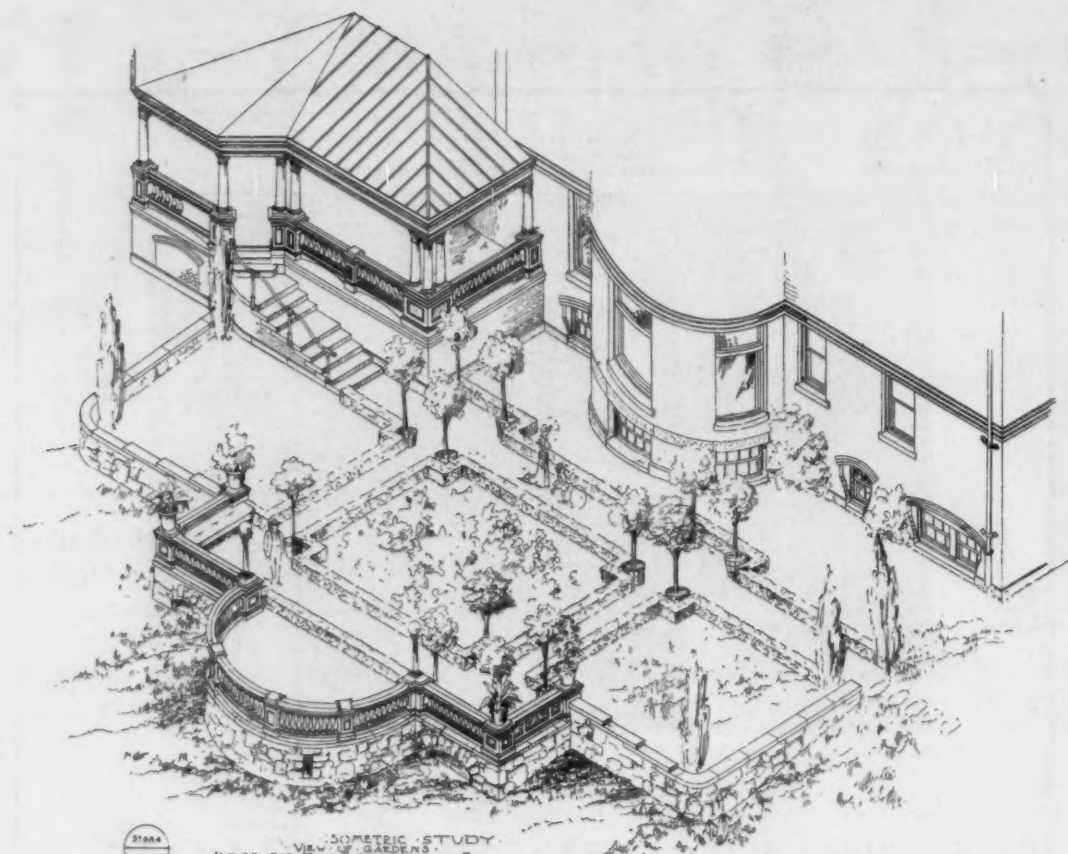
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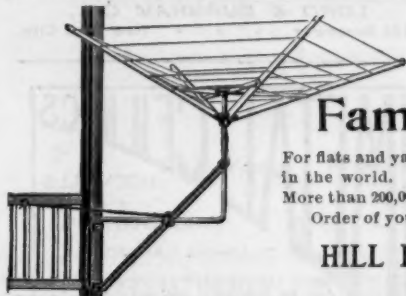
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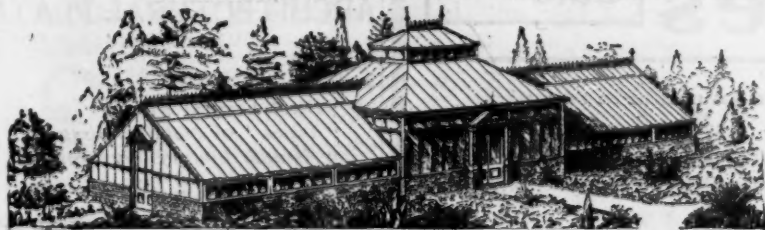
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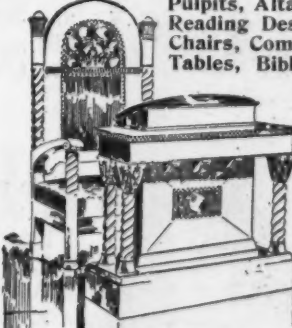
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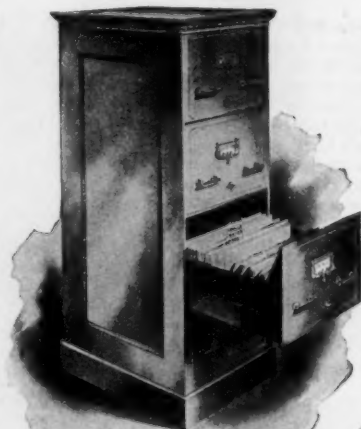
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The Bill prays for a preliminary writ of injunction, to be continued during the pendency of the suit, and upon the final determination thereof to be made perpetual, and also demands an accounting and damages.

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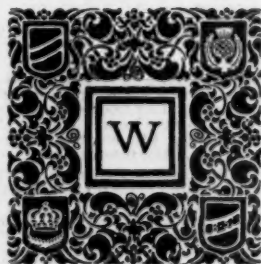
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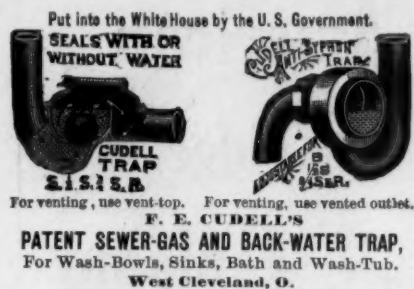
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BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

Randolph and Dearborn Sts., on which it is proposed to construct the Colonial Theatre, to cost \$1,000,000. Construction work on the new building will not be commenced until May, 1903, when the leases of the present tenants expire. Plans have been prepared by Benjamin H. Marshall, who designed the Illinois Theatre.

Members of the Masonic order in Englewood have purchased a site at 6732 to 6738 Wentworth Ave. and announce that they will erect a \$50,000 temple thereon. Among those interested are: K. E. Lidster, 1426 Manhattan Building; David G. Morrison, with Armour & Co., Stock Yards; John P. Fowler, 1434 Wabash Ave., and others. Architect has not yet been selected.

Henry L. Newhouse, 4630 Prairie Ave., has designed a two-story brick and stone residence which Joseph Kipley, 3801 Forest Ave., will erect on Ellis Ave., near 49th St., at a cost of \$10,000.

Cincinnati, O.—The First New Jerusalem Society will erect a new church at Oak and Winston Sts. at a cost of \$40,000.

Cleveland, O.—A company has been formed here to erect a six-story brick building on Erie and Prospect Sts., to cost \$60,000. Otto Loehr and Chas. F. Keim are reported interested.

Davenport, Ia.—The Central M. E. Church has let the contract for a \$75,000 church to John Evan's Sons of Bloomington.

Depew, N. Y.—A company has been incorporated by Frank H. Goodyear, Arthur D. Bissell and W. B. Cutter, of Buffalo, and others, with a capital of \$300,000, for the purpose of establishing a knitting mill here.

Derry, Pa.—A company is being formed, with a capital of \$100,000, by W. J. Harvey, of New Castle, Patrick Ridge, of Pittsburgh, and others, for the purpose of erecting five potteries here, of seven-kiln capacity.

Des Plaines, Ill.—Prominent members of the Methodist Church, among them D. W. Potter, 79 Dearborn St., Chicago, and Rev. J. P. Brushingham, pastor of the First M. E. Church, Clark and Washington Sts., Chicago, are interested in the proposed erection of a \$300,000 tabernacle at this place.

Detroit, Mich.—Plans are being made by Baxter & O'Dell for the three-story brick factory building, 50' x 115', for the American Go-cart Co., recently incorporated with a capital of \$36,000.

Duluth, Minn.—Oscar Cobb & Son, 85 Dearborn St., Chicago, have drawn plans for the new Temple opera-house, to be erected here. Structure is to be a 3-tier house, steam heat, electric wiring and all modern improvements; cost, \$50,000.

New punching sheds, blacksmith shops and furnaces will be built in the Duluth shipyards at a cost of from \$50,000 to \$75,000.

Evanston, Ill.—The Alumni Gymnasium Building Fund Association of the Northwestern University has been formed for the purpose of erecting a gymnasium here, at a cost of \$150,000. Officers of the Association: George P. Merriek, 100 Washington St., president; William A. Dyche, 64 State St., treasurer; and A. B. Fleeger, 59 Clark St., secretary.

Fond du Lac, Wis.—A \$35,000 library will be built after plans by Van Ryn & De Gelleke, of Milwaukee.

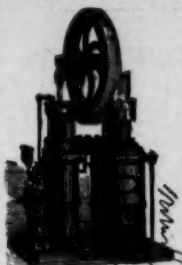
Fort Wayne, Ind.—It is stated that improvements costing approximately \$60,000, will be made to Concordia Lutheran College.

Gadsden, Ala.—The Alabama Consolidated Coal & Iron Co. will erect a blast furnace to cost \$200,000. The capacity of the plant will be 200 tons of pig-iron a day.

Georgetown, Conn.—Architect Guy Carlton Hunt, Bridgeport, has completed plans for an office building, 33' x 53', of granite, to be erected for the Gilbert & Bennett Mfg. Co. Slate roof, steam heat and all improvements and conveniences.

Grand Rapids, Mich.—The Grand Rapids Engraving Co. will build a brick manufacturing plant to cost \$35,000, after plans by Frank P. Allen & Co.

Hampton, Va.—At the annual meeting of incorporators of the Dixie Hospital and the Dixie Train-



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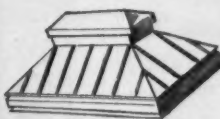
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BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

ing School for Colored Nurses, it was decided to erect at once a \$25,000 hospital.

Harrison, N. J.—The International Steam Pump Co., of Newark, will erect a plant to cost \$1,000,000. The main buildings will be 1,683 feet long, and will occupy 39 acres.

Hartford, Conn.—The West Midd'e School District has voted to appropriate \$20,000 for installing a central steam heating plant.

Hegewisch, Ill.—The Western Steel Car & Foundry Co., 1480 Old Colony Building, Chicago, will rebuild its planing mill, recently destroyed by fire, doubling the capacity for the manufacture of wood cars, and add a plant for making steel cars. The improvements will cost \$250,000. L. Oberauer will superintend the work, and D. L. Markle, office with the company in Chicago, is the purchasing agent and will receive estimates.

Holland, Mich.—It is reported that J. C. Post is interested in the erection of a \$20,000 hospital.

Illon, N. Y.—The plant of the Remington Typewriter Co. will be enlarged to nearly double its present capacity.

Indianapolis, Ind.—Clarence Martindale, Indiana Trust Building, is drawing plans for a six-story apartment-building to be erected at Pennsylvania and St. Clair Sts., by the Indianapolis Construction Co., at a cost of \$150,000.

Ithaca, N. Y.—The sum of \$500,000 has been donated to Cornell University by John D. Rockefeller and an unknown donor. It is thought a hall of languages and a new physics building will be erected.

Kansas City, Mo.—J. W. McKeekle, N. Y. Life Building, has prepared plans for a \$25,000 brick flat to be built on Baltimore Ave. and Armour Boulevard for Ralph Hams.

La Crosse, Wis.—The Board of Supervisors of La Crosse Co. is stated to have voted to erect a courthouse to cost about \$135,000.

Lawrence, Kan.—Andrew Carnegie has offered \$25,000 to this city for a library on the usual terms.

Lexington, Ky.—An oil company, capitalized at \$300,000, has been formed recently.

Lisbon, O.—A company is being formed by George D. Evans, manager of the Keonohan Tin-plate mill at Canton, for the purpose of erecting a sheet-steel mill here to cost \$200,000.

Los Angeles, Cal.—Hunt & Eager have drawn plans for a 300-room hotel to be erected for Walter Raymond and associates at W. 6th St. and Loma Drive.

Mason City, Ia.—A request has been made to Andrew Carnegie for a \$25,000 donation for a library.

Mason, Mich.—Plans, submitted by E. A. Bowd, Lansing, have been accepted for the \$40,000 courthouse for Ingham County. The building will be two stories high, 85' x 120'.

Medford, Mass.—Local press reports state that the Secretary of War has approved the plans for a bridge across Mystic River, connecting Medford and Somerville. Probable cost, \$200,000.

Memphis, Tenn.—A \$250,000 oil mill is to be started soon.

Methuen, Mass.—Architect Jas. E. Allen, Central Building, Lawrence, has drawn plans for a \$3,000 stable to be built on the Haverhill Road for Hon. Guy W. Currier. Will be heated by hot water and have modern stable fixtures. The plans will probably be ready to figure in July.

Middletown, Conn.—The sum of \$75,000 has been donated to Wesleyan University by Charles Scott, Sr., Philadelphia, and Chas. Scott, Jr., New York. It will be used in the erection of a physical laboratory.

Milwaukee, Wis.—Uehling & Linde have completed plans for a three-story brick store and apartment building to be erected on the south side, for F. K. Schmidt, to cost about \$45,000.

BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

Missoula, Mont.—A. J. Gibson has completed plans for the University gymnasium and bids will be asked for in two weeks.

Nashville, Tenn.—Brown & Brown, 126 N. Spruce St., are stated to have prepared plans for the Second Presbyterian Church, to be erected in North Nashville, to cost about \$25,000.

A \$100,000 lumber company has been formed. A \$50,000 roofing and paving company has been formed here.

New Britain, Conn.—The Stanley Works will erect 6 brick buildings containing about 30,000 feet floor space.

New Haven, Conn.—Architects Cady, Berg & See, 31 E. 17th St., New York, will have plans ready to figure in August for the proposed new building to be erected at Yale University by the Lamson fund.

New Orleans, La.—A \$2,500,000 lumber company has been formed.

New York, N. Y.—De Lewis & Cordes, 130 Fulton St., have made plans for alterations to a nine-story store and loft building at 56 W. 14th St., for R. H. Macy & Co. premises. Cost, \$50,000.

A. H. Bowditch, 137 Broadway, has plans for an eleven-story store and loft building, 51' x 200', to be erected at Broadway and Spring St., by the Bayard Realty Co. and George A. Fuller Co., 137 Broadway. It will cost \$450,000.

Olympia, Wash.—L. F. Schmid will erect a \$10,000 residence from plans by C. Alfred Breiting, architect, of Seattle.

Omaha, Neb.—The Board of Education contemplates erecting a new school-house in Monmouth Park, to cost \$25,000.

The Omaha Y. W. C. A. will erect a \$50,000 building this fall.

Oskaloosa, Ia.—A \$20,000 Carnegie library building will be erected.

Oxford, O.—The Trustees of Miami University have decided to erect a \$25,000 dormitory for women.

Parkersburg, W. Va.—A \$100,000 oil and gas company has been formed.

Peabody, Mass.—At a special town meeting it was voted to raise \$150,000 for an improved water system and \$95,000 for a new high school. This money will be raised on 4 per cent notes, \$5,000 of each appropriation being payable each year.

Philadelphia, Pa.—The University of Pennsylvania is reported to have received a gift of \$100,000 toward the building fund for new medical laboratories.

Plans have drawn by Otto Strack, 121 E. 23d St., New York, for the nine-story Majestic apartment-house, to be erected at Broad and Stiles Sts., at a cost of \$750,000.

Pittsburgh, Pa.—It is stated that plans are being prepared for a new building for the Alinda Preparatory School, to be erected on 5th Ave. and Neville St., to cost \$49,000.

The Keystone Commercial Co. has had plans made by Charles Bickel, 524 Penn Ave., for a system of 22 warehouses over four acres of land along Carson St. to cost \$2,000,000. The warehouses will be six stories high, 30' x 130', and the terminal building, 132' x 180'.

The Century Architectural Co., Real Estate Trust Building, has drawn plans for three 12-room brick and stone residences to be erected on Thomas Boulevard, between Dallas and Linden Aves., by Dr. B. H. Mansel, at a cost of \$15,000 each.

Pueblo, Col.—Patton & Miller, Association Building, Chicago, have been commissioned to prepare plans for a \$60,000 Carnegie library building, to be erected here.

Redlands, Cal.—Fred T. Harris has prepared plans for a three-story brick business building, estimated to cost \$50,000.

Richmond, Va.—It is stated that plans for fireproofing and making other alterations in the State

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BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

Capitol, which are being prepared by Noland & Bakerville, of this place, and Frye & Chester, of Lynchburg, are expected to be ready for bidders about July 10.

The officers of the Battle Abbey Association and those of the Confederate Memorial Association recently held a joint meeting at which the question of building a memorial here was discussed. These two organizations will be merged into one for the purpose of erecting the Virginia Battle Abbey. The Abbey Association has collected \$60,000, and the late Charles Broadway House, of New York, has given a similar amount. It is the expectation of the associations to increase these two amounts to \$150,000.

The design of Louis Albert Gudebrod, of New York, has been accepted for the Jefferson Davis memorial arch at this place.

Riverside, Cal.—The contract for constructing Glenwood Hotel has been awarded to Wilcox & Rose, of Colton, for \$169,000. Architect, A. B. Benton, of Los Angeles.

Ruddock, La.—The Ruddock Cypress Mills, which were destroyed by fire recently causing a loss of \$100,000, will be rebuilt. The new plant will cost \$150,000. C. H. Ruddock, 506-157 Michigan Ave., Chicago, president; T. H. McCarthy, secretary.

Savannah, Ga.—The Directors of the Germania Bank have decided to erect an eight-story building on Congress and Bull Sts., to cost about \$125,000.

A syndicate of Savannah capitalists will erect an apartment-building on Charlton St. at a cost of \$150,000. River & Gibbs and J. Ferris (ann interested).

The Germania Bank will erect an eight-story bank and office building, 45' x 90', at Congress and Bull Sts., at a cost of \$125,000.

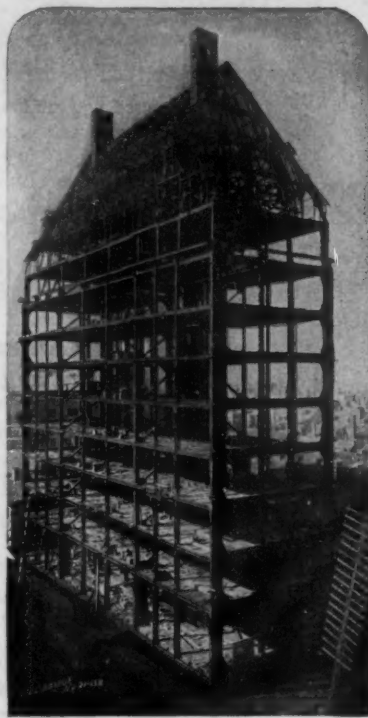
A five-story branch bank building will be erected at Liberty and Montgomery Sts. by the Citizens' Bank.

Seranton, Pa.—Report states that Mr. Wm. T. Smith has given to the Seranton Board of Control \$50,000 for the erection and equipment of a manual training school.

Seattle, Wash.—Plans have been prepared for the Washington Investment Co. for a five-story office-building at 2d Ave. and Marion St.; cost, \$50,000. F. W. Kern, president.

W. D. Hohna will erect a Venetian residence on Spring St. and Beren Ave., to cost complete about \$17,000. A. W. Spaulding, architect.

Springfield, O.—Plans have been drawn by R. C. Gotwald for a \$45,000 four-story city hospital, 45' x 120'. It will have slate roof, steam heat, tile floors, etc. William Poole, president.



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BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

St. Charles, Ill.—Five hundred acres of land, two and one-half miles northwest of this city, has been selected as the site for the Rural Home and School for Boys, and work will be begun on the building of the home soon. Of the \$250,000 required, at present \$185,000 had been subscribed. There is to be a main building for general instruction, which will stand on an elevation in a grove of trees. The boys will be housed in cottages. Then there will be a manual training building, workshop, villa for athletes and swimming-pool. Plans will be prepared by Jenney & Mundie, New York Life Building, Chicago.

St. Louis, Mo.—The Arlington Investment Co. will erect a family hotel on Olive and Sarah Sts., to cost \$100,000.

Swissvale, Pa.—Plans for 50 brick and stone dwellings, to be erected here at a cost of \$200,000, are being drawn by C. G. Moll, 800 N. Highland Ave., Pittsburgh.

Andrew Carnegie has offered this city \$25,000 for a public library.

Syracuse, N. Y.—A \$40,000 factory building will be erected in this city by the Reed Manufacturing Co., of Newark, N. J.

Terre Haute, Ind.—The Eureka Powder Co., recently incorporated with a capital of \$100,000, will erect a factory building near this city.

Toledo, O.—Bids received for the erection of the hospital building on the Lucas County Children's Home grounds were rejected, and new bids will be asked for. R. A. Wade, Wade Building, architect.

Reports state that the contract for approaches to the Central Terminal lower bridge has been let to J. N. Beck. Cost to be about \$25,000.

Topeka, Kan.—Plans have been completed for the First Baptist Church to be erected at 9th and Jackson Sts. It will cost \$40,000.

Trenton, N. J.—Plans submitted by Arnold H. Moses, 419 Walnut St., Philadelphia, have been accepted for the Senate building. It will be of granite and limestone, two stories high, 72' x 124', and will cost \$150,000.

The American Bridge Co. will expend \$1,000,000 in enlarging its plant in this city.

Villa Rica, Ga.—A \$200,000 oil-mill is to be established here.

Warren, O.—The Young Men's Christian Association is raising a fund for the erection of a new building.

Washington, D. C.—Representative McDermott, of New Jersey, has introduced a bill for a statue or monument, to cost \$50,000, to be erected here to the memory of Samuel J. Tilden.

Waterbury, Conn.—Architects Griggs & Hunt have made sketches for a four-story brick building to be erected for the Boys' Club. Cornelius Tracy, president of the club.

Architect W. H. Cadwell, of New Britain, has completed new plans for a four-story brick block, 40' x 80', to contain 2 stores and 6 apartments, to be erected on Bank St. for F. J. Ludington.

The Waterbury Brass Co. is preparing for the erection of a large brick addition to its plant. The buildings on the site are now being torn down.

BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

Waukegan, Ill.—The announcement has been made that a \$3,000,000 glucose plant is to be erected here. C. M. Warner, of Syracuse, N. Y., former president of the United States Sugar Refining Co., of this place, is said to be at the head of the new syndicate.

West Point, N. Y.—The Senate has receded from its amendment increasing to the extent of \$1,000,000 the fixed cost of the new buildings at this place, leaving the figure as placed by the House at \$5,500,000.

Wheeling, W. Va.—The plant of the Exley Watkins Caisup and Preserve Co., the Wheeling Mattress Co. and the Acme Box Co., also 500,000 feet of lumber, and several stables and buildings were burned on June 12th. Loss \$150,000. About 500 persons have been thrown out of employment. A \$1,000,000 mining company has been formed.

Youngstown, O.—William H. Baldwin has donated \$25,000 to the Youngstown Free Kindergarten Association for erecting a new building.

ALTERATIONS AND ADDITIONS.

New York, N. Y.—Fifth Ave., No. 620, five-st'y & base, rear extension, 25' x 33', to five-st'y bk. dwell.; \$37,000; lessee, Chas. F. Hoffman, 277 Madison Ave.; a, Carrère & Hastings, 28 E. 41st St.; b, J. C. Lyons, 81 E. 125th St.

APARTMENT-HOUSES.

Detroit, Mich.—Second Ave. and Joy St., four-st'y bk. apart., 45' x 80', steam; \$30,000; o., Dr. L. C. Newton; a., Malcomson & Higginbotham, 53 Moffat Building.

HOSPITALS.

New York, N. Y.—Sixtieth St., nr. 1st Ave., 2 two & four-st'y bk. & marble hospitals, 96' x 105' & 16' 6" x 25', tile roof; \$125,000; o., Moses Taylor, Mt. Kleco, N. Y.; a., Warren & Wetmore, 3 E. 33d St.

HOUSES.

Brooklyn, N. Y.—Sheepshead Bay Road, nr. Voorhies Ave., 3 three-st'y bk. stores & dwells., 18' 4" x 45', steam; \$15,000; o., Eliza W. Grumminsky, Sheepshead Bay; a., G. Hitchings, 41 Park Row, N. Y. Bri-let St., nr. Sutter Ave., two-st'y bk. dwell., 18' x 48'; \$6,000; o., Thos. Shenger, on premises; a., Pohlman & Patrick, 322 Fifty-third St.

COMPETITIONS.

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COMPETITIONS.

regiment of mounted troops for the same service. The Committee has at its disposal a sum of between five and six thousand pounds stg. (twenty-five to thirty thousand dollars) and invites designs for such a monument.

Terms of the competition may be had from PEERS DAVIDSON, Esq., London and Lancashire Building, Montreal, or at the Bank of Montreal, 22 Abchurch Lane, London, E. C. 1385

PROPOSALS.

SEWER.

[At Washington, Pa.] The town council will receive bids until July 7 for extending the present main sewer of the borough, requiring 11,638 feet of 20-inch tile with necessary field tile, 369 feet of 20-inch cast-iron sewer pipe, asphalted, and of standard weight, etc. WM. H. MCENRUE, clerk of council. 1383

MESS BUILDING.

[At Annapolis, Md.] Proposals will be received at the bureau of navigation, Navy Department, Washington, D. C., until

PROPOSALS.

July 9, 1902, for an officers' mess building at the U. S. Naval Academy, Annapolis, Md. Blank forms of proposal and specifications will be furnished, and plans may be seen, on application at the bureau of navigation, Navy Department, Washington, D. C., at the U. S. Naval Academy, Annapolis, Md., or at the office of Earnest Flagg, architect, 35 Wall St., New York. H. C. TAYLOR, chief of bureau. 1383

REPAIRING BOILERS, VALVES, PUMPS, ETC.

[At Bloomfield, Ind.] The Board of County Commissioners will receive bids until July 8 for repairing boilers, valves, pumps, pipes, radiators and heaters, connected with the heating plant of the court-house. HARVEY L. DONEY, county auditor. 1383

ENGINE-HOUSE.

[At Washington, D. C.] Sealed proposals will be received at the office of the commissioners of the District of Columbia until July 8 for constructing an engine-house at Congress Heights. Blank forms of proposals and specifications, together with all necessary information, may be ob-

PROPOSALS.

tained upon application therefor at the office of the inspector of buildings of the District of Columbia on and after the 28th of June, and bids upon these forms only will be considered. HENRY B. F. MACFARLAND *et al.*, commissioners, D. C. 1383

VILLAGE HALL.

[At Independence, Wis.] Bids will be received until July 7 for the construction of the village hall at Independence, according to plans by C. G. Maybury & Son, Winona, Minn. The structure will be two stories high, 60' x 90', have cement roof, electric plant, etc. Address A. GAR-THUS, Independence. 1383

HEATING.

[At Grand Rapids, Wis.] Sealed proposals will be received at the office of T. A. Taylor (chairman building committee), Grand Rapids, Wis., until the 9th day of July, 1902, for furnishing all material and labor required in installing a hot-blast steam-heating apparatus, in a new school-building to be erected at Grand Rapids, Wis. Plans and specifications can be seen at T. A. Taylor's office, at Grand Rapids, Wis., or Chandler & Park, architects, office at Racine, Wis. 1383

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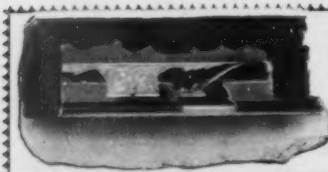
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PROPOSALS.

SEWERS.

[At Hampton, Ia.]
Sealed proposals for the construction of sewers will be received at the office of the City Clerk of the City of Hampton, Ia., until July 7th, 1902. The work to be done in accordance with plans, specifications and details on file in said office, and at office of M. Tschirgi, Jr., Consulting Engineer, Dubuque, Ia. B. D. HUNT, City Clerk. 1383

GAS AND ELECTRIC FIXTURES, FRESCOING, ETC.

[At Bloomington, Ill.]
George L. Parker, special building committee of the McLean County Board of Supervisors, will receive bids, accompanied by designs, for combination gas and electric fixtures; also separate bids for frescoing and decorating the court-house now in course of erection. Reeves & Baillie, architects, Peoria and Bloomington, Ill. 1383

Treasury Department, Office of the Supervising Architect, Washington, D. C., June 24, 1902. Sealed proposals will be received at this office until 2 o'clock P. M. on the 12th day of August, 1902, and then opened, for the completion (except certain steel vaults, plumbing, elevators, heating apparatus, electric wiring and conduits) of the U. S. Mint at Denver, Colorado, in accordance with drawings and specifications, copies of which may be had at this office, or at the office of the Superintendent at Denver, Colorado, at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect. 1384

REMODELLING BOILER PLANT.

[At Athens, O.]
Bids are wanted by the Bd. of Trus. of the Athens State Hospital until July 17 for remodeling and increasing the boiler plant and steam piping. E. H. RORICK, Sec'y. 1384

COTTAGES.

[At Athens, O.]
Bids will be received by E. H. Rorick, M. D., Sec'y Bd. Trus. of the Athens State Hospital, care Frank L. Packard, Hayden Building, Columbus, until July 11 for furnishing material and erecting 3 cottage buildings. 1384

HEATING.

[At Chaska, Minn.]
Bids are wanted July 14 for furnishing material and erecting a brick chimney and a steam heating apparatus in the Co. Court-house. FRED U. SPLETT-STOESSER, Co. Aud. 1384

SCHOOL.

[At Emery, S. D.]
Bids will be received until July 14 for a school-house in District No. 1, Hanson County. 1384

BRIDGES.

[At Vidalia, La.]
The police jury of Concordia parish will receive bids until July 14 for constructing 3 steel bridges. JAMES P. FAGIN, president. 1384

ANNEX TO HOSPITAL.

[At Fort Washington, Md.]
Office of Constructing Quartermaster, Fort Washington, Md. Sealed proposals will be received at this office until July 18, 1902, for constructing brick annex to post hospital, Fort Washington, Md. Plans and specifications furnished on application. GEORGE H. McMANUS, constructing quartermaster, U. S. Army. 1384

SEWER SYSTEM.

[At Chamberlain, S. D.]
Department of the Interior, Office of Indian Affairs, Washington, D. C. Sealed proposals will be received at the Indian office until July 15, 1902, for furnishing the necessary materials and labor required to construct and complete an extension to the sewer system, in strict accordance with plans, specifications and instructions to bidders which may be found at this office. For further information apply to John Flinn, superintendent, Indian School, Chamberlain, S. D. W. A. JONES, commissioner. 1384

SCHOOL.

[At Bloomfield, Ia.]
Bids will be received until July 14 for the erection of the school-house. 1384

ENGINE-HOUSE.

[At Buffalo, N. Y.]
Bids will be received until July 25 for the erection of a brick engine-house to be known as engine-house No. 39. FRANCIS G. WARD, commissioner of public works. 1385

PROPOSALS.

PLUMBING.

[At Fort Hunt, Va.]
Office of Constructing Quartermaster, Fort Washington, Md. Sealed proposals will be received at this office until July 18, 1902, for installing plumbing in guard-house at Fort Hunt, Va. Plans and specifications furnished on application. GEO. H. McMANUS, constructing quartermaster, U. S. Army. 1385

ROADWAY.

[At Anderson, Ind.]
Bids will be received by the Directors of Maplewood Cemetery until July 27 for constructing about 1½ miles of macadamized drives and 50,000 square feet of cement work. JOHN P. SEARE, Sec'y. 1386

Treasury Department, Office Supervising Architect, Washington, D. C., June 7, 1902. Sealed proposals will be received at this office until 2 o'clock P. M. on the 28th day of July, 1902, and then opened, for the construction (except elevators, heating apparatus, electric wiring and conduits) of the U. S. Post-office at Butte, Montana, in accordance with drawings and specification, copies of which may be had at this office or at the office of the Postmaster at Butte, Montana, at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect. 1383

Treasury Department, Office Supervising Architect, Washington, D. C., June 12, 1902. Sealed proposals will be received at this office until 2 o'clock P. M. on the 30th day of July, 1902, and then opened, for the construction (except heating apparatus, electric wiring and conduits) of the U. S. Post-office at Aberdeen, South Dakota, in accordance with the drawings and specification, copies of which may be had at this office or at the office of the Postmaster at Aberdeen, South Dakota, at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect. 1383

COURT-HOUSE.

[At Woodville, Miss.]
Bids will be received by C. A. Coon, Clk. of the Co. Bd. of Superv. until July 7 for erecting a court-house in Woodville. 1383

METALWORK.

[At Bluff Shoal, N. C.]
Sealed proposals will be received at the office of the light-house engineer, 5th district, Post-office Building, Baltimore, Md., until July 7, 1902, for furnishing materials and labor of all kinds necessary for the completion and delivery of the metalwork for the Bluff Shoal Light-house, N. C., in accordance with specifications and drawings, copies of which, with blank proposals and other information, may be had upon application to W. A. JONES, lieutenant colonel, corps of engineers, U. S. Army. 1383

INFIRMARY.

[At Massillon, O.]
Bids will be received by H. C. Eyman, M. D., Sec'y Bd. of Trus. of the Massillon State Hospital, care Frank L. Packard, archt., New Hayden Building, Columbus, until July 7 for furnishing material and erecting an infirmary building and Cottages "F," 1, 2, 3 and 6 for the Massillon State Hospital. 1383

LIGHT-HOUSE.

[At Bluff Shoal, N. C.]
Sealed proposals will be received at the office of the light-house engineer, 5th district, Post-office Building, Baltimore, Md., until July 7, 1902, for furnishing the materials (except metalwork) and labor of all kinds necessary for the construction, erection and delivery of the Bluff Shoal Light-house, N. C., in accordance with specifications and drawings, copies of which, with blank proposals and other information, may be had upon application to W. A. JONES, lieutenant colonel, corps of engineers, U. S. Army. 1383

JAIL AND RESIDENCE.

[At Trenton, Mo.]
Bids are wanted July 7 for erecting a jail, sheriff's residence and court-house for Grundy County, to cost \$60,000. JOHN W. SCHOLLER, Co. Clk. Holland & Squires, archts. 1383

JAIL.

[At Morristown, Tenn.]
Bids are wanted July 5 for erecting a two-story fireproof jail. Cost not to exceed \$10,000. Address COUNTY CLERK. 1383

HEATING AND VENTILATING.

[At Norristown, Pa.]
Bids are wanted July 16 for installing a low-pressure gravity return steam heating and ventilating system for the Montgomery Co. Court-house. D. H. HITNER, Clk. Co. Comrs. 1384

CODE OF PRACTICE FOR SUB-ESTIMATING AND SUB-CONTRACTING

Adopted by the Master Builders' Association of the City of Boston, Aug. 2, 1894.

ARTICLE I.

Obligation of Principal Contractor to Sub-Contractor.

A principal contractor is under obligation to treat upon an equal basis all estimates which he "receives" prior to putting in his own bid. Estimates must be considered as "received" when they come into a principal contractor's possession, either by his direct solicitation or by being accepted by him. The opening of a bid, knowing it to be such, constitutes receipt of the same.

A principal contractor is under no obligation to use a bid which he has not solicited, accepted, or received, but if he does not wish to use the estimate of a sub-bidder he should decline it, if proffered personally, or should return it unopened if sent to him by mail or otherwise. The retention of a bid should be construed as a receipt of the same.

A principal contractor, when making up his estimate, is not entitled to receive bids from sub-contractors if he is at the same time making himself their competitor by figuring their portion of the contemplated work. It is legitimate for a principal contractor to figure all portions of work, depending upon no one for what are usually known as sub-estimates, but it is not legitimate for him to receive bids from others for sub-work if he is himself figuring those portions independently.

ARTICLE II.

Award of Sub-Contracts.

The principal contractor having been awarded a general contract should immediately award the sub-contracts to the lowest bidder in each branch.

ARTICLE III.

Penalty for not Awarding Contract to Lowest Sub-Bidder.

A principal contractor failing to award a sub-contract to the lowest sub-bidder to whom he is under obligation as previously provided should be liable to pay damages to the said lowest bidder, in amount not less than ten per cent of the amount of the estimate.

Payment of such damages will not relieve the principal contractor from liability to discipline under provisions of Article X of the By-Laws of this Association.

ARTICLE V.

Payments to Sub-Contractors.

Unless the contracts made with sub-contractors otherwise provide, payments during the progress of the work should be made by the principal contractor to the sub-contractors upon the same basis of payment, in relation to amount of work performed, as is prescribed in the contract made by the principal contractor with the owner.

Final payment to a sub-contractor should be considered as due at the expiration of thirty days after the completion of his work and its approval by the architect or owner, unless otherwise provided by the sub-contract or agreement.

ARTICLE VII.

Obligation of Sub-Contractor to Principal Contractor.

Should a sub-contractor refuse to contract at the amount of the estimate he has given to a principal contractor who has used the said estimate in good faith, he then should be liable to the said principal contractor for damages in amount not less than the difference between the amount of the estimate which was submitted by him and the amount at which the principal contractor may be obliged to contract the work.

Payment of such damages will not relieve the sub-contractor from liability to discipline under provisions of Article X of the By-Laws of this Association.

ARTICLE X.

Bids to Architects or Owners.

When bids for separate departments of work on a building are solicited by the architect or the owner, they should be submitted with the understanding that they are direct estimates, for which direct contracts are to be made by the owner with the lowest bidder, and no other disposition of such bids should be permitted without consent of the bidder submitting the same.

Sub-bids should be given only to the principal contractors who are estimating the work in question, and should not be left with architects or owners for the inspection and information of principal contractors. Sub-contractors must understand that bids thus left with architects or owners are in great danger of losing their confidential character, and that if they so leave them they cannot claim protection or redress under the first article of this Code.

SUGGESTIONS.

Members of this Association having sub-contracts to let, or material to buy, should, as far as may be consistent with business principles, deal only with members of the Association, or at all events give their fellow-members an opportunity to compete, and then give them the preference, other things being equal.

All bidders should take cognizance of the danger they may be subjected to through the practice, so prevalent in some architects' offices, of making change in plans or specifications, or in both, during the progress of estimating. Correction of this pernicious practice can only be obtained through refusal by contractors to estimate under such conditions.

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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 estimate or contract by personal bond.

SECTION 5. It is unprofessional to offer drawings or other services "on approval" and without adequate pecuniary compensation.

SECTION 6. It is unprofessional to advertise in any other way than by a notice giving name, address, profession, and office hours, and special branch (if such) of practice.

SECTION 7. It is unprofessional to make alterations of a building designed by another architect, within ten years of its completion, without ascertaining that the owner refuses to employ the original designer, or, in event of the property having changed hands, without due notice to the said designer.

SECTION 8. It is unprofessional to attempt to supplant an architect after definite steps have been taken toward his employment.

SECTION 9. It is unprofessional for a Member to criticise in the public prints the professional conduct or work of another architect except over his own name or under the authority of a professional journal.

SECTION 10. It is unprofessional to furnish designs in competition for private work or for public work, unless for proper compensation, and unless a competent professional adviser is employed to draw up the "conditions" and assist in the award.

SECTION 11. No Member should submit drawings except as an original contributor in any duly instituted competition, or attempt to secure any work for which such a competition remains undecided.

SECTION 12. The American Institute of Architects' "schedule of charges" represents minimum rates for full, faithful and competent service. It is the duty of every architect to charge higher rates whenever the demand for his services will justify the increase, rather than to accept work to which he cannot give proper personal attention.

SECTION 13. No Member shall compete in amount of commission, or offer to work for less than another, in order to secure the work.

SECTION 14. It is unprofessional to enter into competition with or to consult with an architect who has been dishonorably expelled from the "Institute" or "Society."

SECTION 15. The assumption of the title of "Architect" should be held to mean that the bearer has the professional knowledge and natural ability needed for the proper invention, illustration and supervision of all building operations which he may undertake.

SECTION 16. A Member should so conduct his practice as to forward the cause of professional education and render all possible help to juniors, draughtsmen and students.

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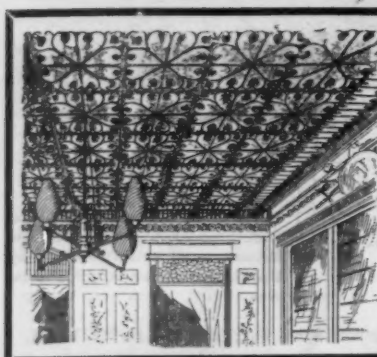
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