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THE annual report of the Architect of the Capitol at Washington brings forward in detail the plan already described in these pages, for extending the east part of the central portion of the Capitol to the line of the Senate and House wings, building the extension of marble, like the wings, and leaving the present sandstone walls of the central portion to form the walls of interior courts; so that the whole eastern front will be of marble. This, as is known, was the scheme advocated long ago by Dr. Walter. Mr. Woods, the present Superintendent of the Capitol, urges that Dr. Walter's plans should be faithfully carried out, and we are sure that the profession generally will support him in this recommendation. In regard to the Rotunda, Mr. Woods gives some interesting information. It seems that Dr. Walter, for a long time before his death, felt that the great height of the dome required some support in the Rotunda more visibly adequate to its work than the existing pilasters, and he proposed that columns should be set in front of the pilasters, carrying a marble cornice, and that the walls, which are now of sandstone, painted white, should be lined with marble. This would make a radical change in the appearance of the Rotunda, while the columns would encroach considerably upon its floor-space; and Mr. Woods is inclined to think that it would be most judicious, now that the Rotunda has become associated with so many important events in American history, not to make any material change in it, but to remove the paint which was put on twenty-five years ago, so as to expose the sandstone of the walls, and to change slightly the proportions of the pilasters. This treatment would restore the original solidity of effect of the stonework, without changing materially the aspect of the room.

THE plans for the restoration, or, rather, the rebuilding, of the Venetian Campanile are now complete, and the work will begin as soon as the subscriptions and appropriations reach the sum of four hundred thousand dollars, only one-half of which has yet been raised. Under the skilful direction of the Commander Boni, it has been decided to rebuild from the very foundation, increasing the area of piling to double its present dimensions, and correspondingly extending the footings of the tower. Above ground, the masonry will be laid in cement. The accounts say that puzzolana is to be used, but it seems more likely that ordinary Portland cement will be employed. The old materials are to be used over again, so far as they are uninjured, and the form of the old tower is to be retained in the new one, with the important exception that the vault over the staircase, or sloping platform which took the place of a staircase, is to be replaced by a construction of iron girders. It will be remembered that, at the time of the fall, we suggested that the thrust of this continuous vault, acting through the whole height of the tower upon the brickwork of the walls, without other resistance than that afforded by the weight of the walls themselves, might have served, if

not to disrupt the masonry by slow degrees, at least to hasten the destruction of the tower when the walls had once begun to yield; and Professor Boni seems to be of the same opinion. A vault, however, constructed of brick laid in cement, abutting against a wall also of brickwork in cement, would be a very different affair from a construction built with the wretched mortar of the early mediæval period, and it seems as if the ancient vault might safely have been reproduced, in better materials, without resorting to the use of iron girders, which, however durable in a building well warmed and ventilated, and kept in repair, will be severely tried in the darkness and dampness of the Campanile stairway.

AS we have already observed, on occasion, it seems as if something might be done to improve our city architecture, which is far inferior to the rural design in which American architects are so distinguished, by the establishment of prizes, like those which are so eagerly sought after by architects in Paris and Brussels, for buildings actually executed. For a beginning, it would, perhaps, be judicious to confine competitions of the sort to structures of a particular class, and it would undoubtedly be desirable to make at least one award annually, so as to encourage competitors by multiplying their chances of success. We suppose architects in this country would agree that the sort of building which is most unsatisfactorily treated in this country, or, in fact, in any country, and which it is most desirable to improve, is the one-family city house, standing in a block with others. To a building of this kind it is very difficult to give the individual character which is the life of domestic architecture, and there are very few such houses which have any artistic charm beyond what they gain from elaborate detail; but some are to be found in all our large, closely-built cities, and the pleasure which they give is all the greater from the rarity of the examples. It is not necessary that a successful work of this sort should be costly; on the contrary, some of the best houses, at least in New York and Boston, are comparatively inexpensive structures, although, naturally, an artist can do more with abundant resources than with limited ones. The prizes themselves need be trifling. A gold, or even a silver, medal, or, possibly, both, would not involve a large annual outlay on the part of a local society of architects, and the award, perhaps by majority vote of all the members present at an annual tour of inspection of the buildings offered in competition, would attract great professional and public interest. Naturally, the only subjects considered should be those completed since the last previous award, and, as is done in Europe, the architects who have done something which they think deserving of attention should enter their buildings in competition, as horses are entered for a race. In Paris, every competing design in the annual "concours de façades" is photographed or sketched and published, much to the instruction of the public; and the award of a medal would give quite as much pleasure to the owner as to the architect. We imagine that a good many practising architects have felt that, while the travelling-scholarships, and other prizes, so generously distributed in this country among students, are of great value in their way, they have had a tendency to exalt the work of students rather beyond its deserts. That a young man should produce a design superior to that of any of his competitors in a contest for a travelling-scholarship shows capacity, but it does not indicate, as his female relatives are apt to suppose, that he has soared at once to the highest pinnacle of professional greatness. On the contrary, travelling-scholarship designs rarely, if ever, show anything beyond clever copying and a feeling for proportion, which form an excellent foundation for professional eminence, but do not constitute it. Unfortunately, the encouragement given to professional effort stops there; and the travelling-scholar, when he has developed into an accomplished and original artist, finds no one to applaud his work. It is true that he can, by degrees, build up a reputation, but the building of a professional reputation is a slow process, and depends very much, although less than is often supposed, upon accidents of family connection, temperament and other circumstances; and a trifling recognition, from time to time, by competent authority, of professional skill would have a very great effect in encouraging the younger practising architects, and in increasing

their reputation and connection in the community. One of the topics most discussed in professional circles is the injury done to the profession and the public by the ignorant pretenders who, under the name of architects, practise every kind of misdemeanor in construction and design, if not in other matters; and it might be well to suggest that the most effective method for relegating these persons to their proper place in the eyes of the public would be for the profession to lead, not in lynching the incapable architects, but in conferring recognition and distinction on the good ones.

WE suppose that we shall be held up to public execration for saying that, devoted as we are to landscape beauty, public hygiene and forest extension, we should not grieve very much if the present scarcity of fuel in the crowded Eastern cities led to the sacrifice of a considerable portion of the shade-trees which line some of the streets of those cities. In the beautiful Western towns, or even in those no farther west than Buffalo or Cleveland, the houses, standing mostly detached, and at some distance from wide streets, or "parks," or "terraces," cannot be injured by trees on the sidewalks, and the latter are, in hot weather, gratefully shaded and sheltered by such trees; but in New York, or Boston, or the older part of Philadelphia and Baltimore, trees on the edge of the sidewalk mean gloomy shadow, instead of sunshine, in the abutting houses, dampness and mould wherever the drip from the foliage can reach, and a confined and unwholesome air in the space bounded by the trunks of the trees, their branches, the fronts of the adjacent houses and the sidewalk. The first, and one of the greatest, of American landscape-gardeners, Downing, who was as devoted and intelligent a lover of trees as any one could be, laid down the rule that no tree should be planted at a less distance from a country-house than twice its own height when fully grown, so that it might never cast an unwholesome shadow on the house; and if the shadow, even of the top of a tree, should be avoided for a country-house, open to the light and sun all around, what shall be said of the practice of planting trees of such dense foliage as poplars and maples within a few feet of the front of city houses, which are entirely dependent for sun and air upon their front and rear windows? Any person with average senses, walking through a street in New York, or Boston, or Philadelphia, or Baltimore, which is partially furnished with shade-trees, can detect at once, as he passes under the trees, an odor from the neighboring gutter, which is not perceived in the portions of the street destitute of trees, where the air circulates freely, and sunshine has a chance to do its work. If the trees stand in front of a provision store, or grocery, their effect in checking diffusion, and causing stagnation of the foul air, is still more conspicuous; and, as the people who live in the houses abutting on the street have nothing better than the street air to breathe, the trees not only deprive them of sunshine, but make the air around them much fouler than it would otherwise be. We should be far from wishing to deprive those who are obliged to pass their lives in cities of any manifestation of the beauty of nature that it is possible to give them, but sunshine, in a city house, is worth more than trees, where it is not practicable to have both; and landscape-gardeners are quite capable, if called upon, of contriving sidewalks with borders of flowering or evergreen shrubs, instead of trees. Such borders, which are already occasionally seen here, do not interfere either with light or air, and their effect is quite as rural as that of a straggling row of trees, and is much more finished and cheerful.

IT appears that an interesting work has been going on in Chicago for several years, without the knowledge of the public, in the excavation of a tunnel, fourteen miles long, under the business district of the city. This tunnel is a business undertaking simply, and is to contain a railway for the transportation of freight among the great mercantile houses, and between them and the freight-stations of the forty-two railways which enter Chicago, besides furnishing accommodation for telephone-wires, and, possibly, wires of other kinds. It is almost incredible that a tunnel of this length, varying in width from six to thirteen feet, and in height from eight to fourteen feet, could have been constructed under the most crowded part of a great city without the knowledge even of the newspaper reporters; but the tunnel is far below the surface, the depth varying from twenty-seven to sixty-five feet, so that it was unnecessary to make temporary roadways over it, and the excavated material has been taken out at night, through shafts opening in private ground, and taken away to the lake-front. The ground under

Chicago is a soft clay, which was easily excavated, but it has been necessary to line it everywhere with concrete. A considerable portion of the tunnel is already in use, and many business houses have shafts opening into it, equipped with elevators, by means of which freight packages, brought by cars running on the tracks laid in the tunnel, are hoisted to the warerooms. Although an underground freight-railway of this kind seems an expensive substitute for trucks and horses, it is quite possible that it may promote economy, as well as convenience, in handling and transferring merchandise. Every one must see that the maintenance of a stable-full of horses and wagons, and of a multitude of grooms and drivers, is an important item in the cost of carrying on business, especially when, as is often the case, the wagons are driven half the time empty, or with only one small package in them; and a system by which goods arriving by rail could be at once delivered at their destination, with the minimum of handling, while those shipped could be billed through from the shipping-clerk's desk, would be of immense advantage to merchants, as well as to the public.

M. PLANAT has thought of an ingenious plan for relieving the parks, gardens and other public places of Paris from the deluge of statues and monuments with which they are already nearly choked. As he says, the street-crossings being already occupied, the gardens so filled that there is little room left for grass and flowers, and even the intercolumniations of public buildings appropriated, it is necessary to make some provision for the future monuments of the great men who may be expected to make their appearance in the world at a certain average annual rate, and whom their friends will certainly wish to commemorate. As the production of sites for statues in new gardens and parks is already very inadequate to the demand, he infers that a provision which increases with the expansion of the city, and therefore, presumably, with the production of great men, is absolutely necessary, and he finds opportunity for such a provision in the walls of the tunnels for the Metropolitan Railway, which, he suggests, might be converted into a sort of twentieth-century Campo Santo, and lined with "up-to-date" memorials of the "men of progress" who are to make that century illustrious. The passengers in the express-trains would not, perhaps, have, at first, all the time that they might wish to study the works of art that they passed on their route, but we cannot doubt that the advance of civilization will quicken the perceptions of the multitude, and a judicious disposition of the electric-lights for bringing out the salient beauties of each object would aid in producing rapid and correct impressions. M. Planat thinks that the useful might be combined with the agreeable by giving a statue of a great musician, let us say, an electric-bell to hold; while a Conservative Deputy might be immortalized in an artistic signal for stopping trains, and a machine for setting switches might take the form of an influential diplomat. In this way, as he says, the question of the proper attitude and gesture to give the subject, often a very embarrassing one for the sculptor, would be immediately solved.

THE twenty-first anniversary of the opening of the School of Architecture of Columbia University was celebrated a few days ago by a dinner at the rooms of the Society of Fine-Arts given to Professor W. R. Ware by his former and present pupils. About one hundred and fifty gentlemen were present, including many of the most distinguished members of the profession.

MR. WILLIAM ROCKEFELLER has presented to the New York Zoölogical Park a fountain which has an interesting history. It seems that a Roman antiquarian, when making a visit, some years ago, at Lake Como, discovered a fountain, sculptured in granite, which formed one of the ornaments of an old villa on the shore of the lake. It was supposed that the fountain dated from the latter part of the seventeenth century, but there were no records or other evidences of this, or of the name of the sculptor. The antiquarian bought the fountain, and removed it to Rome, where it was seen a year ago by Mr. William Baumgarten, a well-known connoisseur and dealer in New York. Mr. Baumgarten brought home a photograph of the fountain, and showed it to Mr. Rockefeller, who offered to buy it, if it could be placed in the Zoölogical Park. This was arranged with little difficulty, and the fountain is now in New York, ready to be placed in position.

NOTES ON IRON AND STEEL CONSTRUCTION.¹—XII.

IN the above discussion and table of values the corrugated bars are supposed to have $\frac{1}{2}$ inch of concrete under them, while the expanded-metal, which is laid directly upon the centring before the concrete, is placed $\frac{1}{4}$ inch from the middle of the metal to the under side of the concrete.

The reinforced concrete spread-footing is particularly adapted to the construction of a foundation supporting two columns. This is due to the fact that the footing may be made any desirable shape and can be so proportioned that the unit-pressure upon the soil will be practically uniform and the centre-of-gravity of the loads will coincide, or nearly coincide, with the centre-of-pressure from the soil beneath. The principal features in the design of such footings consist in having their plan of the correct dimensions and in providing the necessary reinforcement of metallic rods or bars.

In Figure 87 is shown a diagrammatical plan of a reinforced concrete footing supporting two columns, one at each end. In

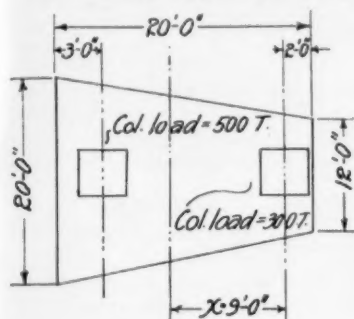


Fig. 87.

that it will evidently be trapezoidal, as shown in the figure. The condition to be attained is that a line passing through the centre-of-gravity of the area represented by the trapezoid shall coincide with centre-of-action of the pressure of the soil from beneath the footing.

It is, therefore, first necessary to determine where this centre-of-pressure is located with respect to the two column loads. By the principal of moments it is evident, with reference to Figure 87, that the centre-of-pressure is located between the two loads so that the distance from the centre-of-pressure to either load is inversely proportional as the ratio of the respective loads on the columns. For instance, the centre-of-pressure is located at a distance from the load a expressed by the following proportion:—

$$\begin{aligned} 500:300 &:: 15:x \\ 500x &= 4,500 \\ x &= 9 \text{ feet} \end{aligned}$$

Hence, the trapezoidal foundation must in the plan fulfil two conditions, namely : it must have sufficient bearing-area so that the safe allowable unit-pressure on the soil is not exceeded and it must be so proportioned that its centre-of-gravity of area approaches a point 9 feet from the greatest column load.

Assume, therefore, that the allowable unit-pressure is 2.5 tons and that in consequence an area of the requisite extent must contain $800 \div 2.5$, or 320 square feet.

The area of a trapezoid is equal to the distance between the parallel sides multiplied by one-half the sum of the length of these sides, or, as it may be expressed algebraically:—

$$A = l \frac{a+b}{2}$$

In which A equals the area, l the length, or distance, between the parallel sides, and a and b^2 equal respectively the lengths of these sides. Since the length of the footing is known from the figure to equal 20 feet, the length of one side may be assumed and the length of the other thus determined, for having the length of one side the length of the other may be expressed by

$$a = \frac{2A}{l} - b$$

so that by assuming the value of b to equal 20 feet, by substitution the value of a is found to equal

$$\frac{2 \times 320}{20} = 20, \text{ or } 12 \text{ feet,}$$

and the plan of the footing becomes as designated in Figure 88.

It is now requisite that the area included between ced and f be analyzed to ascertain the position of the centre-of-gravity of the plan or the centre-of-pressure of the soil from beneath.

In order to find this position of central pressure, connect e and c , as shown, and determine the position of the centres-of-gravity of the two triangles, edc and cef , by drawing from two

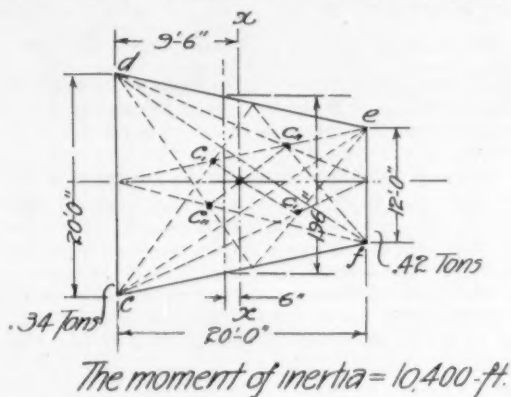


Fig. 88.

angles a line to the centre of the opposite side, and where these several lines intersect will be the required centres. Connect these centres as shown, and again divide the figure by a diagonal from d to f , dividing it into two other triangles included between the points def and def . Find the centres-of-gravity of these triangles as before and connect them as shown. The intersection of $c_1 c_1$ and $e_{11} e_{11}$ will give the required centre-of-gravity of the trapezoidal plan. In this case the centre-of-pressure from the soil is $9\frac{1}{2}$ feet from the wide end of the footing and 6 inches from the centre-of-gravity of the loads.

Having this data, we may now determine the amount of steel necessary to introduce in the form of reinforcing bars to be placed on the tension side of the concrete footing, and in order to obtain the number of square inches of metal required the maximum bending-moment must be obtained.

The total load upon the footing, and consequently the resultant from the upward pressure of the soil, is equal to the sum of the column loads, or 800 tons, while the mean pressure on the soil is $2\frac{1}{2}$ tons per square foot of footing area; the latter amounting to 320 square feet. The plan of the footing is shown in Figure 88 and its moment-of-inertia, or I , is by calculation equal approximately to 10,400. The distance from the line of resultant pressure of the soil measured by the area of the footing

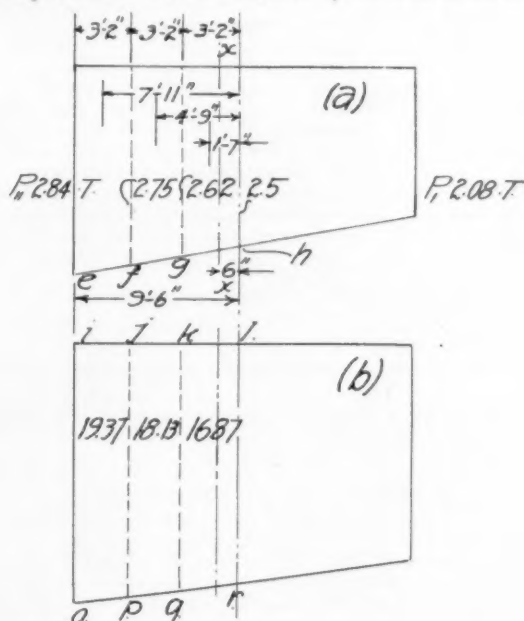


Fig. 89.

and the line representing the centre-of-pressure of the two column loads is according to the diagram 6 inches, or .5 foot. The moment produced by the resultant of the two column loads is equal to M , or $\frac{sI}{y}$, in which s equals the pressure on the

soil at the extreme edge of the footing, I the moment-of-inertia of the footing-area just assumed and y the distance between the lines of upward and downward pressures.

The value of M in the problem is equal to $800 \times .5 = 400$ foot-tons. The pressure variation at the edge ef equals s , or

$$\frac{-400 \times 11}{10,400} = -.42 \text{ tons, while the pressure variation}$$

at the edge cd equals s , or $\frac{400 \times 9}{10,400} = .34$ tons. The variation in pressure may then be shown in the diagram (a) in Figure 89 when the pressure p_1 is found to equal $2.5 - .42$, or 2.08 tons, and the pressure p_{11} is likewise found to equal $2.5 + .34$, or 2.84 tons.

The maximum bending-moment on the footing is along the line xx , or the line of the resultant pressure from the soil, and it is equal to the algebraic sum of the moment of one of the column loads and the moment of the pressure from the soil beneath. The moment of the column load is equal to its amount multiplied by the distance from the axis of the column to the line xx , while the moment of the pressure from the soil opposed to the moment of the column load is equal to the amount of the pressure upon the portions $ijop$, $jhpg$ and $hlgq$ of the Figure 89 at (b). The moments of these portions are equal to the product of their area and the average pressure upon them by the distance from their centres-of-gravity to the line xx . These several values may be obtained from the two diagrams (a) and (b), Figure 89, and the necessary calculations made as follows:—

Area of portions.	Average pressure.	Lever arms.	Moments.
$19.37 \times 3.16 \times \frac{2.84 + 2.75}{2}$	$\times 7.91$	$\times 1,344.48$	
$18.13 \times 3.16 \times \frac{2.75 + 2.62}{2}$	$\times 4.75$	$\times 729.30$	
$16.87 \times 3.16 \times \frac{2.62 + 2.5}{2}$	$\times 1.58$	$\times 215.39$	

The sum of the moments due to the pressure of the soil equals 2,289.17 foot-tons.

This moment in foot-tons may be reduced to 4,578,340 foot-pounds, or 54,940,080 inch-pounds.

The positive moment due the weight of the column load is equal to $500 \times 6 = 3,000$ foot-tons, 6,000,000 foot-pounds, or 72,000,000 inch-pounds. The difference, or algebraic sum, of these two amounts equals $72,000,000 - 54,940,080$, or 17,059,920 inch-pounds, which, if a factor of safety of 4 is desired, will be increased to $17,059,920 \times 4$, or 68,239,680 inch-pounds.

The resisting-moment of the reinforced concrete must then equal this latter amount. From Formula (10), previously given, is noted that the resisting-moment, or

$$M_o = \left[\frac{5 b F E_c}{12 E_s} + \frac{5 b f_c}{12} \right] y_1^2$$

or, taking out the value of b ,

$$M_o = \left[\frac{5 F E_c}{12 E_s} + \frac{5 f_c}{12} \right] b y_1^2$$

In this case the elastic limit of the steel rods reinforcing the concrete was taken at 30,000 pounds, and the values in the formula are as follows:—

$$\begin{aligned} F &= 30,000 \text{ pounds.} \\ E_c &= 4,800,000 \text{ pounds.} \\ E_s &= 30,000,000 \text{ pounds.} \\ f_c &= 1,500 \text{ pounds.} \end{aligned}$$

The value of the expression in the brackets then becomes equal to

$$\frac{5 \times 30,000 \times 4,800,000}{12 \times 30,000,000} + \frac{5 \times 1,500}{12}, \text{ or } 2,625, \text{ so that}$$

$M_o = 2,625 b y_1^2$. The value of b , which is the width of the concrete-footing along the line of rupture, or the line xx in Figure 88, is approximately equal to 196 inches. By transposition, the value of

$$y_1^2 = \frac{M_o}{2,625 b}$$

and

$$y_1 = \sqrt{\frac{M_o}{2,625 b}}$$

or, since M_o equals the bending-moment, which is 68,239,680, so that

$$y_1 = \sqrt{\frac{68,239,680}{2,625 \times 196}} \text{ or } 11.5 \text{ inches.}$$

This value is the distance from the neutral axis of the section through the footing to the centre-of-gravity of the reinforcing bars. The value of y_2 for rock-concrete according to formula (8), as previously quoted, is obtained from the expression

$$y_2 = \frac{2 F E_c}{3 f_c E_s} y_1$$

and by substitution,

$$y_2 = \frac{2 \times 30,000 \times 4,800,000}{3 \times 1,500 \times 30,000,000} 11.5, \text{ or } 24.5 \text{ inches, and the}$$

entire thickness of the concrete-footing is made up of the following:—

$$y_1 = 11.5 \text{ inches.}$$

$$y_2 = 24.5 \text{ inches.}$$

Total 36 inches.

This is, however, merely the theoretical thickness and there must be added at least 3 inches at the top and bottom to allow

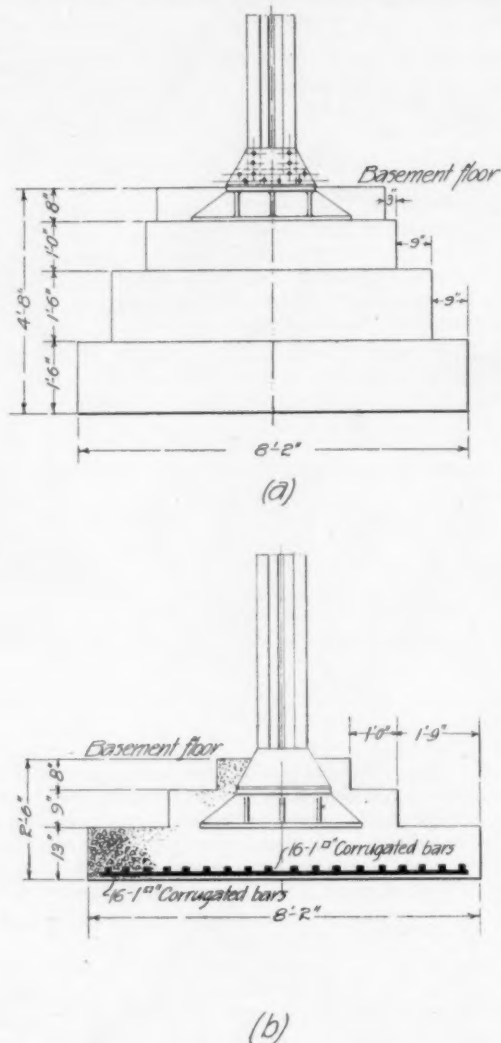


Fig. 90.

proper bedding for the reinforcing bars, and hence the entire thickness of the footing will equal 42 inches.

The last of the problem consists in determining the number of reinforcing bars required. Assuming that the square corrugated bar previously described and illustrated is used, and that a bar 1 inch square is employed with an area of about .64 square inches, the number of square inches of metal required at the section of maximum moment may be determined from the formula given in the first part of the quoted discussion. This formula is $\frac{a^2 b}{d}$, in which a^2 equals the area of the bars in square inches, b width of the section considered in inches and d the spacing of the bars in inches. In this problem the area of the bars is taken at .8 square inches, while b obtained from Figure 88 is found equal to 196 inches and the spacing of the bars will be taken at 1.8 inches, for that distance corresponds

to the result obtained by applying formula (8) in the discussion, this formula being dependent upon the value of d as given.

Then by substitution, the total sectional-area required, or $A = \frac{.64 \times 196}{1.8}$, or 70 square inches, which would require as an equivalent the area of 109 bars.

The comparison of cost between two footings made to support an equal load upon soil of the same bearing-capacity is very clearly illustrated in Figure 90 at (a) and (b). These footings, which were designed by the Expanded-metal Fire-proofing Company, of St. Louis, show upon a comparative estimate a saving of at least 20 per cent in favor of the footing with the corrugated bar system introduced instead of the all-concrete footing. The estimated cost of the construction shown at (a) itemized as follows:—

Excavation	11.53 cubic yards at \$.75	= \$ 8.65
Concrete	202.03 cubic feet at .26	= 52.60
Total.....		\$61.25

While the estimate for the construction described in (b) is as stipulated below:—

Excavation	6.18 cubic yards	at \$.75	= \$ 4.64
Concrete	.86 cubic feet	at .26	= 22.36
Extra length of column	83 pounds at .03½	= 2.92	
Corrugated bars	720 pounds	at .03	= 21.60
Total.....			\$51.52

Where a comparison of the cost has been made between steel-beam grillage footings and corrugated-bar or reinforced concrete foundations, there is found to be a saving of from 30 to 50 per cent in favor of the footing constructed of reinforced concrete. In the comparison the footings were proportioned as nearly as possible of like strength. M. M. SLOAN.

[To be continued.]

THE DUTY OF THE ENGINEER.—II.

TO HIS CLIENTS OR EMPLOYERS.¹

THE section which I discuss presents two general classes—"clients and employers"—as those from whom the engineer is expected to earn his living, and the following definitions are offered as distinguishing the classes:—

An engineer's "client" is an individual, firm, or corporation calling upon him for special or temporary service, the performance of which terminates the relations. This connection may cover a single engagement, or it may represent a series of periodic or spasmodic engagements. But in each particular case it may be assumed as a general rule that the more faithfully and energetically the engineer represents a client, the earlier his temporary engagement terminates.

An "employer" may be considered as an individual, firm, or corporation, served by an engineer under a regular compensation for a specified period, actual or implied, assurance justifying the expectation that loyal service will bring advancement, or at least continued employment. To state the distinction briefly in shop vernacular, an engineer when serving clients faithfully is "working himself out of his job," but when loyally representing employers he is "holding down his job."

The ethics which govern a true engineer are the same in each case, and he will be as faithful to the interests of clients during a temporary engagement as to those of employers under a longer term.

Accepting the definitions of client and employer, the relations of the engineer may be expected to be closer and more confidential with employers than with clients. The almost constant contact of the engineer and employer permits of mutual confidences, the abuse of which by either party is little short of criminal—confidence which permits the principal to trust the engineer and the latter to advantageously serve his employer.

Under normal conditions a client and the engineer meet often as strangers, the engineer being selected because of his reputation and the client served because of his reported financial standing. Each must, however, meet the other in confidence, and clients often place important interests at the dictum of an engineer almost unknown personally, this action being dictated by the reputation of the engineer. The profession may well be proud of such recognition, and as the reputation of the engineer is his capital, he is a fool who impairs it by acts which jeopardize his good name among men, and bring to him the unrest which follows deviation from the path of rectitude. Being treated with confidence, it is his duty to deserve such recognition by faithfully guarding the interests of either client or employer.

In his intercourse with clients and employers the engineer coöperates with all phases of the "genus homo." He may find the individual or company employing the engineer because of special knowledge, generously recognizing this knowledge, and giving him unreserved confidence, unless the engineer demonstrates incapacity

or violates this faith, when a directly opposite course is justly pursued. But the work is not always so pleasant nor the duty so plain. The engineer meets with those who, failing to discriminate between power applied and power exhibited, run great risk by demonstrating brief authority, often with a result such as befell the owner of a fractious horse, who grasped the reins from the hands of a competent driver at a critical time. The driver, of course, was blamed for the loss of the horse and vehicle and for the crippling of the owner, while the owner was at fault.

There are occasions when the engineer must assert his position in opposition to a client or employer, but such assertion should be based upon his interpretation of loyalty to the interests entrusted to him, and not by wounded pride. Circumstances may arise which demand that to protect the interest of his client he must refuse to follow a procedure suggested, or to follow it under formal protest, although such action may jeopardize his position or engagement. . . .

In specifying materials or appliances, the engineer's duty to his clients or employers requires that he secure those best suited to the purpose, at least cost to his principals, and his specifications must, therefore, be drawn to invite as active competition as practicable. It is the safer policy to have an excess of bids than by restrictions to place the client or employer in the real or fancied power of bidders.

Each engineer has his preferences and is entitled to express them, but in determining "duty" he is wise who encourages active competition for work submitted to him.

The engineer who chooses his profession as a means of acquiring wealth seldom reaches that goal. If he is able to live in comfort and with but moderate anxiety for the future, he is in advance of the majority of his professional brethren. With him "a good name is rather to be chosen than great riches." There are comparatively few engineers who may be considered rich, and this limited number includes men whose accumulation has been the result of judicious investment, of legacies, or of business outside of or possibly related to engineering.

With such conditions facing the engineer, and appreciated by those with whom he associates in business, the temptation is great to augment an income by means which are inviting, and some of which at least do not suggest impropriety. Probably commissions present the most subtle of these temptations, for the engineer recognizes that members of some kindred professions depend largely upon these for revenue. This is a subject which could be discussed at length, but in determining his duty to clients he may have as a guide the statement that "no man can serve two masters."

The compensations paid to engineers do not, as a general rule, equal those received by other professions in which the cost of preparatory study and work, or of library, and the expenditure of time and energy, is less. But having entered the service of client or employer, the acceptance of commissions without their knowledge and assent places the engineer in an unsafe position; and although his earnings may be unsatisfactory, he must be true to those whose service he has entered, be this temporary or permanent.

Engineering is an exact science and it is expected to produce definite results. The client or employer submits problems which he expects the engineer to work out with the greatest practicable precision. But he is employed as a human being, and as such he is fallible. When engineers cease to err it will be after, having done their duty to God and man, they pass beyond the sphere where clients and employers exist.

In determining his duty the engineer is called upon to use the exact science upon which the foundation of his profession is laid, so as to present to client or employer the nearest approach to correct results which his education and experience, supplemented by conscientious study of the work of others, permit.

With a profession that has accomplished so much, with an appreciation of its honor, with as pronounced integrity as exists in any other profession or business, we cannot afford to have a standard or hold a position which is not the highest.

TO HIS CONTRACTORS AND EMPLOYEES.²

FOR about thirty years of my life I was engaged as an engineer, in a practice sufficiently varied to bring me into contact with nearly all kinds of contractors. During the last ten years of my life I have been more or less a contractor, and this, I think, permits me to speak at least in the light of experience on both sides of the question.

The proper presentation of the third subdivision of this topical discussion, or "The Duty of the Engineer to his Contractors and Employes," will be difficult to accomplish in the short time at my disposal. I therefore trust that this branch of the subject will be amplified in the general discussion which will follow.

The engineer in responsible charge is generally either the author of the plans and specifications upon which the work is to be carried into effect, or he is the employed agent of such author. In either case his relations to the contractor are the same. He is assumed to be an expert in the work which he designs or directs, and the assumption warrants the inference that his knowledge of the work in all its details is as great, if not greater, as that of the contractor. This assumption is justified by the usual declarations of the specifications, making the engineer the only recognized interpreter of the meaning of the plans and specifications for the work covered by the same.

¹ Extracts from a paper by Mr. John Birkinbine, read at the Engineers' Club, of Philadelphia, and published in the *Proceedings* of the same. Continued from No. 1402, page 47.

² A paper by L. Y. Sehermerhorn, read at the Engineers' Club, of Philadelphia, and published in the *Proceedings* of the same.

No two engineering works are more than generally alike; and specific differences will exist that make each work a special study and almost a special design. Through the preliminary study given to the development of the plans and specifications the qualified engineer should be able to acquire a fuller knowledge of the details of the work than can generally be obtained by the contractor through means and time usually at the latter's disposal, between the issue of the plans and specifications and the tender of the contractor's proposal for the work. This establishes the fact that, except in simple and routine constructive work, the designing-engineer has a better opportunity than the contractor to thoroughly familiarize himself with all the difficulties and uncertainties of the work. Therefore in this respect the designing-engineer enjoys an advantage over the contractor which it is his duty to recognize, through the plans and specifications, by fairly placing before the contractor full information upon points which otherwise would escape the contractor's knowledge. His duty is something more than to vaguely suggest possible difficulties and requirements, and then create for himself a refuge, by ignoring all responsibility for lack of reliable data, by providing that the information upon essential points in the specifications is not guaranteed, and that the contractor through his personal knowledge and examination will be assumed as having full and correct information upon all matters involved in the work, even though the engineer may have suppressed a part of his information. It goes without saying that the contractor has, in the end, to assume such responsibilities; but it should be based as far as possible upon a full knowledge and frank avowal of all that the engineer knows of the work.

This duty of the engineer is a delicate one, and the personal equation of the individual will largely determine his action in the matter. Should his personal views be interfered with by those of his employer, then the engineer must determine for himself how far the ethics of his profession and his duties to himself and his fellow-man will rightly permit his judgment to be overruled by his superiors. To intentionally suppress important information which would be difficult or impossible for the contractor to obtain is at once a crime against the public and an error which is more than likely to assert itself unfavorably in the work with which it is connected. Dishonesty in the administration of work will surely result in dishonest execution, and this in turn may lead to disaster, involving both property and human life.

There never was an alleged wise saw that had less foundation in fact than that which states that "competition is the life of trade." If the word *death* were substituted for *life*, the statement would be nearer the truth. In nearly all callings, intelligence, ability, and its proper accompaniment, reputation, count for much in winning business success. In the other professions we never hear of assignments made on the basis of competition; and yet the engineer is too often forced to carry his plans into effect under a system of unqualified competition that is at once destructive of good results and unfair to the contractor who will only do his work in a proper manner, and whose prices are based upon such a method of work as will ensure satisfactory results to the engineer and to those for whom the work is done.

Open, unqualified competition, without reservation as to awards thereunder, is an invitation and an encouragement to the incapable, unwise and dishonest contractor to enter into competition with the contractor who believes that capacity, experience and honesty are essential elements both to his success and to the success of the work that is to be carried into execution. When incapacity, inexperience and dishonesty are joined with political pull and favoritism, the premium placed upon the dishonest execution of work is such as to forbid competition on the part of contractors who do not adopt such methods.

The duty of the engineer under such adverse conditions is plain, for he must either be in a position to demand and secure the proper execution of the work entrusted to his charge, or he must retire himself from a responsibility which is almost sure to result in the dishonest execution of his plans and designs. The engineer owes at once a duty to his employers and the public, through which, by all legitimate means, the incapable and dishonest contractor is excluded from the possibility of competing for work to be done under the engineer's direction; and if it is impracticable to accomplish such an end by not allowing this class of contractors to bid upon work, the power and authority should be inherent in the specifications to permit the exercise of a discrimination which can be used to prohibit his securing the work.

The undesirability of unqualified competition is well recognized through the manner in which individuals and many large corporations invite proposals for required work or materials; viz, by placing their proposals only in the hands of such parties as are known to be capable, experienced and honest. In the main, our cities and the general Government are the only parties who do not adopt ordinary business methods in selecting their contractors, and where the only criterion is the lowest prices offered for the work to be done or the material to be furnished.

With the United States Government this method of unrestricted competition is carried to the extreme, upon the theory that the bidder's or contractor's bond establishes the responsibility of the bidder or the contractor; and more attention is given to very exact compliance with instructions as to the seals and notarial attestations upon the bonds than is given to the ascertainment of the fact whether or not the bonds have any real financial value. As a result of this method the Government has constantly upon its public works failing

and defaulting bidders and contractors, against whom legal action is seldom taken toward the enforcement of the penalties provided in the contract. While there may be a theoretic value in the moral effect of bonds and penalties named, such effect is lost upon the irresponsible and dishonest contractor, who through a long experience has gained a valuable knowledge of shrewd methods and tricks by which he can escape their enforcement, and upon which he fully counts when he enters into contract.

The engineer who is brought into administrative contact with the irresponsible and dishonest contractor will find himself quickly engaged in a conflict, whereby the efforts of the engineer to enforce the proper performance of the work will be met by every effort on the part of such a contractor to cheapen the work, or else to prepare the way for a successful escape from the penalties of his bond, if the work is not carried to satisfactory completion. The engineer who has gone through such experiences emerges from the conflict always a disappointed, but generally a wiser, man.

From an experience of many years the speaker has been brought to feel that many engineers are inclined to hold a responsible and conscientious contractor to a more rigid enforcement, even of non-essentials, than an incapable and dishonest contractor to matters essential to the proper performance of the work. The reason for this is that it is easier to secure exact compliance from the former than even approximate compliance from the latter; but the question arises whether the engineer has a moral or professional right to attempt to move in such matters along the line of least resistance.

Considering the engineer as the direct agent of the parties who are to pay for the work done, it may not seem unnatural for the engineer to yield to the temptation of seeking the accomplishment of his work at the least possible cost to his employer, regardless of what he knows to be the real intrinsic value of the work. Adopting this view, some engineers encourage unqualified competition to its extreme, and attempt to reduce each letting of work to the methods and principles which surround the bargain-counter.

Every work is worth its absolute cost as carried into proper execution under wise, economic and efficient administration, plus a reasonable profit to the contractor. The engineer who seeks to accomplish his work at less than what he knows to be its true value violates the fundamental principles of sound business, and thereby lends himself to the perpetration of a fraud upon the public, and an injustice to his employer and his contractor.

The engineer in responsible charge of work cannot give his unqualified time and attention to the details as they are carried out in the field; he therefore must delegate this duty of immediate supervision to his assistants or inspectors. Frequently this duty falls into more or less inexperienced hands, with the responsible engineer often far removed from the work, or else not easily accessible. The value is very great to the contractor and to the work of having at all times immediately accessible a representative of the engineer who, through training and experience, is qualified in an emergency to promptly act for his superior. Wisely as plans and specifications may be prepared, they are nevertheless not inspired and inerrant, and often the unexpected and unprovided-for contingency will arise that demands correct judgment and instant action, based on experience, and a large amount of level-headedness and common-sense. If at such times the representative of the engineer does not possess these qualities, both the work and the contractor will be sufferers; and these are injuries the engineer has no moral or professional right to inflict on either the work or the contractor.

Carefully as plans and specifications may be prepared for works involving much detail, they can seldom provide for every variation from the normal which may occur; and when such variations do occur, the representative of the engineer who reads his specifications as though they were his Bible, expecting to find therein provision for all things, will surely be disappointed, and the work and the contractor will as surely suffer through the inspector's ignorance and misguided faith. No more unsatisfactory representative of the engineer can be found than he who is unable to call to his aid experience and common-sense in interpreting the true spirit and intention of the plans and specifications.

It follows from these conditions that among the duties which an engineer owes to his contractor is that of being represented upon the work by an assistant who has other qualifications than those of being related to somebody, or one who votes on the right side, and who may therefore enjoy the favor of the district politician. An assistant or an inspector whose employment is based upon qualifications other than his fitness for the work, and whose tenure of office is not measured only by his capacity and known honesty, is an injustice to the contractor, and a standing menace to the work upon which he is employed.

The position which the engineer holds as to his employer and his contractor is without its parallel in the other professions, and his duties which arise thereunder to these parties are at once responsible and delicate. The engineer is quite generally made the only authoritative interpreter of the true intent and meaning of the plans and specifications; and the specifications more or less definitely provide that he shall determine every question, difference or doubt in relation to and arising from the work undertaken, and shall decide every question which may arise relative to the execution of the contract on the part of the contractor; that his estimates should be held as final; and that his specific conclusions and decisions shall be beyond appeal.

These broad and conclusive powers would suggest that the engineer

is an arbitrator between his principal and the contractor, and clothed with the fullest power of decision and action; and yet the analogy is not complete. An arbitrator should be a disinterested party, and such the engineer is not. An arbitrator should not be under the pay or influence of either party; the engineer is manifestly under both from his principal. An arbitrator should have no interest in the questions he is to decide; the engineer is called upon to support his interpretations of his own plans and words, and to justify his estimates and conclusions generally. The position and its duties are anomalous, and a legal authority, commenting on the situation, said: "Under these conditions the contractor's rights depend upon his good luck in having his work under the supervision of an honest and conscientious engineer; and that the employer's obligations to pay or to perform depend upon his approval and the behavior of his engineer"; and that under such conditions "the courts undertake to guarantee the contractor that the employer or his engineer shall not capriciously nor unreasonably exercise his power to defeat the contract, or deny the contractor his just and reasonable compensation." No engineer has a right to force a reasonable contractor to carry into the courts the determination of questions that arise between them; for most contractors know that after resort to such an expedient their subsequent lot would not be a happy one; and that their position thereafter would be sadly prejudiced.

The apparent arbitrary power given to the engineer in the usual specifications and engineering contract, and which are probably generally conceded by the contractor, have their limitations in practice. Numerous decisions of the courts stamp with disapproval contract stipulations which tend to bind parties, before the occurrence of an event, to the arbitrary reference of matters arising from such events to an arbitrator without judicial functions. Neither have the courts regarded with favor the attempts of parties to oust their jurisdiction through unqualified agreements for arbitration. It should not be forgotten that all agreements for arbitration are revocable by either party at any time before the decision has been rendered by the arbitrator. This further indicates the attitude of the law toward arbitration. A very recent case decided by Judge Lawrence, of the New York Supreme Court, well illustrates this subject. Under a contract it was provided that, to prevent all disputes and litigations, it was agreed between the parties to the contract that the engineer should determine all questions of difference, and was to fix the amount and quality of the work to be done; and that the findings, estimates and decisions of the engineer were to be final and conclusive. The Court held that this provision in the contract was clearly to make the engineer the absolute and final arbiter as to all questions arising between the parties; that the provision in question, if made operative, would oust the courts of jurisdiction; and therefore it was decided as being void on the ground of being adverse to public policy. This decision is in harmony with well-established judicial maxims and conclusions, and is supported by a long line of decisions.

Through the very powers which are, of necessity, given to the engineer, he owes a duty to his contractor and to his employes to treat all situations and conditions which may arise with judicial fairness; and while entitled to insist upon the full and proper carrying into effect of the work undertaken, he should not forget that his contractor holds rights which honesty and justice demand shall receive fair recognition. To fully meet the requirements of such a situation and its duties bespeaks for the engineer the admirable traits which we believe are an accompaniment of the profession under its best development.

Contrast such a view of the duties of an engineer to his contractor or his employes with the following, as set forth in a text-book intended for the use of the profession: "The engineer is in the interests of the proprietor, and receives his compensation from him. . . . He is not required nor expected to watch the contractor's business, nor to promote his interests, and any attempt to do so might render his position untenable, change the relations of the parties, and render the stipulation of his choice invalid." Again the same writer states: "The engineer owes no duties to the contractor except what he can demand by the terms of his contracts; he is under no obligations to protect his interests or assist him in his affairs." I should be sorry indeed to believe that such a doctrine could be held by the engineer who dignifies his profession and its duties, and who believes that these duties have their foundation in honesty, intelligence and justice.

THE PHILADELPHIA CITY-HALL.

ALONG with the announcement that after thirty-one years of work one of the largest buildings in America is nearing completion comes another to the effect that the big pile is so overcrowded that its 4,500 tenants are beginning to call for the addition of another story, says the *New York Sun*. This despite the fact that the structure, Philadelphia's City-hall, has 682 rooms with a total floor-space of 118 acres and has cost about \$25,000,000.

George G. Pierie, Chief of the Bureau of City Property, and John M. Bunker, the building's superintendent, are being bothered with another complaint. They are told continually that the building's twenty-two elevators cannot accommodate the thousands of persons who enter the hall daily.

A recent report, in endeavoring to explain this expenditure, reveals some interesting facts. It states that \$317,000 has been paid to the architect and his assistants in salaries since 1871, when the

building was begun: \$351,490 for paint and painting; \$5,500,000 for 1,464,000 cubic yards of marble for marblework; \$4,000,000 for fitting-up rooms; \$1,343,000 for watchmen and cleaners; \$736,000 for electric-installation; and so on.

The installation of electricity furnished an interesting incident in the hall's history. When the walls were erected electric-lighting was unheard of, but when its usefulness was demonstrated the now extinct Public Buildings Commission ordered electric-equipment.

The electricians had to chisel through the stone walls for the wires at an expense of thousands of dollars, and it took them the better part of five years of steady work to wire the building. Now, however, the hall has a plant capable of furnishing all the light a city of 30,000 or 40,000 inhabitants could possibly use.

The dynamo-room is one of fifty-nine in the building's basement, which runs not only under the hall, but the plaza in the centre as well. These basement-rooms teem with surprises. For one thing there is a sand-bed filter with a daily capacity of 1,000,000 gallons of water, and the employes and thousands of strangers who daily tread the corridors manage practically to consume this amount. Thousands of gallons are carried to their homes by the employes, for the water furnished the Philadelphia householder is about the worst on earth and will be until the city gets its big filter-beds in working order.

Like the lowest portion, the highest part of the building, the tower, is an interesting and curious place. It contains the largest stone in the building, a block of granite weighing 30 tons. It is 12 feet wide, 23 feet long, and 8 inches thick.

The tower's walls are 22 feet thick.

The second highest elevator in the world is in the tower. It runs from the seventh floor, 138 feet above ground, to the base of the Penn statue, an upward course of 372 feet 9 inches. The air-cushions alone cost \$25,000. One of the 400 telephones in the building is located in the tower, at the base of the statue.

Then there is the great clock, and the little clock that governs it. Compressed air is the motive-power.

The dials of the great clock are 361 feet above the earth, and the diameter of each is 26 feet. The long minute and hour hands are 12 and 15 feet, respectively, and their weights 225 and 175 pounds. The weight of the dial-frames, with glass, is $5\frac{1}{2}$ tons, and the total weight of the clock is 50 tons.

The little, or master, clock, the clock that really runs, is 143 feet below the great clock by which the city and country folks for miles around regulate their watches. Two years were spent in building it, and its mechanism is as delicate as that of the finest watch.

It rests in a metallic case on a platform built into a wall so no vibration can affect it. Quite unlike the big clock, which in four years collected 3 tons of dirt, the case keeps it free from dust.

Once every minute this clock, which is regulated from Washington, opens the valves which admit compressed air to the tubes connected with the gears. The air moves the hands of the clock up in the tower, which, after all, is just a dummy-clock, for it has only four faces and lets the little clock down below do all the actual work.

Another peculiar thing about the tower is that in the course of a day contraction and expansion, due to the sun's rays, make it lean $\frac{3}{4}$ inch out of plumb. This peculiarity has been determined by means of a tub of molasses placed far up in the tower, the surface of the molasses varying $\frac{3}{4}$ inch, according to the lean of the tower.

Then, too, the tower is an insatiable and inveterate destroyer of the birds of the air. The ring of sixteen powerful arc-lights that glow at the base of Penn's statue blinds the birds so that they fly against the tower, are killed and fall to the roofs below. One of the hall's employes has a collection of over a thousand birds that were killed in this manner.

The statue of William Penn that caps the tower weighs 53,348 pounds and is 37 feet in height. The hat is 9 feet in diameter, the rim 23 feet in circumference, the buttons on the coat are 6 inches in diameter, and the coat-cuffs are 3 feet long.

Penn himself has a nose 13 inches long; eyes 12 inches in length and 4 wide; a mouth 14 inches from corner to corner; hair 4 feet long; a face of 3 feet 3 inches from hat to chin; a waist 24 feet; fingers 2 feet 6 inches long; nails 3 inches long; legs 10 feet from ankle to knee.

Between tower and basement are many queer things. The largest room measures 58' x 71' and has a floor-area of 4,118 square feet. This is the Common Council chamber, and two three-story houses, Philadelphia style, could easily be placed in it.

Thirteen of the rooms occupied by the city-solicitor's department are furnished in steel. The only things inflammable in them are the wooden tops of a few tables and a half-dozen carpets.

Desks are of steel, as well as doors, window-frames and thousands of fireproof boxes for municipal documents. Four hundred and seventy-seven tons of steel were used in fitting up these rooms and it took seventeen months to do the work.

Another room entirely of steel, except the table-tops, is the Law Association Library, where 38,000 volumes are kept. This library, the second largest of the kind in America, has among its many other treasures one of the two existing sets of transcripts of the complete records of the United States Supreme Court.

The seating-capacity of the seventeen court-rooms is about 8,500. In addition to these 8,500 chairs, 5,000 chairs are scattered among the various offices. Every room has a clock, and each room contains on an average three roll-top desks, making about 2,000 of these in use in the building.

Two chandeliers cost \$4,800 each. They are gold-plated. They

hang in what are known as the conversation-rooms, in decorating which tens of thousands of dollars have been spent. These rooms are really reception-rooms for the use of the Mayor and Councils.

The biggest stone column is 24½ feet high and 2 feet 8 inches in diameter. It weighs 14 tons and is of one piece. It and nearly all the stone used in the building came from a single quarry in Massachusetts.

There are nearly three miles of main corridors and one-half that distance of branches.

The five guides declare that, on an average, 600 persons, who have no object in view other than that of sight-seeing, are daily shown through the building. This makes a total of 150,000 yearly.

Bridal couples are in evidence by thousands. When the courts are in session the corridors are so blocked that one can scarcely push his way through.

Twenty-two persons have met death while working on the City-hall. All have been killed by falls. One man recently fell from the brim of Penn's hat. Another was killed by a fall of 12 feet.

ILLUSTRATIONS

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

COTTAGE OF J. B. FALLON, ESQ., JAMAICA PLAIN, MASS. MESSRS. LORING & PHIPPS, ARCHITECTS, BOSTON, MASS.

DESIGN FOR BEACON BOULEVARD HOTEL, BROOKLINE, MASS. MR. C. H. BLACKALL, ARCHITECT, BOSTON, MASS.

THE PARK VALLEY INN. MR. C. M. BARTBERGER, ARCHITECT, PITTSBURGH, PA.

[Additional illustrations in the International Edition.]

HOUSE OF E. J. BERWIND, ESQ., NEWPORT, R. I. MR. HORACE TRUMBAUER, ARCHITECT, PHILADELPHIA, PA.

ENTRANCE PAVILION TO THE SAME HOUSE.

A COMPETITIVE DESIGN FOR THE BOSTON ATHENEUM, BOSTON, MASS. SUBMITTED BY MR. J. A. SCHWEINFURTH, ARCHITECT, BOSTON, MASS.

SECTIONS OF THE SAME.

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 LATE WALTER COPE.

PHILADELPHIA, PA., NOV. 8, 1902.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Dear Sirs,—At a special meeting of the Philadelphia Chapter of the American Institute of Architects, called to take action upon the death of Walter Cope, the enclosed resolutions were adopted.

Trusting that you will find an opportunity of publishing the same, I am,

Very truly yours,
ARTHUR H. BROCKIE, Secretary.

Resolved, that in the overwhelming sadness which the sudden death of our friend and associate Walter Cope has cast about us, we still rejoice in the beauty of his life and his labors, which leave behind them so precious a memory and so stimulating an example. Deeply skilled in his art, there were brought to him from far and near problems of ever-increasing difficulty and importance. He bore joyously the burden of these many tasks, and stood before us steadfast in the discharge of duty, untiring in the pursuit of excellence and beauty, firm in upholding a noble standard of conduct. And yet it is not his work as an architect, distinguished as it is by volume and quality, that leaves with his companions the deepest impression of him, but rather his constant sincerity, his limpid truthfulness, his spontaneity and frankness, his joy in art, his splendid scorn of wrong.

Resolved, that in the death of Walter Cope, the architects of America have lost one of the ablest of their number, and that we his immediate associates mourn him, not alone as a fellow-artist, but as a friend tried in many ways and true in all.

NOTES AND CLIPPINGS

TELEPHONE MAILS IN ITALY.—Tests are being made upon a telephage-system of postal-communication in Naples which seems to be simple and satisfactory. The plant consists of a small aerial railway whose track is made of steel wires, supported at the height of 45 feet on poles 300 feet apart. Small motor-cars run suspended to these wires, and are fed with electric current. The motors are so designed as to communicate to the car a speed of 400 kilometres (250 miles) an hour. With a speed of this kind, all the Italian post-offices would be in communication on a very rapid schedule. In Rome a main post-office is to be installed in conjunction with eight or ten sub-stations, each sub-station being in a tower 75 feet high, provided with a mailing-box at the bottom. All letters mailed are automatically stamped with indications of the month, day, hour, and minute at which the letter was mailed. The letter is then conveyed to the top of the tower, where a special employé is in charge of putting all the mail in the small motor-car, which is then sent to the general post-office. Thence the mail is then forwarded to the different cities of Italy in less than two hours. Each steel wire of the line is designed for carrying a weight of two tons. The motor-cars for letters weigh 75 pounds, and the cars for printed-matters are able to carry 2,000 newspapers. With this scheme, it will be possible to read at 10 o'clock in Milan all newspapers printed at 8 o'clock in Rome. The cost of installation of this kind of plant reaches 3,000 lire (\$600) per kilometre, or about \$950 per mile.—N. Y. Evening Post.

USE OF WHITE-LEAD IN FRANCE.—The Minister of Commerce and Industry has submitted for signature by the President of the French Republic the following decree regulating the use of white-lead for house-painting, accompanied by a report stating that the text has been approved by the Consultative Committee of Arts and Manufactures and also by the Council of State, while the last-named body has for the present declined to sanction total interdiction of the deleterious substance in question. Article 1. In painting shops, white-lead must only be used in the state of paste. Art. 2. The direct use by hand of products with white-lead base is forbidden in house-painting works. Art. 3. The dry scraping and rubbing with pumice-stone of white-lead paint are forbidden. Art. 4. For wet scraping and rubbing with pumice-stone, and generally for all work of white-lead painting, the masters must provide overalls to be used exclusively for the work, and must enjoin their use on the men, having these overalls frequently washed and kept in good condition. All that is necessary to ensure cleanliness must be provided for the men at the spot where the work is carried on. The tools and appliances are to be kept in a good state of cleanliness, but without dry scraping. Art. 5. The masters must have the text of the present decree posted up in the localities where men are taken on and paid. Art. 6. The Minister of Commerce, Industry, Posts and Telegraphs is charged with the execution of the present decree, which will be inserted in the *Bulletin des Lois* and the *Journal Officiel* of the French Republic.—*Journal of the Society of Arts*.

MARTINMAS.—Apropos of Martinmas, Zitella Cocke writes in the *Boston Transcript*: "That St. Martin has supplanted Bacchus in Italy and other parts of the Old World is no doubt true. The god of the grapes and the vintage has been compelled to yield to the humble and amiable saint. Spain is eminently enthusiastic in her celebration of Martinmas, and surely in the northern and mountainous region of this country, St. Martin's summer is as beautiful as poet or artist could dream. Her finest bridge, which is, in fact, one of the most superb structures of the kind in the world, spanning the famous river Tagus, near Toledo, bears the name of San Martin, and it was in the soft, sweet time of Martinmas that the wife of the architect who designed the bridge stole away from her home at midnight and burned it, because her husband had revealed the secret to her, that upon the very day of its completion he had detected a fault in the construction which rendered the whole bridge unsound, thereby costing him the favor of the King who had so generously entrusted the undertaking to his skill. His despair forbade all hope of remedy, but the wife, with a woman's intuition, knew what to do, and she did it. Inasmuch as the bridge, through this untimely accident, needed rebuilding, the commission was given, of course, to the same architect, who did not make a second mistake. It was rumored that the King heard the cause of the 'accident,' and, with a royal guffaw, exclaimed: 'Capital wife, by St. Martin, a capital wife. I wish every man in my kingdom had so good a one!'"

GAS AS HEAT, LIGHT AND POWER.—The use of gas as a fuel and source of power has made wonderful strides during the last decade, and present indications point to a still more marked advancement in the methods of production and systems of lighting, heating and power supply. The systems of incandescent gas-lighting, so prevalent and popular at the present time, depend for their efficiency wholly upon the heating-power of gas, rather than on its luminosity. Water-gas or producer-gas will undoubtedly be the future heating and lighting agencies, and along the lines of their production will be directed most of the forces of investigation and improvement. The future trend of gas-production will probably be in favor of generator rather than retort gases, which ought to result in purer gases; i. e., gas of a fairly constant chemical composition.—*Mines and Minerals*.

THE SHORTENING OF EYESIGHT IN WINTER.—Experiments in German schools have shown that in October pupils can on the average see letters of a given size a yard farther away than at the end of the winter months.—*Exchange*.

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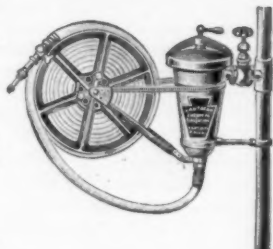
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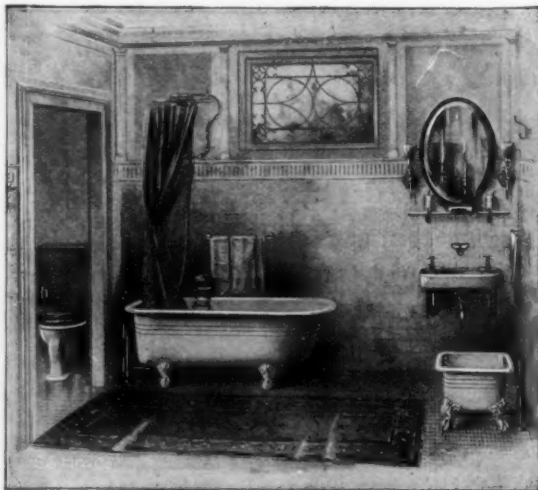
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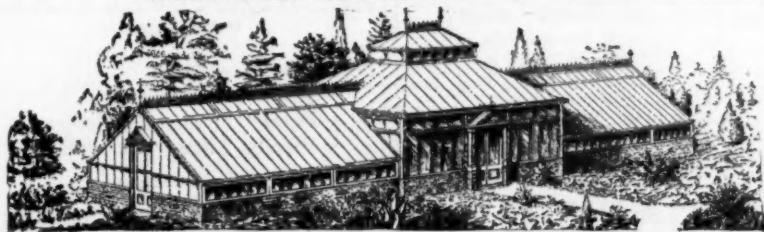
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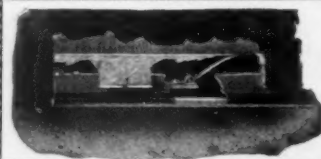
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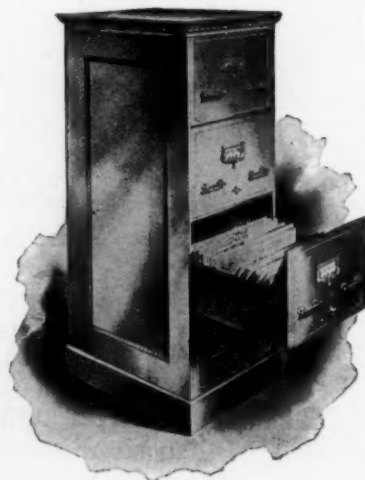
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THE KEASBEY & MATTISON CO., the owners of the patents for magnesia covering, have commenced a suit in the United States Circuit Court for the Southern District of New York against the Philip Carey Mfg. Co., George D. Crabbs, J. E. Breese, Schoellkopf, Hartford & Hanna Co., J. F. Schoellkopf, Jr., James Hartford, W. W. Hanna, C. P. Hugo Schoellkopf and Jesse W. Starr, to restrain the defendants from making and selling magnesia covering for boilers and steam pipes containing more than 50 per cent of magnesia, and especially coverings containing 85 per cent magnesia.

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.

☞ All persons are respectfully requested to refrain from purchasing covering infringing these patents, as such purchasing must of necessity lead to suit. ☞

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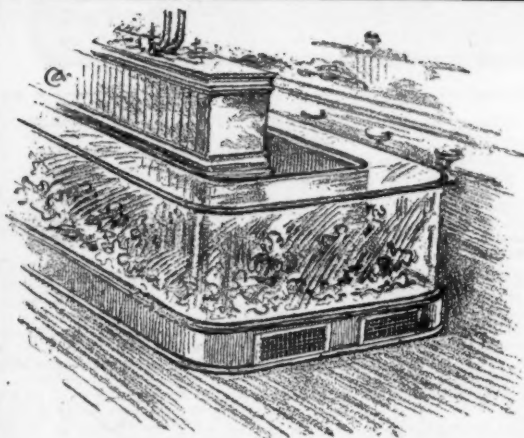
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PUBLISHED SATURDAY, OCTOBER 4.

Part XI

"The Georgian Period."

PRICE, \$4.00.

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New Advertisements.

MEANS & THACHER (Boston, Mass.), Paints. Page vii.

See last or next issue for the following advertisements:—

American Steel Roofing Co.
Bartlett Lumber Co.
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Grant Pulley & Hardware Co.
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BUILDING INTELLIGENCE.

(Reported for the American Architect and Building News.)

[Although a large portion of the building intelligence is provided by their regular correspondents, the editors greatly desire to receive voluntary information, especially from the smaller and outlying towns.]

ADVANCE RUMORS.

Albany, N. Y.—The city has refused Mr. Carnegie's offer of \$165,000 for a library building.

Albee, S. D.—It is reported that the city is considering the proposition of erecting a new town-hall.

Arverne, L. I., N. Y.—It is stated that Alice Barrett will erect a hotel on Gaston Ave. and the ocean front, to cost about \$35,000.

Atlanta, Ga.—Preliminary work has begun on the Southern Railway's new \$600,000 union depot.

Attleboro, Mass.—Karl H. Hyde has drawn plans for a four-story business building to be erected on N. Main and County Sts., for the Attleboro Land Co.; cost, \$40,000.

Baltimore, Md.—Hambleton & Co. have permit to erect a brick and stone banking-house, 26½ x 158', one-story high, costing \$15,000.

BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

Mr. James L. Kernan, who will erect a new theatre on Franklin St., near Howard, has let the contract for the structural steel and iron work to the Brown-Kitcham Iron Works, of Indianapolis and Pittsburgh. The amount of money involved is \$53,000.

Bond Hill, O.—The Trus. of St. Aloysius Orphan Asylum are reported to have decided to build a new chapel on the grounds of the Institution, to cost about \$20,000.

Bordentown, N. J.—J. W. Lanning, Trenton, has the contract for erecting the Manual Training and Industrial School for Colored Youths at this place for \$20,000.

Braddock, Pa.—E. J. Carlisle & Co., Lewis Block, Pittsburgh, are at work on plans for the Carnegie Sub-district School, to be erected on Talbot Ave. and 11th St.; cost, \$90,000.

Brooklyn, N. Y.—H. C. Pelton, 1133 Broadway, New York City, has prepared plans for the Woodruff Hotel, to be erected on Montague, Hicks and Remsen Sts., for the Brooklyn Heights Realty Co. It will be fireproof, twelve stories high, and contain 400 rooms.

Burlington, Vt.—There is talk of removing the capital from Montpelier to Burlington. If the city furnishes a like amount, \$200,000 will be appropriated.

Carnegie, Pa.—The Chartiers Valley Brewing Co. will erect here an office-building and stables, to cost \$50,000. Wm. Borgman, mgr.

A press report states that a seven-story brick building will be erected on Fayette St. and Duquesne Way, for Haugh & Keenan, to cost about \$300,000.

Cedar Falls, Ia.—The Trustees of the State Normal School have concluded to add a new gymnasium next year at a cost of \$50,000.

Charlotte, N. C.—Press reports state that F. P. Milburn, of Columbia, S. C., will prepare plans and specifications for a new hotel, to cost \$100,000.

Chicago, Ill.—A new office-building will be erected at the northwest corner of Jackson and Michigan Boulevards by the Standard Office Co., a concern

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BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

recently incorporated. The structure will cost \$2,000,000, and will be occupied by at least two railroad companies, or by more steel companies, and a number of other large corporations. It will be ready for occupancy May 1, 1904.

It is stated that Herman Eickmeier will erect a store and flat at 218 to 220 N. Clark St., to cost \$75,000.

Conditional upon the raising of \$1,000,000 by the trustees of Rush Medical College, not later than July 1, 1903, the trustees of the University of Chicago have agreed to receive the Medical School as an organic part of the university. The trustees of Rush are confident that the required money can be raised within the time specified. This sum will be used for the erection of new buildings, the endowment of chairs of instruction and the purchase of additional equipment. The location of Rush Medical College will continue as at present, close to the Cook County and Presbyterian hospitals.

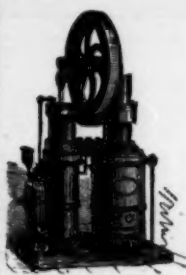
The Otis Elevator Co., office 159 La Salle St., having purchased property at Ashland Ave. and W. 16th St., will erect a foundry, 125' x 100', and a three-story building, 60' x 200', work on which will be started soon. The foundry will cost \$150,000.

A large addition will be built to the plant of the American Car Co. at 500 to 518 Fortieth St. Addition will consist of a five-story warehouse, covering an area of 67' x 118', to be constructed of brick, and to cost \$75,000.

A large apartment-house, 115' x 116', will be erected at 6217 to 6227 Madison Ave. for George C. Watts, 145 Van Buren St. Architect L. W. Mitchell, 145 La Salle St., has prepared plans for a three-story pressed brick and stone building to have all modern improvements. Cost, \$85,000.

It is reported that plans have been prepared by Louis H. Sullivan for a large plant for the manufacture of linoleum, the only plant of its kind west of Philadelphia, which is to be built for Euston & Co., in connection with their big oil mill on the North Side, at a cost of \$250,000. The Euston property consists of the block bounded by Hawthorne Ave., Blackhawk and Eastman Sts., and the north branch of the river. The buildings will be eight in number, and substantially constructed of brick and stone.

A modern seventeen-story office-building will be erected at the northwest corner of Jackson and Michigan Boulevards in this city, designed especially



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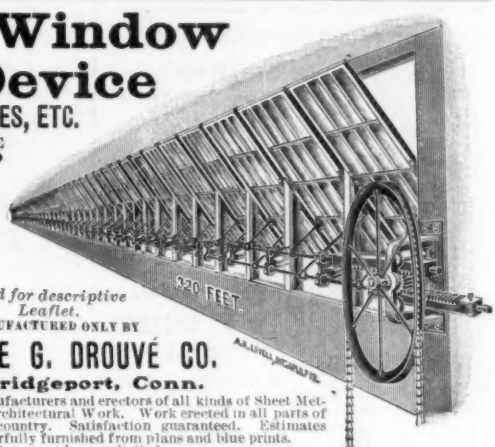
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BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

ally for large railroad and steel companies. Its cost will be \$2,000,000.

Darby, Pa. — Thomas M. Seeds, Jr., Philadelphia, has the contract for the erection of a one and two story bank-building, 33' x 50', to be constructed for the Lansdowne and Darby Saving Fund and Trust Co. Contracts for bank fixtures, furniture, etc., will be placed by owners. Cost of building, \$25,000.

East Milton, Mass. — G. Wilton Lewis, Boston, is preparing plans for alterations and additions to the Congregational Church.

Fairfield, Ia. — Parsons College has raised \$25,000 to aid in the erection and equipment of new buildings.

Fort Assiniboine, Mont. — It is stated that a sewer system is to be constructed here during the fiscal year.

Fort Morgan, Col. — Plans have been drawn by M. W. Fuller for a high school, to cost \$35,000.

Fort Smith, Ark. — The Reynolds Davis Grocer Co. is about to erect a six-story brick wholesale house, costing \$60,000.

Fresno, Cal. — The plans of the McDougall Bros., Voormum Block, have been accepted for a 10-room brick school, to cost \$40,000.

Gouverneur, N. Y. — The H. P. Cummings Co., of Ware, Mass., have the contract for erecting a \$100,000 mill for the International Luce Co.

Hanover, N. H. — The new building for the Amos Teek School of Administration and Finance is being constructed on Main St. on the site formerly occupied by the historic Proctor House. It is expected that the building will be completed and occupied about February 1, 1904. The architect is A. C. Rich, of New York, who has designed all the newer buildings of Dartmouth. The structure is to be three stories high, the main portion being 100 feet front by 50 feet deep, with an addition at the rear 40' x 60', the same height as the main part. The style of architecture is Classic.

Harrisburg, Pa. — George I. Lovatt, Philadelphia, will prepare plans for a new cathedral to be erected here for St. Patrick's parish. The new structure will cost \$100,000. Estimates will not be taken until early next year.

Houston, Tex. — The Houston Printing Co. has permit to build a brick structure at the corner of Texas Ave. and Travis St.; cost, \$80,000.

Jennings, La. — The contract for the erection of the Mehauffey Hotel has been let to N. A. Dawson, of Orange, for \$60,000.

Kansas City, Mo. — A. R. Meyer is about to erect a brick store building at 1015 Grand Ave.; cost, \$20,000.

Alterations will be made to the building at the corner of 10th and Walnut Sts. by the owner, Chas. Schoelkopf; cost, \$50,000.

W. E. Brown, N. Y. Life Building, has drawn plans for a brick store to be erected at a cost of \$70,000 at 10th St. and Broadway.

BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

S. R. Frink, Mass. Building, has prepared plans for a \$20,000 brick dwelling, to be erected at 15th and Wabash Ave. for W. A. Rule.

Lake Charles, La. — A. Levy will build a two-story building on Ryan St., to cost \$20,000.

Lester, Pa. — Another addition will be made to the plant of the Lester Piano Co. Plans are being prepared for a two-story and basement factory building, 50' x 180', and a one-story storehouse, 50' x 100', both to be constructed of brick and to cost \$20,000.

Lexington, Ky. — The Elks contemplate the erection of a \$30,000 club-house.

Lindale, Ga. — The Massachusetts Mill Co. has decided to build a cotton-mill here with 40,000 spindles. The work will commence early next year. The mill will cost \$450,000 and employ several hundred hands.

Louisville, Ky. — The Sunnybrook Distillery Co. will erect a brick warehouse at 27th St. and Broadway, to cost \$70,000.

The Louisville Trust Co. will build a seven-story brick and stone office-building at 5th and Market Sts.; cost, \$25,000.

Marietta, O. — St. Mary's R. C. congregation will erect a new edifice after plans by Fughman & Chirick, of Cleveland. Cost, \$50,000.

Memphis, Tenn. — The Bohlen-Huse Ice Co. intends to build a \$15,000 addition to its plant.

Milwaukee, Wis. — Dr. Schneider proposes the construction of a hospital building, to be built on Oneida St.

Mississippi City, Miss. — The Superv. of Harrier Co. are stated to have selected the plans of Andrew J. Bryan & Co., of Jackson, for a \$40,000 court-house.

Moline, Ill. — Peter Peterson, 1209 Twelfth Ave., has secured the contract for erecting the Carnegie Library, for \$38,500.

Monticello, Ill. — An election will be held this month to vote on the question of issuing bonds to the amount of \$100,000 for the construction of a court-house for Piatt County and remodeling the jail building.

Muskegon, Mich. — The Trustees of the Hackley Hospital are stated to have accepted the plans of Fuller & Pitcher, of Albany, N. Y., for their new buildings. They will be grouped on the pavilion plan.

Nashville, Tenn. — The building committee of the Carnegie Library has awarded the contract for the erection of the new building to George Moore & Sons who were the lowest of the bidders. The price to be paid for the construction is \$85,640. The building will be fireproof and the original plans of Architect Ross, of New York, will be carried out in the construction.

New Bedford, Mass. — Plans have been prepared by S. C. Hunt for a high school which will probably cost \$500,000.

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PHILADELPHIA, PA.

BUILDING INTELLIGENCE

(Advance Rumors Continued.)

New Iberia, La.—Ground has been broken for a new \$40,000 government building here.

New York, N. Y.—H. C. Peltou, 1133 Broadway, has completed drawings for a twelve-story steel frame and fireproof hotel building, to be erected at Montague, Hicks and Remsen Sts., by the Brooklyn Heights Realty Co., at a cost of \$1,500,000.

Hunt & Hunt have been appointed architects for the 68th Regiment Armory on Lexington Ave. and 25th St.

The following five architects have been appointed to draw plans and specifications for the armory of the Second Naval Battalion, at 51st St., in Brooklyn; F. R. Hirsch, Washington Hall, Schickel & Ditmars, Lord & Hewlett, and Walter Dickinson. The cost of this armory will be \$250,000. Plans must be submitted by December 20.

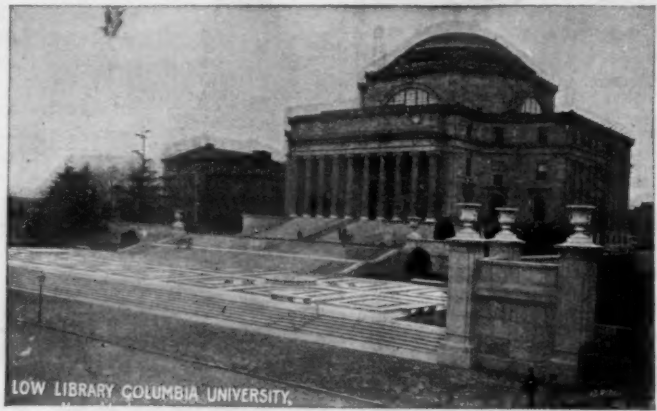
Two propositions have been submitted to the Board of Armory Commissioners that, if accepted, will eventually move the quarters of the Eighth Regiment still farther up town.

The Army Board has been asked to purchase the three lots south of the Twelfth Regiment Armory on 61st St., and the building of two stories on the present structure above the company rooms. This would give an administration building and increased room in every way. The estimated cost is from \$75,000 to \$80,000.

The secretary of the navy has awarded to John Peirce the contract for the completion of the granite walls, roofing, etc., of the New York custom-house at his bid of \$1,800,360. Mr. Peirce has agreed to allow other contractors for the interior finish, the mechanical plants, etc., to begin work as soon as practicable, without waiting until his contract is fully completed.

J. J. Deery, Betz Building, Philadelphia, has completed plans and specifications for a new Roman Catholic Church to be erected on 47th St., for the parish of St. Matthew's. It will be one-story, of stone, handsomely finished and decorated.

Norfolk, Va.—The American Tobacco Co. will build large plant here. The plant will consist of



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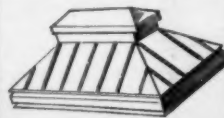
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Van Noorden Company,

944 Massachusetts Avenue, BOSTON, MASS.

BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

three brick buildings, four stories high, and will cost \$125,000 without equipment.

North Yakima, Wash.—The congregation of St. Joseph's R. C. Church is to erect a new edifice to cost \$20,000.

Opelika, Ala.—The corner-stone of the new \$30,000 public school building was laid recently.

Painesdale, Mich.—It is reported that a memorial library will be erected here by Wm. A. Paine, of Boston, Mass. It will cost \$30,000. Plans have been prepared.

Pateron, N. J.—The public library trustees have selected the plans of Britz & Bacon, of New York, as the successful ones in the competition for the building which is to take the place of the library destroyed by the fire, but on the new site, at Broadway and Auburn St. The new structure will be 45 feet high, two stories and basement, 100' x 120', and built of Indiana limestone. It will be semi-classic in style.

Pawtucket, R. I.—Frank G. Rowley, 161 Main St., has secured the contract for erecting the South Woodlawn School, for \$36,511.

Pontwater, Mich.—An election will be held this month to vote on the question of issuing bonds to the amount of \$20,000 for the construction of a town-hall.

Philadelphia, Pa.—It is reported that the Councils Committee on Schools has recommended that about \$2,000,000 be appropriated for permanent school improvements.

Report states that John Wanamaker has purchased property on Broad and Christian Sts. and will erect on the site a building for Bethany College, to cost about \$300,000.

Wm. R. Dougherty is about to start work on the erection of the new club-house to be built on the Schuylkill River for the Sedgley Club from

BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

plans by A. H. Brockie. It will be a two-story structure of handsome design and cost about \$20,000.

Pierpoint, S. D.—At the November election the question of issuing bonds to the amount of \$50,000 for the erection of a court-house for Day County was voted on.

Pittsburgh, Pa.—Plans are being prepared for a \$600,000 fifteen-story business building for the Diamond National Bank.

The Erie R. R. Co. has had plans prepared for a station to be erected on Forbes and High Sts., to cost about \$500,000.

Port Deposit, Md.—Estimates have been filed at the office of Newman, Woodman & Harris, Philadelphia, architects, for a dormitory to be erected for the Jacob Tome Institute. Designs show a four-story structure, measuring 36' x 132', of brick and stone.

Portsmouth, N. H.—Ground has been broken for the new \$40,000 brick building for the Y. M. C. A. to take the place of the present frame structure on Congress St.

Portsmouth, O.—The plans of Richards, McCarty & Bulford, of Columbus, have been accepted for the \$50,000 Carnegie Library.

Pottstown, Pa.—Brown & Gerbard will proceed at once with the erection of the Auditorium Building after plans by G. A. Gerbard; cost, \$30,000.

Providence, R. I.—Application for a building permit for the construction of a new dormitory at Brown University has been made. The foundation of the building will be put in at once and work on the structure will be begun in the spring. It will be located on Thayer St., near Manning, Lincoln Field, and in general outward appearance will be modeled closely after Hope College, which is held to be the finest example of Colonial architecture on

PROGRAMME

For a Competition for the Memorial Continental Hall

TO BE ERECTED BY

The National Society Daughters of the American Revolution, IN THE CITY OF WASHINGTON, DISTRICT OF COLUMBIA.

In accordance with the authority given by the National Society Daughters of the American Revolution, during Annual Congresses held at Washington, D. C., Saturday, February 25th, 1899, and Saturday, February, 23d, 1901, the following Competition is announced by the Committee on Architecture, a Sub-Committee of the Continental Hall Committee.

THE BUILDING.

The plans shall be for a fire-proof structure to cost \$300,000.00.

ELIGIBLE COMPETITORS.

The competition shall be limited to those who are invited or introduced to the Committee on Architecture by members of the Society.

FORM OF COMPETITION.

Two competitions will be held—an Informal or Sketch Competition (of which this is a programme), and a Formal Competition.

The object of the first competition is to choose three architects, or architectural firms, who may compete in a second and Final Competition. Only those who have competed in the Informal Competition will be invited to compete in the Final Competition.

RIGHT TO REJECT.

The committee reserves the right to reject any or all sketches or drawings submitted.

Committee also reserves right to consider experience and general ability for design, detail and construction in executing the building.

AWARDS.

There will be no financial compensation in the first competition, but the architects chosen by the undersigned committee to compete again will receive \$500.00 each for their work on the second competition. The \$500.00 paid to the successful competitor to be considered as payment on account of his commission.

The architect receiving the first place in the second competition will be appointed to execute the building, and be paid for his services according to the rate established by the American Institute of Architects.

DRAWINGS SENT.

Drawings must be sent by express to Mrs. WILLIAM LINDSAY, D. A. R., CARE MR. CHARLES J. BELL, PRESIDENT AMERICAN SECURITY AND TRUST COMPANY, WASHINGTON, D. C. None will be received in Washington later than January 25th, 1903.

JUDGES.

The first competition will be decided by the Committee on Architecture, subject to the approval of the Congress of the Society, and with the advice of an expert.

DRAWINGS UNSIGNED.

Drawings shall be unsigned, and all assumed names, devices or insignia of any description shall be omitted.

Enclosed with each set of drawings shall be a sealed envelope, containing the name of the competitor.

When the drawings are unpacked, a member of the committee will number each set of drawings; corresponding numbers will be placed on the sealed envelope containing name of competitor. These envelopes will not be opened by the jurors until after they have rendered their decision.

DRAWINGS RETURNED.

Drawings will be returned to competitors at their expense within ten days from the date of judgment.

QUESTIONS.

Any questions relative to this programme which may be raised by the competitors, may be addressed in writing to Mrs. WILLIAM LINDSAY, CHAIRMAN OF THE COMMITTEE ON ARCHITECTURE, D. A. R., THE OSBORNE, 205 WEST 57TH STREET, NEW YORK CITY; provided these questions are submitted two weeks before close of competition.

(MRS. WILLIAM) ELEANOR HOLMES LINDSAY, *Chairman.*

(MRS. JOHN W.) MARY PARKE FOSTER.
(MRS. CALEB) ELIZABETH CLARKE CHURCHMAN.
(MRS. GEORGE M.) MARTHA L. STERNBERG.
(MISS) ELLA LORAIN DEBNEY.
(MRS. S. V.) ELIZA M. CHANDLER WHITE.
(MRS. J. HERON) ELLEN HALL CROSMAN.
(MRS. DEB. RANDOLPH) JANE SUMNER OWEN KEIM.
(MRS. A. G.) MARY CHASE MILLS.

Committee on Architecture, a Sub-Committee of Continental Hall Committee, N. S. D. A. R.

SITE.

The property owned by the Society and upon which the building is to be erected, faces a public square; the lot is 210 feet, 9 inches, fronting on Seventeenth Street; and 161 feet, 11 inches, on C Street; and 170 feet, 10½ inches, on D Street. Slope of lot, North to South, fall of 4 feet, 4 inches. Elevation 14 6-10 to 19 feet above tide water. Map will be furnished to competing architects.

CHARACTER OF THE BUILDING.

It is intended that this building shall be a monument to the heroic men and women of the Revolution, as well as an administrative building for the Society, and the treatment of the design should be in keeping with this idea.

The style of architecture to be classic.

While stone is to be preferred as building material, the design should not be excessive in cost.

REQUIREMENTS.

As the space is limited, the committee does not deem it necessary in this programme for the preliminary competition, to definitely state the exact seating capacity of the Auditorium, said capacity, however, not to exceed 2,000. The Auditorium to be the main feature of the building.

Thirteen columns symbolic of the thirteen original Colonies shall also be a feature of the building.

Rooms must be provided of sufficient size for the following officers, and for the purposes designated below:

President General and one clerk.
Vice-President General in charge of Organization of Chapters and three clerks.
Recording Secretary General and three clerks.
Corresponding Secretary General and one clerk.
Registrar General and four clerks.
Treasurer General and four clerks (this room to include a steel-lined vault).
Historian General and two clerks.
Editor and Business Manager of Magazine.
A Board Room to seat eighty.
A Museum for Revolutionary relics and pictures.
A Library.
Several Committee Rooms to accommodate from five to fifty members.
A room for Curator.
The top floor for Dining and Kitchen purposes.
Arrangements shall be made for Heating, Ventilating and Lighting Plants, Cloak Rooms, Room for Janitor, Store Rooms, Elevators, Lavatories, etc.

The following drawings will be required in this Preliminary Competition:
A basement, first, second and third floor plan, and one section and two elevations, one of side facade, and one of front facade, at eighth scale, and a perspective sketch at eighth scale.

These drawings are to be made on Whatmann's paper, or white paper equally durable, with no landscape or other accessories except in the perspective sketch; all to be in black and white and to be submitted unmounted in pasteboard portfolios.
Finally, no other drawings than those required will be allowed and the committee will throw out of competition the drawings of any competitor who disregards the conditions in this programme.

BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

the college grounds. The architects are Hopkin & Ely, who designed the Van Wickie gates at Brown. The builders are Norcross Brothers.

The contract for the building of the new stable for the James Hanley Brewing Co. has just been awarded to Hugh Cummings, a contractor in this city. The architects are William R. Walker & Son. The stable is to be located at the corner of Fountain and Lime Sts. It will be three stories in height and built of red brick, with granite trimmings. The cornice will be of copper. The structure will be covered with a flat asphalt and gravel roof.

Redlands, Cal.—L. Behner, of Los Angeles, is reported to be organizing a company with a capital of \$25,000 to build an opera-house here.

Roanoke, Va.—The corner-stone of the home of the Roanoke Lodge of Elks, No. 197, has been laid. The building will cost \$20,000.

Rushville, Neb.—An election will be held this month to vote on the question of issuing bonds to the amount of \$20,000 for the construction of a court-house and jail building for Sheridan County.

San Francisco, Cal.—Shea & Shea, 26 Montgomery

BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

St., have prepared plans for an eight-story fireproof building to be erected on Mason and Ellis Sts. for Mr. and Mrs. A. F. Charnot; cost, \$100,000.

The Board of Education has adopted plans for the Noe Valley School, to cost about \$40,000.

It is said that the Building Committee of the Pacific Union Club has accepted the plans of Reid Bros., Claus Spreckels Building, for a club-house to be erected on Post and Stockton Sts., to cost \$200,000.

The congregation of Emanu-El is to erect a new temple on Sutter St. and Van Ness Ave. Cost, about \$250,000.

Santa Rosa, Cal.—The plans for a \$20,000 stone library building to be erected at 4th and E Sts., which were prepared by Ernest M. Hoen, 718 J St., Sacramento, have been accepted.

Sank Center, Minn.—It is reported that St. Paul's parish is raising funds for the erection of a new church. It is proposed to raise \$20,000 of which \$14,000 is pledged. The foundation will be put in next spring and all the material may be purchased then, but the superstructure may not be erected until fall.

BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

Sault Lake City, Utah.—Supt. of Bldgs. Pinney is preparing plans for a \$100,000 school for the 18th Ward.

Sistersville, W. Va.—The Tyler Window Glass Co. has let contract to C. L. Jacobs, of Wheeling, for the construction of a new \$50,000 plant.

St. Louis, Mo.—Plans have been prepared for a \$30,000 brick and stone factory building for Garret & Co., 1421 N. Broadway. It will be fire-story, 50' x 127'. Legg & Halloway, 715 Locust St., archts.

The laying of the corner-stone of the new structure for St. Luke's Hospital, at Delmar and Belt Aves., took place on November 1st. The new hospital is to be built after the plans of Theo. C. Link, with Daniel Evans as the contractor. It is to be on the pavilion plan, giving light and air to all parts of the hospital. It will be fireproof, and all modern appliances and equipments are to be provided to perfect the institution. The buildings which at present are to be completed will cost \$300,000. Additions are to be made from time to time to meet increased demands for greater facilities for hospital work, and the ultimate cost of the hospital, according to the scheme adopted, will reach the sum of probably \$500,000.

BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

Waldren, Ark.—A special tax has been voted by citizens to build a new \$20,000 court-house.

COMPETITIONS.

LIBRARY. [At Albert Lea, Minn.]
Competitive designs will be received by the Library Bd. until December 1 for the proposed \$12,000 Carnegie Library. 1403

PROPOSALS.

SEWERS AND DRAINS. [At Cincinnati, O.]
The board of public service will receive proposals until November 26 for constructing sewers and drains in portions of Observatory Ave., State Ave. and the ravine west of Torrence Road. ROBERT ALLISON, president. 1403

COALING PLANT. [At Portsmouth, N. H.]
Sealed proposals will be received at the Bureau of Yards and Docks, Navy Department, Washington, until November 23, 1902, for constructing a coal storage and coal handling plant, navy yard, Portsmouth, N. H. Appropriation now available, \$9,500. Plans and specifications can be seen at the bureau, or will be furnished by the commandant of the navy yard named. MORDECAI T. ENDICOTT, chief of bureau. 1403

REBUILDING MACHINE-SHOP. [At Boston, Mass.]
Sealed proposals will be received at the Bureau of Yards and Docks, until November 29, 1902, for rebuilding machine shop No. 2, building No. 42, navy yard, Boston. Estimated cost, \$91,000. Plans and specifications may be seen at the bureau, or will be furnished by the commandant of the navy yard named upon deposit of \$15 to secure their return. MORDECAI T. ENDICOTT, chief of bureau. 1404

HOSPITAL. [At Fort Lincoln, N. D.]
Office of Chief Q. M., St. Paul, Minn. Sealed proposals will be received at this office until December 1, 1902, for the construction of a hospital at Fort Lincoln, N. D. Plans and specifications may be seen and blank proposals with full instructions, had upon application here, or at the office of the constructing quartermaster, Bismarck, N. D. GEO. E. POND, C. Q. M. 1401

JAIL. [At Lake Village, Ark.]
Sealed proposals for erecting new jail building for county of Chicot, plans by F. B. and W. S. Hull, architects, will be received until December 1st. WALTER DAVIS, N. B. SCOTT, commissioners. 1404

OFFICE-BUILDING. [At Kiowa Agency, O. T.]
Department of the Interior, Office of Indian Affairs, Washington, D. C. Sealed proposals will be received at the Indian Office until December 3, 1902, for furnishing the necessary labor and materials required to construct and complete an office-building at the Kiowa Agency, O. T. In strict accordance with the plans and specifications and instructions to bidders, which may be examined at this office. For further information apply to James F. Randlett, U. S. Indian Agent, Anadarko, O. T. W. A. JONES, commissioner. 1404

LIBRARY. [At Steven's Point, Wis.]
Sealed proposals will be received by the undersigned until December 1, 1902, for the erection and completion of a Carnegie Library building. Separate proposals for the general contract, for the steam heating, plumbing, gas piping and electric wiring will be considered and also proposals for entire building complete. Plans may be seen at the office of the undersigned at Steven's Point, Wis., and at the office of the architect, Henry A. Foeller, Green Bay, Wis. W. B. BUCKINGHAM, chairman of building committee. 1404

SEA WALL. [At Fort Morgan, Ala.]
Engineer Office, U. S. Army, Mobile, Ala. Sealed proposals for raising and strengthening sea wall at Fort Morgan, Ala., will be received here until November 22, 1902. Information furnished on application. SPENCER COSBY, capt., engrs. 1403

ELECTRIC PLANT. [At Fort Monroe, Va.]
Engineer Office, U. S. A., Room 2, Custom-house Norfolk, Va. Sealed proposals for furnishing generator, engine, switchboard, boiler and chloride accumulator element for an electric plant at Fort Monroe, Va., will be received here until December 4, 1902. Information furnished on application. 1403

SANITARY WORK. [In Montevideo Harbor, Uruguay.]
Proposals are wanted by the Uruguayan government at Montevideo until December 15 for sanitary work in Montevideo Harbor. The work includes a rock tunnel, a main collector, a secondary collector, auxiliary collector, effluents, etc., plans and estimates for which can be had by applying to the Ministerio de Fomento, Montevideo. 1403

HEATING APPARATUS. [At Columbia, S. C.]
Sealed proposals will be received by the undersigned at Columbia, S. C., until December 15 for a new boiler and heating apparatus for heating and ventilating the State Capitol at Columbia, S. C. Plans and specifications must accompany bid. Information as to requirements can be obtained from the undersigned. M. R. COOPER, secretary of State. 1403

BUILDING. [At Portsmouth, N. H.]
Sealed proposals for brick and steel building will be received at the Bureau of Yards and Docks, Navy Department, Washington, D. C., until November 22, 1902, for reconstructing building No. 60, navy yard, Portsmouth, N. H. Estimated cost, \$65,000. Plans and specifications can be seen at the bureau or will be furnished by the commandant at the navy



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PROPOSALS.

yard named above upon deposit of \$15 to secure their return. MORDECAI T. ENDICOTT, chief of bureau. 1403

LAVATORIES. [At Fort Huachuca, Ariz.]
Denver, Col. Sealed proposals will be received here until November 29, 1902, for constructing two lavatories at Fort Huachuca, Ariz. Information furnished on application to Q. M., Fort Huachuca, Ariz., or the undersigned. LIEUT. COL. J. W. POPE, C. Q. M. 1403

PUMP AND BOILER HOUSES. [At Dover, N. J.]
U. S. Powder Depot, Dover, N. J. Sealed proposals will be received here until November 22, 1902, for constructing one one-story frame building for loading house and one one-story brick building for pump and boiler house. Bids will be received for all or part of foregoing. Information can be had on application to CAPT. O. B. MITCHAM, Ord. Dept., Comdg. 1403

BUILDINGS. [At Dover, N. J.]
U. S. Powder Depot, Dover, N. J. Sealed proposals will be received here until November 28, 1902, for constructing the four one-story brick and steel buildings, as follows: Magazine for high explosives, 50' x 150'; storehouse for fused projectiles, 50' x 200'; house for fuzing high explosive shell, 30' x 75'; detonating fuse house, 30' x 42'. Bids will be received for all or part of foregoing. Information can be had on application to CAPT. O. B. MITCHAM, Ord. Dept., Comdg. 1403

QUARTERS. [At Fort Riley, Kan.]
Bids will be received until November 25 for the construction of two double sets of non-commissioned staff quarters. CAPTAIN G. O. CRESS, quartermaster. 1403

DORMITORY. [At Berkeley, Cal.]
Bids are wanted November 22 for erecting a recitation and dormitory building, including plumbing, gasfiting, heating, etc. W. H. Weeks, archt., Watsonville. E. J. WICKSON, sec'y bd. of trus. of the California Polytechnic School. 1403

BUILDING. [At Boston, Mass.]
Sealed proposals will be received at the Bureau of Yards and Docks, Navy Department, Washington, until December 6, for constructing a brick and steel smithery building, navy yard, Boston, Mass. Estimated cost, \$130,000. Plans and specifications can be seen at the bureau or will be furnished by the commandant of the navy yard named upon deposit of \$25 to secure their return. MORDECAI T. ENDICOTT, chief of bureau. 1404

PUMPING ENGINES. [At Louisville, Ky.]
Sealed proposals for pumping engines will be received at the office of the Louisville water company, No. 549 Third St., Louisville, Ky., until December 20. All bids, whether for pumping engines, boilers or furnaces, must be for both 20,000,000 and 24,000,000 gallons, and also separate bids for boilers and furnaces to meet the requirements of the engines of both the respective capacities. Louisville Water Company. By CHARLES R. LONG, president. 1404

HIGH SCHOOL. [At New Prague, Minn.]
Sealed bids will be received by the undersigned for the erection and completion of a high school at New Prague, Minn., according to plans and specifications therefor prepared by H. C. Gerlach, Mankato, Minn. Said plans and specifications will be on file at the office of the undersigned, and at the architect's office. Bids will be received up to November 26, 1902, at the City-hall, New Prague, Minn. JOS. T. TOPKA, Sec'y B. O. E. 1403

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.

A true copy.

Attest: WM. H. SAYWARD,
Secretary, M. B. A.

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. . . CODE OF ETHICS . . .

Prepared in Conformity with the
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 Recommended to its Members by
 the Boston Society of Architects,
 was

ADOPTED BY THE SOCIETY, FEBRUARY 1.

. . . 1895. . .

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 draw-
 ings 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 altera-
 tions of a building designed by another archi-
 tect, 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, with-
 out 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 de-
 signs 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 draw-
 ings 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 Archi-
 tects' "schedule of charges" represents mini-
 mum 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 archi-
 tect 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 profes-
 sional education and render all possible help
 to juniors, draughtsmen and students.

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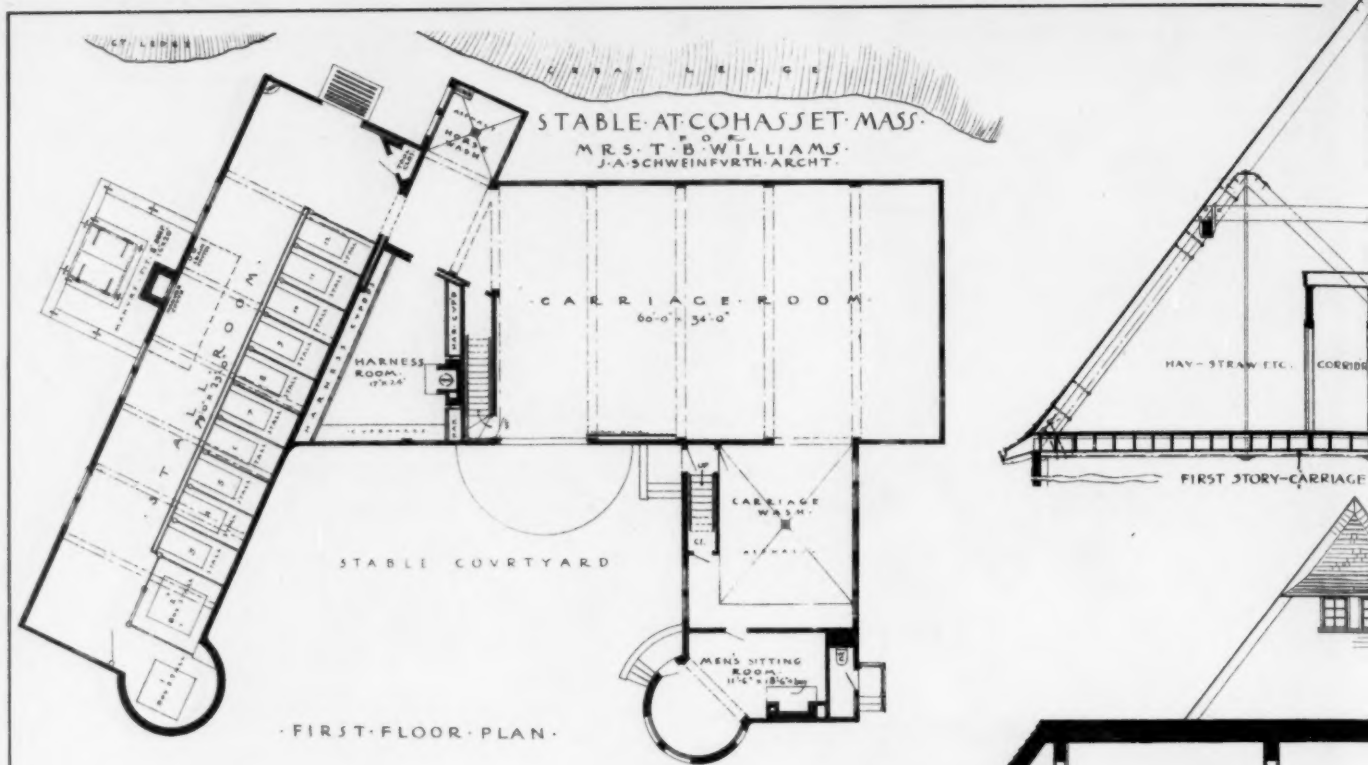
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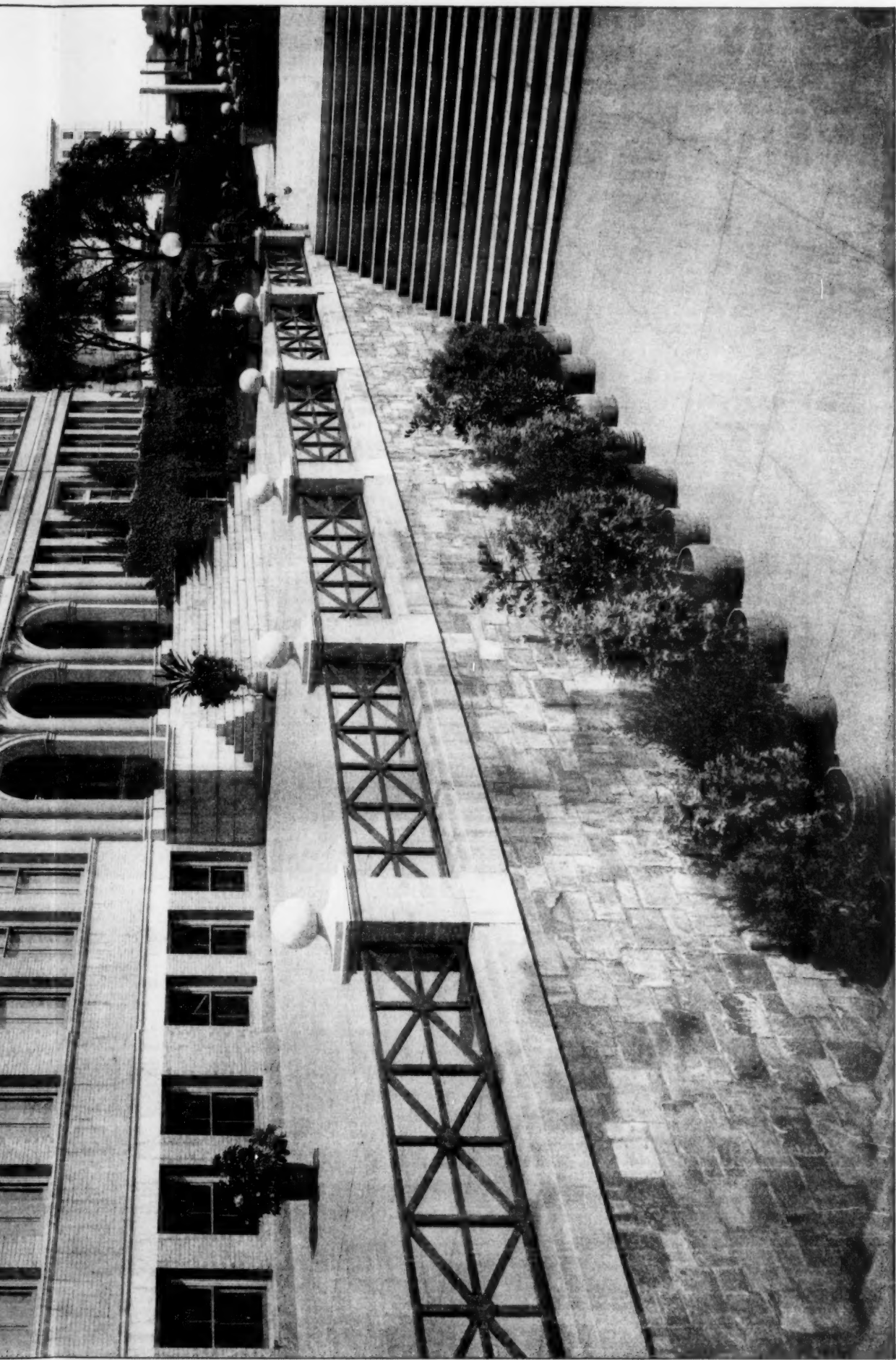
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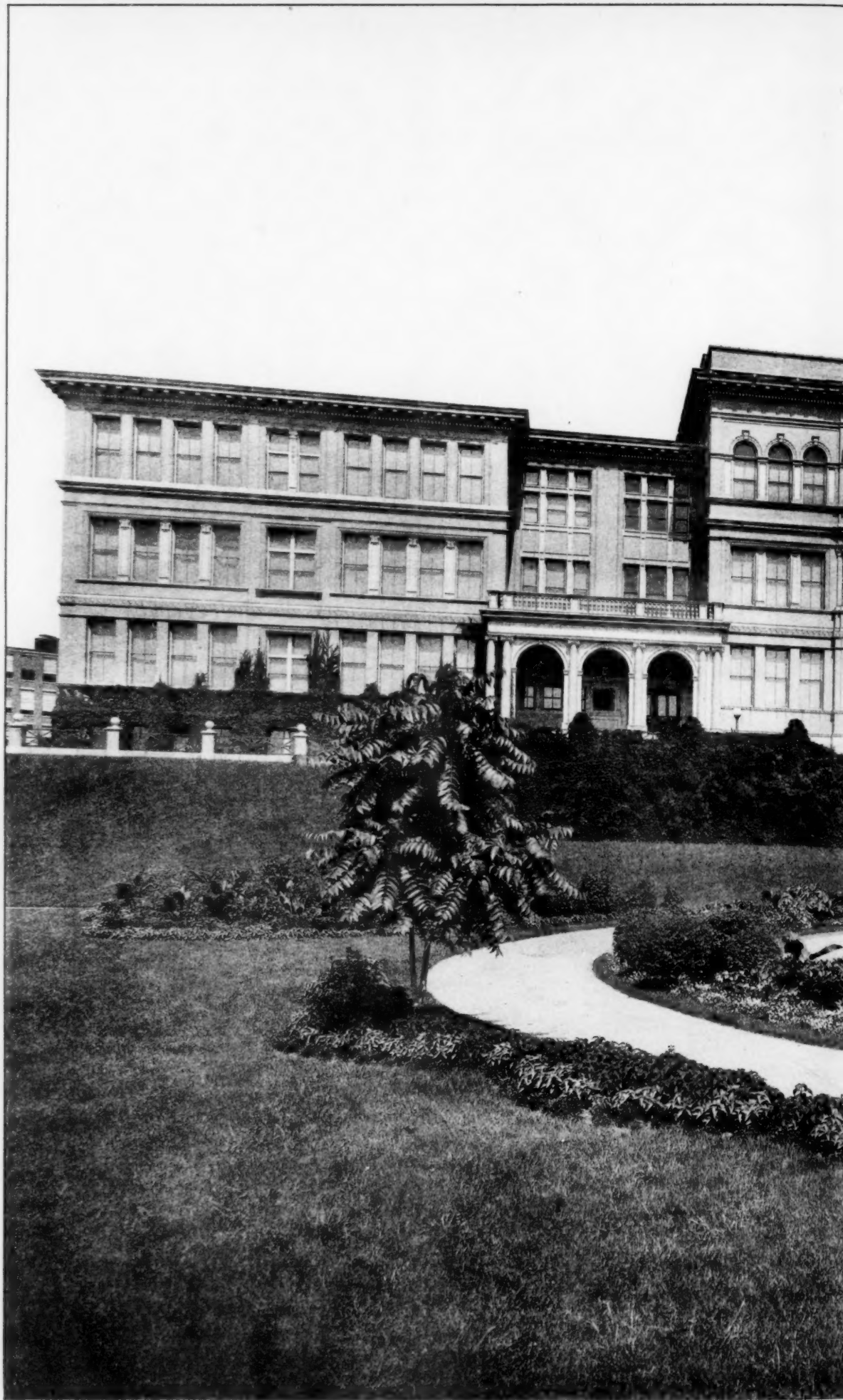




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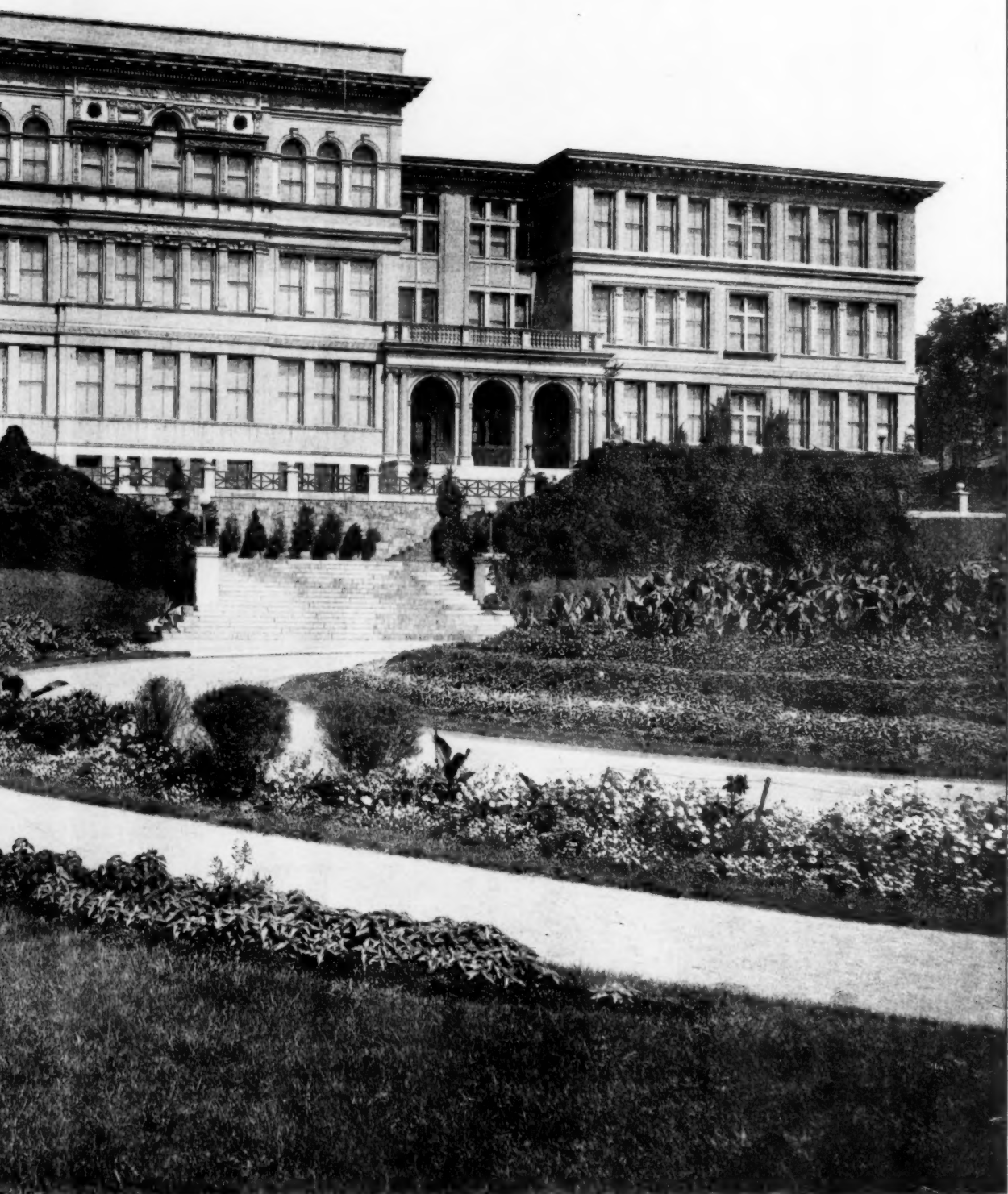
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