

## THE AMERICAN ARCHITECT AND BUILDING NEWS 1901

Vol. LXXV

SATURDAY, FEBRUARY 8, 1902

No. 1369



## SUMMARY:—

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THE United States Steel Corporation, which, like all the Morgan properties, reports its business clearly and fully to its stockholders, makes a very interesting statement of its recent operations. Its policy, as was promised at the beginning, has been, instead of forcing up prices, to hold them at a reasonable level, with the idea that consumption would be more encouraged by the prospect of stability in prices than by arbitrary fluctuations, even in the direction of reduced cost; and it is said that offers of more than the established prices, for quick delivery, have been refused, the Corporation preferring to treat all its customers alike, both as to delivery and price. This fair and honorable way of doing business has had its natural result, in a steady and large demand, which bids fair to continue. That prices are high there is no question, for, in the seaport cities, foreign structural steel is beginning to be imported in considerable quantities, in competition with the home product, although it has to pay a duty of more than a hundred per cent, besides the cost of transportation, interest and insurance. In fact, as Pittsburgh steel has been extensively sold in Europe in competition with that from the English and German mills, it is not at all impossible that some of the beams imported into Boston and New York may have been made in Pittsburgh, carried four thousand miles to London or Hamburg, brought four thousand miles back again, and sold here, including cost of transportation both ways, interest, insurance and charges, and about one hundred and forty per cent duty, for less than the same would cost sent directly from Pittsburgh. It is true that the difficulty of getting prompt delivery of iron from Pittsburgh, and the prevailing low rates of ocean freight, have probably something to do with the renewal of importations; but one can hardly avoid the reflection that the reduction of the duty on manufactured iron, which Mr. Babcock and his friends are trying to bring about, would mean an immediate shrinkage, to a corresponding extent, in the profits of the United States Steel Corporation.

IT is not impossible that the troubles which incapable sub-contractors inflict upon architects and owners, as well as upon principal contractors, may have had a considerable part in throwing the most important and profitable contracts in city work into the hands of great constructing firms or corporations, which offer to contract for a building of any size, complete and ready for occupancy, staking their reputation and their capital on the sufficiency of every branch of the work. It is currently reported in the building world that some, at least, of these corporations make enormous profits, at the same time that they give reasonable satisfaction to the owners and architects of the buildings which they carry out; and the reason of their success is to be found, in the opinion of most experts, in the control which they exercise over their subordinate contractors, who work, as a rule, only for them, and are, consequently, ready to do what they are called upon to do at the time, and in the manner, required of them. After an

owner has had one experience of the waiting for one sub-contractor after another, and the endless attempts to fix the responsibility for carelessness or bad workmanship, which form the usual accompaniment of building-operations, he is ready to turn with open arms to a contractor who does every part of the work with his own men; and it is not surprising that people of great executive ability, with sufficient capital, should have found advantage in the more comprehensive method of carrying on building business.

AN extraordinary piece of dictation by a labor union is reported from Chicago, where the members of the Coal Teamsters' Union have received orders not to deliver coal to any building where fuel-gas is used during any part of the year in any way. Several teamsters, with coal to deliver, are said already to have driven off with their load on seeing signs of the use of gas in the buildings to which they had been sent. Chicago has already been brought near ruin by union methods, and a greater misfortune could hardly befall the city than a public demonstration of this kind that the tyrants are endeavoring to gain control of its industries again; but it is to be hoped that the contest, which will assuredly follow such a preposterous manoeuvre, may be short. It is not denied that the scheme for forcing the people of Chicago to give up the use of fuel-gas was concocted by the officials of the Teamsters' Union in consultation with some, at least, of the great coal-dealers. What return the latter have made, or promised, for the amiable assistance of the unions in promoting the sale of their goods is not stated, but it is not impossible that the facts may be brought out before a court. It is fair to say that we do not believe that all, or even the greater part, of the Chicago coal-operators would stoop to such methods of pushing their business; but it is obvious that the same sort of coercion which is supposed to be valuable in compelling the use of coal in place of gas would be equally available for compelling the use of the particular sort of coal furnished by the friends of the unions. The example of the window-glass trust has shown how effectively the workmen's unions can be used for crushing competing manufacturers, and the demoralization produced by the success of monopoly and coercion in business is so great that we need no longer expect to find any scruples shown as to the means by which control is to be obtained.

A STONE arch of nearly three hundred feet span has just been completed, to connect the beautiful old walled city of Luxemburg with its suburbs. The ancient town stands on a plateau bounded on three sides by almost perpendicular cliffs, more than a hundred feet high, and, after these cliffs had been crowned by Vauban with a fortified wall, Luxemburg was regarded as the strongest place in Europe. Its known strength probably preserved it from assault during the stormy times which followed, and, in 1867, it was peacefully made independent, by agreement of the Powers, and, at present, belongs to the young Queen of Holland, who is also, by inheritance, Grand Duchess of Luxemburg. Like all the other Continental cities, Luxemburg has flourished greatly during the last thirty years of peace, and an extensive suburban quarter has grown up outside the walls. As the new quarter is, however, separated from the old town by a deep valley, it has been necessary to establish communication by some means more convenient than a zigzag path down one cliff and up another; and, some years ago, a fine stone viaduct was constructed. This has now become inadequate, and, a second one being found necessary, M. Séjourné, the distinguished Chief Engineer of the Paris, Lyons and Mediterranean Railway, who was employed by the Grand-Ducal Government, conceived the bold idea of spanning the valley by a single stone arch, by far the widest ever built.

LE GÉNIE CIVIL, which gives an interesting account of the construction of the arch, compares it with the other most important works of the kind. The clear span is two hundred and seventy-seven feet, which is nearly sixty feet greater than that of the Cabin John Bridge, in the District of Columbia, until now the widest stone arch in the world. Bold as the construction is, it has been carried out with great economy. The centring, which was designed by M. Séjourné,

consisted, substantially, of a lattice arched girder, tied with wire ropes, and stiffened by a latticed pier in the middle. For the purpose of facilitating the construction, a wooden temporary bridge was built directly over the intended arch, supported by seven latticed towers, and a track was laid on the temporary bridge, so that materials could be brought directly over any part of the arch where they might be wanted. This device was particularly advantageous in permitting the masonry to be carried on simultaneously over every part of the centring, so as to prevent the deformation of the latter by unequal loading, and it proved very successful as a means of economizing labor. The arch was built in three concentric half-rings, or "rowlocks," each rowlock being divided into ten sections by temporary wedges, so arranged that, after the centre was lowered, the wedges could be replaced by permanent arch-stones. The object of this was to preserve a certain elasticity in each ring, so that the settlement, which, with every large masonry arch, follows the striking of the centre, instead of opening the joints, or causing fissures in the masonry, should be taken up by the intervals between the sections, and the subsequent filling of these with stone would leave the arch perfect. It may be observed that the disposition of the arch in three rowlocks would also tend to give it elasticity, and enable it to yield slightly to settlement without fracture, but the idea of carrying out such a construction in three rings of comparatively small stones, instead of making it of a single row of voussoirs of such enormous depth that the curve of pressure could not by any possibility find its way out of the middle third, is rather startling. The result, however, seems to have justified M. Séjourné's reasoning, for the striking of the centre was followed by no alarming result whatever. The completed viaduct is to be fifty-two feet wide, but M. Séjourné reflected that a large sum could be saved in the cost of centring, and a certain additional flexibility secured in the whole structure, by building it of two arches, exactly similar, standing side by side, but connected only by a slab of concrete at the top, forming the roadway. The second arch has not yet been built, but the centring, removed from the first one last October, is ready for setting in its new place, where, as soon as the weather will permit, it will be used for the construction of the second arch.

**A** CURIOUS story, which may be true, is told about the work which the Westinghouse Electric Company has been doing in England, where it has erected immense shops, at a cost, it is said, of seven million dollars. Before the buildings were begun, bids were invited from English contractors, who set, on an average, five years for the shortest time within which they could be completed. The Westinghouse Company did not like the idea of waiting five years for its shops, and concluded to do the work itself, "on American principles." The agents of the Company bought materials and hired workmen, and the consequences of applying "American principles" to the undertaking was that the shops were completed and ready for use in less than one year from the time the work was begun. Among other things, the speed of British bricklaying failed to please the Westinghouse managers, and, although they held a preliminary conference with the official of the bricklayers' union, and agreed to pay ten per cent more than the union wages, they said plainly that they would not be satisfied with the union standard of four hundred and fifty bricks per day, and would require their men to work according to their capacity. With this view, they appointed inspectors, who made regular returns of the amount of work accomplished by each man. The elimination of the slowest and laziest men through this system produced a wonderful effect on the others, and in a very short time the average day's work of the bricklayers was nine hundred bricks per day. Even this, however, did not satisfy "American principles," and, the same sort of encouragement being continued, it was not long before every bricklayer on the job laid at least eighteen hundred bricks a day, while some, on plain work, laid twenty-four hundred. How the apostles of the "living wage," the "dignity of labor," and the rest of the fine things about which we hear so much, could have looked on in silence at such undignified proceedings as these we cannot understand, and it is not likely that such revolutionary performances will be permitted again in union-ridden England; but, in the meanwhile, all the workingmen, contractors and manufacturers in Great Britain have received a new idea, which may ultimately be of more value to them than the frantic howlings about American and German competition with which they have so long entertained the rest of the industrial world.

**T**HIS story about the success of the Westinghouse Company in getting an honest day's work out of union bricklayers in England is confirmed by a letter to the *London Times*, which says that English bricklayers, where they can escape the eye of the spies of the unions, easily lay two thousand bricks a day, and do the work well, while, as soon as the spy makes his appearance, the men, instead of working steadily and faithfully as before, take up a brick, turn it around two or three times, and lay it down, then take up another and repeat the process, and finally, perhaps, decide to lay a third. In this way it is quite easy for them to reduce their efficiency to the union standard of four hundred and fifty bricks per day, and thus avoid the terrible penalties which the union visits on offending members. Where the unions have succeeded in getting political control of work, as is the case with that executed for the London County Council, which not only employs union men exclusively, but pays them by the day, the inefficiency of the men is positively ludicrous. Many a bricklayer, when working for the London County Council, that is, for the taxpayers of the city, lays, on an average, from one hundred and fifty to two hundred and fifty bricks a day. It is not surprising that the public work of the city, which the union members of the County Council had the effrontery to claim would be more cheaply done in the way that they recommended, cost, in some cases, more than twice as much as responsible contractors, even working with union labor, stood ready to do it for. The *Times'* contributor, who is by no means unfriendly to the unions, and still less to their members, thinks that the condition of British industry is beginning to bring the "friends of the toilers" to their senses, and he mentions a case where some members of a bricklayers' union, who had complained to the officials of a foreman who "badgered" them to work more efficiently than the union rules approved, were severely reprimanded, confronted with the foreman, and made to apologize to him, while he was commended for having done his duty in obliging the men to do a fair day's work.

**A** GOOD citizen and an intelligent King have quietly undertaken a work of great importance in England. Sir Ernest Cassel, who has before shown a most generous public spirit, on leaving England a few weeks ago for India, put in the hands of King Edward the sum of two hundred thousand pounds, to be expended for such charitable purposes as he might choose. It seems that the King has for a long time been interested in the open-air treatment of tuberculosis, now so firmly established on the Continent, and slowly gaining a foothold in England and in this country, and has decided that no better disposition could be made of Sir Ernest Cassel's money than to use it for providing new sanatoria, where the new treatment may be applied in the most efficient manner to at least a small portion of the multitudes of people who would be benefited or cured by it. It may be observed that, although the Germans possess by far the largest number of these open-air sanatoria, and are entitled to the credit, not only of having first arranged them systematically and efficiently, but of having greatly improved them, the French, with their usual skill in planning, have, within the last two or three years, constructed some admirable establishments; while the Swiss, who have for centuries seen consumptives flocking to the dry air of their mountain resorts, are very little behind. In England, although it is only seven or eight years since the publication of Dr. Burdett's work on hospitals, in which he mentioned the accepted theory of the period, that tuberculous patients should be kept in an even temperature, and protected against draughts of air, several good private sanatoria have been built on the new system; and there are, in this country, a few successful establishments. The experience of all of these will furnish something toward the development of the art of curing the most destructive of all diseases, and, if the King's advisers make use of the information now available, as they undoubtedly will, the noble Cassel gift may be of incalculable benefit to humanity.

**T**HE new Superintendent of Buildings in New York has sent a letter to the President of the Borough of Manhattan, suggesting that the so-called "sky signs," many of which are placed on the roofs of buildings, should be absolutely prohibited. They are so prohibited in England, and the danger, as Mr. Stewart says, that they may blow off and injure people in the streets is so great that they should not be suffered. He makes, moreover, the sensible suggestion that the care and inspection of them should be transferred from the Department of Buildings to the Bureau of Incumbrances, where they obviously belong.

NOTES ON IRON AND STEEL CONSTRUCTION.<sup>1</sup>—III.

HAVING observed the properties, or values, possessed by column and beam sections, it is now in order that the application of these values in practical formulas be demonstrated. Before treating this consideration, however, it is necessary to go somewhat more extensively into the calculations for determining the bending-moment of beams.

This term, as it signifies, is simply the expression of the amount of stress exerted at any point in the length of a beam by the loads upon it. The latter part of the term indicates that the force producing bending is not a direct force, but is a moment of a force; that is, the resulting value obtained when a force acts at a particular point through a lever-arm. For instance, at *A* in Figure 7 the moment of the force *a* is equal to the value of *a* multiplied by the length of the lever-arm and is in this case equal to 300 pounds  $\times$  5 feet, or 1,500 foot-pounds, while at *B* the moment about *c* is equal to the

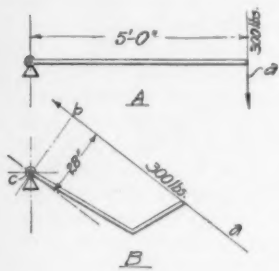


Fig. 7.

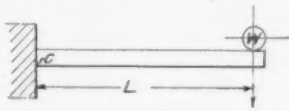


Fig. 8.

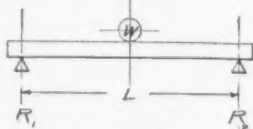


Fig. 9.

value of the force *a* multiplied, not by the length of the lever-arm, but by the distance *bc*, and is, consequently, equal to 300 pounds  $\times$  28 inches, or 8,400 inch-pounds. In this last instance it will be noticed that the distance *bc* is equal to the perpendicular distance from the point *c*, or the centre-of-moments, to the line of action of the force *a*. From this it is clear that the moment of any force about any point is equal to the product of the force by the perpendicular distance from the line in which the force acts.

From the two examples just given it will be observed that the bending-moment, or the resultant obtained by multiplying the lever-arm by the force acting at its end, is given neither in units of weight nor length, but in a combination of both, and in whatever unit of length the lever-arm is given, and used as a multiplier, the result must contain this unit in the combined term. So it is that the bending-moment may be expressed either in inch-pounds or foot-pounds, just as the lever-arm is considered. In fact, the bending-moment in plate-girders is often expressed in foot-tons. The values are usually taken in pounds and inches when wooden or steel beams are being considered, and in pounds and feet when a plate-girder is under discussion, the reason for the latter being shown in that portion of the article relating to girders.

By applying these simple principles the usual formula for determining the maximum bending-moment in a cantilever,

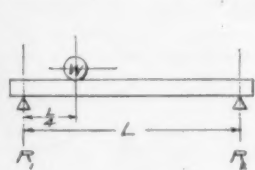


Fig. 10.

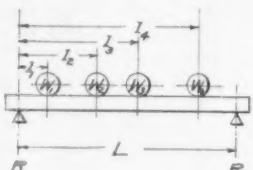


Fig. 11.

that is, a beam supported at one end, is readily evolved. Assume the conditions expressed in Figure 8, and by the principles of moments determine the bending-moment at the point *c*, at which position it is always maximum in a cantilever. The load equals *W*, and the lever-arm equals *L*, consequently, the maximum bending-moment, or *M*, about *c*, equals *WL*—or, as it is usually written,  $M = WL$ .

In calculating the bending-moment on any simple beam resting upon two supports, the reactions, or upward thrusts, at the ends must first be determined. The usual method of making the calculations for determining these reactions employs the principle of moments as described. In Figure 9 the beam is supported at both ends, and the reactions, or upward thrusts, at

each end of the beam are designated as *R*<sub>1</sub> and *R*<sub>2</sub>, while the load, which is central, is designated as *W*. Since the load *W* is located at the centre of the span, the amount of *R*<sub>1</sub> and *R*<sub>2</sub>

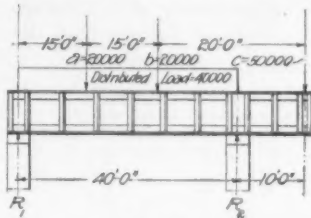


Fig. 12.



Fig. 13.

is equal in each case to  $\frac{1}{2} W$ , or  $\frac{W}{2}$ . If the load *W* had been placed as designated in Figure 10 so that it is one-fourth the length of the span from the left-hand support, or *R*<sub>1</sub>, the farther reaction will amount to one-fourth the entire load on the beam, or  $\frac{W}{4}$ , while the nearer reaction will be equal to the difference between *W* and *R*<sub>2</sub>, or three-fourths the load. A fixed law may be evolved from this analysis, which is, that *R*<sub>2</sub> will always be equal to the sum of the moments of all the loads about *R*<sub>1</sub>, as the centre-of-moments, divided by the span of the beam, or the distance between *R*<sub>1</sub> and *R*<sub>2</sub>.

In Figure 11 the beam is loaded with the four loads *W*<sub>1</sub>, *W*<sub>2</sub>, *W*<sub>3</sub> and *W*<sub>4</sub>, which are located at distances from *R*<sub>1</sub> equal respectively to *l*<sub>1</sub>, *l*<sub>2</sub>, *l*<sub>3</sub> and *l*<sub>4</sub>; the reaction *R*<sub>2</sub> may, therefore, be expressed by the following:—

$$R_2 = \frac{W_1 l_1 + W_2 l_2 + W_3 l_3 + W_4 l_4}{L}$$

Besides the foregoing principle, the upward reactions, in order that any beam may be in equilibrium, must equal the downward loads; consequently, if one reaction is determined, the other may be found by subtracting the known reaction from the sum of the loads. This equation may be expressed algebraically as  $W = R_1 + R_2$ .

When it is required to determine the reaction of a beam loaded with a uniform load, the leverage, or moment of the load, is always considered as the distance from the one reaction, which is the centre-of-moments to the centre-of-gravity of the uniform load. A practical example may tend to make these principles clear, so the following is taken: A plate-girder of the dimensions shown in Figure 12 is loaded as designated, with concentrated and uniform loads, the problem being to determine the reactions, or *R*<sub>1</sub> and *R*<sub>2</sub>.

Let *R*<sub>1</sub> equal the centre-of-moments; then the moments of the several loads about this point will equal

|               |                              |                        |
|---------------|------------------------------|------------------------|
| Uniform load  | = 40,000 $\times$ 20 =       | 800,000 foot-pounds.   |
| Load <i>a</i> | ..... = 20,000 $\times$ 15 = | 300,000 foot-pounds.   |
| Load <i>b</i> | ..... = 20,000 $\times$ 30 = | 600,000 foot-pounds.   |
| Load <i>c</i> | ..... = 50,000 $\times$ 50 = | 2,500,000 foot-pounds. |
| Total         | ..... =                      | 4,200,000 foot-pounds. |

And  $4,200,000 \div 40 = 105,000$  pounds, which is the amount of the reaction *R*<sub>2</sub>. Since the sum of the loads, therefore, must equal the sum of the reactions, and as the sum of the loads in this case equals 130,000 pounds, and as *R*<sub>2</sub> equals 105,000, *R*<sub>1</sub> must equal  $130,000 - 105,000$ , or 25,000 pounds.

The principles for finding the reactions, just explained, are largely employed in calculating the reactions at the ends of beams and girders employed in a riveted structure, so that the connections may be designed, and in determining the pressure coming upon a pier or abutment from a beam or girder when

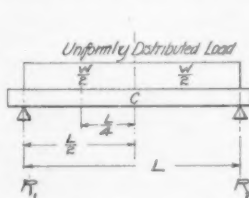


Fig. 14.

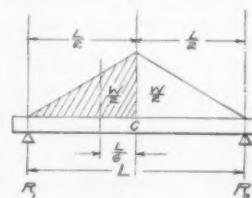


Fig. 15.

the loads are unequal or not symmetrically placed. It is necessary also to determine the reactions before the bending-moment can be figured, as will be explained.

<sup>1</sup> Continued from No. 1360, page 21.

When a beam is subjected to transverse or bending stress the loads act in a downward direction around any point in the beam with a moment equal to their amount by their distance from the point in question, while the reactions act in an upward direction with moment equal to their distance from the

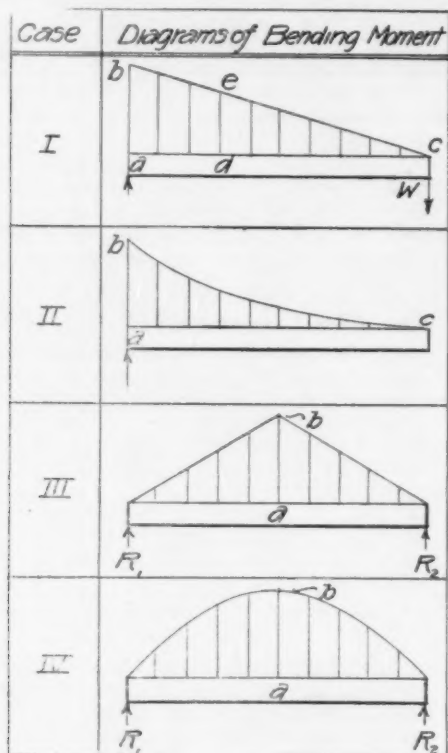


Fig. 16.

same point, or centre-of-moments. Figure 13 makes this clear by the graphical representation of the several loads and reactions acting in opposite directions about the point *c*.

In Figure 9 the load *W* is shown supported at the centre of the beam with a span equal to *L*. The reaction *R*<sub>1</sub> in this figure is equal to  $\frac{W}{2}$  and the moment of *R*<sub>1</sub> about *W* is equal to  $\frac{L}{2}$ ; consequently, the bending-moment at *c* is equal to  $\frac{W}{2} \times \frac{L}{2}$ , or  $\frac{WL}{4}$ , which is the usual expression for the bending-moment of a beam supported at both ends and sustaining a concentrated load at the centre of the span.

The formula for the bending-moment for the beam loaded with a uniform load as shown in Figure 14 may be likewise determined. For instance, let *W* equal the uniform load; then *R*<sub>1</sub>, as before, equals  $\frac{W}{2}$ , and the lever-arm of *R*<sub>1</sub> about *c* equals  $\frac{L}{2}$ ; in consequence, the moment of *R*<sub>1</sub> about *c* equals  $\frac{W}{2} \times \frac{L}{2}$ , or  $\frac{WL}{4}$ ; but the half of the uniform load to the left of *c* opposes the upward moment of the reaction *R*<sub>1</sub>, with a leverage equal to  $\frac{L}{2}$  divided by 2, or  $\frac{L}{4}$ , and the opposing moment equals  $\frac{W}{2} \times \frac{L}{4}$ , or  $\frac{WL}{8}$ ; then deducting from  $\frac{WL}{4}$  the moment of *R*<sub>1</sub>,  $\frac{WL}{8}$ , the opposing moment of the load, the result becomes  $\frac{WL}{8}$ , which is the formula for a uniformly loaded beam. The general statement that the bending-moment is equal to the algebraic sum of the moments due to the external forces acting on the beam is true of any beam.

It is not uncommon for a beam to be loaded with a triangular load, and the determination of the formula for finding the maximum bending-moment is quite as simple as those explained in the two previous examples. Figure 15 shows a beam or girder supporting a triangular load, such as would require the support of a beam or girder over an opening in a brick or stone wall. In this case the reaction *R*<sub>1</sub> equals  $\frac{W}{2}$ , and

the moment of the reaction about the centre *c* of the beam is equal to  $\frac{W}{2} \times \frac{L}{2}$ , or  $\frac{WL}{4}$ . The centre-of-gravity of the triangular load as section lined and which acts with a moment negative, with respect to the moment of *R*<sub>1</sub> about *c*, is located at a distance of one-third of the half-span, or  $\frac{L}{6}$  from the centre *c*. The downward moment of the load about the point *c*—that is, the negative moment with reference to the reaction *R*<sub>1</sub>—equals then  $\frac{W}{2} \times \frac{L}{6}$ , or  $\frac{WL}{12}$ , and the maximum bending-moment which occurs at the centre of the girder equals the algebraic sum of the positive moment of *R*<sub>1</sub> about the point *c* and the negative moment of the half load about the same point, which may be expressed as  $M = \frac{WL}{4} - \frac{WL}{12}$ , or, simplified,  $M = \frac{WL}{6}$ .

It is seldom necessary to determine the bending-moment at different points in the length of a girder, but where such is the case a graphical solution is probably the most convenient, and at least shows clearly the action of the loads upon simple beams.

Take, for instance, the simplest case of loading, Case I in Figure 16. Here the bending-moment  $M = WL$ ; then the distance *ab* is laid off equal, by any scale, to the bending-moment *M* in foot-or inch-pounds, as the case may require. From the diagram the bending-moment may be obtained at any point throughout the length of the beam by drawing the line *bc* and scaling the ordinate at the point in question; that is, if the bending-moment is required at the point *d*, measure the ordinate *de* with the same scale used in measuring *ab*, and the bending-moment at the point in question is readily obtained. In Case II, which shows a cantilever beam loaded with a uniformly distributed load, the bending-moment is represented graphically by the parabola *bc*; *ab* as before is laid off equal to the bending-moment, which is obtained algebraically by the principle of moments as previously described, and is equal to  $\frac{WL}{2}$ . From the length of the several ordinates, the bending-

moment at the several points throughout the length of the cantilever may be obtained.

Likewise in Case III, the bending-moment on the beam supported at both ends, and loaded with a concentrated load at the centre, is represented in its action throughout the length of the beam by the triangle which has for its ordinate the distance *ab* made to represent by scale the bending-moment at the centre of the span, and for its base the length of the span.

Where the beam is uniformly loaded, as designated in Case IV, the uniformly distributed load upon the beam supported at both ends is always represented graphically by the parabola which has the distance *ab* for its greatest ordinate, and which equals to scale the maximum bending-moment, or  $\frac{WL}{8}$ . The

fact that a uniformly distributed load on a girder can be represented in this way is valuable in the design of plate-girders, for upon this principle is founded the graphical method of determining the length of the several flange-plates, and, indeed, a similar means of determining the rivet-spacing in the flange-angles may be employed. These several applications of this principle will be given under the subject of plate-girders.

As may have been observed, the bending-moment on any beam varies, and attains its maximum value at some point usually determined by trial. The point of greatest bending-moment is always at the point where no shear occurs on the beam.

The loads on a beam act in an opposite direction to the reactions, and the tendency of these opposing forces to shear through the section of a beam is called "shear." The greatest shear on a beam occurs at the abutment at which the greatest

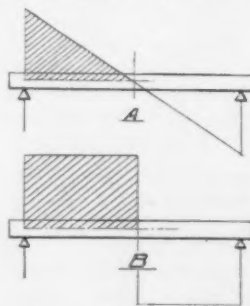


Fig. 17.

reaction takes place. Where a beam is uniformly loaded the shear is greatest at the reactions, and diminishes uniformly to the centre, where it is zero, but where a beam is loaded with a single concentrated load at the centre, the shear is uniform throughout the girder, and is equal to one-half of the concentrated load, or the amount of one of the reactions. These two

conditions prevailing under the different systems of loading are clearly shown in Figure 17 where at A is designated graphically the effect of the shear and its uniform variation from the

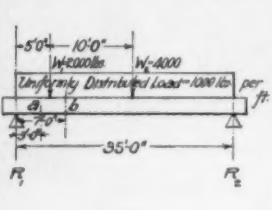


Fig. 18.

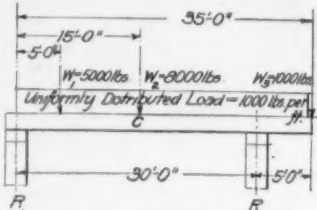


Fig. 19.

abutment to the centre, while at B is designated the uniformity of the shear throughout the beam.

The shear at any point throughout the length of a beam, no matter how loaded, is equal to the algebraic sum of the loads and the reactions. That is, the shear at any point is equal to the reaction at either abutment minus the sum of all the loads supported upon the beam between that reaction and the point in question. With reference to Figure 18, the reaction  $R_1$  equals 21,500 pounds; the shear at point a equals 21,500 pounds minus 3,000 pounds, which is the uniform load to the point in question, or 18,500 pounds; the shear at b on the beam in question is equal to 21,500 pounds minus 7,000 pounds, the portion of the uniform load from the abutment to the point b, plus the concentrated load  $W_1$  of 2,000 pounds, or 12,500 pounds.

If this subtraction of the loads was continued the reaction  $R_1$  would finally be absorbed and the shear would equal zero—that is, it changes from a positive to a negative quantity, and the shear is said to change signs. At this point, where the shear equals zero, or where it is said to change signs, exists the greatest bending-moment. When the beam supports a

which, together with the loads lying between it and the abutments, equals or exceeds the amount of the reaction. For example, the beam shown in Figure 19 overhangs one of the supports, and is loaded with a uniformly distributed load and several concentrated loads. The reaction  $R_1$ , considering the moments about  $R_2$ , is calculated as follows:—

Moment of uniform load =  $35 \times 1,000 \times 17.5 = 612,500$   
Moment of  $W_1$ ..... =  $5,000 \times 5 = 25,000$   
Moment of  $W_2$ ..... =  $8,000 \times 15 = 120,000$   
Moment of  $W_3$ ..... =  $1,000 \times 35 = 35,000$   
Summation of moments..... = 792,500

and  $R_2$  equals  $792,500 \div 30$ , or 26,416 pounds, and  $R_1$  equals the sum of the loads, or 49,000 minus 26,416, or 22,584 pounds. Taking  $R_1$ , then, at this figure, it is evident that the loads up to and including  $W_1$  will not absorb it entirely, but that the load to and including  $W_2$  will be more than sufficient, as they will amount to 15,000, the uniform load plus  $W_1$  and  $W_2$ , respectively, of 5,000 and 8,000 pounds, or 28,000 pounds; under the load  $W_2$ , therefore, will the greatest bending-moment take place. It is, consequently, necessary to determine the negative and positive moments about the point c directly under the concentrated load  $W_2$ . The moment of the reaction  $R_1$ , or the positive moment, as it may be called, equals  $22,584 \times 15$ , or 338,760, while the negative moment, as the sum of the moments of the loads between c and  $R_1$ , about c or  $W_2$ , may be called, is found to equal

$15,000 \times 7.5 = 112,500$   
 $5,000 \times 10 = 50,000$   
or, 162,500

so that the greatest bending-moment is the difference between the negative moments of the loads about c and the positive moment of  $R_1$  about the same point, or  $338,760 - 162,500$ , which gives 176,260 foot-pounds, the greatest bending-moment on the beam, and the desired result.

By these means the bending-moment of any girder may readily be determined, and the shear, likewise, at any point, obtained. Through the table entitled "Table of Formulas for Bending-moments," the transverse stress upon any simple beam may be conveniently calculated.

M. M. SLOAN.

[To be continued.]

THE DEPARTMENT-STORE RISK.

FROM a paper in the *Chronicle* by Messrs. De Lemos and Cordes, architects, of New York, we make the following interesting extract:—

"Taken all in all, the department-stores, individually and as regarding fire-insurance risks, may be said to be practically in a class by themselves. The schedules of the New York Fire-insurance Exchange cannot reasonably and to the full extent be applied to such huge structures, and, therefore, contingencies of construction that would cause a given increase or decrease of insurance-rates in ordinary sized buildings do not always cause the same effect in such cases. Clear and concise, though probably not always logical, as the schedules are where buildings of ordinary size are concerned, varying circumstances will modify or even increase the rigor where such exceptional fire-risks are to be encountered. Therefore, the architect has to exercise good judgment and great care in planning his building so as to meet the necessary conditions of occupancy and the very important factor of saving on insurance-rates both to building and merchandise. It will thus be of advantage to combine stairways and elevators at their various locations and to surround them and a hallway in front entirely with iron framework, plaster, and wire plate-glass partitions. The plate-glass will not obstruct the view, and the plaster surfaces of the partitions will be provided near the ceiling, serving as a fire-screen. All can be handsomely developed and ornamented so as to look attractive and cheerful, at the same time giving full security against spread of fire, and having the further great advantage that each stairway is a perfect and safe fire-escape. Facings of marble or metal may be substituted for the plastered surfaces. The doors leading into the hallways should be fireproof and close automatically. Rolling shutters, to be used at night, should be provided in addition.

"It will be found that the rear end of such buildings will have to be given up to receive and ship goods, to house and take care of the employes, to place the large stacks serving the purpose of heating and ventilation; therefore, it will suggest itself, if possible, to separate this portion of the building from the main building by fireproof walls and fireproof doors. The advantage is, that the area of fire-spread is effectually reduced and thereby the fire-risk is substantially lessened. At the same time it is a most perfect fire-escape either way on each floor to the public and employes by permitting the people to descend in safety the stairways in a separated building not affected by smoke or fire. The large freight-elevators, conveyors for merchandise, dumb-waiters, and similar apparatus, which would naturally be

| Table of Formulas for Bending Moments  |                                                                                          |                     |
|----------------------------------------|------------------------------------------------------------------------------------------|---------------------|
| Method of Loading<br>Lengths in inches | Bending Moment<br>Inch-Pounds                                                            | Reactions<br>Pounds |
|                                        | $WL$                                                                                     | $W$                 |
|                                        | $\frac{WL}{2}$                                                                           | $W$                 |
|                                        | $\frac{WL}{4}$                                                                           | $\frac{W}{2}$       |
|                                        | $\frac{WL}{8}$                                                                           | $\frac{W}{2}$       |
|                                        | $\frac{WL}{6}$                                                                           | $\frac{W}{2}$       |
|                                        | $\frac{Wa}{2}$                                                                           | $\frac{W}{2}$       |
|                                        | At either support<br>$\frac{Wa}{2}$<br>At center of span<br>$\frac{W(a-\frac{L}{2})}{2}$ | $\frac{W}{2}$       |

number of concentrated loads, or an uniformly distributed and a number of concentrated loads, the shear usually changes signs under one of the concentrated loads. At this point the greatest bending-moment occurs, and the particular load is the first one

located in this part of the building, should all be inclosed in fireproof walls or partitions, and have solid or kalamined iron doors.

"A great difficulty is always encountered in large establishments in providing proper and convenient access and egress to lunch-rooms and lockers for the great number of employes. The most economical place generally appears to be on the top floor, which, however, in large establishments, is not advisable, embodying, as it does, a great danger in case of fire. Besides, as all employes come and leave at the same time, it is almost impossible to provide for adequate elevator facilities. Supposing there were 4,000 employes and four elevators accommodating forty people each; figuring four minutes for a round-trip, say, of 135 feet travel, it would require twenty-five trips for each elevator, or one hour and forty minutes, to move this number of people either way. Coming and going in the morning and evening and, figuring only one return trip for taking lunch, would be four trips for each person. This represents 100 trips for each elevator or 400 trips for one elevator, equal to a travel of 54,000 feet, or an energy equal to lifting 2,000,000 pounds 135 feet high. In figuring the financial side of this question, aside from the almost insurmountable practical objections, it will be seen that the best results will be obtained by providing the necessary space in an annex or sacrificing the required space on one of the lower floors, which could be reached without the use of elevators, by means of commodious stairs provided for the purpose; at the same time reducing the risk in case of fire to a minimum.

"A necessary provision in all large stores is the arrangement of two waste chutes, which convey all refuse from the various floors to a fireproof inclosed room in the basement or cellar—one for paper, cardboard, etc., to be sold, and the other for refuse to be burned. As all this refuse is highly inflammable, consisting mostly of paper, broken boxes, or similar matter, especial care is needed to prevent the spread of fires through these chutes. Therefore, in every story a receiving-box of boiler-iron, with double iron trap-doors, should be provided, connecting with a main shaft constructed of brick, preferably of boiler-iron, forming the chute. These trap-doors are balanced so as to open and close automatically as soon as the waste has been dropped into the box, and in such manner that, as one door is opened, the other door closes. Arriving at the basement or cellar, the refuse is conveyed thence to the boilers and cremated or otherwise disposed of as stated. The chutes themselves are located within a suitable fireproof inclosed closet with self-closing doors.

"Whether the floors themselves, as they are to be placed on the fireproof-floor arches of concrete or ash-filling, consist of wood or of tile (mosaic) or other material will make little difference as to the fireproof character of the construction. The finished floor is in any case placed on a solid foundation of concrete or other fireproof filling-material, not permitting any air to circulate underneath, and, therefore, making it improbable that a wood floor could be exposed to fire to any dangerous extent. There are several patent compositions offered, such as alumin, asbestolith, lignolith, and others, as substitutes for wooden flooring. For all of these, fire-resistance is claimed. As a matter of course, all woodworks, such as window-casings, baseboards, and door-trimmings, will necessarily be reduced to the least possible limit, or where, for appearance sake, wainscotings or similar decorative finish is to be employed, the same will be of marble, slate, metal, or fireproof wood.

"The location and insulation of the boiler-room, engine-room, of the electric, heating and ventilating machinery, with all their numerous ducts and complicated system of piping, fitting and wiring, are a further subject for careful consideration. That part of the building which is to receive this extensive, complicated, and costly plant must be also completely separated by fireproof walls, and all duct or similar work carrying heated air, electric mains, and steam or hot-water pipes, where passing into the various floors of the building, must be carefully insulated and protected against fire or against spreading or originating fire.

"As to the construction of the façades of the building, the material to be selected is of slight consequence where the building is of the steel-framed type. It is actually not much more than a veneer incasing the metal structure, brick and terra-cotta being, of course, the most fire and weather resisting. Cornices would be preferably of metal (copper, steel, cast-iron, or galvanized iron) instead of stone or terra-cotta, as being light of weight and, therefore, less dangerous than heavy and far-projecting cornices of solid material would be.

"Owing to the uncompromising demands for direct daylight at all floors, the elevations are naturally a combination of piers, metal, and glass. Therefore, a thorough and efficient protection of the fronts against fire does not seem feasible. Such large stores generally face on streets of ample width, and, therefore, the danger of fire eventually to be communicated by buildings fronting them on opposite street-sides is not very great. Devices could undoubtedly be introduced whereby, in such an emergency, the front walls could be flooded or protected by a sheet of water falling over them in a similar manner, as the inside floors of the building receive additional protection through the automatic-sprinkler systems. There seems, however, no case on record where such provision has actually been resorted to, and its effect might be doubtful, owing to the action of heat and water on the large glass surfaces. In almost any case, where damage to buildings from sources herein under consideration occurs, the actual destruction by fire is much less than that caused by water. The contents of all large stores are, as a matter of course, protected against general destruction by automatic sprinklers. As soon as the fire sets them in partial operation great quantities of

water are discharged on the floors; penetrate through them, destroying the plastered ceilings, causing wooden floor-boards to warp and damaging merchandise. In addition, the powerful engines of the fire-department, when called in, will send a further deluge into the endangered parts of the building, gutting and ruining all there is contained in that part of it. In many warehouses, therefore, steps are taken to make the floors not only thoroughly waterproof, but to grade them to gutters with inside and outside leader connections. These leaders, of ample section, will rapidly carry off the water to the street sewers and thus prevent great, and sometimes unnecessary losses. The inconvenience of not having even floor-levels renders such arrangements objectionable in department-stores, where the greatest public comfort must be provided, and level surfaces are needed to fit properly the counters and other installations.

"The automatic-sprinkler systems, valuable as they are for checking the spread of fire, and thus insuring a large reduction in the insurance-rates, are, nevertheless, a matter of great discomfort to the architect. Not only is the placing of the enormous tanks, machinery, and piping required to operate the systems for an effective distribution, a complex problem in itself, but the numerous lines of suspended pipes and conductors naturally interfere more or less with any attempt at architectural ceiling-decoration or other effects. Hence, as in many other cases in the architect's profession, utility outweighs the demands of design and art.

"In conclusion, it may be said that the close and continuous study given to an effective fire-protection by architects, by engineers, by the fire-insurance companies, and by the owners themselves, carries with it ever increasing results for the better, as will be readily observed when comparing buildings of recent date with those erected not more than a decade ago. Therefore, it may be reasonably hoped that the appalling losses of property from this source, reduced already by a gratifying percentage through careful building, will yet be lowered very materially, and in the near future."—*The Chronicle*.

#### A LETTER OF MAJOR L'ENFANT'S.

GAILLARD HUNT, the historian of the Department of State, has raked the files of that Department and prepared a "Calendar of Applications and Recommendations for Office during the Presidency of George Washington." Among the data thus gathered is a letter from L'Enfant to President Washington, which is here reproduced, errors and all, as it throws a most interesting light on a variety of subjects just now engaging public attention:

"NEW YORK Septbr the 11th 1789.

"SER

"The late determination of Congress to lay the foundation of a city which is to become the Capital of this vast Empire, offer so great an occasion of acquiring reputation, to whoever may be appointed to conduct the execution of the business, that your Excellency will not be surprised that my Ambition and the desire I have of becoming a usefull Citizen should lead me to wish a share in the undertaking.

"No Nation perhaps had ever before the opportunity offered them of deliberately deciding on the spot where their Capital city should be fixed, or of combining every necessary consideration in the choice of situation—and altho' the means now within the power of the country are not such as to pursue the design to any great extent, it will be obvious that the plan should be drawn on such a scale as to leave room for that aggrandizement & embellishment which the increase of the wealth of the nation will permit it to pursue at any period however remote—viewing the matter in this light I am fully sensible of the extent of the undertaking and under the hope of a continuation of the indulgence you have hitherto honored me with I now presume to solicit the favor of being Employed in this Business.

"And now that I am addressing your Excellency I will avail myself of the occasion to call to your attention an object of at least equal importance to the dignity of the Nation, and in which her quiet and prosperity is intimately connected. I mean the protection of the Sea Coast of the United States—this has hitherto been left to the Individual States and has been so totally neglected as to endanger the peace of the Union for it is certain that any insult offered on that side (and there is nothing to prevent it) however immaterial it might be in its local effect, would degrade the nation and do more injury to its political interests than a much greater depredation on her Inland frontiers from these considerations I should argue the necessity of the different Ways and seaports being fortified at the expense of the union in order that one general and uniform system may prevail throughout, that being as necessary as an uniformity in the discipline of the Troupes to whom they are to be Intrusted.

"I flatter myself your Excellency will excuse the freedom with which I impart to you my ideas on this subject indeed my Confidence in this Business arises in a great measure from a persuasion that the subject has already engaged your attention, having had the honor to belong to the Corps of Engineer acting under your orders during the late war, and being the only officer of that Corps remaining on the Continent I must confess I have long flattered myself with the hope of a reappointment a hope which was encouraged by several individuals of the former Congress—and now when the establishment of a truly federal Government renders every post under it more desirable, I view the appointment of Engineer to the United States as the one which could possibly be most gratifying to my wishes and

tho' the necessity of such an office to superintend & direct the fortifications necessary in the United States is sufficiently apparent, the advantage to be derived from the appointment will appear more striking when it is considered that the sciences of Military and Civil architecture are so connected as to render an Engineer equally serviceable in time of Peace as in war, by the employment of his abilities in the internal improvement of the Country.

"Not to intrude any longer on your patience and without entering on any particulars relating to my private circumstances of which I believe you are sufficiently informed I shall conclude by assuring you that ever animated as I have been with a desire to merite your good opinion nothing will be wanting to compleat my happiness if the remembrance of my former services connected with a variety of peculiar circumstances during fourteen years residence in this Country can plead with your Excellency in support of the favour I solicit.

"I have the honor to be with profound respect your Excellency

"Most humble and

"obedient servant

"P. C. L'ENFANT.

"THE PRESIDENT OF THE UNITED STATES."

### GREAT CANALS OF THE WORLD.

"GREAT Canals of the World" is the title of a study prepared by the Treasury Bureau of Statistics for publication in the forthcoming volume of the *Monthly Summary of Commerce and Finance*. It shows the commerce, cost and dimensions of the great canals of the world, especially those connecting great bodies of water, and which may be properly termed ship-canals.

Ship-canals connecting great bodies of water and of sufficient dimensions to accommodate the great modern vessels plying upon such waters are of comparatively recent production and few in number. The one great example of works of this character which has been a sufficient length of time in existence and operation to supply satisfactory data as to cost of maintenance and operation and practical value to the commerce of the world is the Suez Canal, and for this the available statistics begin with the year 1870, while its new and enlarged dimensions only date from the year 1896. For the Sault Ste. Marie Canal, connecting Lake Superior with Lake Huron, statistics date from 1855, though for the canal in its present form they cover only about four years. Statistics of the Welland Canal date from 1867, but for the canal in its present enlarged form cover only two years of operation. The other great ship-canals of the world are of much more recent construction, and data regarding their operation therefore cover a comparatively brief term, and in some cases are scarcely at present available in detail.

The artificial water-ways which may properly be termed ship-canals are nine in number, viz:—

1. The Suez Canal, begun in 1859 and completed in 1869.
2. The Cronstadt and St. Petersburg Canal, begun in 1877 and completed in 1890.
3. The Corinth Canal, begun in 1884 and completed in 1893.<sup>1</sup>
4. The Manchester Ship-canal, completed in 1894.
5. The Kaiser Wilhelm Canal, connecting the Baltic and North seas, completed in 1895.
6. The Elbe and Trave Canal, connecting North Sea and Baltic, opened in 1900.
7. The Welland Canal, connecting Lake Erie with Lake Ontario.
- 8 and 9. The two canals, United States and Canadian, respectively, connecting Lake Superior with Lake Huron.

The description which is given of each of these great water-ways shows that the total length of the Suez Canal is about 90 miles, the cost \$100,000,000, the present depth 31 feet, width at bottom 108 feet and at the surface 420 feet, and that the number of vessels passing through it has grown from 486 in 1870 to 1,494 in 1875, 2,026 in 1880, 3,389 in 1890, and 3,441 in 1900. The tolls charged are about \$2 per net registered ton.

The Cronstadt and St. Petersburg Canal, which gives a passage-way for great vessels to St. Petersburg, is 16 miles long, including the deepening of the bay channel, 20½ feet in depth, and the total cost estimated at \$10,000,000.

The Corinth Canal, which connects the Gulf of Corinth with the Gulf of Ægina, is 4 miles in length, 26½ feet in depth, 72 feet wide at the bottom, cost about \$5,000,000, and reduces the sailing distance about 175 miles. The average tolls charged are 18 cents a ton and 20 cents a passenger.

The Manchester Ship Canal, which connects Manchester, England, with the Mersey River and Liverpool, was opened in 1894. Its length is 35½ miles, depth 26 feet, width at bottom 120 feet and at the surface 175 feet, and cost \$75,000,000. The commerce on the canal shows a growth from 879,204 tons in 1895 to 1,492,320 tons in 1900.

The Kaiser Wilhelm Canal, which connects the Baltic and North seas through Germany is 61 miles in length, 29½ feet in depth, 72 feet wide at the bottom, 190 feet wide at the surface, and cost about \$40,000,000. The number of vessels passing through it has increased from 19,960 in 1897 to 29,095 in 1900, of which number 16,776 were sailing-vessels. The tonnage in 1897 was 1,848,458, and

in 1900, 4,282,094 tons. An additional canal, connecting the same bodies of water by way of the Elbe and Trave rivers, was opened in 1900. Its length is 41 miles, depth about 10 feet, width 72 feet and cost \$6,000,000.

The great North Holland Canal, which connects Amsterdam with the sea, cut in 1845, but deepened at a later date, has now a depth of 20 feet, and a width of 125 feet at the surface. The Caledonian Canal, which connects the Atlantic and North Sea through the north of Scotland, is 17 feet in depth, 50 feet in width at the bottom, 250 miles long, cost \$7,000,000, and is at its highest point 94 feet above sea-level. The Canal du Midi, cut through France from Toulouse, on the Garonne, to Cette, on the Mediterranean, a distance of 150 miles, is 6½ feet deep, 60 feet wide and 600 feet above sea-level at its highest point, and has 114 locks; total cost, \$3,500,000.

In America the canals connecting the Great Lakes are the principal ship-canals, and are three in number: The Welland Canal, originally constructed in 1833 and enlarged in 1871 and 1900; the Sault Ste. Marie, or St. Mary's River, Canal, opened in 1855 and enlarged in 1897, and the Canadian Canal at St. Mary's River, opened in 1895. The American and Canadian canals at St. Mary's Falls are practically identical in location and dimensions, and are used interchangeably by vessels engaged in commerce, as convenience may dictate. The depth of the canals at the St. Mary's River is sufficient to accommodate vessels drawing 20 feet of water. The American canal was originally constructed by the State of Michigan, but subsequently was taken charge of by the United States and enlarged, at a cost of \$2,150,000. The cost of the Welland Canal was about \$30,000,000, which was largely due to the circumstance that 25 locks are required in surmounting the rise of 327 feet in the distance of 27 miles. The number of vessels passing through the canals at St. Mary's River has greatly increased during the last few years, while the number passing through the Welland Canal has materially decreased, the number passing through the St. Mary's canals being, in 1873, 2,517, and in 1901, 20,041, of which 15,837 passed through the United States Canal and 4,204 through the Canadian. The number of vessels passing through the Welland Canal has decreased from 6,425 in 1873 to 2,202 in 1899. The marked contrast between the business of the St. Mary's Falls and Welland canals is largely due to the fact that the freights originating in the Lake Superior district are chiefly discharged at Lake Erie ports, and those destined for the Lake Superior region are chiefly produced in the section contiguous to Lake Erie, the Lake Superior freights being chiefly iron, copper and grain, and the Lake Erie freights for Lake Superior, coal and manufactures. The business of the St. Mary's Falls canals by far surpasses in volume that of any other canal of the world, the freight tonnage of the American and Canadian canals combined being, in 1901, 24,626,976 registered tons, while the net tonnage of the Suez Canal in 1900 was 9,378,152 tons, and that of the Kaiser Wilhelm Canal 4,282,094 tons.



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

UNITED STATES POST-OFFICE, CLINTON, IOWA. MR. JAMES KNOX TAYLOR, SUPERVISING ARCHITECT, WASHINGTON, D. C.

PAVILION-DETAIL OF THE SAME BUILDING.

HOUSE FOR WATER-TOWER NO. 3 AND HOOK-AND-LADDER TRUCK NO. 24, NEW YORK, N. Y. MESSRS. HORGAN & SLATTERY, ARCHITECTS, NEW YORK, N. Y.

THE PARLOR: HOUSE OF C. C. FEBIGER, ESQ., PHILADELPHIA, PA. MR. HORACE SELLERS, ARCHITECT, PHILADELPHIA, PA.

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

DER NEUNERTHOR, SALZBURG, AUSTRIA.

This plate is copied from *La Construction Moderne*.

[Additional illustrations in the International Edition.]

HOUSE OF ROBERT S. PEABODY, ESQ., NO. 22 FENWAY, BOSTON, MASS. MESSRS. PEABODY & STEARNS, ARCHITECTS, BOSTON, MASS.

FRATERNITY HOUSE, UNIVERSITY OF PENNSYLVANIA, PHILADELPHIA, PA. MR. M. CHESTER KIRK, ARCHITECT, PHILADELPHIA, PA.

THE GARDEN OF C. C. FEBIGER, ESQ., PHILADELPHIA, PA.

WINDOW DETAIL: UNITED STATES POST-OFFICE, CLINTON, IOWA. MR. JAMES KNOX TAYLOR, SUPERVISING ARCHITECT, WASHINGTON, D. C.

<sup>1</sup> The modern work was begun in 1882, while work was first actually undertaken by Periander B. C. 625.—EDS.

## NOTES & CHIPPINGS

**CITY CONTRACTOR'S LIABILITY FOR BLASTING.**—The N. Y. Court of Appeals has reversed an order of the Appellate Division which reversed a judgment dismissing the complaint in a suit brought by the company which owns the Holland House, at the southwest corner of Fifth Avenue and Thirtieth Street, against William P. Baird to recover damages for injuries to a vault in the hotel, caused, as alleged, by the negligent blasting of rock in a trench which was being dug in Fifth Avenue by the defendant for the city. The contract between Baird and the municipal authorities called for the blasting of rock, and required it to be done according to the city ordinances. The occurrence complained of happened in August, 1897. The damage to the vault was described on the trial by barbers employed in the hotel, and by a brush-boy. While the trench was being dug they "heard a good many sounds as of blasting." The brush-boy, while not remembering the day, "heard one sound which impressed itself on his mind; it was a big blast." None of the witnesses identified Mr. Baird as the contractor, or as causing the blasts. A civil-engineer testified about explosives, but knew nothing about the quality of the rock in front of the Holland House. The Court of Appeals holds, by Judge Gray, that, under the circumstances, Mr. Baird could only be held liable for injury to adjoining property from the jarring of the ground or concussion of the atmosphere, on proof that his work was negligently performed. "The rule of law," says Judge Gray, "must, therefore, be considered as well settled in this Court that negligence is essential to be proved in such a case as this of consequential injury, in order to create any liability in the defendant. Now, there is nothing in the evidence showing, or tending to show, the fact of a negligent performance by the defendant of what blasting was rendered necessary in the execution of his contract. Indeed, the evidence is so vague upon the subject that it is not certain whence the blast or blasts, of which the witnesses speak, came. If it may be inferred that the defendant was excavating upon the west side of Fifth Avenue, it does not appear where, or how wide, the trench excavation was, or what was its distance from the wall of the vault. The manner of the construction of the vault, whether well or slightly built, is not shown. Nor is there anything to show, considering the circumstances, that the blast was of any extraordinary character, or that its violence was manifested in external ways upon the street. . . . It was a matter of conjecture, purely, whence the blast came which occasioned the damage to the property; what was the nature of the trench, or what the quality of the soil in which the work was being done, or whether the defendant, in conducting the necessary blasting, failed to observe the ordinances of the city upon the subject and neglected to use such care as was incumbent upon him with respect thereto, or to the adjacent property. In short, for aught that appears, the defendant may have taken all those precautions incumbent upon him, in the performance of such a work, and, nevertheless, the damage may have happened to the plaintiff's building as a natural result, influenced, possibly, in addition, by some weakness of construction." The court of last resort was unanimous, but the Appellate Division divided, Presiding Justice Van Brunt and Justices Patterson and Runsey favoring the maintenance of the action, and Justices O'Brien and Ingraham dissenting. J. Woolsey Shepard argued the case for Mr. Baird, and Aaron C. Thayer represented the Holland House Company. — *Exchange*.

**P. TROUBETZKOY, THE SCULPTOR.**—Paul Troubetzkoy was born at Intra, Lago Maggiore, on the 15th of February, 1866, the second son of Prince Pierre and Princess Ada Troubetzkoy (née Winans). The delight of the child was to model; using first soft bread, then later, at the age of seven, being allowed modelling wax to play sculptor. He chose for his first model an old beggar whom he chanced to find outside the villa gates, and whom he paid with fruit saved from his own dessert. From this beginning, always encouraged by his mother, he continued to model from life, his pets and other domestic animals serving as subjects, until, at ten years of age, he was so successful with the head of a horse that his mother, realizing that the child was becoming serious in his work, took the head to Milan for the criticism of the sculptor Grandi. Looking at it carefully, Grandi pronounced it the work of genius, and said that the boy if he worked on was destined to become a famous sculptor. This prediction did not meet with the approval of Prince Troubetzkoy, whose ambition for this son was a military career, the eldest having been already granted permission to study art, as he showed a decided talent for portraiture. Accordingly, at the age of seventeen, the young sculptor was sent to his paternal relatives in Russia, with the hope that under new influences the youth might be made to forget his hobby. But the power of calling was too great. The allurements of a high military career failed to turn him, and after some months' absence he returned to Italy. Finding that he could not follow others, however great they might be, Paul Troubetzkoy began working according to his own particular light; he opened a studio of his own; toiled with all his might, deaf to the criticism of friend or foe; and he so impressed both public and critics that it was finally acknowledged that a new star had arisen, the magnitude of which it was at first difficult to measure. — *From "Paul Troubetzkoy, Sculptor," by William Jarvis, in the February Scribner's*.

**OPPOSITION TO "SKYSCRAPERS" IN CHICAGO.**—On a test vote recently the City Council blocked temporarily the construction of eight skyscrapers. The plans included seven sixteen-story and one fourteen-story buildings. The amount of money which the builders of these structures expect to spend on them is about \$12,000,000. The principal opposition against the big buildings came from outlying districts, which have always opposed the erection of high structures in the business district on the plea that they tend to congest all trade in the down-town territory. — *Exchange*.

**BABYLONIAN DISCOVERIES OF THE GERMAN ORIENTAL SOCIETY.**—The members of the Babylonian expedition sent out by the German Oriental Society have, in spite of heat, wind and dust, held out steadfastly at their post, and have brought to light many valuable memorials which, with those already unearthed, will some day give a faithful picture of the ancient metropolis, its streets, temples and palaces, and its social, intellectual and religious life. Up to now four hundred inscribed clay slabs have been found in the centre of the ruins of Babylon. Of only two of them are the inscriptions yet deciphered, but they are pearls of Babylonian literature. One tablet contains a great part of a celebrated Babylonian compendium which explains the Babylonian cuneiform characters. It is a very ancient dictionary, of great linguistic interest and of exceptional value practically. The second tablet contains nothing less than the litany which was chanted by the singers of the Temple of Esagila on the return of the god Marduk to his sanctuary. Marduk, or Merodach, was the son of Ea, and one of the twelve great gods of the Assyro-Babylonian Pantheon. His temple, Esagila, "the exalted house," became the national sanctuary of the whole empire. He also had a sanctuary at Sippar. He is twice mentioned in the Book of Jeremiah, and in Isaiah, as Bel. It was the custom to sing the litany which has now been found after the periodical procession to that grand pantheon which has been brought to light by the expedition, and which, it is hoped, by the winter will be completely excavated. In the meantime Herren Koldewey and Andrae have made another important discovery, a temple of Ador, or Nineb, the tutelary god of physicians, hitherto quite unknown. The German Oriental Society's account of these discoveries, which has just been published, also gives a minute description of an amulet, supposed to protect the wearer from the machinations of the demon Labartu. Labartu was an ashen-hued being, who made people pale with terror, drank human blood, caused great sorrow, and was accompanied by a black dog. This amulet was once hung around a child's neck in order to drive off the demon. — *London News*.

**A PORCELAIN TOWER FOR PARIS.**—A Sèvres porcelain tower is to be erected on the heights of St. Cloud, the spot where the famous Diogenes lantern was destroyed in 1871. The tower will be 148 feet high and 26 feet in diameter. There will be seven stories and a double winding staircase inside. It will be built, inside and out, entirely of ceramic stoneware and porcelain, and will be decorated externally with blue, turquoise, emerald-green, brown, coral and rose tints on a white porcelain background. The colors will be a perfect polychromatic poem from base to summit, idealizing the fauna and flora and legends of the Forest of St. Cloud. The work is about to be begun at the State manufactory at Sèvres. The tower will be composed of thirty thousand pieces, which will require a hundred bakings. It will be completed in five years. — *N. Y. Tribune*.

**THE ASPHALT SUPPLY.**—In a paper read recently before the American Society of Municipal Improvements, J. Howard Bell, C. E., engineering-editor of the *Municipal Journal*, said: "The European companies have not used or approved the artificial mixtures of asphaltum, such as that from Trinidad; the European cities use for street-pavements asphalt-rock only." Further on Mr. Bell suggests that investments in other kinds of asphaltic materials prevent the Trust from developing the promising asphalt-rock, similar to the Swiss and French rock, found in large deposits in Kentucky and elsewhere in the United States, though in time these deposits, in the hands of good managers, will supply one of the best of pavements. "The composition pavement is sometimes cheaper," he says, "but not as durable as good asphalt-rock pavement." — *Exchange*.

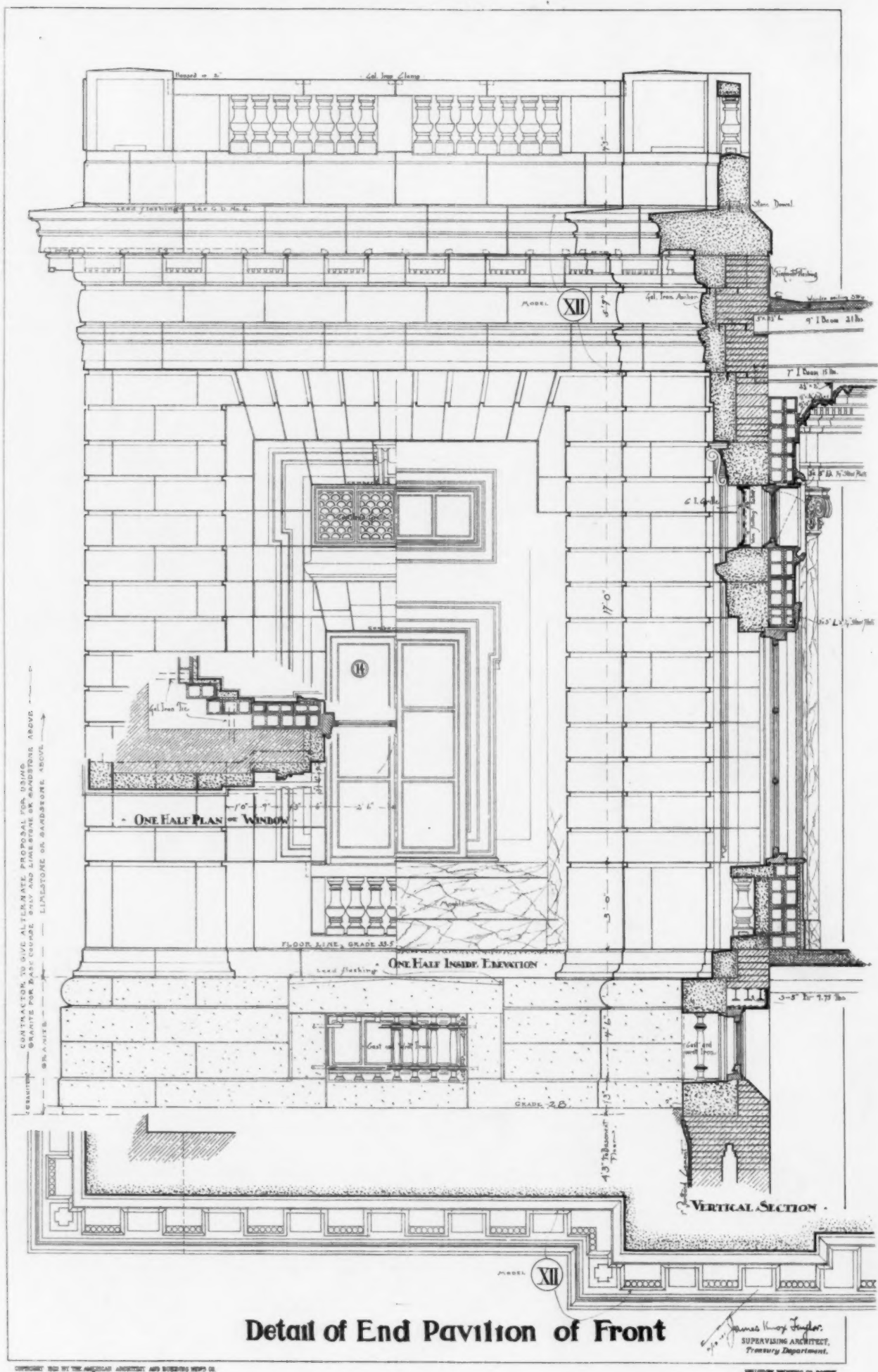
**ROMANTIC RECOVERY OF A BUST OF QUEEN VICTORIA.**—A sad little romance lately came to light at Windsor, says the *Ladies' Field*. When the Prince Consort died a bust of him was made, and this was taken everywhere by his widow. At the same time Queen Victoria, desiring to perpetuate the personal appearance of husband and wife at the time of their separation, had a bust made of herself. This was lost sight of by those at Court and there was a tradition at Windsor Castle that, by direction of the Queen, it had been hidden away. The King caused inquiries to be made of an old servant who was on the domestic staff at the time of the Prince Consort's death, and he was able to indicate a place where the bust was wallied in. The wall was broken, and the bust—an interesting marble presentment of the Queen's appearance in early middle age—restored to sight.

**GLASS MADE SOLUBLE.**—A resident of Baltimore has, by means of a chemical solution, succeeded in rendering glass soluble and converted it into a liquid form so that it can be applied to articles and surfaces with a brush, like paint. He believes he has discovered one of the lost arts of enamelling, which was possessed by the Egyptians. The formula used will not be patented, as it is a secret one. It can be applied to wood, iron or any woollen or cotton fabric. A large bathtub was exhibited here which the inventor had painted with liquid glass. The tub glistens like a glass crystal and has a surface as smooth and hard as window-glass. — *Exchange*.

**THE GUIDE-BOOKS AND ROME'S GOOD NAME.**—In view of the fact that Rome now has good water, and that malaria does not occur within five or six kilometres of the city, a deputation of hotel-keepers recently called on the Minister of the Exterior to ask if means could not be taken to persuade travellers and guide-book makers to drop the antiquated talk about Rome being an unhealthy city to live in. — *Exchange*.

**COST OF THE RHODE-ISLAND STATE-HOUSE.**—The inaugural message of the Governor of Rhode Island shows that the total cost of the State Capitol and grounds has been \$3,114,402.10, and reports the expectation of the Commissioners that the entire work will be completed before the end of the present year. — *Exchange*.





## Detail of End Pavilion of Front

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The American Architect  
 Feb. 8, 1902.  
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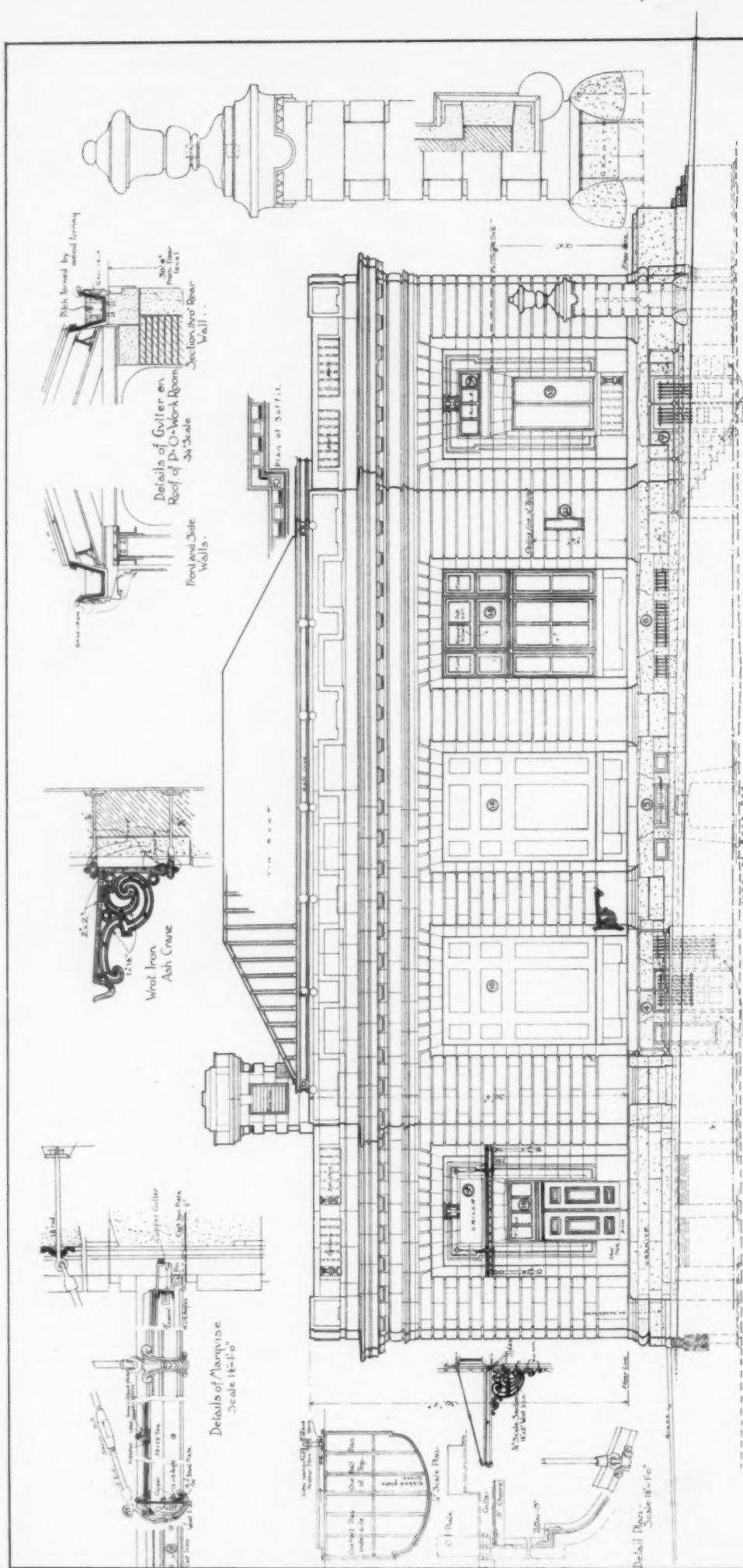


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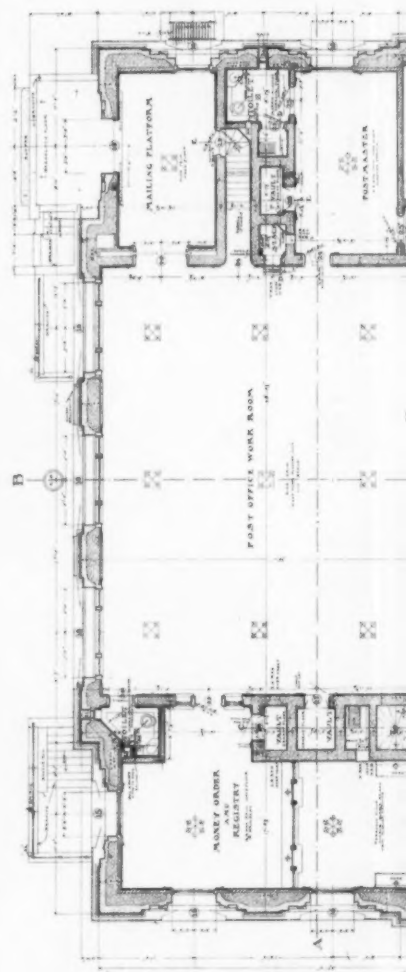
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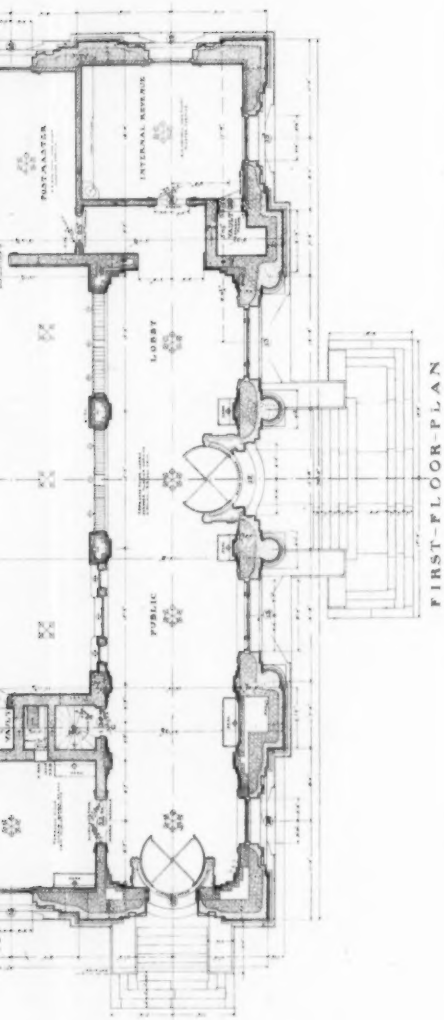
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## -REAR · ELEVATION~

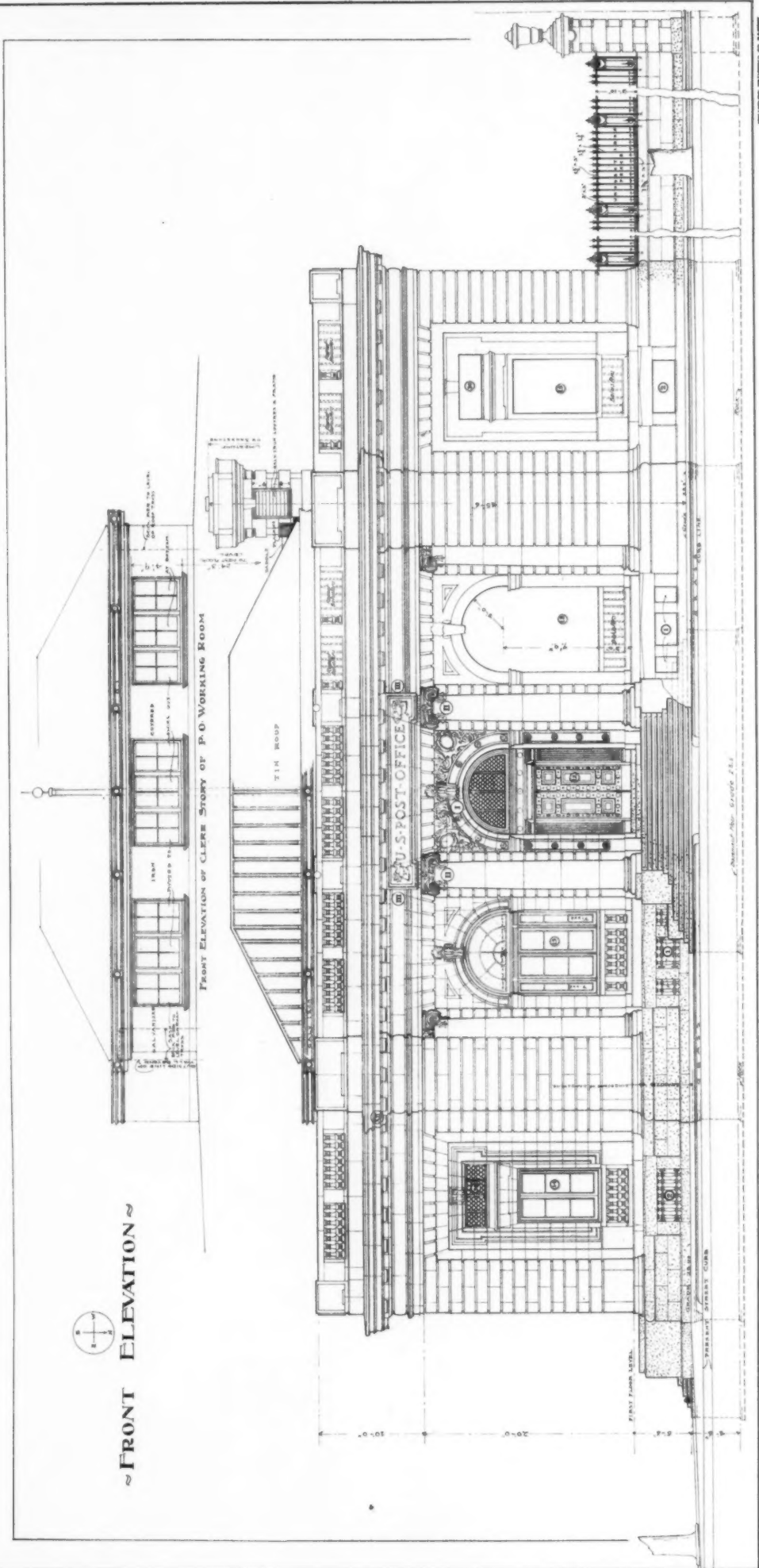




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|                                                  |              |
|--------------------------------------------------|--------------|
| City Hall, New York, N. Y. . . . .               | Date 1803-12 |
| Old State House, Boston, Mass. . . . .           | " 1748       |
| Pennsylvania Hospital, Philadelphia, Pa. . . . . | " 1755       |
| Carpenters' Hall, Philadelphia, Pa. . . . .      | " 1770       |
| Independence Hall, Philadelphia, Pa. . . . .     | " 1729       |
| Faneuil Hall, Boston, Mass. . . . .              | " 1741       |
| and others.                                      |              |

## CHURCHES

|                                                         |           |
|---------------------------------------------------------|-----------|
| King's Chapel, Boston, Mass. . . . .                    | Date 1749 |
| Seventh-day Baptist Church, Newport, R. I. . . . .      | " 1729    |
| Christ Church, Alexandria, Va. . . . .                  | " 1767    |
| Christ Church, Philadelphia, Pa. . . . .                | " 1727    |
| St. Paul's Chapel, New York, N. Y. . . . .              | " 1764    |
| Old South Church, Boston, Mass. . . . .                 | " 1729    |
| First Church, Hingham, Mass. . . . .                    | " 1681    |
| St. John's Chapel, New York, N. Y. . . . .              | " 1803    |
| First Congregational Church, Canandaigua, N. Y. . . . . | " 1812    |
| St. Peter's P. E. Church, Philadelphia, Pa. . . . .     | " 1758    |
| Gloria Dei Church, Philadelphia, Pa. . . . .            | " 1700    |
| and others.                                             |           |

## IMPORTANT HOUSES

|                                              |           |
|----------------------------------------------|-----------|
| Fairbanks House, Dedham, Mass. . . . .       | Date 1636 |
| Royall Mansion, Dedham, Mass. . . . .        | " 1737    |
| Philipse Manor House, Yonkers, N. Y. . . . . | " 1745    |
| Tudor Place, Georgetown, D. C. . . . .       | " 179-    |
| Mappa House, Trenton, N. Y. . . . .          | " 1809    |
| Woodlawn, Va. . . . .                        | " 1799    |
| Mount Vernon, Va. . . . .                    | " 1743    |
| and others.                                  |           |

Incidentally there are shown special measured drawings or large views of the following features and details:

|                                |    |          |
|--------------------------------|----|----------|
| Porches and Doorways . . . . . | 67 | Subjects |
| Staircases . . . . .           | 21 | "        |
| Mantelpieces . . . . .         | 81 | "        |
| Pulpits . . . . .              | 6  | "        |
| Fanlights . . . . .            | 60 | "        |

. In addition to the subjects enumerated above there is a large quantity of measured and detailed drawings of Cornices, Ironwork, Gateposts, Windows, Interior Finish, Ceiling Decoration, Capitals, etc., together with elevational and sectional views of entire buildings.

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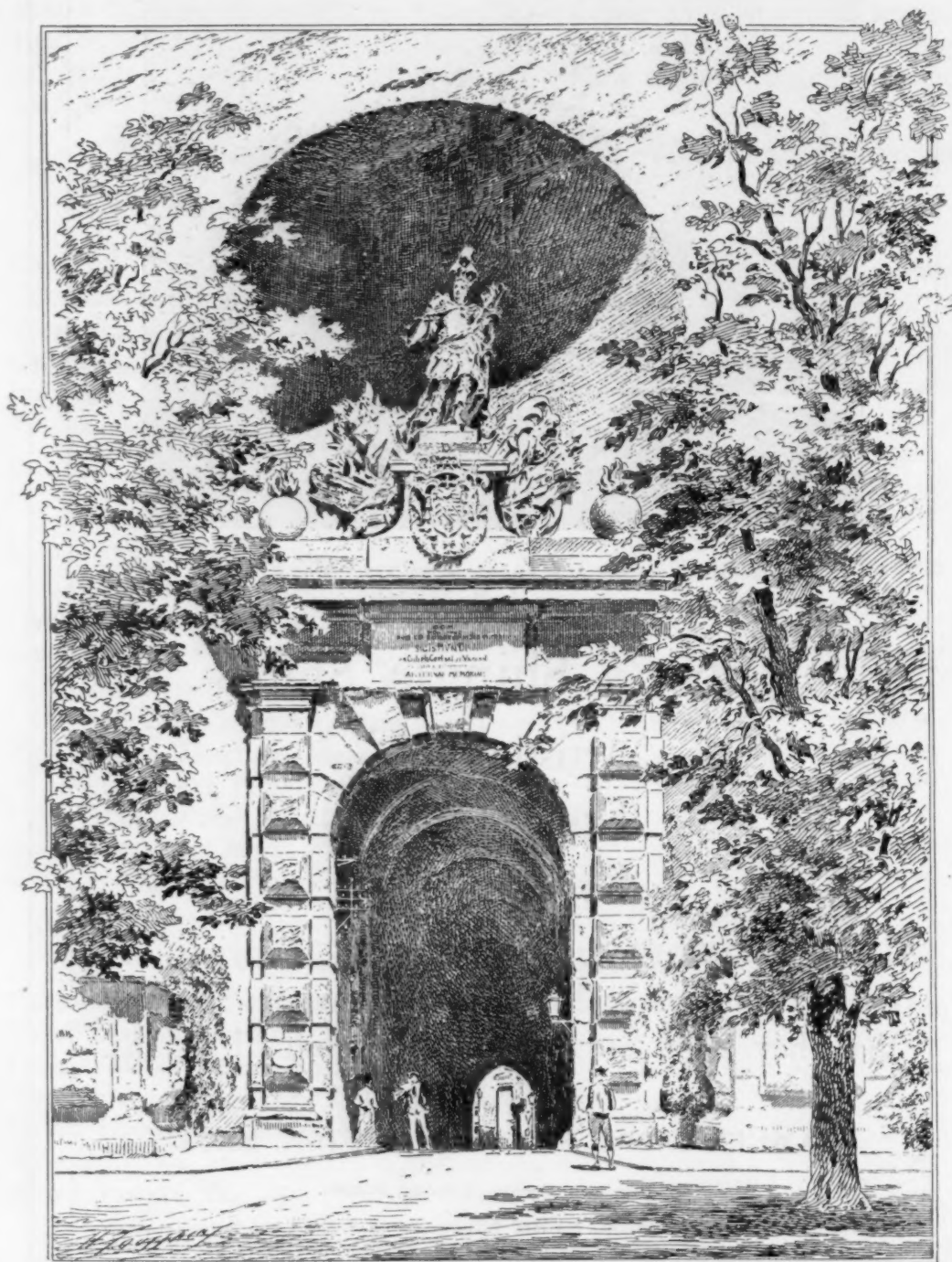
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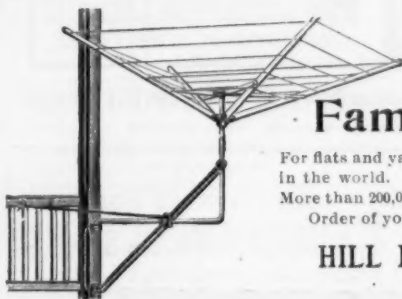
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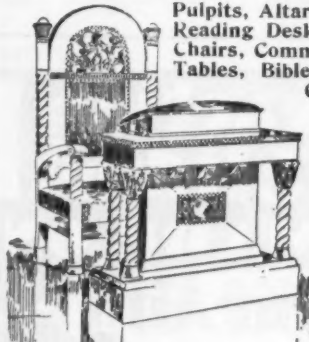


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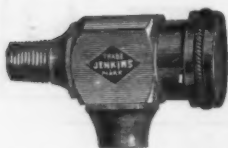
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### BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

**Fond du Lac, Wis.**—The Y. M. C. A. will erect a three-story and basement building, of stone, to cost, complete, \$50,000. It will have a swimming-tank, bowling-alley, baths, gymnasium outfit, etc.

**Greensville, Tenn.**—The Senate has passed a bill providing for the construction of a public building at this place.

**Hammond, Ind.**—The bill providing for the purchase of a site and the erection of a public building at this place has passed the Senate.

**Huntington, W. Va.**—A bill providing for the construction of a public building at this place has passed the Senate.

**Laconia, N. H.**—The Commission in charge of the State Home for Feeble Minded Children has purchased a site near the city and will erect buildings in the spring.

**Lawrence, Mass.**—The Champion International Co., a consolidation of the Champion Card and Paper Co., of East Pepperell, and the Russell Mill of the International Paper Co., of this place, is to immediately begin the construction here of a large coating mill, plans for which are now being prepared.

**Lonsdale, R. I.**—The contract for the building of the Guest House for the Monastery of Petit Clairvaux, the Trappist Fathers, near this place, was awarded to D. J. Shea, of Valley Falls. The new building is to serve both as a home for the community as well as a guest house until the abbey to be built some time in the future is completed. It will be constructed of field stone taken from the farm. The term "guest house" indicates fully the ultimate use to which the building will be devoted. It will offer a temporary halting place for any wayfarer who may care to stop there and a place to which the world-weary may find seclusion and retirement for a time. The architects are Murphy & Hindle, of Providence.

### BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

**Madison, Neb.**—It is stated that the Catholic Society will build a \$20,000 church.

**Manchester, N. H.**—Press reports state that the Kennard office-building, which was destroyed by fire January 14, will be rebuilt as a six-story fireproof structure.

**Marshalltown, Ia.**—The late Bishop Lenihan has left a bequest of \$2,000 for a nucleus of a hospital building fund. It is intended to raise \$20,000.

**Martins Ferry, O.**—The First M. E. Society has accepted plans for a \$50,000 church.

**Mason, Mich.**—The committee appointed to investigate the advisability of erecting a court-house for Ingham County have recommended the erection of a \$40,000 building. Supervisor Dodge, Chmn. Com.

**Menominee, Wis.**—A press report states that W. G. Williamson & John Charles, architects, have designed for James H. Stout a building to be devoted to physical culture. It will be 98' x 132' and three stories high. The pool will be 30' x 80', the natatorium being equipped with 80 lockers. The second floor will contain bowling-alleys, laundry and girls' locker-room, with shower-bath. In the third story there is to be a complete arrangement for an athletic club.

**Montgomery, Ala.**—The congregation of the Cumberland Presbyterian Church will erect a \$30,000 edifice on Catoma and Church Sts. Rev. W. M. Crawford, pastor.

It is said that the Sisters of Charity are to erect a \$20,000 hospital on Adams St.

**Nevada, Mo.**—The Board of Managers of State Insane Asylum No. 3 will build another wing to the building at a cost of about \$30,000.

**New London, Conn.**—Wm. H. Chapman, Pres. of the Savings Bank of New London has presented to the city through the Board of School Visitors \$100,000 for the building and equipment of a manual training school.

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### BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

**Newport, R. I.**—Plans are in preparation for a one-story steel and brick power plant, 60' x 125', to be erected on Thames and Howard Sts., for the Old Colony Street Railway Co.; cost, about \$60,000. C. F. Bancroft, 14 Kilby St., Boston, will supervise construction.

**Newport, Vt.**—A. J. White & Son will rebuild at once their sash and door factory which was recently destroyed by fire. Plans now in preparation.

**New York, N. Y.**—A permit has been issued for 3 four-story brick and stone dormitories to be erected on 1st Ave. and 12th St., for the Protestant Episcopal Church of the United States; total cost, \$90,000. Architect, Chas. C. Haight, 111 Broadway.

Dodge & Morrison, 41 Wall St., have drawn sketches for a theatre and office-building to be erected at 136-144 W. 45th St. by the Hyde & Behman Amusement Co., 383 Fulton St.; cost, \$750,000.

The Bronx Architectural Co., 3307 Third Ave., have drawn plans for a six-story fireproof brick and stone storage warehouse to be erected on the corner of Wales Ave. and 150th St. for William Reubel, 3029 Third Ave.; cost, \$30,000.

Plans have been drawn by Buchman & Fox, 11 E. 59th St., for a fourteen-story fireproof apartment-hotel, to be erected at 12 to 16 E. 31st St., on a plot 54' x 112', for Joseph Fleischman, the florist. Estimated cost, \$500,000.

It is stated that John Hauser, 1961 Seventh Ave., has prepared plans for a six-story brick and stone apartment-house, 50' x 80', to be erected on 134th St., near Lenox Ave., to cost \$60,000. Edw. Muller, 56 E. 98th St., owner and builder.

Five houses on the south side of E. 75th St., 168 to 176, just east of Lexington Ave., have been sold. They will be removed by the buyer, and in their place will be built five automobile stables, the total investment being not far from \$300,000.

Five three-story automobile stables will be erected at 168 to 176 E. 75th St. by Edmund C. Stout, cost to be about \$300,000. Architects, Hill & Stout, 1123 Broadway.

Announcement has been made that a theatre will be built on part of the old Schubert property on the west side of 7th Ave., extending from 125th St. to 126th St., by the Hudson Realty Co., of which Maximilian Morgenthau is president. There are about ten city lots in the plot, on which has stood for many years a small dwelling-house, called the Roe Cottage. An office for a banking or trust company will be built at 125th St. and 7th Ave., and stores of various sizes in the street and avenue, according to the desire of prospective tenants. Buchman & Fox have drawn the plans, and ground will be broken at once.

An extra appropriation of \$150,000 is to be allowed the 69th Regiment to meet the estimate of contractors for the building of the new armory.

Manhattan College, long a landmark in Harlem, is to be removed from Broadway to a large site north of the Harlem River, with modern buildings and equipment. Twelve acres have been bought in one tract. The new buildings will cost \$600,000, and accommodate 500 or 600 students.

Commissioner Lederle of the Health Department, went to Staten Island recently, and, in company with Health Officer Alvah H. Doty and Dr. Theodore Walsler, the sanitary superintendent of the Borough of Richmond, visited prospective sites for a small-pox hospital. While no site has been selected, it is understood that Dr. Lederle prefers the location of the County Almshouse as the most isolated place in the borough.

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## BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

Plans have been drawn by Sass & Smallheiser, 23 Park Row, for the alteration of the old Durand Riding Academy at Grand Circle, 8th Ave., 61st St. and Broadway. The entire building will be remodelled, roof-garden added, and elevators, steam and electric-lighting plant. About \$60,000 will be spent.

Plans have been approved by the building department and work will be started at once on the ten-story brick, stone and iron storage building, 50' x 70', to be erected at 31 and 33 E. Broadway, by Mr. B. Mandel, 283 Henry St., at an estimated cost of \$100,000. Sass & Smallheiser, 23 Park Row, architects.

Orange, N. J. — Plans have been prepared and work will soon commence on the new home for journalists, which is to be erected at a cost of about \$250,000.

Philadelphia, Pa. — The Overbrook Presbyterian Church is to have a new Sunday-school, designed by Architects W. L. & Walter Price. It will be built of stone, and will be 40 feet wide by 80 feet deep. To the church building proper will be added a pastor's study, a one porte cochère, a stone porch, an enlargement to the tower and a new vestibule.

Permit has been granted Lewis Haven's Sons to begin the erection of Young, Smyth, Field & Co.'s new wholesale dry goods store at 1216-20 Arch St. Field & Smedley are the architects. Cost, \$20,000.

Twenty-eight dwellings and stores, measuring 14' x 27', with rear buildings 11' x 12' 6", will be erected on the west side of Fairhill St., above Luzerne, for J. B. Vanderslice. Five more whose dimensions will be 14' 10" x 42', will be located on Lycoming St., west of Fairhill. They will be of brick, two stories high. Frank W. Keisker is the architect, and the operation will cost \$40,000.

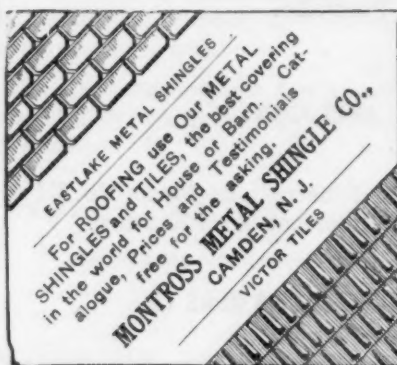
George W. Pierson will build at once a three-story granite and brick school-house, 57' x 147', at the corner of 8th and Clearfield Sts.; cost, \$69,000.

Plans have been drawn by Frank C. Miller for a manufacturing plant to be erected by a New York concern on the line of the Pennsylvania Railroad, near Frankford. Nine buildings are to be erected. The plans provide for three small buildings of brick and frame, with gravel roofs; two brick, stone and iron buildings, three stories high, with cement roofs; one two-story brick and iron fireproof building; a brick and stone fireproof heating plant; a brick stable two and a half stories high, with an adjoining frame wagon-shed, with the necessary accommodations for 50 horses, and a three-story brick and stone office-building.

William Steele & Sons have been granted a permit for the erection of a large addition to Jacob Miller & Son's shirt-factory, corner of 16th and Reed Sts. It will be five stories in height and the cost will approximate \$40,000.

Pittsburgh, Pa. — D. H. Burnham & Co., of Chicago, have drawn plans for a thirteen-story hotel to be erected at 6th Ave. and Grant St. for H. C. Frick. The building including the land, it is said, will cost about \$5,000,000. It will front 217 feet on each street. The exterior will be of marble or granite.

Plans have been drawn by Edw. Stoltz, Monongahela Bank Building, for an edifice for the R. C. Church of the Epiphany, to be erected on Franklin and Washington Sts., to cost \$140,000. It is reported that a school, to cost \$80,000, and a parish-house to cost \$25,000, will be erected in connection with the church.



## BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

Andrew Carnegie has offered to erect a large general hospital in this district for workmen. Address Patrick Dolan, president, United Mine Workers, Diamond St.

Portland, Ore. — The Senate has passed a bill authorizing the construction of a public building here.

Providence, R. I. — A six-story brick structure, 85' x 114' x 133', to be occupied by manufacturing jewelers, will be erected at a cost of \$80,000 on Dorrance St., from plans by Wright & Isham, 1013 Banigan Building. Building will be owned by a syndicate represented by W. P. Moulton, 77 Dyer St. Architects have entire charge.

Racine, Wis. — St. Rose congregation is raising funds for the erection of a \$25,000 church, and has \$13,000 provided for. Work is to be started in the spring.

Red Oak, Ia. — A \$25,000 church will be erected here by the M. E. Society.

Richmond, Ind. — The Methodists of Indiana have undertaken the task of establishing a hospital, which is to be largely philanthropic in nature. It will be located at the State capital. The plans provide for a building and equipment to cost \$200,000 and for an endowment fund of \$500,000. Up to this time \$15,000 is available. Work on the building will begin when \$50,000 has been raised. The work of raising money will be pushed in all parts of the State. The hospital will be free to those who cannot afford to pay.

Santa Barbara, Cal. — Milo Potter, of Los Angeles, has invited certain architects to prepare plans for a \$250,000 hotel, which he proposes to build at this place.

Seattle, Wash. — Report states that the erection of a \$1,000,000 steel plant will be started within the next three months. It will manufacture Jupiter steel, which has acquired a wide reputation throughout the East, and which is used extensively for its cheapness. Col. William J. Wilson, of Pittsburgh, Pa., is the prime factor in the new enterprise.

South Boston, Mass. — The Eclipse Automobile Co. has the lot staked out for a large addition to its factory.

South Omaha, Neb. — Plans are being prepared for an office-building for the Cudahy Packing Co., to cost \$50,000.

It is stated that the Omaha Packing Co. has under consideration the erection of a new beef-house, canning-rooms and other buildings, to cost in all about \$500,000.

Springfield, Ill. — The erection of a new State building, to cost \$500,000, and combining the State historical, law and general libraries, is a project which the Illinois Historical Society will present to the Legislature. Dr. Edmund J. James, the newly elected President of Northwestern University, will act as sponsor for the scheme, which provides that the building be located at this place.

Springfield, Mass. — It is proposed that important additions be made to the City-hall. The most important plan is to build an addition at the rear on the vacant lot, which would afford a large amount of additional office room. Such a building, 50' x 60', and two stories high, with a basement for the heating plant, could be erected at an estimated cost of \$15,000 or \$16,000. If it should be decided to add another story, the cost would be increased, it is estimated, to about \$20,000. It is believed that such

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## BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

an addition would be more economical and advantageous than to attempt remodeling the old building.

Postmaster L. C. Hyde is making every effort to increase the capacity and improve the service at the local post-office. His principal interest is in the effort to secure an appropriation of \$75,000 for land and a large addition to the building, to be made on the west or rear side.

Spring Lake, N. Y. — It is reported that Savery & Sheetz, of the Stephen Girard Building, Philadelphia, will soon give out the contract for a large addition to Wm. Lucas's hotel at this place, to cost about \$25,000.

St. Louis, Mo. — Louis La Beunne has prepared plans for a \$100,000 building to be erected at the Louisiana Purchase Exposition by the Travellers' Protective Association.

Stockton, Cal. — A large glass-factory is to be established here which will cost about \$60,000 and include eight large buildings. Work is to be commenced at once, and the first glass will be turned out inside of three months.

St. Paul, Minn. — Plans have been prepared at the office of W. A. Scott, Gen. Mgr. Chicago, St. Paul, Minneapolis & Omaha R. R. Co., for a freight depot to be erected in the Prince St. yards, to cost about \$60,000.

Mansger Hayes, of the Grand Opera House, states that preparations are now being made to remodel that building. The upper floor will be fitted up as offices and other improvements will be made to the building. It is estimated that the cost will be about \$25,000.

At a mass meeting held by the Masons of the city held recently several large donations were pledged toward the erection of the proposed Masonic Temple. It is claimed that \$250,000 will be secured.

Swampscott, Mass. — The Ocean House which has been purchased by Messrs. Allen Anselme, late of the Maplewood Hotel, Maplewood, N. H., and E. B. Grabow, manager of the Hotel Buckminster in Boston, will be opened the coming season about the middle of June, and will hardly be recognized by old guests. It is to be remodelled and enlarged. The general contract is in the hands of Titus & Poor, and W. F. Delory has the plumbing contract.

Toledo, O. — The trustees of the Museum of Art will erect a \$50,000 art building if the city will furnish a site.

Washington, D. C. — Plans have been completed for a union depot to be erected at the junction of Massachusetts and Delaware Aves. and H St. It will be of white marble, two stories high, and cost about \$5,000,000.

Plans have been prepared for the proposed armory for the District National Guard. The building will have a frontage of 1,000 feet and will cost in the neighborhood of \$3,000,000.

Whitcomb, Wash. — Contracts are soon to be let for a new brewery at this place, costing \$175,000. It will be built of brick and stone, and will be six stories high.

Williamstown, Mass. — Dr. John Bascom, a member of the Greylock commission, is promoting the bill for the appropriation of \$10,000 for the erection of a building on Greylock. The plans for the building have been drawn by H. Neill Wilson, of Pittsfield, and call for a structure of stone and cement, and a large iron balcony looking off to the south.

[*"A Hit, a Palpable Hit!"*—HAMLET.]

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### BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

Wooster, O.—L. C. Holden, 1133 Broadway, New York, N. Y., has prepared plans for a \$50,000 Science Hall, to be erected here for the University.

#### APARTMENT-HOUSES.

Springfield, Mass.—N. Main St., Round Hill, four-story bk. apart., gravel roof, steam; \$30,000; o., J. A. Angers & Bro.; a., G. P. B. Alderman & Co., Holyoke.

### COMPETITIONS.

#### MONUMENT.

[At Philadelphia, Pa.]

Competitive designs for the erection of a monument in honor of the soldiers, sailors and marines who served in the war for the suppression of the rebellion are invited; to be submitted on or before March 3, 1902. Competition open to any architect who is a citizen of the United States. Copy of a printed programme will be furnished on application to Gavin Neilson, clerk of committee on soldiers' monument.

1364

### PROPOSALS.

Treasury Department, Office of the Supervising Architect, Washington, D. C., February 1, 1902. Sealed

### PROPOSALS.

proposals will be received at this office until 2 o'clock P. M. on the 11th day of March, 1902, and then opened, for the construction (except heating apparatus, electric wiring and conduits) of the U. S. Court-house and Post office at Cumberland, Md., in accordance with drawings and specification, copies of which may be had at this office or the office of the Postmaster at Cumberland, Md., at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect.

1364

#### COURT-HOUSE AND JAIL.

[At Grand Island, Neb.]

Bids will be received by J. L. Schaupp, county clerk, at his office, Grand Island, Hall County, Nebraska, until February 27, 1902, for the construction of a court-house and jail building. Plans and specifications are on file at the county clerk's office, Grand Island, Neb., at the office of Thos. R. Kimball, architect, 503 McCague Building, Omaha, Neb., and at the office of Dwight Heald Perkins, Steiway Hall, Chicago, Ill. J. L. SCHAUPP, county clerk.

1364

#### SCHOOL.

[At Monmouth, Ill.]

Sealed bids for the construction of an eight-room school-building will be received by the Board of Education, Monmouth, Ill., up to February 25, 1902. For plans and specifications apply to O. S. French,

### PROPOSALS.

secretary, or Reeves & Baillie, architects, Peoria, Ill. O. S. FRENCH, Secretary Board of Education.

1364

#### FREIGHT-HOUSE, BRIDGES, ETC.

[At Matanzas, Cuba.]

Office of District Engineer, Matanzas, Cuba. Sealed proposals for the erection of a freight-house, pier, railroad and bridges at Matanzas, will be received at this office until March 6, 1902. Information furnished on application. JNO. S. WINN, Captain 3d Cavalry, District Engineer.

1364

#### COURT-HOUSE AND JAIL.

[At Sibley, Ia.]

Bids will be received until February 15 for the erection of a \$50,000 court-house and jail. Kinney & Deitweiler, architects, Austin, Minn.

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#### COURT-HOUSE.

[At Lufkin, Tex.]

Bids are wanted February 20 for erecting a court-house; cost, about \$30,000. J. T. MARONEY, co. judge.

1363

#### SCHOOL.

[At West Concord, Minn.]

Bids are wanted February 15 for erecting a school. H. H. ORCUTT, clk.

1363

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| PROPOSALS.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | PROPOSALS.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | PROPOSALS.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
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| <p><b>STRUCTURAL WORK.</b> [At Des Moines, Ia.]<br/>Bids are wanted February 20 for the erection and completion of the structural steel and iron work, and concrete and fireproofing for the new Polk County Court-house. Address, BOARD OF SUPERVISORS, Proudfoot &amp; Bird, archts., 712 Crocker Building. 1363</p> <p>Treasury Department, Office of the Supervising Architect, Washington, D. C., January 25th, 1902. Sealed proposals will be received at this office until 2 o'clock P. M., on the 10th day of March, 1902, and then opened, for extension of wharf, buildings, etc., at the U. S. Quarantine Station, San Diego, Cal., in accordance with drawings and specification, copies of which may be had at this office, the office of the Custodian at the station, or the office of Superintendent of Construction, New Post-office at San Francisco, Cal., at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect. 1363</p> <p><b>POOR HOUSE.</b> [At Sparta, Wis.]<br/>Sealed proposals for poor house will be received until February 17, 1902, at the office of the county clerk, at Sparta, Monroe County, Wis., for the erec-</p> | <p>tion and completion of a poor house, including all labor and material excepting heating, plumbing and electric wire. Plans can be seen at the county clerk's office. (Signed) MYRON BRACKETT, Chairman of Building Committee. 1363</p> <p><b>STORE AND OFFICE BUILDING.</b> [At Glenwood, Minn.]<br/>The undersigned hereby gives notice that sealed proposals for the erection of a two-story pressed-brick store and office building at Glenwood, Minn., including all labor and material, will be received by E. M. Webster until the 24th day of February, 1902. All bids must be in strict accordance with plans and specifications prepared by Charles S. Sedgwick, architect, 1027 Lumber Exchange, Minneapolis, which may be seen at the office of the architect, on and after February 8, 1902, and also at office of E. M. Webster, Glenwood, Minn. (Signed) E. M. WEBSTER, Glenwood, Minn. 1364</p> <p><b>BUILDING.</b> [At Bremerton, Wash.]<br/>Sealed proposals will be received at the bureau of yards and docks, Navy Department, Washington, until March 8, 1902, for constructing a brick building at the navy yard, Bremerton, Wash. Appropria-</p> | <p>tion, \$67,000. Plans and specifications can be seen at the bureau or at the navy yard named, or will be furnished upon deposit of \$10 to secure their return. MORDECAI T. ENDICOTT, chief of bureau. 1364</p> <p><b>PAVING, ETC.</b> [At Hoboken, N. J.]<br/>Bids will be received at office of city clerk until February 26 for curbing, paving with Belgian block, etc., on 7th St. JOHN HAGGERTY, city clerk. 1364</p> <p><b>STEEL AND IRON WORK.</b> [At Fort Monroe, Va.]<br/>Engineer Office, U. S. Army, Custom-house, Norfolk, Va. Sealed proposals for furnishing and delivering steel and iron work for six range towers at Fort Monroe, Va., will be received here until February 27, 1902. Information on application. 1364</p> <p><b>SCHOOL.</b> [At West Concord, Minn.]<br/>Bids will be received until February 15 for the erection of the school-building, on plans by F. D. Ork, architect, of Minneapolis. H. H. ORFF, clerk. 1363</p> |