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CONTENTS.

SUMMARY:—

The proposed Charles River Dam between Boston and Cambridge. — A Chicago Solution of the Domestic-servant Problem. — Mosquito Extermination in South Orange, N. J. — The Mosquito Pest in Venice. — The Story of the Tiara of Saitapharnes. — Counterfeit Works of Art in Public and Private Collections. — The Prix de Rome open to Women Students. — Report of the Boston Museum of Fine-Arts.	33
NOTES ON IRON AND STEEL CONSTRUCTION. — XVI.	35
PLASTERING IN CANADA.	37
BOOKS AND PAPERS.	39

ILLUSTRATIONS:—

A House in Iowa. — Stable of Wm. R. Grace, Esq., Great Neck, Long Island, N. Y. — East Boston High-school House, Boston, Mass.	
Additional: Front View: Phi Delta Theta Club-house, University of Pennsylvania, Philadelphia, Pa. — Rear View of the same Building. — Director's House: Old Men's Home, Bruges, Belgium. — The King's Bedchamber, Château de Blois, Blois, France. — Dining-room in the Château de Lude, Sarthe, France. — The Palais de Justice, Ghent, Belgium.	39
COMMUNICATION:—	
The Seattle Library Competition.	40
NOTES AND CLIPPINGS.	40

THE Committee on Metropolitan Affairs of the Massachusetts Legislature has voted to report favorably a bill providing for the construction of a dam across the Charles River, between Boston and Cambridge, substantially in accordance with the scheme drawn up by the Commission which has been considering the matter for the past year. This scheme, so far as it has been made public, is an admirable one. The plan originally proposed, for building a half-tide dam, so that the salt water would flow up the stream of the river at high tide, is modified, and the Commission scheme pronounces definitely in favor of a dam to high-water mark, so that the water above it will be always fresh. This, to our mind, is a great improvement in the plan hygienically, as well as artistically. No one, perhaps, has ever been able to make the shore of a tidal river attractive. It is true that salt marshes are often interesting, and even beautiful, but the strip of mud which separates them from the stream is incurably offensive, at least in the neighborhood of cities, where it is inevitably the place of deposit of multitudes of floating impurities. The decomposition of these impurities is as unpleasant to the other senses as it is to that of sight, and the decision of the Commission, to substitute for the tidal stream a current of fresh water, at a constant level, will rejoice all persons who are interested in the Charles River. The only tributary of the Charles which will be affected by the dam is the Muddy River, which, after receiving the water of Stony Brook, flows into the Charles through the Fens. Stony Brook is, to a large extent, a sewer for a populous district, and, as it would be even less advisable to receive sewage into a fresh-water stream than into salt water, the Commission proposes that the plan, long discussed, for building a sewer by the side of Stony Brook, so as to keep its waters from pollution, should be carried out; and, as the Muddy River is not contaminated with sewage, the change will give the Fens, naturally one of the most beautiful city parks in the world, a sheet of fresh water, at a constant level, in place of the muddy tidal stream which now runs through it. The custodians of the Park report that the channel of this stream is already one-fourth filled with slime and mud, but the constant additions discourage them from attempting to clear it out. If the sewage which now enters it can be effectually shut out, as it would be by the Commission's scheme, a single dredging should be sufficient to restore it permanently.

AN extraordinary experiment has been made in a Chicago apartment-house, where a special portion of the house has been reserved for the women servants employed by the various tenants of the building. This portion, which is in a sunny part of the first story, forms, apparently, a sort of club-house, comprising nine bedrooms, a reception-room, a library and bath-rooms. The library is to be "well stocked with books, magazines and newspapers," and it is intended to make the servants "mistresses of a home which they can call their own." What the employers of the women are expected to do while their servants are engaged in improving their minds in the library, or in entertaining policemen in the reception-room, is

not stated; but "it is hoped" that these attractions will induce the women to "keep their places," and thus lighten the burden of the families which they are supposed to serve. It is possible that they may have this effect, but, at the same time, the experiment seems a decidedly hazardous one. No one could object to giving servants pleasant rooms, baths and other comforts, but it is one thing to have these provided for young and inexperienced girls in connection with the family to which they belong, and quite another to encourage these girls to herd together by themselves, under no restrictions, apparently, where their characters will be at the mercy of the worst among them. Chicago servants may be different from others, but it is safe to say that nowhere else would the mothers of young girls, from seventeen to twenty-five years old, consent to having them live in miscellaneous clubs of this sort, exposed to the temptations of a great city, and removed from the supervision of the families which are legally, as well as morally, bound to give them such protection as they desire. The Catholic Church has always been conspicuous in its care for young and unprotected girls of its own communion, and it would be interesting to know what it will say to this scheme.

THE first official report that we have seen of the results of systematic mosquito-extirpation comes from South Orange, N. J. Two years ago, a small fund was raised for applying oil to mosquito-breeding pools, and an energetic committee appointed to carry out the work. This committee began by putting crude petroleum on such stagnant pools as it could find within the limits of the village, and the result was to effect an "immense improvement" in localities where the pools could be easily reached; and, taking the town as a whole, to reduce the number of mosquitoes to about one-half the average. The next year, the pools were oiled again, together with a number of cesspools, which are found to breed multitudes of mosquitoes, and certain low-lying meadows, full of little holes, often made by the feet of cows, which produce great numbers of mosquitoes, but are difficult to oil in detail, were drained by ditching them, the ditches being subsequently oiled. It is noticeable that the oil not only prevents young mosquitoes from coming up from the pools, but kills the old ones, who are caught by hundreds in the thick liquid. Any one familiar with New Jersey will realize that the task of exterminating mosquitoes from any part of it is a serious one; and if South Orange succeeds, there are few towns in the United States which cannot follow in its footsteps with confidence.

IT is a common superstition that there are no mosquitoes in Europe, and some portions, both of England and the Continent, are practically free from them. Other portions, however, swarm with them; and it is to be hoped that the authorities of these portions are keeping a close watch on the American experiments. Venice, for instance, is so infested with mosquitoes during the summer months that it is necessary to provide the beds with nettings, which shut out the air, as well as the insects. It is not likely that the Venetian "zanzari" breed in the canals, the water of which is very salt, besides having a perceptible current; and, as there are, of course, no marshes or pools in the city, the inference is that they may breed in the rainwater cisterns, which formed, until within a few years, the sole supply of drinking water for Venice, and of which multitudes remain. Any one who has looked into the cisterns in the courtyard of the Ducal Palace can well believe that mosquitoes would breed in such water; and there must be hundreds of private cisterns in equally bad condition. As Venice is now abundantly supplied with water from the mainland, there is no further excuse for the existence of the cisterns, and the Municipality of Venice could hardly undertake an experiment more grateful to tourists, and more profitable to itself, than that of covering the water in all the remaining cisterns with petroleum. It is well ascertained that mosquitoes rarely fly more than a few hundred feet from their birthplace unless blown by a strong wind, and that they avoid this as much as possible, keeping under shelter in breezy weather. As Venice is about a mile from the nearest mainland, it would seem that the thorough oiling of the cisterns should completely exterminate them, never to return; and a town which depends so

much as Venice upon tourist travel, and which, except for the mosquitoes, would be, perhaps, the most attractive town in Europe to the multitude of American summer tourists, ought to find the experiment well worth trying.

THE story of the tiara of Saitapharnes, about which so much has been said in the newspapers, is given at length in *La Construction Moderne*. It appears that this piece of goldsmith's work has been the subject of disputes for several years. The tiara was purchased as a specimen of Greek art of the third century before Christ, and purported to have been dug up at Olbia, in the Crimea, while a long inscription on it indicated that it was presented by the grateful citizens to the Scythian King Saitapharnes. A certain Russian professor came to Paris, soon after it was purchased, and declared it a forgery, while another Russian professor, of equal note, also came to Paris, and declared that it was indisputably genuine. A German professor then examined it, and announced that the cold and tiresome monotony of the ornament was alone sufficient to prove it a forgery; to which another expert replied that the exquisite harmony of the decoration was ample evidence of its authenticity. Those who thought that it was a forgery even identified the forger, some believing him to be a certain Rachumowski, while others laid the imposition to the brothers Okman. As all these persons are now dead, they are unable to defend themselves; but, very recently, a third claimant appeared for the doubtful honor of having been its author, in the shape of a certain M. Mayence, otherwise called M. Elina, who revealed to some newspaper man that he was employed, fourteen years or so ago, by a Parisian jeweller, who had a manufactory of antiquities in the quiet village of Lagny, a few miles from Paris. In 1889, M. Spitzer, the famous collector and dealer in antiquities, who died recently, leaving an immense fortune, ordered, according to M. Elina, an object, of which he furnished drawings, accompanied by engravings, etchings and explanatory notes. M. Elina, as a skilful workman, was assigned to carry out the order. He made a model, first in wax, and then in plaster, M. Spitzer inspecting, criticising, and ordering alterations, until the whole was satisfactory, and directions were given to carry out the design in gold. M. Elina executed the commission, but, before delivering the object, which was none other than the tiara of Saitapharnes, he made some private marks upon it. Although a part of the decoration consisted in a long Greek inscription, which M. Elina executed according to directions, he did not pretend to be able to read the inscription, or even to know what language it was in; and, although he was sensible that the tiara was intended to pass as antique, he supposed that it would be called Egyptian.

THE tiara was duly delivered, and started on a series of journeys, from which it rested at last in a glass globe in the Louvre. How M. Elina's conscience was at last awakened, or how he came to recognize his handiwork in the glass globe, does not appear; but it is said that he is ready to describe the marks made by him on the tiara, and known only to himself, by which, as he thinks, it can be sufficiently identified. Meanwhile, the tiara has been withdrawn from exhibition, and the authorities of the Louvre have ordered an investigation, which will, undoubtedly, be thorough.

THE controversy about the tiara of Saitapharnes has, at least, had the good effect of opening the eyes of the public to the extent to which imposition is practised, not only in connection with antiquities, but in works of art, both ancient and modern. Even in Paris, where artistic property is carefully guarded by the law, spurious works, purporting even to be by living artists, are openly displayed by dealers; and the death of an eminent painter, and the consequent removal of the most effective witness against them, is a signal to such dealers to flood the market with forgeries. By long practice, the painters who stoop to this sort of work have become able to imitate the coloring and touch of living artists so closely as sometimes to deceive the artists themselves; and it is not surprising that the public is helpless against them. It is probable that, in the end, the knowledge of the danger of imposition will be a good thing for art. For one thing, it will deter rich collectors from paying enormous sums for objects which they can be sure will turn out, in at least nineteen cases out of twenty, to be forgeries, and is likely to induce them to divert their purchases to the works of living artists, who can be seen, if they wish, actually putting the paint on the canvas; and, perhaps

as a consequence of this, it is very possible that such patrons, who, it must be remembered, set the fashion for others, may be led to notice the beauties of the nature which they see represented in modern work, very much to the advantage, not only of their own minds, but of art itself.

NOTWITHSTANDING the disappearance from the class-lists of the Department of Architecture in the Paris School of Fine-Arts of its first female student, it is likely that there will be others to take her place. By a recent decree, the Prize of Rome, as well as the other prizes of the School, has been opened to competition to the women students, as well as the men; and this year, two young girls have been admitted to compete, one in sculpture, and one in painting, for the Grand Prize. Both of these young ladies already rank among the most brilliant pupils of the greatest school of art in the world. Mademoiselle Rondenay, in painting, has already won two medals, and the Huguier Prize; and Mademoiselle Rozat, who will compete in sculpture, has received several prizes. No one who is interested in modern art can have failed to observe that a great deal of the best work is now done by women. In England, to our mind, almost the only modern painting of any interest is that of women artists, but we confess to a lack of appreciation of the vampires, sirens and similar monstrosities, to say nothing of the aesthetic affectations, which seem to occupy the minds of painters of the stronger sex. In France, where there is plenty of bad painting among the men, there is also a great deal of good work; but, even here, women have lately been conspicuous for their success. No one could be freer, for example, from all suspicion of the manoeuvres by which artistic reputations are often increased, in Paris, as elsewhere, than Madame Demont-Bréton, and the honors which she has lately received, and which seem to have been conceded to her by the unanimous voice of artists and the public alike, have been no greater than she has merited. Whether women will ever take the place in architecture that they have in the other arts remains to be seen; but, under the new regulations of the School of Fine-Arts, a girl can live at home in almost any part of France, and compete, on equal terms with the men, for all the "recompenses" of the School, and it will be strange if some of them do not take advantage of the opportunity.

THE Report of the Boston Museum of Fine-Arts, just issued, is a remarkably interesting one. It begins, naturally, with notices of the late Director, General Loring, Mr. Benjamin Ives Gilman, in particular, giving a most charming and sympathetic account of his life, and of his services to the Museum. The reorganization which would, undoubtedly, have been necessary this year, even if there had not been a new Director, has led to many changes. The new Department of Egyptian Antiquities, which the great and increasing value of the Egyptian collections of the Museum seemed to make it necessary to establish, has been placed under the charge, as Curator, of Mr. Albert Morton Lythgoe, while Mr. John Briggs Potter has been appointed Keeper of Paintings, and Mr. Oliver Samuel Tonks Assistant Curator of Classical Art. These appointments have been due in part to the wish of the Trustees to continue more efficiently the policy of giving personal explanations of the collections to those who wish for them, and it would be difficult to render a greater service to the public than to facilitate inquiry in this way. It is gratifying to find that the number of serious students who visit the Museum appears to increase. It is, perhaps, not so generally known as it should be that the Museum grants free season tickets of admission to the principal institutions for higher education in and about Boston, and the number of these tickets issued affords some index of the interest felt in its collections by American young people of trained intelligence. Judged by this standard, Wellesley College leads all the other institutions of the kind included in the list. Although it is situated at a distance, and is conducted under very strict rules as to the absence of students, one hundred and fifty-six out of its eight hundred girls have applied for season tickets, and, presumably, use them. Harvard University, with nearly five thousand students, has received three hundred and fifty-one tickets, so that the interest of the Wellesley students in the collections may be reckoned as being more than three times as great as that of the Harvard men. The Massachusetts Institute of Technology has taken one hundred and twelve tickets, most of them, probably, for the benefit of the students in the Department of Architecture, who find the Museum casts very useful.

NOTES ON IRON AND STEEL CONSTRUCTION.¹—XVI.

IN this article it is proposed to consider the solution of the stresses in frames where one or more joints are subjected to such a number of stresses that three of them are insoluble by the usual graphical method. It has been previously stated that any joint can be solved where only two unknown forces exist, but the third unknown introduced makes the solution indeterminate. As complicated frames, with joints formed by the junction of many members, are common, some means must be found by which all of the stresses at a joint except two may be found.

The third unknown stress at any joint in a framed structure can usually be obtained by the employment of either one of three methods. They are: By inspection and the determination of symmetry of the truss, by the principle of moments, and by the reversal of a diagonal.

The First Method.—The method of symmetry will be applied in the analysis of the stresses for the Polenceau, or Fink, roof-truss shown in Figure 111. This truss is symmetrically loaded, and the reactions R_1 and R_2 are each equal to one-half of the load upon the truss. The load-line extends, in the stress diagram, from a to j , and the reactions are represented by jz and za . In analyzing the joint $A B K Z$, an indefinite line is drawn from b in the stress diagram parallel with the member BK in the frame diagram, and a line is drawn from z in the stress diagram parallel with the member KZ , the intersection of the two lines giving the point k , and the polygon of forces around the joints reads from a to b , from b to k , from k to z , and from z back

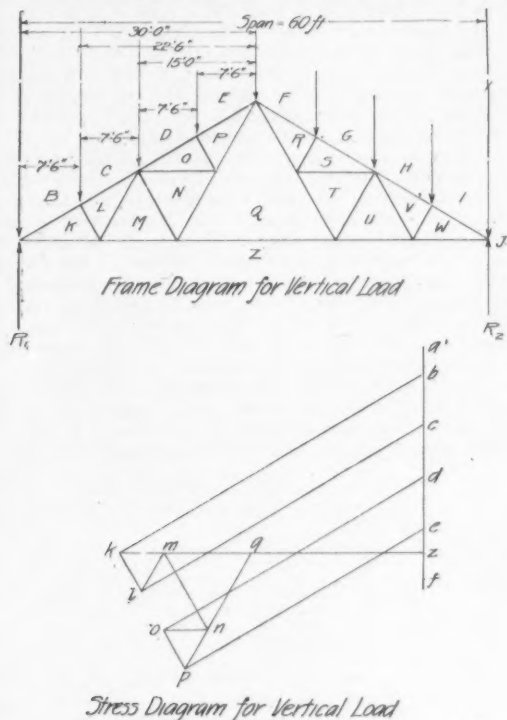


Fig. 111.

to the point of commencement, or a . The joint $B C L K$ offers no difficulty by the usual method of solution, and is represented in the stress diagram by the lines bc , cl and lk . The joint $K L M Z$ may next be analyzed, and when the polygon of forces around this joint is closed, the point m has been determined. A further solution of the truss is halted at either the point $C D O N M L$, or $M N Q Z$, from the fact that at each of these joints there exist three unknown forces; at the first the unknown stresses are in the members $D O$, $O N$ and $N M$, while in the latter forces $M N$, $N Q$ and $Q Z$ have not been determined. Since this condition exists at these points, due to the fact that the length of the third line is not known, any number of polygons of forces may be drawn for either of these joints. Several such polygons are indicated in the stress diagram by the dotted lines. It is evident, therefore, that before the complete and accurate solution of the frame can be made, some means must be decided upon for obtaining the stress in the third member. By inspection of the frame diagram it will be observed that the joint $B C L K$ is the same as the joint $D E P O$, and that as $O P$ bears the same relation to $D E$ as $L K$ does to $B C$, and because $B C$ is equal to $D E$, the stress in the member $K L$ must be equal to the stress in the member $O P$. This assumption having been made, it is quite allowable to infer that the stress in $O N$ is equal to $L M$; upon this basis the solution of the stress for the frame will be continued, and indefinite lines may be drawn from the points d and e , parallel with the rafter-member in the frame diagram; these two parallel lines are at the same distance apart as the lines drawn from b to c , so that if the stress in

the member $O N$ is equal to the stress in the member $L M$ already drawn in the stress diagram, and if the point m falls in the centre of the space between the lines bc and cl , it is quite evident that N must lie along the line in the centre of the space between the indefinite lines $d o$ and $e p$, but it is also known by inspection of the frame diagram that the point n must lie on a line in the stress diagram drawn from m , which is parallel with the member $M N$ in the frame

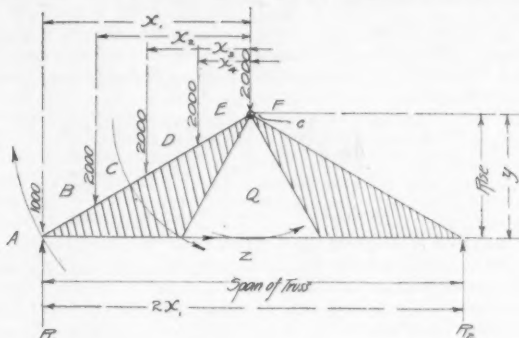


Fig. 112.

diagram; an indefinite line, therefore, drawn from m in the direction designated will intersect the centre line and give the point n . The intersection n thus having been located, the points p and o may be obtained by drawing from n lines parallel with the members $O N$ and $P Q$ in the frame diagram, and the stress diagram for half the truss is completed by drawing the line op parallel with the member similarly marked in the frame diagram.

The Second Method.—It is quite evident in the above solution that if the stress in the member $Q Z$ could have been obtained, only two unknown forces would have existed about the joint $M N Q Z$, and, consequently, that if this joint had been solved entirely there would have been only two unknown forces about the joint $C D O N M L$. The method of symmetry need not therefore be depended upon for the solution of this truss, for the stress in the member $Q Z$ may be calculated by the principle of moments. In Figure 112 is shown a diagrammatical outline of the truss. The two principal portions are section-lined, and it is quite evident that if these section-lined portions were regarded as solid and were hinged about the point c , that the framed structure could be retained in equilibrium by means of the reactions R_1 and R_2 , the loads $A B$, $B C$, $C D$, $D E$ and $E F$, and by the stress created in the member $Q Z$ which retains the truss from spreading. The loads and the stress in the member $Q Z$ each tend to revolve the left-hand portion of the truss in the direction opposite to the hands of a clock, while the reaction R_1 institutes a tendency for the left-hand portion of the truss to revolve about the point

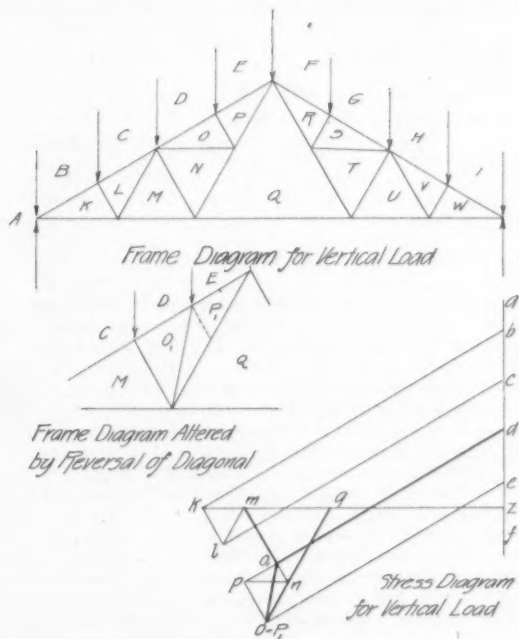


Fig. 113.

c in a direction corresponding to the movements of the hands of a watch.

The algebraic sum of the moments about the point c may therefore be expressed by

$$A B x_1 + B C x_2 + C D x_3 + D E x_4 + Q Z y = R_1 2 x_1$$

so that the moment of the member $Q Z$ is determined by the equation:—

¹ Continued from No. 1420, page 84.

Moment $QZ = \text{Moments}$

$$\frac{AB + BC + CD + DE + EF + QZ}{R_1}$$

But the moment of QZ is equal to the amount of stress in the member QZ multiplied by its lever-arm, which is the perpendicular distance from the line of action of the member about the point c , or the rise, which may be designated by y ; hence, stress $QZ = \frac{\text{Mom. } QZ}{y}$. If

the dimensions of the truss are as designated in Figure 111, and the moments of the loads are as shown in Figure 112, and reactions are as shown, the calculation for the stress in the member QZ may be made as follows:—

$$\begin{aligned} \text{Moment } AB &= 1,000 \times 30 = 30,000 \text{ foot-pounds.} \\ \text{Moment } BC &= 2,000 \times 22.5 = 45,000 \text{ foot-pounds.} \\ \text{Moment } CD &= 2,000 \times 15 = 30,000 \text{ foot-pounds.} \\ \text{Moment } DE &= 2,000 \times 7.5 = 15,000 \text{ foot-pounds.} \\ \text{Moment } EF &= 1,000 \times 0 = 0 \text{ foot-pounds.} \end{aligned}$$

$$\text{Total moment of loads} = 120,000 \text{ foot-pounds.}$$

Moment of reaction of $R_1 = 8,000 \times 30 = 240,000$. The difference between the sum of the moments of the loads and the moment of the reaction of R_1 is, in consequence, equal to $240,000 - 120,000$, or 120,000 foot-pounds. This result is the moment that must be created by the member QZ about the point c in order to maintain the truss in equilibrium, so that if the rise of the truss is 15 feet, as designated, by substitution in the formula:—

$$\text{Stress } QZ = \frac{\text{Mom. } QZ}{y}$$

the value of the stress in the member $QZ = 120,000 \div 15 = 8,000$

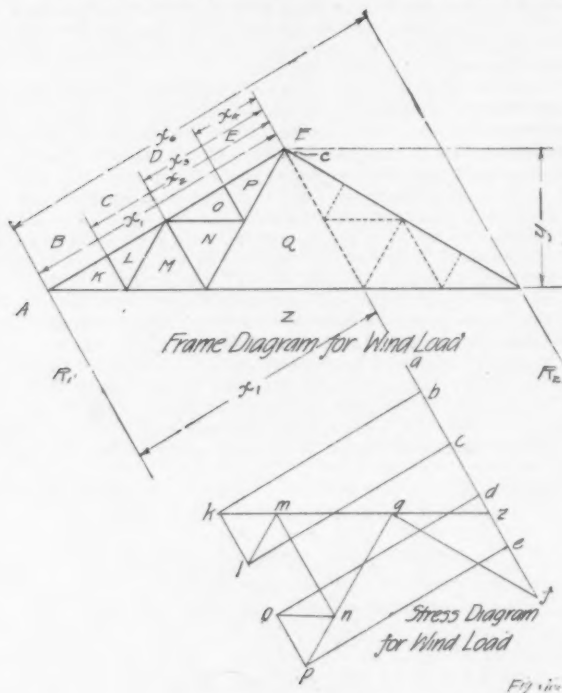


Fig. 114.

pounds. When the stress in this member has, in this manner, been determined, the point q may be located in the stress diagram shown in Figure 111 by measuring upon the line ZK a distance to scale equal to the stress just found. When q has thus been determined, a line drawn from q parallel with the member PQ in the frame diagram will locate the point p , and o may be located on a line extended indefinitely from the point d and parallel with the member DO , by drawing from the point p a line po parallel with this member; n is found by drawing from o , already determined, a line om parallel with the member OM in the frame diagram. The polygon of forces, after the line mn has been drawn, for the joint $MNQZ$, will extend in the stress diagram from m to n , from n to q , q to z , and from z to the point of commencement m . No further difficulty will be encountered in the solution of the stresses due to the dead loads in this truss, for the loads being equal, the stress diagram will be symmetrical, and a complete diagram will be represented by the solid and dotted lines.

The Third Method.—This method for determining the stresses around the joint where three unknown forces exist is by the reversal of the diagonal subdividing one of the panels. Referring to Figure 113 it is evident that if the diagonal is reversed, that is, crosses its present position, there will only be two unknown forces around the joint $CDONML$. The figure shows the frame diagram of the Polenceau, or Fink, truss with the diagonal beyond the insoluble joints reversed. When the diagonal is reversed in this manner the member designated by OP is useless, from the fact that it is a force act-

ing upon two opposing forces coinciding in direction, which, as there is but one other force, must be equal, so that equilibrium is maintained at the joint NPQ without the introduction of the member OP . This member can, therefore, be eliminated, and the space be designated as p_1 . The load-line for the stress diagram of the figure is drawn as before, and the polygon of external forces extends from

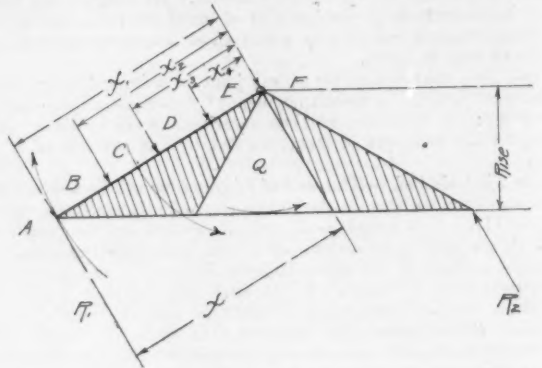


Fig. 115.

to b , from b to c , from c to d , from d to e , from e to f , from f to g , from g to h , from h to i , from i to j , returning from j to a . The joints of the frame diagram $ABKZ$, $BCLK$ and $KLMZ$ are readily solved. The joint $CDNML$ is analyzed by drawing from d an indefinite line parallel with the member DO , and from m a line parallel with the member MO , the intersection giving in the stress diagram the point o . Before analyzing the joint $ONQZ$, $DENO$ must be solved; the solution of this joint is determined by drawing from e an indefinite line parallel with the member EP , and a line intersecting from the point o parallel with the member PO ; thus the point p will be obtained. The stresses around the joint $ONQZ$ may next be determined by drawing pq parallel with that member in the frame diagram. By the reversal of the diagonal in the manner just described, two points in the stress diagram for the original truss which previously were wanting have been obtained—they are the points p_1 or o and q . The diagonal which has been in this manner reversed can now be replaced, and the stress diagrams shown by the lighter lines may be drawn without difficulty.

The wind-stress diagram for the truss under discussion is shown in Figure 114. The solution of the frame diagram may be accomplished by any of the three methods just described. If the method of moments is employed, the truss may be considered as hinged about

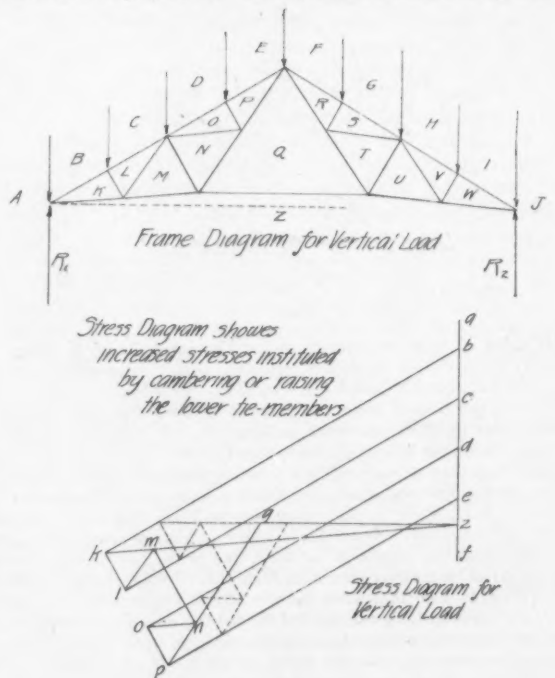


Fig. 116.

the point c , and then the notation for the calculations of the stress in the member QZ will be as follows:—

$$\begin{aligned} \text{Moment } AB &= AB \times x_1 \\ \text{Moment } BC &= BC \times x_2 \\ \text{Moment } CD &= CD \times x_3 \\ \text{Moment } DE &= DE \times x_4 \\ \text{Moment } EF &= EF \times x_5 \end{aligned}$$

From the sum of these moments will be deducted the moment of

R_1 , which is equal to $R_1 \times x_1$, the difference thus obtained divided by y will give the required stress. The calculation for the stress in the member QZ in the wind-stress diagram is possibly clearer by reference to Figure 115.

The Polenceau, or Fink, truss is often constructed with a cambered tie-member, as designated in the frame diagram, Figure 116. When the lower chord of the truss is raised in this manner the stresses, in a majority of the members, are greatly increased. The only members in which the stresses are not increased are those marked in the frame diagram KL , MN and OP , together with the corresponding members upon the other side of the truss. By cambering the lower tie-member the wind-stress diagram is altered, from the fact that the members RQ and TQ are subjected to stresses from the wind-loads upon the left-hand portion of the truss.

In Figure 117 is shown a type of roof-truss that may conveniently be used for supporting a covering for a train-shed or car-barn. The solution of this truss is interesting from the fact that it cannot well be analyzed by applying the method of symmetry, but it can readily be solved by the reversal of the diagonal. In the figure the frame diagram is shown supporting vertical loads at the several panel points. In the stress diagram one-half of the load-line is first laid out by representing to scale the loads ab , bc , cd , de , ef and fg . The truss being symmetrically loaded, the vertical reactions are equal, so that the point z is located midway between f and g . Commence the diagram at the left-hand joint of the truss, that is, the joint around which the members BM and MZ are assembled. To analyze this joint draw in the stress diagram from the point b , a line parallel with

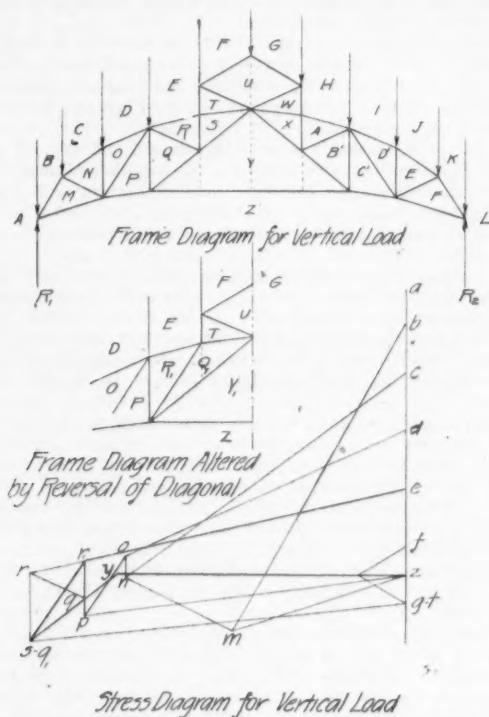


Fig. 117.

the member BM , and from p z , a line parallel with the member MZ ; the point of intersection will be m , and the polygon of forces around the joint will extend from a to b , from b to m , from m to z and from z back to a , the point of commencement. The next point encountered in the analysis is $BCNM$, and in order to solve the stresses forming this connection, draw from c in the stress diagram a line parallel with CM and from m a line parallel with MN , these two lines intersecting at the point n , and the polygon of forces is completed by the diagram extending from c to n , from n to m , from m to b and from b returning to the point c . Before applying the graphical solution to the joint $MNOPZ$ it is necessary to solve the stresses around the joint $CDON$. In order to draw these several stresses in the diagram, describe from d an indefinite line in a direction coincident with the member DO and intersect this line by a line drawn from n parallel with the member ON , thus obtaining the point o , and completing the polygon, which extends from c to d , from d to o , from o to n and from n to c . Having in this manner determined the stress in the member ON , there exist around the joint $MNOPZ$ but two unknown forces, OP and PZ . To find these forces, or the stresses in the members designated by these letters, draw from o in the stress diagram an indefinite line op , parallel with the member OP , and from the point z extend a line intersecting the last line drawn, and in such a direction that it will lie parallel with the member PZ , thus locating the point p . The last polygon of forces will extend from m to n , from n to o , from o to p , from p to z and will return to the point of commencement m , as designated. Further analysis of the frame diagram by the usual method is now halted from the fact that at either the next joint upon

the upper or lower chord there exist three unknown forces, and it will also be found that the stress diagram cannot be worked further than one joint by commencing at the apex of the truss; on account of the existence of these conditions the diagonal PQ is reversed, and the frame diagram is redrawn as designated in the figure. When the frame diagram has been redrawn, the former member RQ , being reversed, is represented by R_1Q_1 , while the original member RS , owing to the conditions being changed by the reversal of the diagonal, becomes useless. The original frame diagram may now be disregarded, and the solution completed for the new frame diagram. Commencing with the solution of the joint $DE R_1 P O$, draw in the stress diagram from e a line parallel with the member ER_1 and from p extends a line parallel with R_1P ; thus will the point R_1 be located. It is found upon inspection that the joint $P R_1 Q_1 Y Z$ contains three unknown forces, so that this joint is not capable of solution, but the joint at the apex of the frame diagram may be described in the stress diagram. Analyzing the stresses around this joint, draw from the point f a line parallel with the member FU until it intersects the line fu , and from the point g draw a line parallel with the member GU ; thus the point u will be located. In the lettered frame diagram the solution of the joint $EFUT$ is readily made by describing over the former line ug , showing that the point t coincides with the point g . The stress in the member ET exists in the stress diagram between the points so marked. The stress in this member, by inspection of the frame diagram, is known to be equal to the sum of the load EF , and the vertical component of the stress in the member FU . Now that the stress in the member FU has been determined, there are but two unknown forces about the joint of the altered frame diagram marked $ETQR_1$. To find the stresses in the members TQ_1 and Q_1R_1 go over the polygon in the stress diagram extending between the points et , tq_1 and q_1r_1 ; the point q_1 obtained in tracing this polygon is the desired point for the solution of the original frame diagram, for it is likewise the point s , and by means of this fixed point, the stress around the original joint $ETSR$ is readily found, and the joint $QRSY$ is solved as designated. This example just described sufficiently demonstrates the method for finding the third force, where three unknown forces exist at a joint, known as the method of the reversal of the diagonal.

In the next article will be considered trusses with horizontal thrusts, and likewise those in which the principal supporting-members are subjected to transverse stress.

M. M. SLOAN.

(To be continued.)

PLASTERING IN CANADA.

AT the request of the Toronto Chapter of the Ontario Association of Architects, Mr. W. J. Hynes, on behalf of the Plasterers' Section of the Toronto Builders' Exchange, has prepared and submitted the following description of materials, methods, tools and trade definitions used in plastering, which appears in the *Canadian Architect*, the object being to assist in bringing into use specifications that shall be more nearly uniform than those heretofore employed:—

DESCRIPTION OF MATERIALS USED IN PLASTERING.

1. No. 1 wood lath consists of white pine, cedar or spruce, free from large knots or bark, $\frac{3}{8}$ inch thick, 4 feet long, in widths of 1 inch, $1\frac{1}{4}$ inches and $1\frac{3}{4}$ inches, of uniform dimensions.
2. No. 2 wood lath consists of hemlock, hard pine and culls from white pine, cedar or spruce, of irregular dimensions.
3. Expanded-metal lath made from sheet-steel, cut and expanded, may be procured either in the naked steel or painted. The Expanded Metal Company, of Toronto, manufacturers.
4. Hayes's metal-lathing is made from sheet-steel which is perforated, with the points of perforations turned back to form keys. Manufactured by the Metallic Roofing Company, Toronto, either plain or painted.
- For either metal-lathing the bearings require to be not more than 12-inch centres.
5. Gray lime from Georgetown, Limehouse and Milton is generally used for mortar for the undercoats in plastering. It should be well burned and used while fresh.
6. White lime from Guelph, Galt, Innerkip and other places is used for the finishing-coat. Like the gray lime, it requires to be well burned and should be made into lime putty while fresh.
7. "White-rock finish," a new preparation on the market, appeals strongly for consideration, from the fact of its being scientifically ground and slacked with only sufficient water to complete the slacking, leaving the product in the form of dry powder which can be conveniently handled and used same as lime putty. Manufactured by the Imperial Plaster Company, Toronto. To be used according to the directions of the manufacturers.
8. Plaster made from gypsum requires to be finely ground and properly calcined. Should be white in color and of uniform setting properties. Our market is chiefly supplied by the Albert Manufacturing Company, of Hillsborough, N. B.
9. Sand for lime mortar should be sharp and clean, but not too coarse; for cementwork coarse sand is best.
10. Hair should be long winter-cattle or goat hair properly saved.
11. Fibres have been offered as substitutes for hair, but nothing at present offered answers the purpose.
12. Nails for wood-lathing $1\frac{1}{2}$ inches long, of good weight and head.

For expanded-metal large-headed slater's nails. For Hayes's lathing heavy lath of good head.

13. Metal angles — Hoidge metal angles, patented and manufactured here, are a good protection for external angles.

14. "Hair mortar" consists of gray lime properly slacked and mixed with clean, sharp sand, to which is added sufficient hair to hold the material from falling or wasting through keys of lathwork.

15. "Straightening mortar" made same as above with a greater quantity of sand and one-third the quantity of hair.

16. "Coarse stucco" made from gray lime, or white, as desired, with clean, coarse sand.

17. "Lime stucco" made from lime putty or white-rock finish, mixed generally one of lime to three of clean, sharp sand.

18. "Lime putty" made from white lime slacked with a surplus of water, run through a fine sieve, and allowed to stand in vats until fit for use.

19. "Gauging" is the term used to describe the admixture of calcined plaster with mortar or lime putty. The larger the proportion of plaster used the stronger the work will be. The same term is used to describe the mixing of cements with mortar, sand, lime or other material.

20. Portland-cement gauged with lime mortar is used generally for outside work and first coat on lathwork, the proportion varying according to requirements.

21. Portland-cement stucco generally used for outside work and places subject to damp or moisture. When applied on lath use one of Portland, three of sand and add one of hair mortar. Second coat, three of sand, one of Portland, and finishing-coat generally two of Portland to five of sharp sand. When used on lathing metal-lath is to be preferred.

22. Portland-cement work is generally conceded to be the best base-coating for Keene's or white cements.

23. Keene's, parian, Martin's, generally described as "white cements," were originally patented. The base of all is gypsum mixed with alum or borax and recalcined and ground. English Keene's cement is generally made in three grades — coarse, fine and superfine, the first of a pink shade and the latter pure white.

24. For base-coats, Portland-cement work is generally used, but many manufacturers advocate the use of coarse Keene's and sand. This method requires that the heads of all lath nails and exposed metalwork be well shellacked to avoid rust. For first coat, use two coarse Keene's, three sand. For second coat, use one of coarse Keene's, one sand. Finish with neat cement.

25. Victoria Keene's cement, manufactured in England by Caf-ferata & Co., allows the use of lime in small proportions. This greatly reduces the cost, not so much in the material as in the ease and speed with which work may be executed.

26. Best's American Keene's also uses this method for plastering.

In specifying these materials it is advisable to say they shall be used as directed by the manufacturers.

27. Patent or hard plasters are numerous. The base of nearly all is calcined plaster mixed with sand, cement, hair or fibre, and treated with a chemical retarder which delays setting and allows time for use. They are generally good, being machine-made, of accurate proportions, and furnished at building ready for use with the addition of water only. To save cost of transportation some are delivered ready to use by mixing with sand and water. Owing to the increased cost of this material thinner grounds are used.

28. Wood-fibre plaster, made in Toronto by the Imperial Plaster Company, is the best and most general in use here. It is supplied ready for use by adding water only.

29. "Paristone," made by the Alabastine Company, Paris, Ontario, is supplied without sand and contains no hair or fibre.

30. "Rock wall plaster," made by the Albert Manufacturing Company, Hillsborough, N. B., is supplied without sand. It is advisable to specify these materials to be used as directed by the manufacturers.

31. Patent or hard plasters make only the base or rough coats. Good stucco or float-finish work may be done with them, but all depend upon lime-putty or white-rock finish for a trowelled coat.

33. Blackboards: Potter's blackboard material, made by the Soapstone Finish Company, Chester Depot, Vt., is generally used. Some contractors have their own compounds and methods. They should be black, hard, smooth, but free from shine or polish.

DESCRIPTION OF WORK DONE IN PLASTERING.

1. "Rendering" is a good coat of hair mortar on brick or stone walls before lathing.

2. "Back-plastering" is lathing and plastering with one good coat of hair mortar on any framework which may be required before regular lathing is done. Back-plastering, when done between timbers, is a slow and expensive process. It is better to lath and plaster the timbers and restrap lath and plaster, as this method gives complete separation of woodwork.

3. "Deafening" is a body of plastic material laid on boards fixed between joists of a floor, composed of lime-screenings and cinder or ashes, or lime and mill shavings about 2 inches thick. The use of cement in deafening is a detriment, as when made hard the deafening properties are destroyed.

4. Wood-lathing should have joints broken every twelfth lath, nailed $\frac{3}{4}$ inch apart for ceiling-work and $\frac{1}{4}$ inch apart for wall-work. Ends butted; no vertical lath allowed.

5. Metal-lath should have bearing not exceeding 12-inch centres

nailed with flat-headed nails for either metallic lath or expanded-metal, and if finishing-coat is required must be specified "three-coat work," as all metal lath must receive a scratch-coat foundation for straightening. Arches, groins or furring for heavy mouldings are best executed with metal-lath.

6. "One-coat work" is one good coat of hair mortar or other plaster about $\frac{1}{4}$ inch thick and floated to an even surface.

7. "Two-coat work" is one good coat of hair mortar straightened with a tool called a "darby" and floated. After this coat is dry apply coat of white lime and plaster with sand, if desired. The work cannot be made more than reasonably straight.

8. "Three-coat work" is one good coat of hair mortar well scratched. Second coat of straightening mortar laid plumb and true. After this coat is dry apply coat of white lime and plaster with a mixture of sand, if desired, and extra well trowelled or polished.

9. "Rough-casting" is a good coat of hair mortar left from the "darby," and when dry apply slap-dashed with a mixture of lime and clean, fine gravel.

10. "Stucco": This term is used to describe plastering work finished with a wooden tool or float, leaving a rough granular finish.

11. "Rough or two-coat stucco work" consists of one coat of hair mortar well scratched and finished with coarse stucco applied when under-coat is dry, straightened with a "darby" and brought to a rough uniform surface. This work cannot be expected to be more than reasonably straight.

12. "Three-coat stucco or float finish" consists of one coat of hair mortar well scratched, with a second coat of straightening mortar laid plumb and true and finished with a coat of fine stucco properly floated to uniform granular surface.

13. "Bastard stucco" consists of work executed as described for three-coat work, with the exception of the last coat being composed of two parts lime putty to three of sand laid true and floated to an even surface. This is then trowelled to a hard surface, but the face is not made perfectly smooth.

14. "Trowelled stucco" is same in material and method as bastard stucco, the difference being that it is trowelled until face is brought to a true smooth surface. In both bastard and trowelled stucco the undercoats must be thoroughly dry; there being no plaster or cement used in this work the success depends upon proper and uniform suction.

15. "Dubbing out" is the term given for the necessary work in preparing the uneven surface of rough brickwork or fireproofing to allow of plastering. If done with mortar it will require that no more than $\frac{1}{2}$ inch be put on at one time and may take several coatings to bring work to the proper surface. By using gauged mortar or hard plaster the necessary thickness may be applied at one operation.

16. Portland-cement work requires same methods for stucco work as here described for mortar, the proportion of materials being as described under Materials, clauses 20 and 21.

17. Trowelled Portland-cement requires undercoats, as described above, and is finished with two of Portland, one of fine, sharp sand, to which is added one-twelfth of fine lime putty, laid even and trowelled to a fine polished surface.

18. Keene's-cement work may be finished as described for plastering work, the proportions being as described under Materials, clauses 23, 24, 25 and 26.

19. Plaster mouldings are formed with gauged mortar and finished with gauged putty. When weight of mouldings is not too great, the mortar may be dispensed with. Owing to the danger from settlements and shrinkages the thickness of these mouldings should not exceed $1\frac{1}{2}$ inches in any place. All heavier work requires to be bracketed.

20. Keene's-cement mouldings are executed in neat Keene's cement, either coarse or superfine as may be desired, with a backing of coarse Keene's and sharp sand.

21. Plaster castings are composed of plaster and cast from moulds required by the design or article to be duplicated.

22. Staff castings are composed principally of plaster to which fibre or canvas has been added before the plaster has set. Their cost is no greater than for the plaster castings, and they are much stronger, allowing of very large work to be made in one piece. These casts may be sawn and fixed by nailing.

Staff calls for special attention. There is no limit to its possibilities as a decorative material, either in conjunction with run mouldings for enriched members or for the production of mouldings with enriched members and decorative features complete. By its use the entire decoration may be prepared while the building is in course of erection, ready to fix as soon as work is ready to receive it, in this way saving much valuable time. The manufacturers carry full stock of such ornaments as are in general demand, but work to detail requires special models, for which due time should be allowed. Specifications should state whether work is to be from stock or specially modelled to detail.

23. Wood-fibre plaster or other hard plaster may be specified for any work where mortar is used for interior as described in previous clauses. A great saving in time can be effected by its use, particularly in winter or damp weather.

24. Tools and terms: "Scratching" is the term used to describe the cross scoring of the first coat of mortar to form key for straightening coat or coarse stucco finish.

The "darby" is a wooden tool about 3 feet long, 4 inches wide

and $\frac{3}{4}$ inch thick, with two handles by means of which the first coat in two-coat work and the stucco coat in two-coat stucco are levelled or roughly straightened.

The "float" is a wooden tool about 14 inches long, 4 inches wide and $\frac{3}{4}$ inch thick, used after the "darby" and straightening-rod to level out the work, also for finishing stuccowork.

25. Grounds for plastering should be of soft pine firmly nailed and made true and straight. The thickness of grounds determines the widths of frames and jambs, and should be considered together. For brickwork or terra-cotta the thickness here given is supposed to be fixed close to wall; if unduly packed out to straighten defective walls a dubbing-out coat is necessary.

Two-coat work in lime mortar on lath, $\frac{3}{4}$ -inch grounds. Two-coat work in lime mortar on brick, $\frac{3}{4}$ -inch grounds. Three-coat work in lime mortar on lath, $\frac{3}{4}$ -inch grounds. Three-coat work in lime mortar on brick, $\frac{3}{4}$ -inch grounds. Grounds for metal lathing, $\frac{3}{4}$ -inch grounds. Two-coat work hard plaster on lath, $\frac{3}{4}$ -inch grounds. Two-coat work hard plaster on brick, $\frac{3}{4}$ -inch grounds.

BOOKS AND PAPERS

IT is difficult to believe that Millet's "Sower" should have been considered as an article of faith in Communism, or that the "Gleaners" should have been dubbed by such a distinguished critic as Paul de S. Victor "the three Fates of Pauperism," but it is no less a fact. Millet was a true conservative, leaving what is worthy, though it be of the past, and his deeply religious mind wanted no reform in what was good; but nevertheless he advocated progress where progress is good. "What every one ought to do is to seek progress in his own profession. Everything else is a dream." He saw the sadness of poverty, and wished others to see it—the daily toil of the peasant, the struggle for existence; and the only pleasures, a sense of duty and God-fearing calm and resignation. All his work demonstrates this. Critics spoke of the ugliness of it all; but Millet saw facts as they were. His "Man with the Hoe," bowed down to the earth from which he drew his living, was to him not ugly, but noble, in that he took life as it came, with all its poverty and suffering, but with thankfulness that work was still possible although rheumatism was in his limbs. Work and duty through life was sad: "You are sitting under the trees. . . . You see a poor faggot-laden figure turning out of some little path. . . . who carries to your mind the sadness of human life. . . . 'Quel plaisir a-t-il eu depuis qu'il est au monde?' Is this the gay, frolicsome work in which some people would have us believe? Yet, here for me is the real humanity, the great poetry."

Again, "I would on no account be deprived of winter. Oh, the sadness of the fields and woods, not to behold you would be too great a loss." To Millet festive occasions were sorrowful, the endings of years. "Here is another finishing to-night, how sad! . . . The joyful side never appears to me. I do not know what it is. I have never seen it. The most cheerful things I know are calm and silence" (1851). But he was not depressed, he had the "dark pleasure of a melancholy heart," as La Fontaine says; and need we call a pleasure in calm and silence morbid? Was it not rather the reflex of "How shall I get my month's rent?" how feed his children? Mainly, possibly, but not entirely. "Art is not a diversion, it is a conflict, a compilation of wheels in which one is crushed. I am not a philosopher. I do not wish to do away with pain nor to find a formula that will make me stoical and indifferent. Pain is perhaps the thing that gives artists the strongest power of expression." Peasant life, as it existed in France sixty or seventy years ago, and still exists to a certain extent, is difficult of comprehension to the Anglo-Saxon. Our people, when uneducated, are mere toilers of the soil; when educated, the love of the soil departs from them. The "Catholic Puritan," seeing all in God and taking all things from God, writing letters which would be a credit to a philosopher of culture, and possessing a library containing such books as Bossuet, Fénelon, St. François de Sales, St. Jerome, and St. Augustin, and yet tilling the ground as a laborer, is an exotic in the mind of a peasant Saxon. As soon as he can read such works he thinks himself above agriculture and must needs stuff himself into a badly-ventilated office in a stifling town. But in France, one may even now see a rich Norman farmer wearing a smart silver-buttoned blouse on a fête day; and Millet, like these, had no shame in calling himself a peasant.

For years the painter's father knew of his boy's taste, and yet he was obliged to keep him from his vocation from motives not unworthy of the man. "My poor François. . . . I should have been very glad to see you learn that painting business which they say is such a fine one, but I could not; you are the eldest of the boys and I needed you too much." But when his brothers grew older, Millet was taken to Clerbourg to interview an artist, who greeted the father thus: "You will be damned for having kept him back so long, for there is the stuff of a great artist in your boy."

In 1824 Constable wrote of the French landscape-painters that they only studied pictures, not nature, "they know no more of nature than cab-horses do of meadows. . . . They only see isolated bits detached from the whole, and neglect the general aspect of nature as

well as the different effects." But the Barbizon School followed Constable in nature-study. Rousseau dreamed in the forests, companionless but for the beasts of the field, and in "continual ecstasies over the trees of the forest, whose mysterious life he watched for days at a time. 'I heard the voice of the trees; the surprises of their movements, their varieties of form and even the strangeness of their attraction to the light suddenly revealed to me the language of forests. This whole leafy world was a world of the dumb, whose signs I guessed and whose passions I discovered.'" Here was the connecting-link of sympathy between the two painters, and not a little did the elder man influence the younger. And the same thoughts are expressed by Millet. He has no pleasure equal to "lying on the ferns and looking at the clouds." He runs to the forest every day after work and "feels crushed" at its beauty. "The calmness and grandeur are appalling." He knows not what the trees say to one another, because we do not "talk the same language. Only I don't think they make puns." Here is the real Millet, in sympathy with all nature, and seeing poetry in her simplest children, the sunsets, the mists, the stars, and the clouds. Rousseau not only influenced, but he helped Millet in his great need.

Of critics, Edmond About was the only one who really appreciated him; and yet everything that in Millet was cried down has, since his time, become, may we say, the fashion? As Rousseau, in the capacity of prophet, wrote to Théophile Gautier, "you have already given way to the allurements of the cockney spirit by receiving ill the only true painter that has appeared since 1830."

All animal lovers will feel certain that Millet's sympathy with the creatures of the forest must have been known to them, for a few days before the painter passed away, a poor stag, pursued by hounds, ran into his garden to die, knowing where sympathy and protection could be found.

For Millet's theories on art and his manner of work, we must refer the reader to M. Rolland's useful little book. It is not as exhaustive as some of the larger works on the subject; but, as a well distilled epitome of its forerunners, it is excellent, and the illustrations, many of them being reproductions of the painter's minor works, are most interesting. The "Drawers of Water" and the "Return to the Farm" are specially beautiful.

Miss Black's translation is good, but a singular mistake has cropped up in attributing "L'Enterrement d'Ornans" to Corot. It is by Courbet.

It seems a pity not to have added a list of the painter's works and their present owners.

ILLUSTRATIONS

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

A HOUSE IN IOWA. MR. W. G. RANTOUL, ARCHITECT, BOSTON, MASS.

STABLE OF WM. R. GRACE, ESQ., GREAT NECK, LONG ISLAND, N. Y. MESSRS. D'OENCH & SIMON, ARCHITECTS, NEW YORK, N. Y.

EAST BOSTON HIGH-SCHOOL HOUSE, BOSTON, MASS. MR. JOHN L. FAXON, ARCHITECT, BOSTON, MASS.

THE East Boston High-school house was placed under contract October 10, 1898, and was first occupied for school purposes on May 13, 1901.

Owing to the position of the site, in respect to the points of compass, the restricted area of the land, and a sharp uphill grade on Marion Street, the longest frontage, the problem presented many difficulties of adaptation to destined use and the desideratum of securing all possible sunlight in all class-rooms during school hours; the result being that out of twenty-four class-rooms and two halls, only three class-rooms are without sunlight during some portion of the school session.

The building, which accommodates six hundred and seventy-five pupils, consists of a basement of rock-faced granite ashlar, in regular courses, forming a terrace upon which the building proper is erected; the first, second and third stories are faced with light-cream brick, with the architectural members in light-gray limestone. The centres of the north and south façades are enriched at the second story by carved balconies; and the façade on Marion Street (between the projection of the north and south wings) is accentuated by an Ionic portico to the main entrance, richly carved, 70 feet long between the wings, having the city shield over the middle intercolumniation, and above, the head of Minerva, Goddess of Wisdom.

The principal entrance, from Marion Street, opening from the portico, has three wide doorways, opening to the main vestibule, which has a ceiling of groined vaulting, and the walls sheathed with Rubbio marble, with pilasters of beautifully veined verd-antique marble, with bases of black and green. To the right of the vestibule is the master's office, and to the left the reception-room.

The basement and upper stories are served by two staircases in monolithic concrete work, enclosed by solid walls of brickwork, with panelled and groined ceilings; the stairs are 8 feet 6 inches wide, in two runs.

¹"Jean François Millet." By Romain Rolland. Translated from the French by Clementine Black. London: Duckworth & Co. 2s. cloth; 2s. 6d. leather.

Back of the main corridors and between the staircases, forming the centre of the building, is the exhibition-hall over the drill-hall, a three-quarter circle, 49' 6" x 67' 6" x 40' high, which, including the balcony, seats about eight hundred people.

The ceiling of the hall is an elliptic dome with a clear span of 67 feet 6 inches and a rise of 16 feet. The stage, 14' x 29', is at the flat, or corridor, side of the hall, the back wall of the stage and the dome over being elliptic in section.

Under the exhibition-hall, in the basement, is the drill-hall, 59' 6" x 67' 6".

The basement contains, amongst other rooms, two bathrooms 12' x 27', girls' gymnasium 33' 6" x 56', and a lunch-room 33' 6" x 59', etc. The walls of the basement vestibules and corridors are finished with face brickwork and painted with white enamel, and the walls of baths and sanitariums are of white enamel brick; all other walls are painted white, and floors are asphalt and granolithic.

The first story contains two class-rooms 37' 6" x 42' 3", four class-rooms 27' 9" x 33' 6", two recitation-rooms 17' 1" x 26' 7", two teachers' studies and toilets, two wardrobes 18' 6" x 18' 6", reception-room 18' 6" x 18' 6", master's office 18' 6" x 18' 6". The master's office and reception-rooms have spacious fireplaces, with oak mantels and verd-antique marble facings.

In the second story besides the class-rooms, of which one is a botanical and zoological laboratory, is the library 18' 6" x 49', with fireplace same as in master's office. The library opens to a terrace over the portico by a French window.

The third story contains a lecture room and drawing-room, each 37' 6" x 42' 3", a physical laboratory and a chemical laboratory, each 33' 6" x 56', and other class-rooms as shown on the plan.

The walls of the wardrobes are wainscoted 5 feet high with Portland-cement, and have marble bases, and are fitted with specially designed clothes-racks, so that clothing may hang free of the walls; also specially designed and copper-lined racks for umbrellas and rubbers.

All class-rooms, recitation-rooms, studies, library, etc., have wainscoting of Portland-cement (no wood sheathing) and hospital bases, floors of rift hard pine, and walls painted in neutral tints.

The construction throughout is of the most thorough and substantial character, and has been pronounced by competent persons to be the best fireproof building in the country.

All exterior, partition and division walls are of solid brickwork (not of steel framing), and floors are of Guastavino tile construction, or of steel beams with terra-cotta arches in Portland-cement, and all plastering is done directly upon the masonry; the standing wood finish has been reduced to the lowest terms. The walls of the chemical and physical laboratories are of face-brick, painted with white enamel. The laboratories are fitted up with most complete and up-to-date fixtures and appliances for demonstration work.

Additional Illustrations in the International Edition.

FRONT VIEW: PHI DELTA THETA CLUB-HOUSE, UNIVERSITY OF PENNSYLVANIA, PHILADELPHIA, PA. MR. CHESTER A. KIRK, ARCHITECT, PHILADELPHIA, PA.

REAR VIEW OF THE SAME BUILDING.

DIRECTOR'S HOUSE: OLD MEN'S HOME, BRUGES, BELGIUM. MR. L. DELA CENSERIE, ARCHITECT.

This plate is copied from *L'Emulation*.

THE KING'S BEDCHAMBER: CHÂTEAU DE BLOIS, BLOIS, FRANCE.

DINING-ROOM IN THE CHÂTEAU DE LUDE, SARTHE, FRANCE.

THE PALAIS DE JUSTICE, GHENT, BELGIUM.



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

THE SEATTLE LIBRARY COMPETITION.

NEW YORK, N. Y., April 28, 1903.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Dear Sirs,—I note your commendation of the terms of competition of the proposed Seattle Library.

As one of the architects invited, I should call your attention to a very grievous fault, in that eleven drawings are called for where four would fully answer all the reasonable requirements of a competition in showing those leading features of design which always decide the winner irrespective of the additional immaterial and really wasted labor. I hope the day will soon come that a generous public will

recognize what it means to call for twice as many drawings as are necessary—will better understand the heavy loss it entails on those architects who are tempted to enter the lists as I am sorely tempted this time because I have property and other special interests in Seattle, but shall probably decline on principle.

Architects must learn the lesson that others will only value their labor as they value it themselves. Yours respectfully, J—



SHOP-FIRES FROM SPONTANEOUS COMBUSTION.—J. H. L. Coon, writing on fires in shops from spontaneous combustion, in *Cassier's Magazine*, says: "Damp lampblack will ignite from the sun's rays. The same can be said of cotton-waste moist with lard or other animal oil. Lamp-black and a little oil or water will under certain conditions ignite spontaneously. Nitric-acid and charcoal create spontaneous combustion. New printers' ink on paper when in contact with a hot steam-pipe will ignite quickly. Boiled linseed-oil and turpentine in equal parts on cotton-waste will ignite in a few hours under a mild heat, and will in time create enough heat to ignite spontaneously. Bituminous coal should not be stored where it will come in contact with wooden partitions or columns or against warm boiler settings or steam-pipes. This coal should not be very deep if it is to be kept on storage for a long period. If piled in the basement of a building it should be shallow and free from moisture, and under good ventilation. That liable to absorb moisture should be burned first. If on fire, a small quantity of water showered on this kind of coal cokes it upon the top and retards any great supply of water reaching the fire, thus necessitating the overhauling of the pile. Iron chips, filings or turnings should not be stored in a shop in wooden boxes. The oily waste which is not infrequently thrown among them adds to the danger of fire from this source. The sweepings from the machine-shop, if kept on hand, should never be placed over iron shavings. This mass of disintegrated iron is enough to incite heat and combustion. Iron and steel filings and turnings, when mixed with oil, will ignite spontaneously after becoming damp. A steam-pipe against wood will cause the latter to ignite spontaneously after being carbonized, particularly if superheated steam enters the pipe, thus increasing the heat temperature."

BRITISH COLUMBIA CEDAR.—During the recent session of the British Columbia Legislature a petition will be presented by the Loggers' Association of the Province, asking that an enactment be passed permitting the shipment of rough cedar logs, cut from all classes of lands, to the United States. There will also be other lumber legislation, according to J. L. MacDonald, of Vancouver, who is a guest of the Rainier-Grand. "Rough cedar logs are not used in Vancouver," said Mr. MacDonald in speaking of the matter, "and as a consequence they are lying around, rotting, when they might be readily sold in Seattle at six dollars a thousand. At the present time cedar cut from certain classes of lands which do not lie close to Vancouver may be shipped in export, but that is all. What we want is to have the law so changed that all cedar-logs may be sent here where there is a demand for them. In this same connection the lumbermen of the Province will ask that the present tax on cedar stumpage be revised and placed at a reasonable figure. Lumber legislation has been neglected in our Province in the past. As a matter of fact, there has been little, if any, of it, and many of the laws now on the statute-books are not applicable. The Association includes in its requests that the licenses issued by the Government be made transferable, and that they be issued for a fixed term of years up to fifteen. It will ask that permission be granted to take up timber licenses in tracts of an irregular form, of one-half mile, and that three detached fragments may be included in one license. The present license fee of one hundred dollars is satisfactory, and the Legislature will be petitioned to allow it to stand. Recently there was a ruling of the Department prohibiting the exporting of piles. We have a large amount of timber that would be suitable for this stuff, and we want this ruling rescinded." — *Seattle Post-Intelligencer*.

BACTERIAL TREATMENT OF SEWAGE.—The London (England) County Council has recently made public the result of the experimental treatment of crude sewage in settling-tanks and coke beds. The Council has come to the conclusion that the process is applicable to London sewage and should be applied on a large scale. The conclusions arrived at by the experiments are as follows: "That by suitable continuous undisturbed sedimentation the raw sewage is deprived of matter which would choke the coke beds, and the sludge which settles out is reduced in amount by bacterial action to a very considerable extent. This reduction might undoubtedly be increased by the preliminary removal of road detritus. That the coke beds, after they have developed their full purifying power by use, have an average sewage capacity of about thirty per cent of the whole space which has been filled with coke. That the sewage capacity of the coke bed, when the bed is fed with settled sewage, fluctuates slightly, but undergoes no permanent reduction. The bed does not choke, and its purifying power undergoes steady improvement for some time. That coke of suitable quality does not disintegrate during use. That the 'bacterial effluent' of settled sewage from the coke beds does not undergo offensive putrefaction at all, even in summer heat, and can never become offensive. That this effluent satisfactorily supports the respiration of fish. That the use of chemicals is quite unnecessary under any circumstances when the above method of treatment is adopted." The Council recommends the treatment of the London sewage by the process experimented with at once. — *N. Y. Evening Post*.

THE AMERICAN ARCHITECT AND BUILDING NEWS

ADVERTISERS' TRADE SUPPLEMENT

No. 252

SATURDAY, MAY 2, 1903

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THE ÆOLIPYLE.

HERO of Alexandria, a noted mechanical genius, who lived in the third century B.C., devised an apparatus for "exciting combustion," which was called an "Æolipyle" (Æolus—god of the wind; pila—a ball). His invention apparently died with him. For hundreds of years inventors have sought vainly for the secret of perfectly efficient combustion, which would result in the greatest of economies and be of inestimable benefit to mankind. We claim to have a patented apparatus that produces the most perfect combustion that scientific research has been able to obtain, not only of the fuel in the furnaces of high-pressure boilers which are used in manufacturing establishments, but also in domestic stoves and furnaces.

The Æolipyle is applied to the smoke-collar of any furnace, steam-boiler, or hot-water heater, taking the place of one section of the smoke-pipe. It is simple in construction, easily operated, practically indestructible, and will last as long as the heater to which it is applied.

The draught is regulated by air which enters through the openings in the hollow axle, becomes highly heated in the interior hollow chamber, and passes into the smoke-pipe through the small perforations. There the heated air comes in contact with the unconsumed gases that are constantly passing away from the fire, causing them to burn, thus transforming what is generally lost into useful heat.

This results in a very considerable saving in fuel (at least 25 per cent) and gives a uniform temperature to all parts of the house at all times, night as well as day.

In an ordinary way of operating a domestic heater, a considerable part of the coal is lost

recover the unburned coal, and these screenings sold to the poor at \$1.00 per ton, it would produce a revenue to the city of \$150,000 per year.

The Æolipyle causes all the coal in the furnace to burn to a fine ash. There will be no clinkers, except the pieces of slate and stone



which all coal contains to a greater or less degree and cannot be burned. The clinker in the furnace, that is a source of great annoyance to almost every householder, is caused by excessive draught taken in below the grate, therefore, by keeping the ash-pit door closed or nearly so and operating the Æolipyle as directed, it is impossible for a clinker to form, as no excess of air can get to the fire.

To obtain the highest efficiency from coal it must be burned with the least possible supply of air consistent with perfect combustion, as any excess of air carries the heat of the fuel into the chimney.

The Æolipyle can be applied to any of the modern furnaces and boilers without any change whatever; such heaters are ordinarily constructed in excellent manner to utilize all the heat produced by the fire within and require only the addition of the Æolipyle in order to produce the highest efficiency. Without the Æolipyle the chimney waste is enormous and it is not alone the heat that escapes up the chimney, but the rich combustible gas that passes away unconsumed. This gas when burned produces a uniform higher temperature than the coal itself, which may burn at varying temperatures, even so low as to produce but little appreciable heat.

The Æolipyle does what the most intelligent and watchful care could hardly accomplish, by so perfectly regulating the draught that the combustible gas is burned and the house kept at a uniform temperature continuously.

It is not claimed that all this gas can be burned, but we do actually effect a saving in coal of fully 25 per cent. By shaking the fire but little in mild weather a thin hot fire

can be kept for a long time, giving off but a moderate amount of heat. A more thorough shaking and a deeper bed of fuel will quickly increase the volume of heat.

About one-half of the coal burned in domestic heaters during the winter is the supply put in the furnace to "keep the fire" over night. The draughts are all closed, the fire held in check, the house gradually cools off, and early attention must be given to the fire in the morning, or breakfast will be eaten in shawls and overcoats. Upon examination of the fire, it will be found that the coal put on the night before is nearly all burned away. Where has the heat gone? No appreciable heat has been generated, and the valuable gas of the coal has gone to waste up the chimney.

The Æolipyle causes this gas to burn and keeps the house warm all night. The house being warm in the morning, much less coal will be required to keep it warm all day than would be necessary to heat the cold house in the old way during the first few hours of the morning.

Before the advent of modern water-gas, the gas from coal was roasted out and sold for light and heat, while the domestic user of coal roasts out the gas, opens all dampers and drives it up the chimney and then proceeds to burn the coke, which has only about one-half of the heat value of the coal.

Gas from the furnace, that particularly offensive odor that frequently permeates the house, is due either to a poor chimney draught, a defective furnace, or an improper adjustment of the dampers. It is a dangerous poison, but rarely produces any serious results, as the odor is so noticeable that the difficulty is remedied at once.

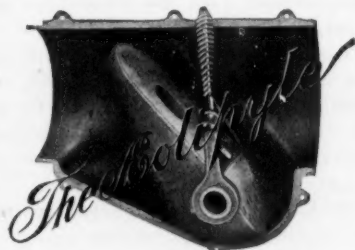
The Æolipyle causes all this gas to burn, transforming what is generally lost up the chimney into useful heat, leaving none to escape through the house, and is therefore a most valuable sanitary fixture to every house.

While the Æolipyle is actually worth many times what it originally costs (in increased heat, regularity in the temperature, in the sanitation and the comfort that it gives), yet it practically costs nothing, because its price is based on the quantity of coal that it will save in one season.

The size of your smoke-pipe indicates the capacity of your heater and the quantity of coal that it should burn, and the price of the Æolipyle varies accordingly.

You save enough coal the first winter to pay the cost of the Æolipyle, and you continue to save the same amount year after

in shaking the furnace, such unburned or partly burned coal being thrown out with the ashes. The late Colonel Waring, Street Cleaning Commissioner of New York, stated that, if the ashes collected from the residential sections of the city were screened to



year; thus earning over 100 per cent dividend on your investment the first year and every year thereafter.

Architects are specifying the Æolipyle. The United States Government has adopted it. Railroads, school-boards, and thousands of private parties are availing themselves of its benefits.

Testimonials on application to the
ÆOLIPYLE COMPANY,
237 WATER ST., NEW YORK.

GRANT OVERHEAD PULLEYS.

THE growing demand for overhead window pulleys has caused the Grant Pulley & Hardware Co. to seek larger quarters; consequently, after May 1, they will be pleased to receive their customers and friends at 25 Warren Street, N. Y. City, one door west of their present location.

Their advertisement appears in these columns and for references they would refer you to the following buildings in which their pulley has been used:—

Flatiron Building, N. Y. City, D. H. Burnham & Co., architects; N. Y. Stock Exchange, N. Y. City, Geo. B. Post, architect; Kuhn Loeb Building, N. Y. City, Jas. B. Baker, architect; Mt. Sinai Hospital, N. Y. City, A. W. Brunner, architect; Y. M. C. A., N. Y. City, Parish & Schroeder, architects; Blair Building, N. Y. City, Carrère & Hastings, architects; Yale Dormitories, New Haven, Conn., C. C. Haight, architect; Annapolis Cadet Quarters, Annapolis, Md., Ernest Flagg, architect; U. S. Post-office, Oakland, Cal., J. Knox Taylor, architect; U. S. Post-office, Wilkesbarre, Pa., J. Knox Taylor, architect; N. Y. Telephone Building, N. Y. City, C. L. W. Eidlitz, architect; Mutual Life Ins. Co., N. Y. City, Clinton & Russell, architects; Century Building, N. Y. City, Bruce Price, architect; Boston Public School, Boston, A. Warren Gould, architect; Brooklyn Telephone Building, Brooklyn, W. B. Chafflin, architect; Carnegie Public Library, Easton, Pa., Jardine, Kent & Jardine, architects; Carnegie Public Library, N. Y. City, Babb, Cook & Willard, architects; Elizabeth Court-house, Elizabeth, N. J., Ackerman & Ross, architects; East Side Settlement House, N. Y. City, Howell & Stokes, architects; Carnegie Public Library, N. Y., Lord & Hewlett, architects; Babcock Residence, N. Y. City, Hess & Weeks, architects; Irving Bank Building, N. Y. City, Horgan & Slattery, architects; Factory, Newark, N. J., Ernest Green, architect; Knickerbocker Trust Co., N. Y. City, McKim, Meade & White, architects; Higginman Building, N. Y. City, Rosser & Wright, architects; Hotel Belmont, N. Y. City, Warren & Witman, architects; Æolian Building, N. Y. City, Thompson & Starrett, architects; Phipps Residence, N. Y. City, Trowbridge & Livingston, architects; The Republican Club, N. Y. City, York & Sawyer, architects.

The many advantages of this pulley can be ascertained by referring to their catalogue, which may be obtained upon application.

FOUNDATION.

WHEN the question of the finish of a house is considered, it is essential, if an enduring result is wished, to look to the foundation of that finish, just as you provide well for the foundation of the house itself if you wish it to stand, but this is a matter that too often is overlooked, owing to other important details in the construction of the building.

A finish that will be permanent as well as beautiful to the eye can only be obtained by using a wood-filler made of the proper material, and the only proper material for this purpose is pure rock-crystal quartz especially prepared for a wood-filler, because it is perfectly transparent under oil or varnish and thus brings out the full life and beauty of the wood, and being absolutely non-shrinkable it forms a permanent foundation and will not allow the varnish to sink or pit and become unsightly in time.

Wheeler's Patent Wood Filler is the only article made of this material and has been recognized as the standard for many years. Many substitutes are continually offered and

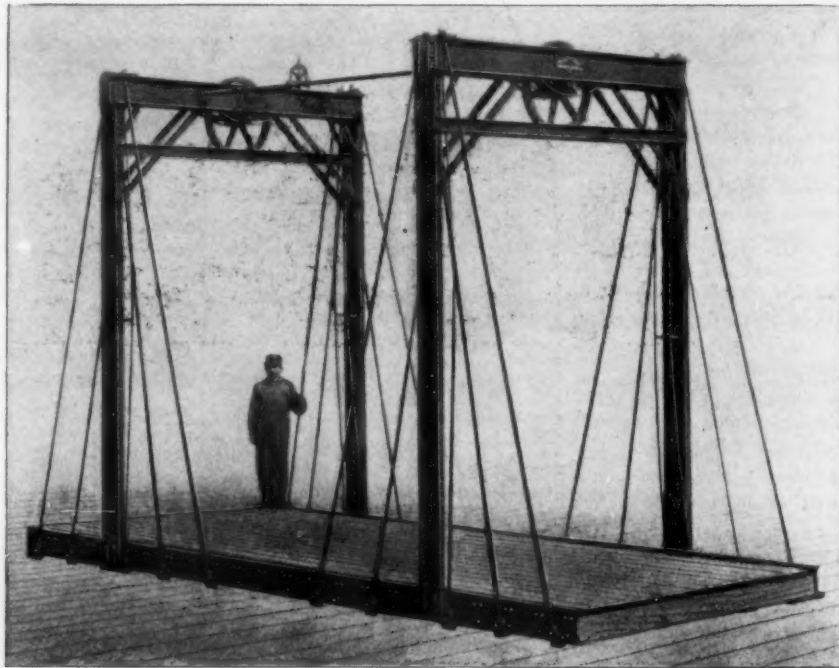
The Kimball Elevator Co. build all sizes of electric, hand, power and belted elevators from 2 feet square to 14' x 40'.

A PAINT FOR ROOFING-TIN.

THERE is no paint too good for the purpose above mentioned. Manufacturers and dealers have for many years aimed at producing a paint easy to sell—cheapness in price appearing to be the main object—and, in consequence, all kinds of paint, good, bad and indifferent, have been put upon the market. Many of the complaints of tin as a roof-covering can be traced directly to the use of poor paint and its disastrous effects.

A great many years ago we were asked by the most prominent architects if we could not supply a paint perfectly pure in quality—something that could be relied upon, and the very best in every way for the purpose of painting tin after it had been applied as a roof covering, a paint that would have no injurious effects whatever upon the tin.

After long investigation, experiments and practical trials on our own roofs we decided upon "The Taylor Paint" and we have for many years had it manufactured by one of the oldest and most reliable paint manufacturers in the United States, under our own formula, and have been selling it all these years under our personal guaranty of its absolute purity and excellence. This is an oxide-of-iron paint; light-red color, nothing better can be produced at any cost for the purpose of roof-painting and as a preservative for tin. When applied it dries with a thick coating or skin. It is not a quick drier, but when once dry is impervious to the elements, and we honestly believe that a



Kimball Co.'s Elevator-car.

architects and house-owners should see that the Wheeler only is used.

The Bridgeport Wood Finishing Co., of New Milford, Conn.; New York, Chicago and Philadelphia, manufacturers of this filler, would be pleased to give any further information desired.

KIMBALL CO.'S ELEVATOR-CAR.

THE above is a picture of an elevator-car built by the Kimball Co. of Cleveland, O., and Council Bluffs, Ia.

It is of steel construction; a loaded wagon can be driven on and elevated to any floor. Some of this style of elevators have been built large enough to raise a loaded freight-car. The power generally used is electric, although they can be arranged to raise by hand or belted from a line shaft.

The arrangement of this car, as it is hung from both ends, relieves all the strain so common on elevators with a centre lift. All the load can be put on one end if necessary.

better or more lasting roofing-paint cannot be produced, no matter what the ingredients or cost.

We supply the above in paste form: barrels, eight hundred pounds and four hundred pounds; tin cans, fifty pounds.

All that is necessary, when needed for use, is thinning down to proper consistency, using pure linseed-oil only, and if desired, a good Japan drier.

One hundred pounds of this paint require four and one-half gallons oil, which will make seven gallons liquid paint, at a cost per gallon of about ninety cents, and which, properly applied, will cover 2,800 square feet of surface one coat, or 1,400 two coats.

These figures are based on practical tests and are subject to some variation.

N. & G. TAYLOR CO.,
PHILADELPHIA, PA.

NOTE.

THE Otis Elevator Company has been awarded a contract for eighteen electric

Atlas PORTLAND CEMENT

The
Standard
American Brand.

Used Exclusively in the Following New York Buildings:

BROAD EXCHANGE	HANOVER BANK
ST. PAUL BUILDING	UNION CLUB
AMERICAN SURETY BUILDING	N. Y. LIFE INS. BUILDING
BANK OF COMMERCE	STANDARD OIL BUILDING
JOHNSTON and PRESBYTERIAN BUILDINGS	
AND MANY OTHERS	

Atlas Portland Cement Company

30 BROAD STREET
NEW YORK

elevators equipped with the push-button system of control, the largest number of elevators of this type ever included in a single contract. These elevators are to be installed, one each, in a row of private residences now being constructed for F. Ambrose Clark on Seventy-fourth Street, between Central Park West and Columbus Avenue, New York. It will be remembered that the Franklyn Institute recently awarded the John Scott Legacy Medal and Premium to this company for perfecting this type of elevator.

THE LORD & BURNHAM CO.

RECEIVED at the World's Fair, Chicago, besides the five highest awards for conservatories, rosehouses, greenhouses, iron-framed plant tables and beds and ventilating-machinery herein represented, the highest award for heating-apparatus.

Facilities.—Having the largest American works devoted to greenhouse-building, including foundry, boiler and machine shops, wood-working mill, carpenter and paint shops, fitted with the latest and special machinery in every department, and many years of experience in designing and building greenhouse structures of every kind, we are prepared to offer our patrons materials of the first quality and finish, at reasonable rates. We keep on hand a large stock of cast-iron gutters, sills and other finished and unworked materials, which greatly facilitates the execution of orders. In our machine-shop all complicated structures are set up, the respective parts are numbered to fit their proper places, and should any mistake have been made in preparing the material it is noticed and rectified before shipment. Our dock-space enables us to keep on hand the largest stock of air-dried cypress and assortment of sizes to be found in the North. We use only this kind of lumber, as we have found that when properly treated it is superior to any other.

Improvements in Construction.—We wish to call attention to the fact that it is to our firm that many of the most important improvements in greenhouse construction are due. We were the first to introduce small sash-bars with supporting frames, thus increasing the light. We were the first to adopt long lines of ventilators in place of those scattered here and there, thus to a great extent doing away with draughts which were an injury to the plants. Elliptical or Gothic style of curves, as contrasted to circular, were first used by us in roof-construction, and at one time we held a patent upon the same. The arm, rod and worm-gear ventilating-machinery was invented by the late Mr. F. A. Lord (founder of this firm) in

1856, and has been used universally throughout the country for ventilation ever since. We were also the first to introduce the use of ground-glass in conservatories. We first substituted cast-iron gutters and sills for wood in connection with wooden-frame greenhouses, and iron-frame supports for beds and tables were introduced by us even before the use of the modern iron-framing. The latter we originated in 1881 and first used in an extensive range of houses for the late Jay Gould. This style of framing has since been improved, its important features patented, and the use of wood has been reduced to the least amount which we have found to be practical or economical for general purposes. We have been perfecting our construction for many years, until now we believe and can safely say that our greenhouses embody the highest art which has as yet been attained in horticultural architecture.

Estimates.—We design, manufacture and build complete, greenhouse structures of every description, or we furnish material and plans so that parties can have the erection done by local mechanics. On receipt of information as to the size and style of the building wanted, its purposes, location it will occupy, general grade of grounds, etc., we shall prepare without charge suitable plans and submit the same, together with descriptive specification of superstructure, heating, ventilation, plant-tables, etc., and estimate of the cost. In many cases it is desirable and necessary to inspect the location the structure will occupy, and to confer with the owner, so that the most advantageous plans may be adopted. When desired we shall arrange to have a competent representative call for this purpose. On acceptance of the preliminary plans, specifications and estimates, detail working-plans are perfected and the materials made ready at our factory. If a finished structure has been ordered, workmen are sent after the shipment of the material to complete the erection in every detail, leaving the house ready for planting.

PAINT.

A GREAT many people insist on using nothing but strictly pure white-lead and oil, considering that if it is pure it is the best article for painting purposes, but an article that is absolutely pure is not necessarily better adapted for a certain purpose than something else which is not strictly pure.

To-day it is admitted by many of the most eminent chemists and painters that pure lead used alone is one of the poorest of painting pigments, as the acid of the dry lead in a very short time commences to work on the

oil and destroy its life, and as the oil is the life of the paint, when it is gone the paint will not endure, but will chalk off like white-wash. This is especially noticed in exposed places along our seacoast, where very frequently pure lead and oil will not stand more than a year.

Zinc has been used in connection with the pure lead, but this has a tendency to peel.

Silix used with pure lead and zinc, if of the right kind and specially prepared for the purpose, forms a combination which prevents any action of the acid or saponification of the paint and makes the best painting product known.

Breinig's Lithogen Silicate Paint and Lithogen White Lead, which are manufactured on this principle, have been on the market for more than forty years, and the Bridgeport Wood Finishing Co., of New Milford, Conn., New York, Philadelphia and Chicago, would be pleased to give any information or submit samples.

The cost of painting is not so much the price paid for the paint as for the labor in applying it, and a great many dollars would be saved in repainting if the proper paint were used.

In the very pretty little pamphlet just issued in colors by the New York Belting & Packing Co., 25 Park Place, New York, there are shown not only illustrations of rooms of various descriptions in which these invaluable tiles can be, and have been, used, but also plates showing how the few colors in which the tile is manufactured can be combined to produce a great variety of patterns and a still greater number of color-effects.

The tiles were originally made in two forms—what may be called male and female—only, but, lately, one or two other shapes have been devised which apparently will enable the skilled designer to give to his pattern somewhat the air of Oriental rug-work, and so avoid some of the "blockiness" which is inherent in all forms of mosaicwork where the units are of the same size and shape.

The Interlocking Tile is one of the most useful articles ever introduced to architects, and there is one room in every house where it would be wise for the architect and considerate owner to make use of them, and that is in the pantry, or china-closet; the saving in glass and china, which will at times slip through the fingers of maid or butler, which can be effected by using the Tile in this particular room is really appreciable, as the writer knows from observation in his own

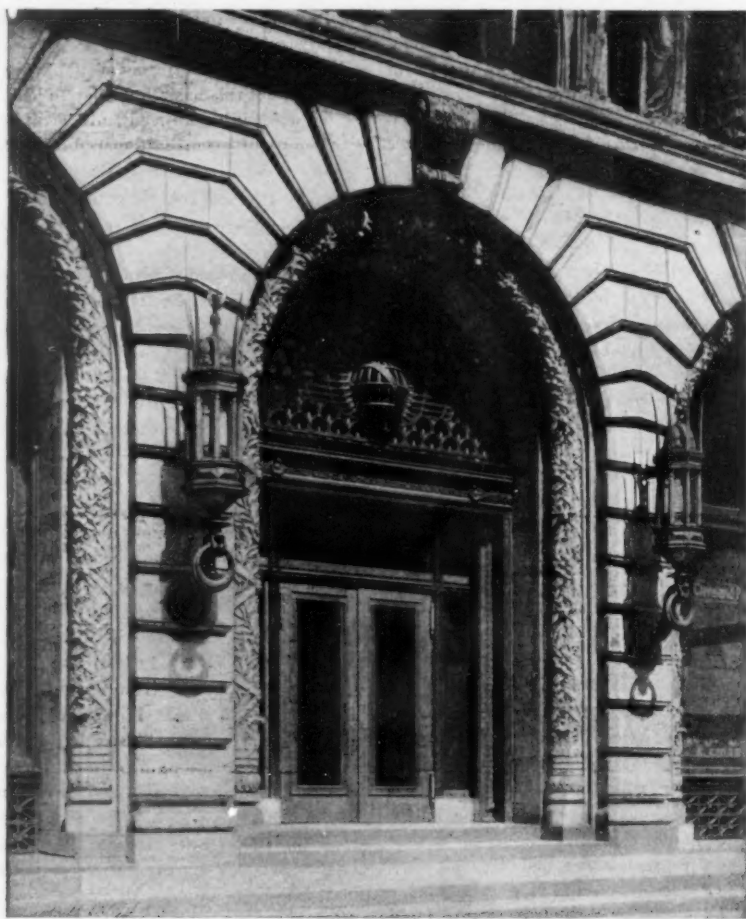
ALSEN'S

AMERICAN PORTLAND CEMENT

An artificial Portland Cement of the highest character made under the supervision of Chemists and Engineers connected with the Alsen's Cement Works of Hamburg, Germany, superior to all other American Portland Cements, absolutely sound, uniform, and of great strength.

SINCLAIR & BABSON, Gen'l Agents, 45 Broadway, New York

Works at Alsen, N. Y., on Hudson River



The
W. S. Tyler
Company

CLEVELAND, OHIO

Elevator Cars
Elevator Enclosures
Bank Railings
Grilles, etc.

Ornamental
Iron and
Bronze

Special Designs
furnished

house. And, even if it is thought undesirable to cover the full kitchen floor with tile, a mat of any convenient size can be easily made for use at the kitchen sink or before the range which domestics are very grateful for, especially on cold winter mornings before the room has got fairly warm. A cook with chilblains in the kitchen is not unlikely to produce dyspepsia in the dining-room, and a bit of rubber tile may save on doctors' bills.

The Tile, when applied with its shaped nosing to the treads of stairs, is of great value, and there are many stairways leading from the sidewalk to basement offices, restaurants or saloons where the use of these Tiles may prevent a serious accident. We recall how, some years ago, a gentleman, on a winter day, attempted to descend the marble steps

leading to a basement office, not first scraping the snow and ice from his feet, with the result that an unexpected fall fractured his skull and caused his death. Had the treads been rubber-clad the fall would have been unlikely, or at least the concussion would not have been severe enough, to cause a fracture.

NOTES.

A CORPORATION desires to establish a large plant for the manufacture of fireproof sheet-metal building-material, and solicits correspondence with Boards of Trade and other representatives of the commercial interests of towns and cities that can offer inducements.

Address

M. J. SULLIVAN,
253 BROADWAY, NEW YORK.

MESSRS. BERRY BROTHERS, of Detroit,

Mich., send us a little booklet printed in clear type, well arranged, fully indexed and sensibly expressed, which gives clear instructions as to how to specify and apply the various compositions they manufacture for the preservation and finish of natural woods of various kinds.

The profession, at least, has long been grateful to this firm for its having put upon the market the "Hard Oil Finish" which gives so much satisfaction to householders, and is growing to have the same confidence in the stains for shingles which are marketed under the trade-name of "Shingletint." Unquestionably, on the strength of the manufacturers' name and the known quality of its older products, architects will be disposed to believe that "Lack-lustre," a new material for finishing natural woods without the too brilliant gloss, is just the article they have been waiting for. At all events, this little booklet is of such real practical usefulness that it will long be preserved.



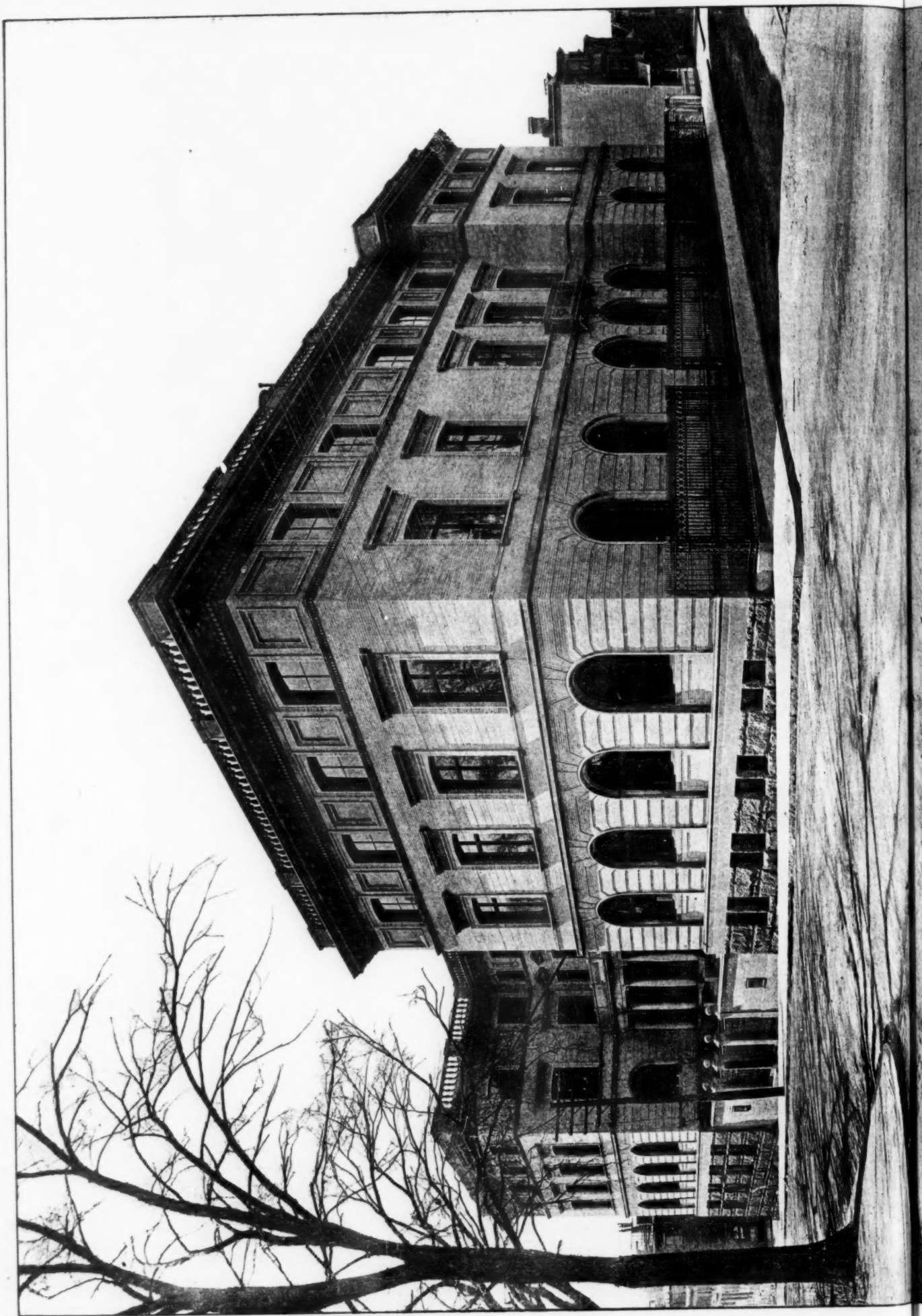
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STABLE OF WM. R. GRACE, ESQ.
D'OENCH & SONS

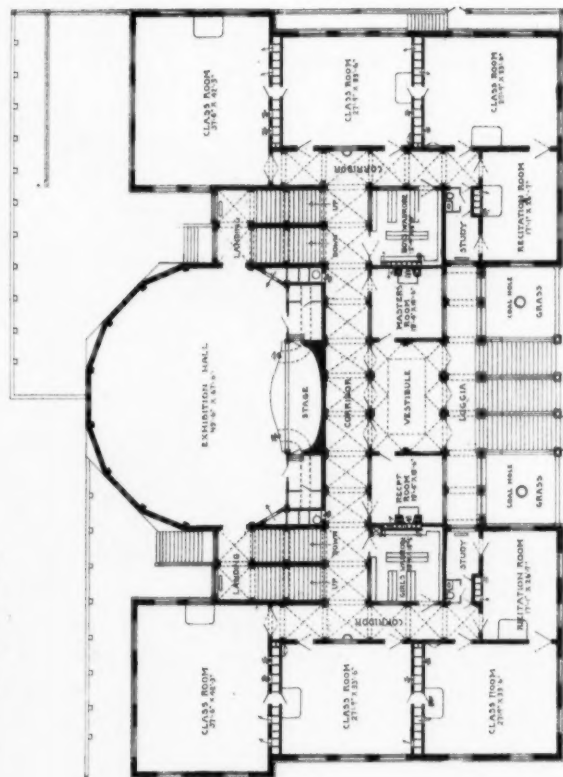


WILSON & PETERS CO., BOSTON

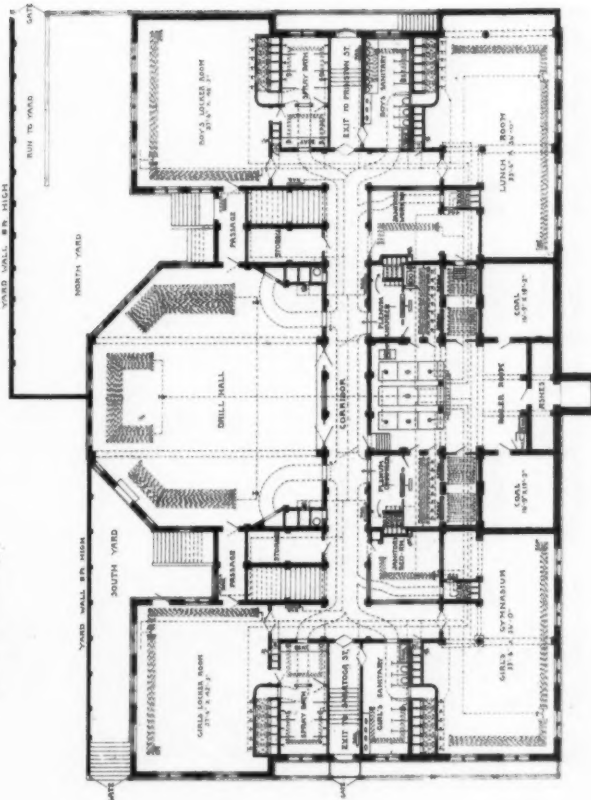
E, ESQ. GREAT NECK, LONG ISLAND, N. Y.
CH & SON, ARCHITECTS.



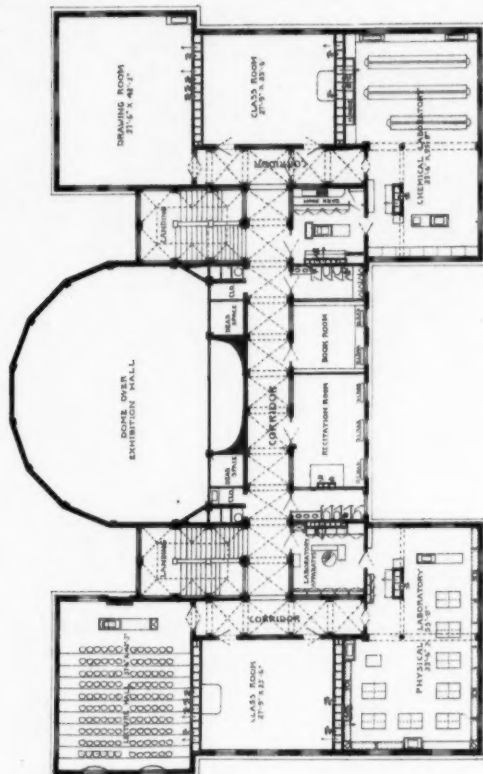
PLAN OF FIRST STORY



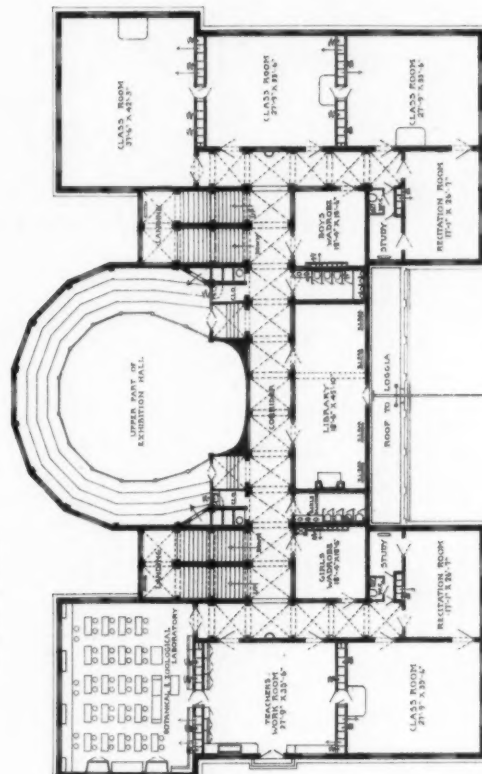
PLAN OF BASEMENT



PLAN OF THIRD STORY



PLAN OF SECOND STORY

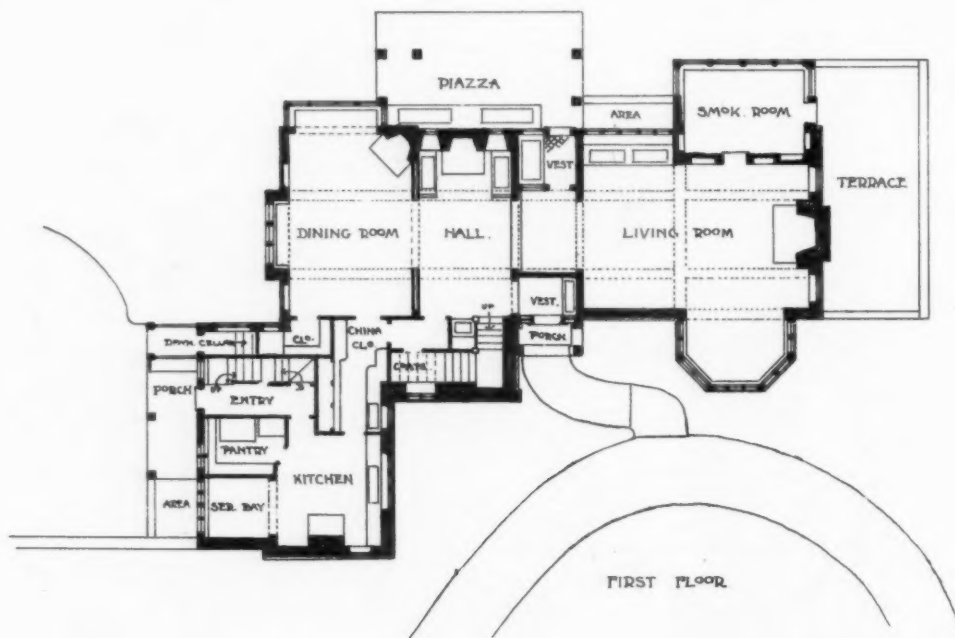


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HIGH SCHOOL HOUSE, EAST BOSTON, MASS.
JOHN LYMAN FAXON, ARCHITECT.

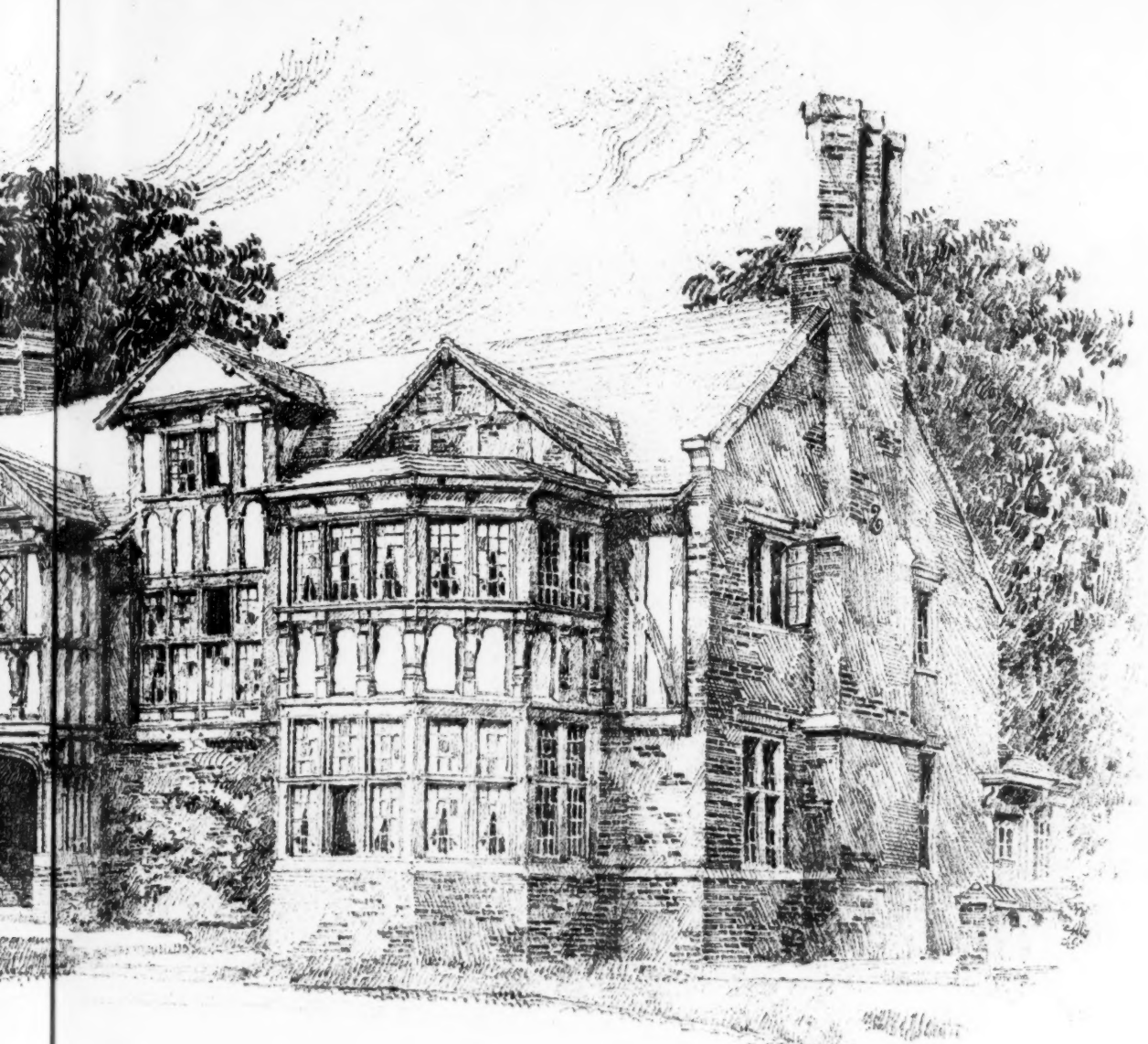
REPRODUCED BY THE ARCHITECT

The American Architect
May 2, 1903.
No. 1427.



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A HOUSE IN
W. G. RANTON, A



SECOND FLOOR

THE AMERICAN ARCHITECT

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A WEEKLY JOURNAL OF CONSTRUCTIVE AND DECORATIVE ART

VOL. LXXX.—No. 1427.]

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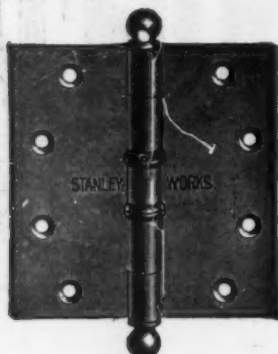
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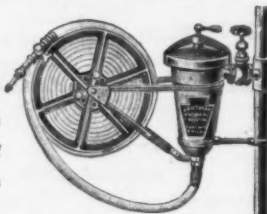
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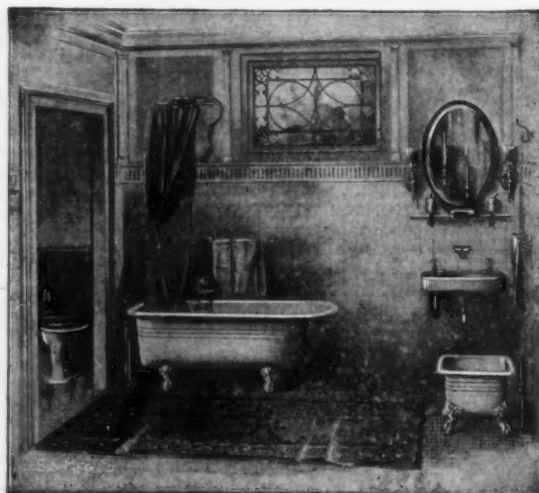
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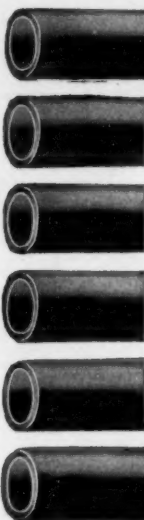


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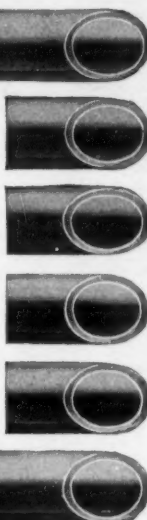
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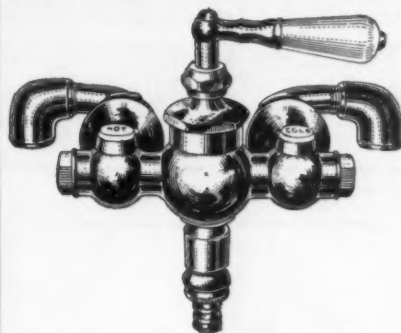
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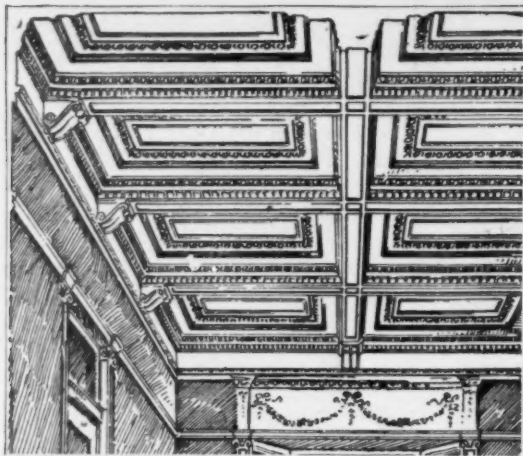
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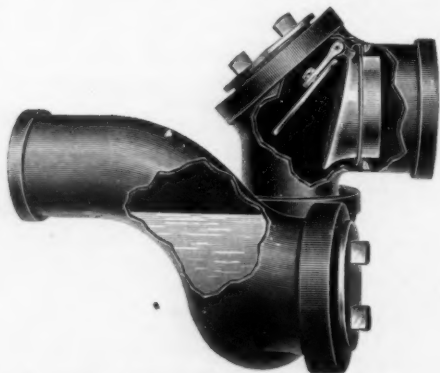
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ARTICLE I.

Obligation of Principal Contractor to Sub-Contractor.

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

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

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

ARTICLE II.

Award of Sub-Contracts.

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

ARTICLE III.

Penalty for not Awarding Contract to Lowest Sub-Bidder.

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

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

ARTICLE V.

Payments to Sub-Contractors.

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

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

ARTICLE VII.

Obligation of Sub-Contractor to Principal Contractor.

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

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

ARTICLE X.

Bids to Architects or Owners.

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

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

SUGGESTIONS.

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

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

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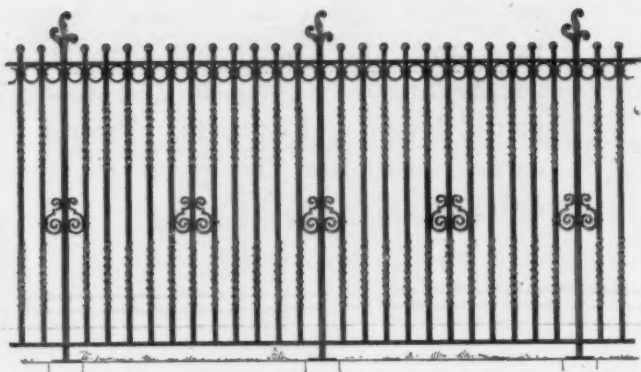
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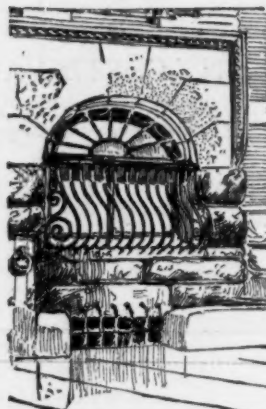
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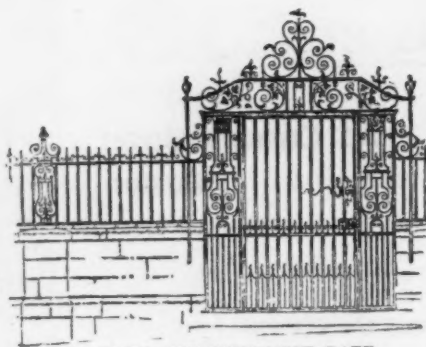
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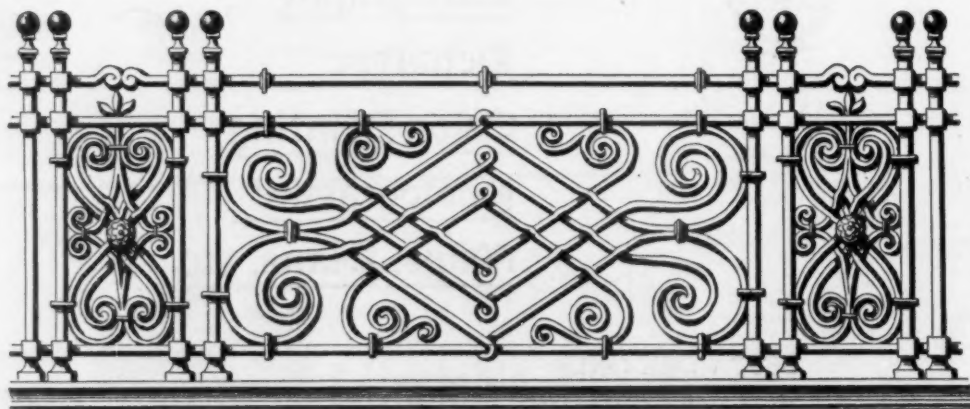


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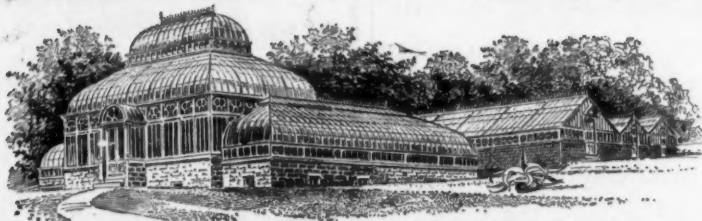
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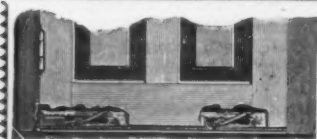
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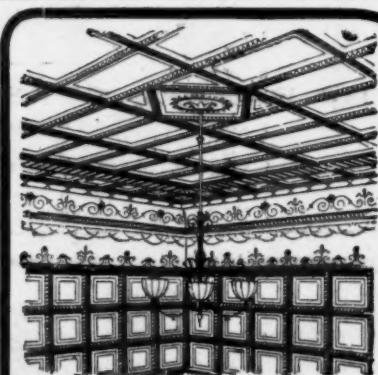
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The Bill prays for a preliminary writ of injunction, to be continued during the pendency of the suit, and upon the final determination thereof to be made perpetual, and also demands an accounting and damages.

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

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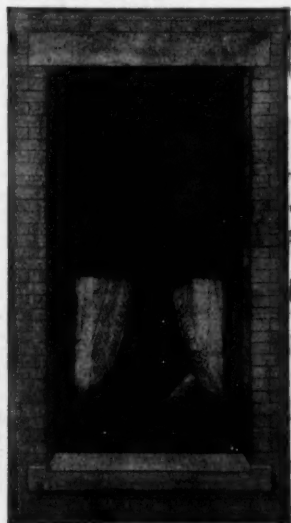
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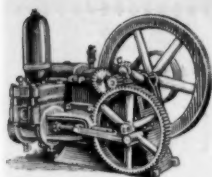
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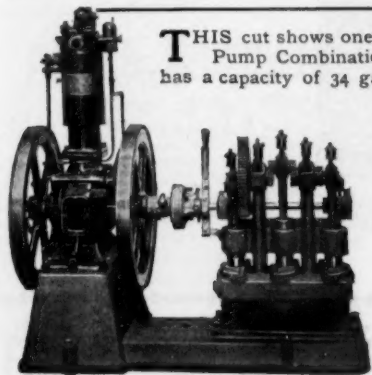
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BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

somewhat of the nature of a Masonic temple, but which will have in addition to quarters for the Masons and Knights Templar, offices, stores, a theatre and a court-yard. The building will cost more than \$250,000.

Fairfax, Minn.—Charles E. Webster, Winthrop, has drawn plans for a two-story brick and stone opera-house and village hall, 150' x 128'. Cost, \$25,000.

Gloversville, N. Y.—The Bill has passed the Senate providing for the disposal of the sewage of this city by the construction of intercepting and trunk sewers and purification works; probable cost of work, \$250,000.

Grand Forks, N. D.—Jos. Bell DeRemer is preparing plans for the administration building and the gymnasium building for the State University. The former will be two-story, 44' x 96', with two additions, 16' x 38'. Will be of pressed brick and will cost \$25,000. The gymnasium will be one-story, of common brick, 50' x 112'.

Holyoke, Mass.—The William Skinner Mfg. Co. have been having trouble with a local labor union, which has delayed the carrying out of its plans to build additions to its plant to cost several hundred thousand dollars. It is now reported that the labor restrictions will be removed, and the Company will doubtless take up the work at once.

Iola, Kan.—Plans have been prepared by Architects J. C. Holland & Squires, Topeka, for a \$50,000 brick and stone court-house for Allen County.

Kansas City, Mo.—Matthew O'Connell, New Ridge Building, has prepared plans for an apartment-house and brick dwelling for L. N. Leslie, to be erected at 1101 Jefferson St., to cost \$65,000.

Lincoln, Neb.—A. Putnam will remodel the building at 11th and O Sts., at a cost of \$25,000.

Louisville, Ky.—The Seibach Realty & Construction Co. is preparing to erect a \$300,000 hotel after plans by Dodd & Cobb, architects, 600 Equitable Building.

Malden, Mass.—It is stated that the Malden Electric Co. is to enlarge its plant so as to secure 14,000 feet of floor space. The new building is to be built around the present structure. The company will

BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

also build a wharf at which all its coal will be received. \$100,000 will be expended.

Mansfield, O.—Andrew Carnegie will give this city \$35,000 for a Carnegie Library.

Minneapolis, Minn.—Harry W. Jones has prepared plans for erecting an additional story to M. P. Ryan's apartment-house at 22 and 24 S. 10th St. The building is 48' x 111', four-story, brick. The apartments will be modern throughout. Cost, \$20,000.

The Senate authorizes the issue of \$400,000 bonds for the completion of the court-house and city-hall.

New Orleans, La.—An ordinance has been passed providing an appropriation of \$150,000 for an annex to the city-hall.

Onsenta, N. Y.—The Assembly has passed a bill providing for an appropriation of \$50,000 for an armory.

Owosso, Mich.—\$75,000 will be spent for the erection of a new court-house for Shiawassee County.

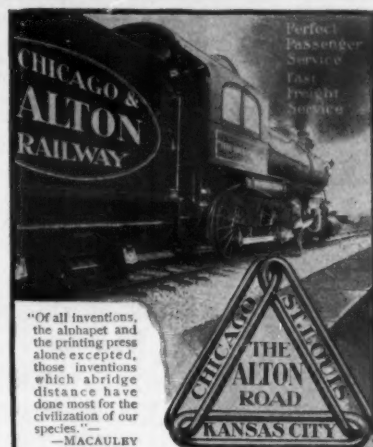
Peoria, Ill.—Plans have been prepared by Architect Herbert Edmund Hewitt, Arcade Building, for a \$30,000 three-story brick warehouse and office-building, 70' x 215', for the Coleman Manufacturing Co. It will have electric light, steam heat, composition roof, etc.

Philadelphia, Pa.—Plans are in preparation by Floyd Adams for a warehouse to be built at Willow and Orianna Sts. for the Retail Grocers Association. It will be five-story, 80' x 184', of brick and stone, costing \$100,000.

Pittsburgh, Pa.—It is reported that the Kaufmanns will build a \$450,000 addition to their department store. The new building will be at Diamond St. and Cherry Alley, adjoining the Kaufman Block, at Smithfield and Diamond Sts., which is now being enlarged by an addition of three stories to make it a ten-story building. The architect, Chas. Bickel, has awarded the general contract to William Miller Sons.

Plans have been prepared by Architect Charles Bickel, 524 Penn Ave., for a \$160,000 seven-story warehouse to be built on 1st Ave. for the Equitable Meter Co.

A. & S. Wilson Co. have received the contract for



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BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

the remodelling of the building for the Pittsburgh Post. Improvements will cost \$25,000.

Red Wing, Minn.—Lowell A. Lamoreaux, of Minneapolis, is stated to have been selected to prepare plans for an opera-house to be erected by the T. B. Sheldon estate. It will be of brick and stone, 62' x 100', and cost \$40,000.

Remsen, Ia.—The Catholics propose to erect a \$75,000 church.

Schenectady, N. Y.—The St. George's and New Hope Lodges will erect a \$120,000 Masonic Temple.

St. Louis, Mo.—It is stated that Nelson-Chesman & Co. will erect a building at No. 1127 Pine St., to cost \$250,000. Kennedy & Mathias, architects.

A. Andres, Columbia Building, has made plans for a \$550,000 ten-story theatre and hotel building, 300' x 160', to be built at Grand and Olive Sts. It will have slate and tile roofing, 4 electric passenger elevators, steel ceilings, etc.

St. Paul, Minn.—Architects Reed & Stern, 601 Endicott Building, have prepared plans for a \$45,000 three-story brick and stone building, 50' x 150', for P. N. Peterson. Details have not as yet been determined on.

Summerdale, Pa.—A. Raymond Raff, builder, Philadelphia, is about to start on the erection here of a factory for the Wolff Chemical Co. from plans by Stearns & Cantor, architects, of Philadelphia. The building will be three stories, 180' x 225', of brick. Cost, \$70,000.

Syracuse, N. Y.—It is stated that the plans prepared by Taber & Draper, Onondaga Co. Sav. Bank Bldg., were accepted for the \$30,000 hospital to be erected here. Contracts will be let at once.

Toledo, O.—The Lion Dry Goods Co. has decided to enlarge its mercantile building. About \$175,000 will be spent for improvements. Wm. D. Harper, general manager.

Vicksburg, Miss.—Plans have been prepared by Architect William Stanton for a \$20,000 warehouse to be built here.

Walla Walla, Wash.—The Masons propose to erect a temple to cost \$60,000.

Washington, D. C.—The Potomac Hotel Co. with a capital of \$1,000,000, will erect a hotel at 7th and H Sts. at a cost of \$1,400,000.

Watanga, Tenn.—It is reported that Beggs & Cobb, Boston, Mass., leather tanners, have purchased the old tannery property here, and will rebuild the plant at once, investing about \$30,000.

Waterbury, Conn.—Plans for a \$350,000 seven-story modern hotel building for the Waterbury Hotel Corporation are being prepared by Architects Griggs & Hunt, 140 Grand St., and Architects Bowditch & Stratton, of Boston, Mass.

Waterloo, N. Y.—A company has been organized with \$1,000,000 capital, to build a plant here to manufacture gas and coke and supply Geneva, Waterloo, Seneca Falls and Aurora.

Watertown, N. Y.—An isolated brick ward building, 106' x 32', one and one-half stories, will be erected at the City Hospital. Plans by D. D. Kieff, 24 Flower Building.

Waukesha, Wis.—The Masons will erect a lodge building, to cost about \$22,000.

White Plains, N. Y.—It is said that E. E. Waite, who recently purchased the old Keeley Institute or Martine House, on the Post Road, will remove it to his lot on Grand St., and make over the structure into a modern Colonial residence.

Winnipeg, Man.—Jas. Chisholm has drawn plans for an edifice for the congregation of Zion Church, to be erected at Pacific Ave. and Ellen St.; probable cost, \$40,000.

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Winter St., four st'y bk. apartment-building, 33' x 48'; \$10,000; o., David Pabolinski & Son; a., J. P. Kingston; c., James Miles & Son.
Chandler St., four-st'y bk. apartment-building, 44' x 92'; \$35,000; o. & c., F. J. Goff.

HOUSES.

New York, N. Y.—Grand Boulevard and Concourse, cor. 193d St., 2½-st'y fr. dwell., 30' x 51', shingle roof; \$5,000; o., H. H. Sisson, 2715 Bainbridge Ave.; a., Alfred Ericson, Nathalie Ave.
Worcester, Mass.—Russell St., two-st'y fr. dwell., 27' x 49'; \$4,000; o., H. O. Fisher; a., Forest C. Wesson; day work.
W. Boylston St., three-st'y fr. dwell., 27' x 36'; \$3,500; o., a. & c., N. Nilson.
Tower St., two-st'y fr. dwell., 29' x 32'; \$2,700; o., D. A. Prince; a., J. P. Kingston; c., F. J. Goff.
Edward St., three-st'y fr. dwell., 27' x 50'; \$8,000; o. & c., N. R. Power.
Elm St., 3 three-st'y fr. dwells., 30' x 66'; \$7,000 each; o. & c., Aaron & Jaspian.
Loudon St., 2½-st'y fr. dwell., 38½' x 44'; \$8,000; o., Mrs. S. L. Heath; a., Geo. H. Clemence; c., C. A. Colburn.
Stoneland Road, 2½-st'y fr. dwell., 27' x 33'; \$4,000; o., J. B. Scrimgeour; c., F. J. Goff; a., J. P. Kingston.
Hackfield Road, two-st'y fr. dwell., 27' x 47'; \$4,000; o., H. C. Fisher; c., C. F. Wesson; day work.



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Rodney St., two-st'y fr. dwell., 26' x 55'; \$3,500; o., Charles Nelson; a. & c., L. M. Peterson.

COMPETITIONS.

BUILDING. [At Little Rock, Ark.] Plans and specifications will be received May 12 by the Bd. of Trus. of State Charitable Instit. for erecting 2 annexes at the Arkansas State Lunatic Asylum, Little Rock, to cost not exceeding \$140,000. JOHN H. PAGE, Sec'y. 1427

PROPOSALS.

BRIDGE. [At Grand Rapids, Mich.] Office of Board of Public Works, Grand Rapids, Mich. Sealed proposals will be received at the Office of the Board until May 15, 1903, for furnishing all materials, and executing all work necessary in the construction of a concrete, or concrete-steel arch bridge across Grand River at Bridge St., in the City of Grand Rapids, Mich., according to the plans and specifications on file at the office of the City Engineer. Plans, notice to contractors, form of proposal, specifications, contract and bonds may be secured of the city engineer. JOS. EMMER, president. L. W. Anderson, city engineer. Attest: Jno. C. Brown, clerk. 1427

MASONRY, CARPENTRY, ETC. [At Boston, Mass.] The School-house Commissioners of Boston invite proposals for doing masonry, carpentry and other work in the Stoughton School, River St., Dorchester, Boston, Mass., also proposals for installing a plumbing system in said building. Only proposals obtained at the office of the Commissioners, 120 Boylston St., signed by the bidder, and left before May 7, 1903, at said office with certified check for \$500, payable to the city if the proposal is not carried out, will then and there be publicly opened and read. R. CLIPS-TON STURGIS, JOHN H. COLBY, FREDERIC O. NORTH, Commissioners. 1427

PROPOSALS.

CHURCH. [At Chillicothe, O.] Bids will be received until May 18 by the architect, F. L. Packard, 16 E. Broad St., Columbus, O., for the erection of the M. E. Church at Chillicothe, O. 1427

COURT-HOUSE. [At Washington, Ga.] The commissioners of roads and revenues of Wilkes County will receive proposals until May 19 for the erection and completion of a new county court-house, agreeable to the plans and specifications prepared by Architect Frank P. Milburn, Columbia, S. C. R. D. CALLAWAY, chairman. 1427

STOREHOUSE. [At Charleston, S. C.] Sealed proposals will be received at the Bureau of Yards and Docks, Navy Department, Washington, until May 9, 1903, for constructing a frame storehouse building at the Navy Yard, Charleston, S. C. Estimated cost, \$2,500. Plans and specifications can be seen at the Bureau, or will be furnished by the Commandant of the navy yard named. MORDECAI T. ENDICOTT, chief of bureau. 1427

COURT-HOUSE. [At Paris, Ky.] Bids will be received by the Co. Comrs. May 15 for \$150,000 court-house bonds. 1427

BUILDING. [At Block Island, R. I.] U. S. Department of Agriculture, Office of the Secretary, Washington, D. C. Sealed proposals will be received by the Secretary of Agriculture until May 6, 1903, for the erection of a two-story and cellar frame building for the Weather Bureau, U. S. Department of Agriculture, at both Block Island and Narragansett Pier, R. I., in accordance with plans and specifications which may be obtained from the Weather Bureau Observer at each place and from the Chief of the Weather Bureau, Washington, D. C. JAMES WILSON, Secretary. 1427

COURT-HOUSE. [At Lincoln, Ill.] Bids will be received May 11 by the Co. Comrs. for erecting a court-house. J. M. Deal, architect. 1427

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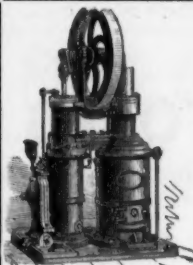
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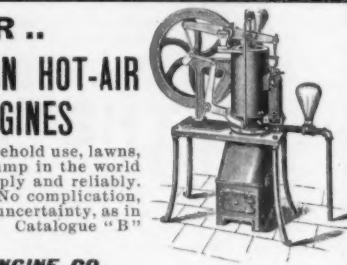
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PROPOSALS.

CAST-IRON PIPE.

[At Holyoke, Mass.]
Sealed bids for furnishing 600 tons of 20" cast-iron pipe and special castings will be received by the Board of Water Commrs. of the city of Holyoke, Mass., until the 11th day of May, 1903. Detailed information together with specifications and proposal blanks will be sent to bidders on application to the Engineer. JOHN J. SULLIVAN, ARTHUR M. FRENCH, HUGH McLEAN, Water Commissioners. James L. Tighe, engr., City-hall, Holyoke, Mass. 1427

IRON PIPE AND PLUMBERS' SUPPLIES.

[At Washington, D. C.]
Bids will be received May 11 at the Office of Pub. Bldgs. and Grounds for furnishing iron pipe and plumbers' supplies, cement, brick, etc., during year ending June 30, 1904. Address COL. THEO. A. BINGHAM. 1427

ANNEX TO COURT-HOUSE.

[At Williamsport, Pa.]
Bids will be received May 9 by the Co. Comrs. for furnishing material for erecting an annex to the Lycoming Co. court-house. Truman P. Reitmeyer, architect, Masonic Temple. SAM'L BASTIAN, Chmn. 1427

BUILDING.

[At Chamberlain, S. D.]
Department of the Interior, Office of Indian Affairs, Washington, D. C. Sealed proposals will be received at this office until May 21, 1903, for furnishing the necessary materials and labor required to construct and complete at the Chamberlain School, S. D., one dormitory, one school-house, one addition to dormitory, all of brick, with plumbing, acetylene gas piping and steam heat, for extension of water and sewer systems and one gas machine house, with plumbing and heat, in strict accordance with plans and specifications and instructions to bidders, which may be examined at this office. For further information apply to John Flinn, Superintendent, Chamberlain, S. D. A. C. TONNER, Acting Commissioner. 1428

Treasury Department, Office of the Supervising Architect, Washington, D. C., April 27, 1903. Sealed proposals will be received at this office until 3 o'clock P. M. on the 3d day of June, 1903, and then opened, for the construction, (including plumbing, heating apparatus, electric wiring and conduits) of the U. S. Court-house, Post-office, etc., extension at Springfield, Ill., in accordance with drawings and specification, copies of which may be had at this office or at the office of the Custodian at Springfield, Ill., at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect. 1428

Treasury Department, Office of the Supervising Architect, Washington, D. C., April 27, 1903. Sealed proposals will be received at this office until 3 o'clock P. M. on the 8th day of June, 1903, and then opened, for the general construction of the U. S. Post-office, Custom-house and Court-house at Cleveland, Ohio, in accordance with the drawings and specifications, copies of which may be had at the discretion of the Supervising Architect, on application to this office or the office of the architect, Arnold W. Brunner, 33 Union Square, West, New York, N. Y. Application must be accompanied by a certified check for \$250, which will be held at this office until the return of drawings and specifications. JAMES KNOX TAYLOR, Supervising Architect. 1428

PROPOSALS.

POWER-HOUSE.

[At Shoshone School, Wyo.]
Department of the Interior, Office of Indian Affairs, Washington, D. C. Sealed proposals will be received at the Indian Office until May 18, 1903, for furnishing the necessary materials and labor required to construct power-house, move machinery and install boiler and smokestack, at the Shoshone School, Wyo., in strict accordance with plans, specifications and instructions to bidders, which may be examined at this office. For further information apply to U. S. Indian agent, Shoshone Agency, Wyo. A. C. TONNER, Acting Commissioner. 1428

ROAD.

[At Bluffton, Ind.]
Bids are wanted by the Co. Comrs. until May 19 for constructing 66,592 feet of gravel road. 1428

BUILDING.

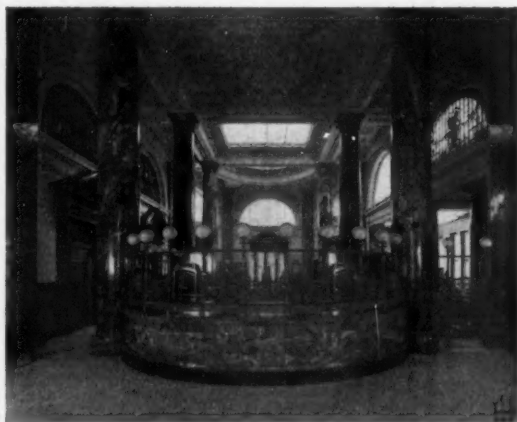
[At St. Louis, Mo.]
Proposals will be received by the architect, F. L. Packard, 16 E. Broad St., Columbus, O., until May 21st, for the Ohio Building for the World's Fair. 1428

PROPOSALS.

Treasury Department, Office of the Supervising Architect, Washington, D. C., April 25, 1903. Sealed proposals will be received at this office until 3 o'clock P. M. on the 1st day of June, 1903, and then opened, for the construction (except heating apparatus) of the extension of the U. S. Court-house, Post-office, etc., at Montgomery, Alabama, in accordance with drawings and specification, copies of which may be had at this office, or at the office of the Custodian at Montgomery, Alabama, at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect. 1428

Treasury Department, Office of the Supervising Architect, Washington, D. C., April 23, 1903. Sealed proposals will be received at this office until 3 o'clock P. M. on the 4th day of June, 1903, and then opened, for the construction (including plumbing and heating apparatus) of the U. S. Post-office, etc., extension at Scranton, Pa., in accordance with drawings and specification, copies of which may be had at this office or at the office of the Custodian at Scranton, Pennsylvania, at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect. 1428

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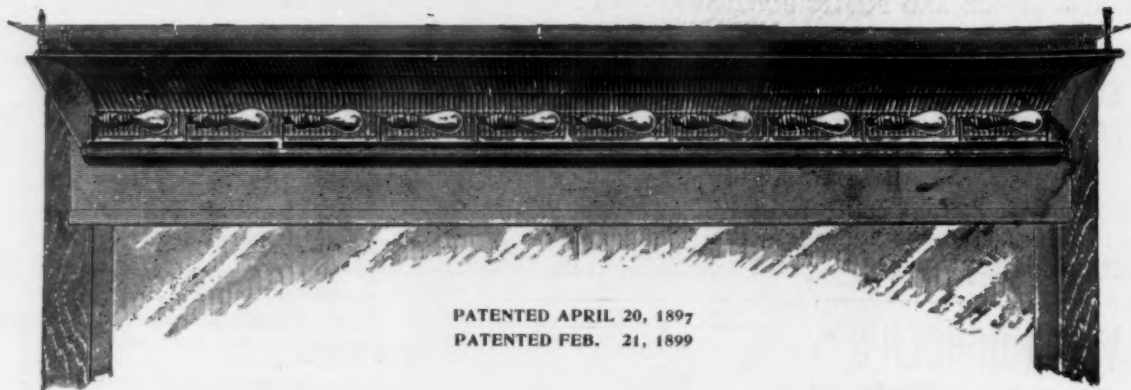
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PROPOSALS.

Treasury Department, Office of the Supervising Architect, Washington, D. C., April 28, 1903. Sealed proposals will be received at this office until 3 o'clock P. M. on the 10th day of June, 1903, and then opened for the alterations to the U. S. Custom-house at St. Paul, Minn., in accordance with the drawings and specification, copies of which may be had at this office or at the office of the Custodian at St. Paul, Minn., at the discretion of the Supervising Architect. **JAMES KNOX TAYLOR**, Supervising Architect. 1428

ADDITION TO DORMITORY.

[At Pipestone, Minn.] Department of the Interior, Office of Indian Affairs, Washington, D. C. Sealed proposals will be received at the Indian Office until May 23, 1903, for furnishing the necessary materials and labor required to construct and complete an addition to a stone dormitory, with plumbing, steam heat and gasoline gas piping at the Pipestone Indian School, Minn., in strict accordance with plans, specifications and instructions to bidders which may be examined at this office. For further instructions apply to **Dewitt S. Harris**, Superintendent, Indian School, Pipestone, Minn. **A. C. TONNER**, Acting Commissioner. 1428

SUPERSTRUCTURE.

[At Carrollton, Ky.] Proposals for constructing the superstructure of St. John's Catholic Church will be received until May 15 by **Rev. I. M. Aumann**. 1428

ROADS AND WALKS.

[At Fort Greble, R. I.] Office Constructing Quartermaster, 209 Thames St., Newport, R. I. Sealed proposals will be received here until May 20, 1903, for constructing macadam roads and granolithic walks, Fort Greble, R. I. Information furnished on application. **CAPT. THOMAS H. SLAVENS**, Quartermaster. 1428

BUILDING.

[At Charleston, S. C.] Sealed proposals will be received at the Bureau of Yards and Docks, Navy Department, Washington, until May 23, 1903, for constructing a three-story brick and steel building for equipment at the Navy Yard, Charleston, S. C. Limit of cost, \$125,000. Plans and specifications can be seen at the Bureau, or will be furnished by the Commandant of the navy yard named upon deposit of \$20 to secure their return. **MORDECAI T. ENDICOTT**, chief of bureau. 1429

BUILDING.

[At Norfolk, Va.] Sealed proposals will be received at the Bureau of Yards and Docks, Navy Department, Washington, until May 23, 1903, for constructing a one-story steel storage building at the Navy Yard, Norfolk, Va. Appropriation, \$27,500. Plans and specifications can be seen at the Bureau, or will be furnished by the commandant of the navy yard named. **MORDECAI T. ENDICOTT**, chief of bureau. 1429

PROPOSALS.

CEMENT AND STONE.

[At Fort Wool, Va.] Engineer Office, U. S. Army, Room 2, Custom-house, Norfolk, Va. Sealed proposals for furnishing and delivering Portland cement and broken stone at Fort Wool, Va., will be received here until May 27, 1903. Information furnished on application. 1429

ALTERATIONS TO GUARD-HOUSE.

[At Fort Morgan, Ala.] Sealed proposals will be received until May 25, 1903, for constructing extension to and alterations in guard-house here. U. S. reserves right to reject or accept any or all proposals. Information furnished on application. Inclose proposals in sealed envelope marked "Guard-house," addressed **A. D. RAYMOND**, Q. M. 1429

PUMPING STATION.

[At Allegheny, Pa.] Proposals for the erection of a brick pumping station will be received by **D. L. Fulton**, director department of public works, until August 1. 1429

LIBRARY BUILDING.

[At Johnson City, Tenn.] Sealed proposals will be received at the office of the National Home for Disabled Volunteer Soldiers, 346 Broadway, New York, N. Y., until May 14, 1903, for furnishing materials, labor, etc., for the construction of a library building, from funds to be provided by Mr. Andrew Carnegie, of New York City, at the Mountain Branch, N. H. D. V. S., near Johnson City, Tenn. Plans may be seen, and copies of instructions and specifications, together with blank proposals and other information had upon application to the architect, **J. H. Freidlander**, 244 Fifth Ave., New York, N. Y.; at the office of the Superintendent of Construction, Mountain Branch, Johnson City, Tenn., and at the office of Gen. M. T. McMahon, President of the Board of Managers, N. H. D. V. S., 346 Broadway, New York, N. Y. 1427

CEMENT.

[At Zanesville, O.] U. S. Engineer Office, Zanesville, O. Sealed proposals for furnishing about 700 barrels American Portland cement will be received here until May 18, 1903. Information furnished on application here to Assistant Engineer **Edmund Moerer**. **MAJOR ERNEST H. RUFFNER**, Engrs. 1428

PAVING.

[At Norfolk, Va.] Sealed proposals will be received at this office on May 14, 1903, for laying about twenty-two (2,200) hundred square yards of asphalt paving on Clay St., in this city. Forms of proposals, instructions to bidders and specifications for the work may be obtained on application to **W. T. Brooke**, city engineer, or **B. Gray Tunstall**, Chairman of the Board. **B. GRAY TUNSTALL**, Chairman Boards of Street, Sewer and Drain Com. 1427

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PROPOSALS.

CHURCH.

[At Carrollton, Ky.] Bids will be received May 15 by the **Rev. I. M. Aumann**, for constructing the superstructure of St. John's Catholic Church. **Leon Coquard**, archt., Detroit, Mich. 1427

COURT-HOUSE.

[At Lincoln, Ill.] Bids will be received at the office of the county clerk of Logan County, Ill., until May 11, for the construction of the new county court-house. **J. M. Deal**, architect. **X. F. REIDLER**, county clerk. 1427

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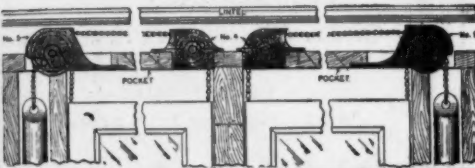
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| Moss, Chas. E., Boston..... | CONSERVATORIES.
Lord & Burnham Co., Irvington-on-
Hudson, N. Y..... | ELECTRIC SIGNALS.
Elevator Supply & Repair Co., New
York..... | FIREPROOFING.
Associated Expanded Metal Co., New
York |
| Spaulding Print Paper Co., Boston
.....(see) | CONTRACTING.
Flynt Building & Construction Co.,
Palmer, Mass..... | ELEVATORS, ETC.
Kimball Bros. Co., Council Bluffs, Ia. | National Fireproofing Co., Pittsburg,
Pa..... |
| BRASS FINISHERS.
Marble Co., W. P., Boston..... | Rutan, William L., Boston..... | HERSEY, Williams & Co., Philadelphia. | FIREPROOF LATHING.
Hayes, Geo., New York..... |
| BRICKS (Red Oxide)
Wisconsin Graphite Co., Pittsb'g, Pa. | CONTRACTORS AND BUILDERS.
McKay & Woolner, Boston..... | Otis Elevator Co., New York..... | FIREPROOF SHUTTERS.
Kinnear Mfg. Co., The, Columbus, O. |
| BRONZEWORX (Ornamental).
Richey, Browne & Donald, Long
Island City, N. Y..... | Rutan, William L., Boston..... | Whitaker Machine Co., Boston..... | FLAG POLES.
Boston Flag Pole Co., South Boston.. |
| Tyler Co., The W. S., Cleveland, O.... | CORDAGE.
Samson Cordage Works, Boston....(see) | ELEVATORS (Foundry).
Northern Engineering Works, De-
troit, Mich..... | FLOOR POLISH.
Butcher Polish Co., Boston..... |
| Winslow Bros. Co., The, Chicago, Ill. | CRANES.
Northern Engineering Works, De-
troit, Mich..... | ELEVATOR SIGNALS.
Hersey Telesams Co., New York..... | FOUNDRY EQUIPMENT.
Northern Engineering Works, De-
troit, Mich..... |
| BUILDINGS TORN DOWN.
Eiston & Co., A. A., Boston..... | CUPOLAS (Foundry).
Northern Engineering Works, De-
troit, Mich..... | ENGINEERS.
Jager Co., Charles J., Boston..... | |
| CAPITALS.
Lombard & Co., A. P., Boston..... | | | |