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THE profession will read without excessive regret of the transfer of Colonel Bingham, for several years custodian of the Executive Mansion and grounds, at Washington, to other fields of usefulness. It will be remembered that the Colonel, who seems to have united to the knowledge of republican etiquette for which he was renowned an artistic ambition, made, during the McKinley administration, designs for the enlargement and remodeling of the White House, which came alarmingly near being carried into effect. We ventured, on more than one occasion, to comment on the artistic faults, and the structural weaknesses, of the design, as well as to call attention to the glaring, not to say impudent, discrepancies between the plans and the elevations exhibited to the public, by which a tolerable appearance was given to what, if carried into execution, would have looked very differently; and it seems to have been the unanimous condemnation of the profession, more than anything else, which led to the abandonment of a scheme for which, it is said, Congress was on the point of making the necessary appropriation. With the change of administration came a change in the views of the occupants of the White House; and Mr. McKim, much to the satisfaction of those who wish well to American official architecture, was placed in charge of the alterations which were conceded to be necessary. It is too soon now to speak of the result of Mr. McKim's labors, but architects, who know the thoroughness with which he studies every detail of his work, are not likely to have any misgivings in regard to it. Colonel Bingham, however, according to the newspaper accounts, was dissatisfied with what had been accomplished by one whom he seems to have been pleased to consider a rival artist, and was, at his own request, it is said, transferred to a post where Mr. McKim's laurels will no longer disturb his sleep.

ARCHITECTS, who, when their business is good, are rather large importers of foreign books, and who rarely fail to bring home a collection with them from their trips abroad, should take warning from the experience of Mr. George P. Brett, the head of the American branch of the great publishing-house of Macmillan, who describes, in some letters to the *New York Evening Post*, the present manner of administering the tariff laws in respect to books. As our readers know, some two or three years ago, by an administrative ruling, the actual cost of an imported article was set aside, as a basis for estimating the duty to be paid on it, and for this standard was substituted the opinion of an irresponsible official as to what it ought to have cost, his decision being, practically, without appeal. It will be remembered that, a few months ago, a firm of Philadelphia iron-merchants imported a cargo of iron from one of the great German mills, for which they paid the price demanded by the mill, and, naturally, expected to pay a duty

based on this price. Instead of this, the iron, on its arrival, was held, the evidence as to the price paid was rejected, and the duty was calculated on the price which the appraiser thought ought to have been paid; the difference amounting to about four thousand dollars. In Mr. Brett's case, a large English publishing-house, wishing to dispose in this country of a part of the edition which it had in preparation of a work of importance, proposed to the New York house of Macmillan to take five hundred copies of the work, at a reduced price, and assume the risk of placing it on the American market; the price being made low enough to cover the uncertainties of the undertaking in this country. Mr. Brett, for the American Macmillan Company, accepted the proposition, just as it was made; and, in due time, the books were shipped, and arrived at the New York Custom-house. Here the appraiser, who appears to be a keen critic of literature, promptly decided that Mr. Brett had not paid enough for such admirable works, and ordered seventy-three per cent to be added to the actual cost as a basis for calculating the regular duty of twenty-five per cent; and, as the present administration permits him to do, doubled the duty on the increased valuation which he had himself fixed; so that, before the books were released, a duty amounting to nearly ninety per cent on the actual cost had to be paid on them.

IN the case of architects adding to their libraries, this method of administering the tariff laws, which seems to have been borrowed from the Venezuelan and Peruvian collectors, may be made peculiarly oppressive. Fortunately, books entirely in a foreign language are free of duty, and these include many of the most valuable professional works; but, from time to time, architectural books of great importance are published in England. Most of these, at the price of publication, are beyond the reach of American architects, whose professional earnings are, as a rule, small in comparison with those of their brethren in Europe; but, sooner or later, they make their appearance in the second-hand book-stores, or at auction sales of the effects of deceased architects, and can often be picked up at a bargain by American students or tourists, who are generally familiar with the best works, from seeing them in the libraries of the architectural schools, and are glad to avail themselves of a good opportunity for purchasing them. Such standard books as Nesfield's and Norman Shaw's "*Sketches*"; Owen Jones's "*Grammar of Ornament*"; Nash's and Richardson's "*Mansions of England*"; Hall's "*Baronial Halls*"; and many others, may sometimes be picked up at much less than half-price, and, with time and knowledge, a student may sometimes accumulate for a thousand dollars books which were originally published at three or four times that sum, and would probably be catalogued by a dealer at not less than two thousand. Under the benignant influences which formerly made high tariff acceptable to the great mass of the people, such books would have been admitted free, as tools of trade; but all that is changed under the present administration. Not even tools of trade can now be imported free unless they have been used a year; and, as appraisers are at liberty to reject all evidences of the actual cost of the bargain so painfully collected, the architectural tourist may find himself, like Mr. Brett, compelled to pay a second time nearly the whole cost of what ought, according to the plain intent of all the tariff laws that have been enacted in the United States for forty years, to be admitted free.

IN several places, as the newspapers report, organizations of non-union men are being quietly formed, to resist the oppression and violence of union methods. As, according to the union officials themselves, the unions contain only about fifteen per cent of the working-men, even in the cities, it seems as if the other eighty-five per cent might manage to defend themselves and their families successfully against such oppression; and it is quite time that they should try. We have no objection whatever to unions, or to their members, with very many of whom architects are brought into friendly relation; but no union, and no member of a union, is entitled to prevent other people from working for whom they please, as many hours as they see fit, and for what wages they choose to accept, or to dictate to any employer whom he shall employ or discharge; and, until this cardinal principle is established,

there will be neither prosperity nor happiness for the working people in this country. Whether the new organizations of non-union men will be sufficiently coherent to act effectively against the discipline and wealth of the unions remains to be seen; but they can at least exert a great political power; and, if a few honest and courageous men would put themselves forward as the defenders of what President Eliot calls the American hero, — the non-union man, — they would, even now, find surprising support at the polls, and might, probably, later, when the non-union men had gained courage to show themselves and support each other, carry with them strength enough to secure the final abolition of the odious laws, framed at the dictation of the union magnates, which, by excluding non-union men from public employment, and in other ways oppressing them, strike at the foundations of American liberty.

THE Academy of Fine-Arts of Milan has announced a competition, open to all Italian architects, with a first prize of two thousand francs, and a second prize of five hundred francs, for the best design for the reconstruction of the Venetian Campanile, on the same spot as the old one, and in the general character of Venetian architecture. It is needless to say that, as the Campanile is to be rebuilt precisely as it was before; and that, in any case, the Milan Academy would not be consulted in regard to it, the competition is a purely academic exercise; but it derives importance from the fact that the Academy is a very dignified institution, maintained by the Italian Government; so that its use of the event which has excited the interest of the civilized world to exercise the artistic powers of Italian architects generally shows a certain courage.

IF we were obliged to undertake the education in architectural design of young men within reach of a city, we should be inclined to amplify the practice once followed, and perhaps still followed, in some of our architectural schools, of taking the students regularly to visit new buildings, not so much to criticise them as to try whether they could improve upon them. With the aid of photographs, revised designs, sufficient for the purpose, could be made without the labor of measuring the building, and the exercise would have the two-fold advantage of calling the attention of the pupils to the details of the actual work, and of enabling them to concentrate their attention on refining and improving them, without troubling their heads about the main problem of the design. Something of this kind was undertaken in Belgium a few years ago, as a competition among architects. The results were interesting, but the experiment does not seem to have been repeated, possibly on account of the ill-feeling which might naturally have been excited. With students there would be no danger of ill-feeling, and the practice should assist materially in correcting that want of care and skill in the designing of detail which is the greatest fault among American draughtsmen, and, in fact, among American architects generally.

THE *Builder* makes some remarks, which are quite justified, as we think, on the "assurance" of an American writer who says that English architectural journals are "hardly worth notice" to those accustomed to the French and German ones. Of course, every one has a right to his own opinion in matters of taste, but such an assertion as this deals rather with a matter of fact than of taste, and it is calculated to mislead American readers and students, who would be the worst sufferers from putting faith in it. Critics of such periodicals sometimes forget that architecture and architectural journalism are two different things; and whatever we may think of English architecture, no one familiar with professional periodical literature could fail to place the *Builder* itself, always catholic, scholarly, high-minded and interesting, at the very head of it. The other English journals have also their own characteristics, generally of special interest and value; and much as we personally like the best French and German periodicals, the English ones, of all those published abroad, are those which an American reader could least easily dispense with.

WHAT current English architecture does not greatly appeal to American readers is no argument, at least against the *Builder*, which reproduces the best contemporary French architecture, as well as French art of other kinds, with admirable discrimination. In fact, owing to its constant use of

processes of reproduction which are not employed, on an adequate scale, in French professional journalism, it often gives better illustrations, and of better examples, of French architecture than any of the weekly French journals. Naturally, it cannot devote itself to current French work in the way that the Parisian journals do, but what it does give is admirably given.

ONE of the most curious studies in sociology is the decline of the Anglo-Saxon race in the United States, particularly in the older portions of it, where that race has been longest settled. In New York, the population of which is more than three-fourths foreign, it is, of course, hopeless to study American characteristics; but in Massachusetts, a great part of which is still occupied by the descendants of the first English settlers, the tendencies of the country, as the development of an Anglo-Saxon colony, are shown with tolerable accuracy. The most striking of these tendencies is the substitution, now very rapid, of a foreign element, at present, in Massachusetts, mainly Latin or Slavonic, for the Anglo-Saxon type. It has long been known that the original New England families were dying out. In Maine and Vermont, which do not attract many immigrants, the population is either practically stationary or diminishing, while in Massachusetts the birth-rate among natives is too low to make up for the losses by death, so that the population would decrease, were it not for immigration, and for the much larger birth-rate in foreign families. Already, in Massachusetts, three children are born of foreign parents to every two from native parents; so that the number of years which will elapse before the foreign blood will practically replace the other can be approximately estimated. Probably it will not be much more than a hundred; and our grandchildren, if we are so fortunate as to have any, may come to be looked upon, in the midst of the dark-haired Massachusetts community, of mingled Italian, Russian, Greek, Portuguese, French and Celtic blood, as curiosities, something as the blue-eyed and fair-haired descendants of the Visigoths are now in Spain, or as an ancient Etruscan would have been in Imperial Rome. As the Etruscans gave their laws and civilization to the Romans, and the Visigoths, in a certain degree, to Spain, so the principles of Magna Charta and the Declaration of Independence are likely to prevail in this country for many generations to come; but, to all appearance, the race which planted them here is fast becoming extinct.

PERHAPS the Institute of Architects might take a hint for its next revision of the official Schedule of Charges from the following extract from the regulations of King Hammourabi, of Babylon, who reigned in the twenty-third century before the Christian era, and was thoughtful enough to hand down to posterity his ideas of professional responsibility in a document of which M. Charles Lucas sends a translation to *La Construction Moderne*. According to this code, "the architect who has constructed a house for any person, and has finished it properly, shall receive for his compensation two sicles of silver per superficial fathom." We have no means of knowing how much a sicle was, or what was the purchasing value of silver in those days; but, as it is certain that silver, in the early days of the Babylonian Kingdom, was worth more, weight for weight, than gold, the professional man seems to have been pretty well paid, particularly as the Babylonian houses were of sun-dried brick, and only one story high. The agreeable position of the architect seems, however, to have had some discomforts. King Hammourabi's code goes on to say that "when an architect has built a house for some one, and the work is not solid, and the house, after construction, falls, and kills the owner, the architect shall be killed." In the same way, "If it is the son of the owner who was killed, the son of the architect shall be killed." If only a slave of the owner is slain by the fall, the architect is required to give one of his own slaves in place of it; and must replace furniture in like manner; and must rebuild the house at his own expense. It seems as if all this formed a heavy risk for the architect to take for a fee of only two sicles of silver per square fathom; but M. Lucas explains that the architect, in the code of Hammourabi, was, undoubtedly, the master builder, as he was known to have been fifteen centuries before, in the reign of Sargon the First and of Marannin; so that the tears which any of our readers may have been tempted to shed over the fate of their brethren of forty centuries ago should rather be converted into smiles at the thought that, in those days, jerry-builders appear to have met their deserts.

NOTES ON IRON AND STEEL CONSTRUCTION.¹—XIV.

IN the last article was described the method of finding the reactions and external forces acting upon framed structures by the analytical method. In this part it is the purpose to find the reactions and to determine, in consequence, all of the external forces, by entirely graphical means.

In Figure 101 is shown a beam supporting a load at the centre. It

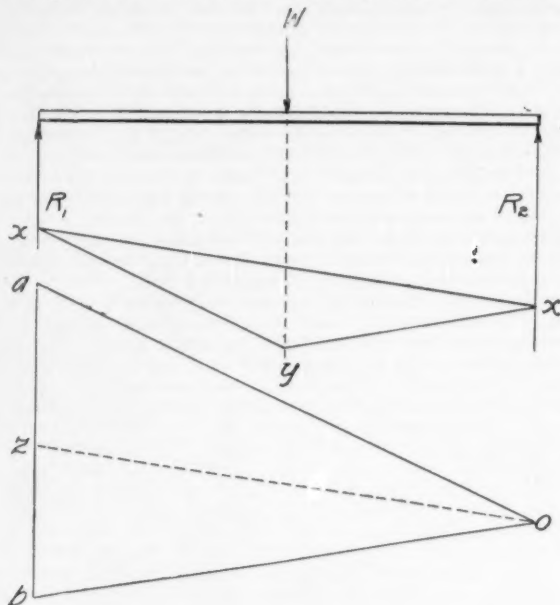


Fig. 101.

is known from previous discussion that the reactions R_1 and R_2 are each equal to one-half the amount of the load, and this may be proved graphically by drawing any line, as ab , to such a scale as to represent W , and selecting any pole, such as o , and drawing from a and b lines to this pole; then extend from the line of action of R_1 a line parallel with ao , cutting the line of action of W extended, and from the point of intersection y , thus obtained, draw a line parallel with bo , cutting the line of action of the reaction R_2 . In this manner the points x and x_1 are determined, and a line connecting these points will give the direction of a line oz , the line oz dividing the load-line ab into two equal parts in such a manner that bz is the amount of R_1

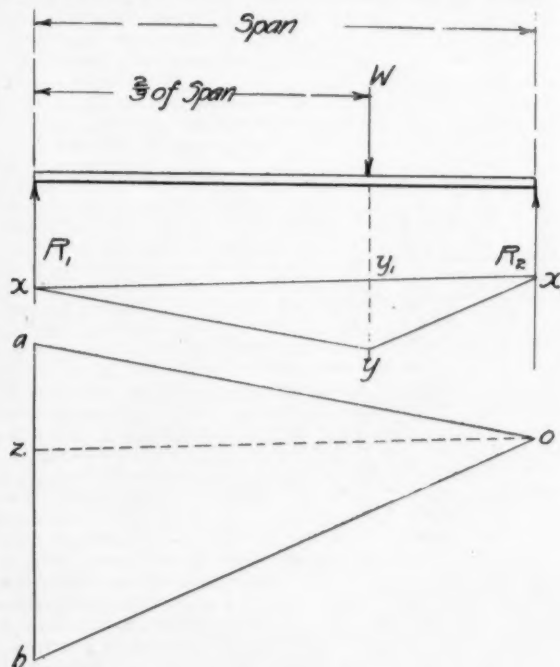


Fig. 102.

and za is the amount of R_2 . The beam, its loads and reactions, may be called the *frame diagram*, while the figure x, x_1, y , is designated as the *equilibrium or funicular polygon*, while the figure ao, bz is called the *force polygon*.

In Figure 102 is shown a beam where the load W is spaced at a

distance of two-thirds of the span from R_1 , consequently by inspection it is known that R_2 is two-thirds of W , while R_1 is the remaining third. To demonstrate this graphically draw as before the load-line ab , and select any pole, as o ; connect the pole and the points a and b as shown, and draw from R_1 a line parallel with ao until this intersects the line of action of W ; from this intersection draw, as previously described, bo intersecting R_2 ; thus will the funicular polygon x, x_1 and y be obtained, and the reactions R_1 and R_2 will be found in the force polygon by extending from o a line parallel with x, x_1 of the funicular polygon, these reactions being respectively represented in this diagram by bz and za . At the beginning of this solution it was stated that the proportion of R_2 to the entire load was inversely as the distance of W from R_1 compared with the entire span of the beam. It is evident therefore that the line of action representing the weight W , and determining the intersection y , divides the line x, x_1 into two such parts that x, y_1 represents the amount of R_2 , while y_1, x_1 in relation to distance x, x_1 equals the amount of the reaction R_1 . Geometric proof of this is clear when it is realized that the included angle between x, y, y_1 and y, x_1, y_1 is similar to the included angle between o, az and o, bz and when it is also noted that oz lies parallel with x, x_1 , and ab with y_1, y .

The application of this principle gives a convenient means for determining the reactions of any simple beam supporting any number of loads. A case of this kind is shown in Figure 103, where the beam, supported upon the reactions R_1 and R_2 , sustains the loads W_1, W_2, W_3 and W_4 . The force polygon is drawn by laying off to scale the loads a, b, c, d and d, e , equal respectively to the amounts of the weights W_1, W_2, W_3 , and W_4 . The pole o is chosen arbitrarily, and the rays, marked ao, bo , etc., are drawn as designated. The funicular polygon is commenced from any point such as x on the line of

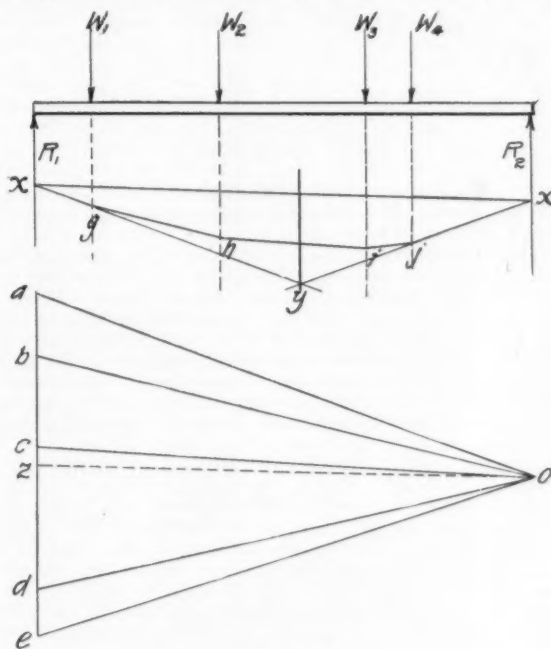


Fig. 103.

reaction R_1 , by drawing a line xg parallel with ao , the point g being obtained by the intersection of the line just drawn with the line of action of W_1 extended; from the point g another line gh is described parallel with bo , the point h being the intersection of this line with the line of action of W_2 ; from h the line i is extended parallel with the line co in the force polygon, and the figure is thus continued until the intersection of the last line drawn parallel with eo gives the point x_1 on the line of the action of the reaction R_2 . The two points x and x_1 having been obtained, the line oz may be drawn parallel with this line, and by scaling ez and za the amount of the reactions R_2 and R_1 will be obtained. The amount of these reactions can as well be found by extending from x_1 and x the lines x, y and x_1, y , parallel respectively with ao and eo , thus locating the point y , from which a line drawn coincident in direction with the load-line ae will divide the line ax_1 into two such parts as are inversely proportioned to the length of the line x, x_1 , as the reactions are to the sum of the loads.

The method is not alone applicable to a beam or structure supporting loads where the lines of action of the loads extend parallel, but can as readily be applied to a structure where the loads are not parallel; for instance, in Figure 104 is shown a beam supporting the several loads W_1, W_2, W_3 , and W_4 , whose lines of action all differ as to direction. Here the direction of the reactions R_1 and R_2 are not determined until the force polygon has been drawn. The force polygon is described by first laying off the load-line ab, bc, cd , etc., in which the lines are drawn to scale, and coincide in amounts and directions respectively with the loads W_1, W_2 , etc.; the pole or origin is assumed, and as before, the radiating lines ao, bo , etc., are drawn. The direction of the reactions R_1 and R_2 is then found by connecting

¹ Continued from No. 1412, page 21.

points a and e , and the amount of R_1 and R_2 is equal respectively to the amounts obtained by scaling ez and za , the line oz , as before, being found from the funicular polygon extending between the points x , x_1 and y , for the line oz in the force polygon is parallel with xx_1 .

By referring to the equilibrium polygon the attention is called to the fact that x is drawn to the line of action extended from W_1 , and

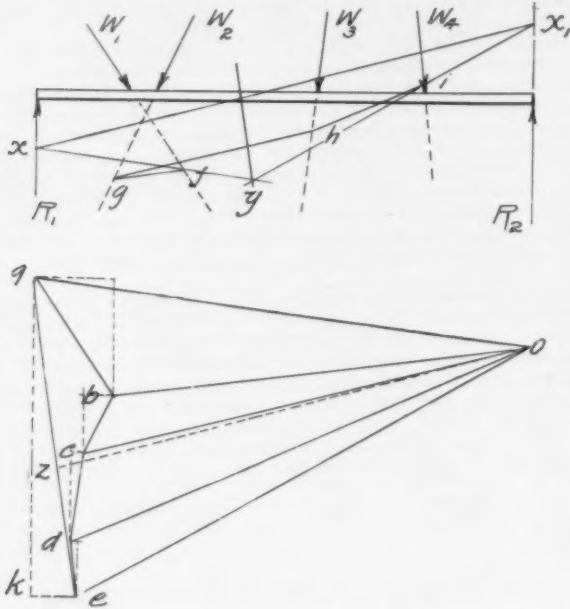


Fig. 104.

fg returns in a direction parallel with ob until it intersects the line of action of W_2 extended, while from g the point h is determined by drawing a line parallel with co .

In previous portions of the article attention was called to the fact that for any structure to be in equilibrium the algebraic sum of the vertical and horizontal components of all of the forces upon the beam or structure must be equal to zero. By referring to the force polygon in Figure 104, and noting that ae is the sum of the two reactions which are the opposing forces, or, with reference to the loads, the negative forces acting upon the beam to preserve equilibrium, it will be observed that ak is the vertical component of the reactions, while ke is the horizontal component. The sum of the vertical and

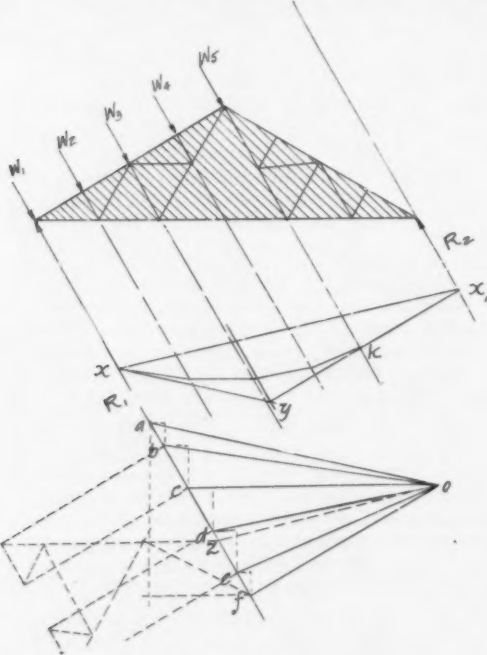


Fig. 105.

horizontal components of the loads W_1 , W_2 , W_3 and W_4 , by the proposition just explained, must be equal to these components of the reactions; that they are equal can be observed from the dotted lines which show the components for each of the forces ab , bc , cd and de , for it can be seen that all of the vertical lines when added together equal in length the vertical line ak , while all of the horizontal lines when added algebraically would equal the length of the line ke .

There is no difficulty in conveniently applying these principles to the determination of the reactions forming the support for framed structures such as roof-trusses. In Figure 105 is shown a Fink truss. The frame of the truss has been section-lined to show more clearly that it is to be treated as a solid body or beam, rather than a frame. The loads W_1 , W_2 , etc., represent in amount and direction the action of the wind on the left-hand slope of the roof. The polygon of forces is determined by the load-line ab , bc , etc., and the pole o . The equilibrium polygon is drawn from the line of action of the right-hand reaction R_1 , or the point x , until each intersection on the load-lines extended has been obtained, and the final line kx_1 drawn parallel with fo in the force polygon; from o the line oz drawn parallel with xx_1 gives the amount of the reactions R_1 and R_2 by measuring za and fz . It is not unusual to determine the reactions for roof-trusses in this manner, and it is convenient after having found the amount of the reactions and having laid off the line for the force polygon, as aof , to continue the analysis of the frame by drawing the stress diagram shown to the left of the load-line, in this way making the entire analysis of the roof-truss graphical.

That the sum of the vertical and horizontal components of the external loads upon the frame equals zero is shown by the resolution of the oblique forces designated by the dotted lines.

In Figure 106 is illustrated the frame diagram for a segment roof-truss. It is desired to obtain the direction and amount of the reactions when the truss supports a snow-load upon the left-hand rafter-member, and is subjected to the maximum wind load upon the right-hand slope of the roof. The snow-loads act vertically; the wind-loads obliquely, the latter being considered as perpendicular to the

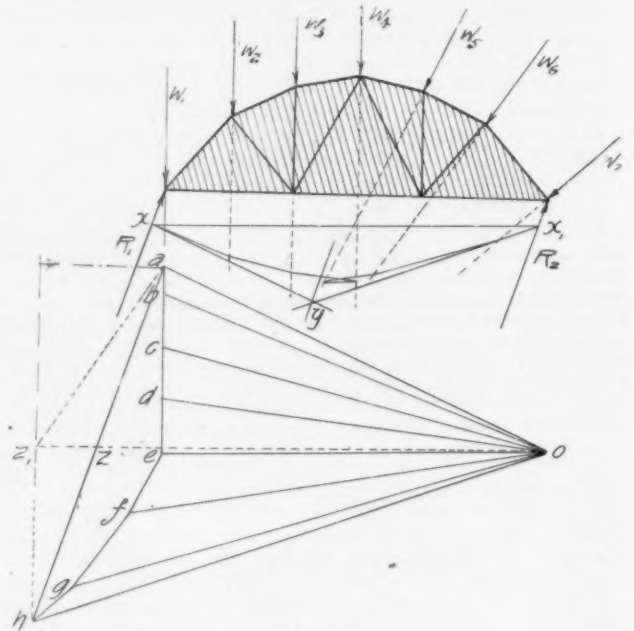


Fig. 106.

tangent at the panel points. These loads are, in consequence, represented as W_1 , W_2 , W_3 , etc., owing to the fact that the loads are not coincident in direction; neither the direction nor the amounts of the reactions R_1 and R_2 are known. The force polygon is described by laying off, first, the vertical loads ab , bc , cd , etc., and then the loads gh , hi , jk , lm and np . The directions of the reactions R_1 and R_2 are obtained as described in the application of the principles to Figure 104 by connecting the two extremes of the load-line a and h . The funicular polygon is drawn between the line of actions of the loads extended and parallel with the rays in the force-diagram and the line xx_1 results, so that oz , being parallel with this line, divides the line representing the sum of the reactions into the two portions pz and zb , which give, as in the several previous cases, the amounts of the reactions R_1 and R_2 . If the right-hand end of the truss had been on rollers, the reaction R_2 would have been vertical, and its amount could have been obtained from the force polygon by measuring the dotted line pz_1 ; the left-hand reaction, or R_1 , would then have assumed the direction of z_1a and its amount would have been determined by the length of this line. If one of the reactions is vertical, as when the truss is supported upon rollers, the force polygon and the two oblique reactions, coinciding in direction, such as pb , should first be obtained, and in this manner the direction of the line oz found. The two reactions pz and zb may then be eliminated by substituting the vertical reaction pz_1 and zb ; as will be observed from the force polygon, the equilibrium of the frame is not disturbed, for the vertical and horizontal components of the substituted reactions are equal to the components of the original reaction.

In the next article the analyses of the stresses in the several members, or the internal forces of the structure, will be considered.

M. M. SLOAN.

[To be continued.]

RECENT CONFLAGRATIONS AND THEIR LESSONS TO ARCHITECTS.¹

IN selecting this subject for our consideration, I feel I shall be met by the covert observation that it is not to the interest of architects that the burning of buildings should cease; but, on reflection, I think we must all look upon fires as calamities, if possible to be avoided, especially as they are sometimes attended by loss of life, and, from an economic point of view, a waste to be deprecated, and any suggestion for their limitation and control well worthy the consideration of professional and practical men. I have selected for comment two conflagrations; a Continental one at Antwerp and the other the more recent Barbican fire. The first of these is the fire which destroyed the Entrepôt Royal, or the Government Bonded Warehouses, at Antwerp, on June 5, 1901. A few notes of the building, its size, position and contents may assist us to realize the magnitude of the conflagration. The warehouses consisted of a series of buildings in three main blocks, each six stories in height, fronting the Quai de l'Entrepôt, and designated the North, Central and South Block, and connected in the rear towards the Avenue du Commerce by buildings of lesser height; there were in addition a number of one-story buildings. The buildings dated from 1830, and were erected with brick walls treated architecturally with stone, but with no claim to be of fire-resisting construction. The floors were principally of wooden joists carried upon wrought-iron girders and supported by cast-iron columns. The floors were carried on columns independently of the walls, but the ends of the wrought-iron girders were let into the walls and connected on the outside by plates and washers.

This accounts to a large extent for the so complete destruction of the buildings, inasmuch as the falling of the floors and ironwork dragged the walls over and brought about the total wreck. There were cross-walls dividing the buildings up into sections, but these terminated below the roof, had many openings in them, imperfectly closed with badly fitting single iron doors, and in some cases with none at all. The staircases were of wood. The buildings were used principally for the storing of bonded goods — such as coffee, sugar, wool, tobacco, tallow, hardware and fabrics, but some of the floors were let to private tenants, and it was in one of these tenancies the fire commenced. The exact spot was on the top floor, about 24 metres from the ground, and it spread along the roof in either direction. The whole of these buildings, practically all communicating and adjoining and filled with most inflammable materials, were little calculated to resist the spread of fire, and in addition to this, the fire starting in the roof story, the extinguishing appliances were unable, through want of water-pressure in the hydrants and the want of more powerful engines, to touch the fire until it reached the lower stories.

The fire occurred, as before mentioned, on June the 5th, at 2.30 P. M. The brigade were called at 2.40 P. M., and at 4.30 P. M. the buildings of the central and south blocks were well alight, and by 6 P. M. the whole of the roofs and floors had fallen and were a burning ruin, which was not extinguished for many days after. The only portion saved was the north block. The northerly breeze which was blowing assisted the efforts of the brigade in preventing the flames leaping across the courtyard, although in the other direction it greatly assisted in the spread of the fire.

I think the moral of this fire is: Do not put all your eggs into one basket, but divide up your buildings into sections by division-walls, and if you have openings, see that they are closed by efficient double iron doors; also, if you have a building 24 metres high, see that your fire-appliances will reach a fire in the top story. To business men a fire is always a calamity to be guarded against, and although one may be insured against the loss of premises, stock and rent, yet the inconvenience caused to, and the dislocation of, one's business is to be deplored and avoided if it be possible. In these buildings not one, I think, had any pretensions to be fire-resisting, and their total destruction under the circumstances is small matter for wonder, nor is the architect entirely to blame. If he suggest to his client fire-resisting construction he is met by some or all of the following objections:

1. Why should I build my premises of fire-resisting material if the insurance-companies will make no difference in the amount of premium between a fire-resisting building and a combustible one?
2. Why should I build to resist fire if my neighbor is not compelled to do the same, and his building igniting sets fire to mine?
3. Why should I build to resist fire if by reason of the increased cost of my building my assessment is increased?

These are all, of course, very pertinent objections, and with regard to the first, the insurance-companies not being philanthropic institutions, but existing for profit, do not as yet see their way to make any material reduction, as in a large conflagration the result more often is the complete destruction of both classes of building. The fire spreads through the windows, either those fronting the streets or those looking into the light-courts. Does this not suggest that all these openings should be protected by iron or hardwood shutters, or by asbestos blinds, and that all these should be closed every night at the conclusion of business as a matter of ordinary routine? I do not, of course, say that this method would prevent the spread of fire entirely, but it would retard its progress so as to enable the fire-

brigade to surround a fire instead of having to go in all directions, following outbreak after outbreak, by reason of the fire travelling through window-openings.

We are sometimes tempted to be dissatisfied with our fire-appliances, but given a good stiff breeze, as happened on the occasion of the Barbican fire, how are you going to cope with fires breaking out in all directions and on all floors at once by reason of the glass in the window-openings giving way and carrying the flames through? Look at New Zealand Avenue with its *cul de sac* and large area of opening; the fireman has not half a chance, and the wonder is not that the fire was so large, but that it was confined to such comparatively small limits through the indomitable perseverance of the brigade. If, as I suggest, insurance-companies could be persuaded to countenance this form of protection and reduce their premiums to those clients who adopted them, it would be, I think, to their advantage, or there might be legislation on this head making this form of protection compulsory. Objection has been urged that if premises are so straitly shut up it would perhaps be difficult to detect a fire in its incipient stage; but it is then your automatic fire-alarms and sprinklers would come in. We have also in lieu of shutters a recent invention in the form of wired glass, with which the windows could be glazed into metal or hardwood frames, or directly into stonework or brickwork.

The second objection could of course only be dealt with by legislation, and if this were desirable certain sections or zones of a city which are devoted to buildings of the warehouse class might be compelled to be of fire-resisting construction, and rules framed for such, penalties also being levied against those who by their indifference or carelessness endanger their neighbor's property. In Germany, I understand, a man is made personally liable if it is found after a fire he has neglected any of the precautions against it he is bound by law to take. Without, perhaps, going quite so far as this, a man, for instance, who neglects to see that any opening in which fire-resisting doors are fixed is not closed every night at the conclusion of the day's work might be liable to a penalty. At present the law provides for doors in a party-wall under certain circumstances, but does not provide for them to be closed when the premises are vacated, thus in many cases rendering them inefficacious. Neglecting to provide proper exits in case of fire might also be the subject of personal responsibility, as it would conduce to greater caution on the owner's part if he were made personally responsible for the safe exit of his employés in case of fire.

The third objection is one which is of great importance, and it appears to me that if a building-owner, by reason of additional expense, renders his building fire-resisting, he renders a service to the community, and should in consequence have his assessment reduced instead of increased. If municipalities could only look at this point in the right light, they would see that a citizen who aims at fire-resistance in his building is a public benefactor, as he tends to reduce the precautions which are now necessary to be taken by the municipality to protect the community from fire and loss, and thus save expenditure, and this is a point in the incidents of taxation well worthy the attention of corporations. The fire started either in Nos. 8 and 9 or 10 and 11, Barbican, and spread to the right and left, then the flames were carried, by the stiff breeze that was blowing, across the road to New Zealand Avenue, a *cul de sac*, along which it spread on either side until it was stopped by the wall at the end enclosing the low building of the horse-repository. The call was given at 10.41 P. M. on April 21, 1902, and the stop at 12.45 A. M. the next day. As the result of this fire, I should like to make the following suggestions for buildings of the city-warehouse class:—

That all supporting piers should be constructed, where practical, of brick.

That all roofs should be flat and of fire-resisting construction.

That all windows should be protected by fire-resisting shutters or wired glass.

That all floors should be fire-resisting, and all iron girders, columns and supports be protected by special plaster or hollow-tile covering, and not tied into walls.

That all staircases be enclosed by at least a 9-inch wall carried up to the roof, and any openings on to the same be filled with fire-resisting doors.

That all lifts be enclosed with at least a 9-inch wall and carried up through the roof and covered with a skylight of light iron and glass, and all openings on to the several floors be filled with fire-resisting doors.

I feel assured that if the above-mentioned precautions were taken, coupled with the promptitude with which the fire-brigade arrives on the scene, a fire would be confined to the building in which it originated, and a large amount of loss and inconvenience averted.

HOW TO BURN A HOSPITAL.

IN 1901 one hundred and fifty-one hospitals or asylums were partially or wholly destroyed by fire in this country, being at the rate of 2.90 per week. The latest example is a ward of the City Hospital. From the account of the origin and course of this fire I think the most effective rule for assuring the greatest injury from the smallest cause may be deduced. It might be put in this form:—

Finish the basement in wood or brick, it does not much matter

¹A paper by Ellis Marsland, Hon. Sec. British Fire Prevention Committee, read December 11, before the Society of Architects, and printed in the *Building News*.

which, provided a wooden laundry-chute is put in connecting the basement with the roof-space; open a wooden ventilator from the roof, so as to secure a strong draught. Put steam-heating pipes, which for purposes of heating should be overhead, along the basement wall, so that a bale of oakum may be placed against the pipe where it will surely take fire. Fill the several stories or wards with hollow partitions connected with hollow floors.

These precautions having been taken, it will be very certain to happen, as stated in the *Herald*: "Before the firemen got fairly at work flames were coming out of the ventilator on the roof." Of course they were. Again, "It was what the firemen call an inside fire, working almost wholly through the partitions and then into the air-space under the roof over the sleeping quarters of the attendants." Of course it was, else the plan and method of construction would have been a failure. If the firemen had only been a little slower some of the attendants might have been suffocated, and, perhaps, some of the patients burned; that is what usually happens in similar cases where the fire-departments are not too smart.

I venture to call the attention of the public to this incident because some persons might like to know who made the plans of that hospital, so as to employ him in some other case, perhaps in rebuilding the Convalescent Home for Children in a country district where the firemen cannot reach the fire so promptly. — *E. A. in the Boston Transcript*.

THE LATE FREDERIC TUDOR AND HIS WORK.

A WELL-INFORMED writer gives in the *Boston Transcript* for February 11 the following facts concerning the useful life-work of the late Frederic Tudor:—

"To-day is the anniversary of the birth of Frederic Tudor, sanitary-engineer and expert, well known to architects and civil-engineers throughout the United States and Europe, in whose death this community met with great loss. Mr. Tudor was a pioneer in ventilation and sanitation of dwelling-houses and public buildings, an occupation in which he sacrificed his time, his health and his fortune.

"Mr. Tudor, although inheriting a considerable fortune, began his career as a civil-engineer; and presently drifted into the work of sanitation of buildings, his first undertakings being confined almost entirely to dwelling-houses. Later, some of his best work was shown in the Cancer Hospital and the Metropolitan Opera House in New York City; the Capitol at Albany; the Walker Building of the Massachusetts Institute of Technology of this city. All these buildings have long been noted for their practically perfect systems of ventilation and of heating. The Cancer Hospital and Metropolitan Opera House are ventilated by essentially the same system—the former being acknowledged to be the most perfectly ventilated hospital in the world, and the latter cited as an example of perfect work by many American and English scientists. In 1885 an article written by Bosoy, under the title of 'Chauffage d'un Théâtre,' appeared in the *Gazette des Arch. et du Batiment*, a leading French engineering journal, in which the system and results of the Metropolitan Opera House plant were highly praised.

"The Walker Building in Boston contained one of Mr. Tudor's best, though earliest, pieces of work. All the plans and designs for the heating and ventilating of this building were made personally.

"When the project of building a new Boston Public Library was decided upon, Mr. Tudor was called in to draw up plans for the heating and ventilation. Although in failing health, he intended that this should be a monument of his best work. On the opening night of the Library the hundreds of people who were present discovered that, although the thermometer outside registered nearly zero, the temperature and circulation of air in the building were perfect. Expressions of praise were heard on all sides, and on the following day articles appeared in the daily press, complimenting Mr. Tudor upon the success of his plans and system. The system was used for several months and was proved to be perfect in every respect. Later, for reasons never fully explained, the plans were changed by a new Board of Trustees, with results which are well known to all who have occasion to visit the building.

"The vapor-system of heating, so-called, was invented by Mr. Tudor, and is to-day used extensively throughout Germany and France, sanitary-engineers in those countries giving him entire credit as its originator. Only within the last two or three years have American engineers properly appreciated the value of economy of operation as revealed in Mr. Tudor's system.

"Many sanitary and plumbing improvements are credited to him, and he was the originator of the well-known pneumatic plumbing test.

"He had always regarded the accepted theory of heat and light as erroneous, and the last two years of his life were spent in endeavoring to develop a new hypothesis. Several scientific men who have read his work on this subject believe that he has succeeded in disproving the old theory, and even go so far as to say that they suspect the new theory expounded by him may prove sound in the future.

"Owing to the feeble condition of his health, Mr. Tudor had large opportunities of reading, and his knowledge of all branches of science, philosophy and history was remarkable. Honest to a fault himself, his life was much embittered by the grasping desire of others to accept credit for themselves where credit was due him alone. Too ill to maintain his rights, and too proud to claim recognition, he died feeling he had never attained his life's ambition.

"In habit he was a recluse, but he gained from those who knew him ready recognition of the nobility and rectitude of his character. Extremely modest himself, he was very glad to praise where praise was due, and his criticisms of others, while often severe, were almost invariably just. His standard and ideals were high, so that those who came into daily contact with him felt his influence in a way to stimulate them toward the attainment of higher and better things. Uncompromising in his adherence to high ideals, Mr. Tudor was generous to a fault, and freely gave of his time and ability to those who asked for it. Many a young engineer and mechanic has cause to remember his name with pleasure and gratitude.

"Mr. Tudor's services to his profession have gradually become better understood, and the public will no doubt in time learn to remember the name of one who was the pioneer in inventing and developing systems and devices for supplying modern homes and public buildings with abundance of fresh air and temperate heat, both essential to health and comfort. As a result of seventeen years' thought and experiment, he perfected shortly before his death a plan of low-pressure steam-heating, known as the "thermograde system," which is now being used in Randolph Hall, Cambridge; Apthorp House, Cambridge; Hampden Hall, Cambridge, and the Beaconsfield Casino, Brookline.

"The evolutionary development of his principles may be best traced through the following buildings; Capitol at Albany, 1878; Sever Hall, Harvard University, 1878; Anthon Hall, Columbia University, 1878; Union League Club-house, New York, 1879; Mason Building, Kilby Street, Boston, 1880; New York Cancer Hospital, 1882; Metropolitan Opera House, New York, 1882; Walker Building, Massachusetts Institute of Technology, 1883; Hospital Life Insurance Company Building, 1884; Western Reserve Medical College, 1884; Allegheny County Court-house, 1884; American Bank Note Company, New York, 1885; Union Station, Indianapolis, 1886; Chamber of Commerce, Cincinnati, 1886; New Public Library, Boston, 1887.

"Mr. Tudor's thermograde system is to be installed in several large office-buildings in Boston now in progress of construction, notably the India Building, State Mutual Building, Compton Trust Building, Old South Building, Boylston Building, and the Commonwealth Chambers."

HYDRAULIC INSTALLATIONS.¹

THE hydraulic plants in Switzerland are of as great engineering interest as the rack railways. The locomotives on the rack railway from Zermatt to the Gornergrat are operated by electricity generated by water-power. The water-power plant is at Findelenbach, a short distance above Zermatt, and consists of three high-pressure Girard turbines running at 400 revolutions per minute and each capable of developing 250 horse-power. One of these is a reserve plant. The initial cost of the hydraulic plant was greater than the cost of a steam-plant would have been, but the cost of maintenance is much less. The electric plant is on the three-phase system, and the generators are coupled direct to the turbines. The potential is 5,400 volts, feeders being carried to various points on the line where the potential is transformed down to 540 volts for use. The line is about 5.6 miles long, the total rise is 4,600 feet, and the steepest gradient is 1 foot in 5 feet.

The city of Geneva constructed a water-supply and water-power plant in the years 1883 to 1888 according to the plans of Th. Turrettini. The Rhone, at the outlet of the Lake of Geneva, is divided into two branches by an island. The island was extended by a wall, and the left branch of the Rhone thereby made into a canal, closed at its lower end by a large L-shaped power-house. In the right branch of the Rhone was built a rolling-shutter dam, by means of which the water from the lake, or as much as it desired, can be sent through the left branch to the turbines in the power-house. About 4,000 horse-power is obtained in this way. There are twenty Jouval reaction turbines of 210 horse-power, each operating two pumps. Between 8,000,000 and 13,000,000 gallons of lake water are delivered per day for industrial and public purposes, in addition to 2,800,000 gallons for domestic supply. At the time the writer was in Geneva he did not know about another hydraulic plant constructed by the city of Geneva in the years 1893 to 1899, and which he mentions here in order that any of his readers who may go to Geneva may not fail to visit it through ignorance of its existence. It seems that the entire output of the model plant at the outlet of the Lake of Geneva was soon made use of, and the success attained induced the city of Geneva to construct a second plant lower down on the Rhone, below the mouth of the river Aar. This consists of a movable dam of six openings, each of which is 10 m. (32.8') in the clear, and each of which can be closed by a single iron gate, which can be handled from an iron bridge supported on two abutments and five piers. In order to facilitate the raising and lowering of these gates, counterweights are used, and the gates move on rollers against the piers. As the winter discharge is very small, to obtain a constant power the fall had to be increased. When all the gates are closed, the fall is 8.10 m. (26.6'); while in summer, when a greater quantity of water is available, the fall is reduced to 4.48 m. (14.7') by opening the gates. To utilize the different quantities of water under different heads, the turbines were arranged in pairs, one above the other, of which only the lower turbines operated during the summer months. They were,

¹ Extract from a paper by Mr. W. H. Schuerman, President of the Engineering Association of the South, and printed in the *Proceedings* of the same.

therefore, so constructed as to be most efficient for a large discharge under a head of 4.5 m. (14.8'). When the discharge becomes less, notwithstanding the greater head, the efficiency is diminished; but on account of the higher water-level above the dam the upper turbines can be brought into action, and by the combined action of the two turbines the same power can be obtained as is obtained in summer by the operation of the lower turbines alone.

Near Döttingen-Klingnau an hydraulic-power plant on the River Aar is now nearing completion. The dam is a movable-shutter dam, like the one described above. It is intended to have ten turbines, each capable of generating 1,000 horse-power; and the power is to be utilized for lighting and power in different towns for a distance of about fifty miles from the power-house, including Zurich and Winterthur. This plant can be visited in half a day from Zurich.

At Zurich there is a plant generating from 1,280 to 1,570 horse-power. About 237 horse-power is used for pumping potable water, the rest being used for hydraulic motive-power, the electric-light station being among the users of this motive-power.

At Antwerp hydraulic power is used to operate cranes, swing-bridges, dock-gates, etc., and for generating electricity to light the city. The hydraulic pressure is produced at a central station, and the conversion into electric current is effected by turbines and dynamos at several substations. The turbines and dynamos are not of the most efficient kind, and the general efficiency of the system is low; but the cost of the fuel per unit generated compares not unfavorably with many electric installations.

Hydraulic-power distribution plants are also in operation in London, Manchester, and Glasgow, London having by far the largest hydraulic-power supply plant in the world. There are over 130 miles of hydraulic mains laid in London at present. Powerful pumping-engines at seven different stations keep them charged at a pressure of from 700 to 750 pounds per square inch. Another pumping-station is now nearing completion. The reservoir of power consists of capacious accumulators loaded to a pressure of 750 pounds per square inch, thus producing the same pressure as a standpipe 1,700 feet high. The water is taken from the Thames, from the Regent's Canal, and from wells; and all the sediment is removed therefrom by filtration before delivery into the mains. The power is available, day and night and on Sundays, all the year around at a pressure of 700 pounds per square inch — a pressure which enables small machines to perform a large amount of work with a very small quantity of water. The number of consumers is constantly increasing. The number of gallons pumped per week increased from 1,271,000 in 1886 to 14,812,000 in 1902; the number of machines increased from 364 in 1886 to 4,677 in 1902.

In every town where hydraulic power has been established it has succeeded, both mechanically and financially, notwithstanding the competition of all other forms of power generation and distribution. The experience in Manchester is particularly striking. The supply of electricity, of hydraulic power, and of gas are all in the hands of the corporation. The two former were started at the same time, in 1894. The pumping-station was of considerable capacity — 1,200 horse-power. The electric current is supplied for power purposes at very low rates; nevertheless, the demand for hydraulic power so increased that a second station has been constructed of equal capacity to the first.

Other hydraulic works of interest are the numerous locks and dams on ship-canals, especially in France and Germany; but all that the writer had time to visit was the ship-elevator on the Dortmund-Ems Canal. Besides this one, there are only three other ship-elevators in the world, all four having approximately the same lift. One is located at Anderton, in England, and can handle boats of 100 tons; the second is at Fontenettes, in France, and lifts boats of 300 tons; the third is at La Louvière, in Belgium, and its capacity is limited to boats of 350 tons. The ship-elevator on the Dortmund-Ems Canal is located near Henrichenburg. It raises vessels of 600 tons in twelve and a half minutes through a height of 52½ feet at a single operation. It can be reached by canal from Dortmund, and in this way the round trip takes a day; it can be made in less time by rail. The elevator consists of a tank supported on five huge hollow cylinders, floating in deep wells, 30 feet in diameter, 46 feet from centre to centre, and going to a depth of 97 feet below ground-level. The cylinders balance the whole weight of the tank and its contents. Massive screws regulate the motion, and these screws are constructed to sustain the entire weight of the structure in case of failure in any part. The elevator was selected in preference to the construction of a series of four costly locks, the transit through which would have occupied at least two hours in place of twelve and a half minutes. The massive regulating screw-sockets are anchored to solid, square iron plates sunk 30 feet in pits tapering toward the surface and filled-in with concrete. Each screw is subject to a maximum stress of 1,476 tons. The tank is 230 feet long, 30 feet wide, and 8 feet deep. It is made of sheet-iron from three-eighths to half an inch in thickness on the sides and half an inch thick on the bottom. It rests on I-beams, which in their turn are supported on hollow shafts bolted to the centre of the floating cylinders and giving access to their interior. The cylinders are 27 feet in diameter and 43 feet high, with a displacement of 811 cubic yards, equal to 3,050 tons. A special feature is the water-tight connection between the tank and the canal. The regulating-screws were forged in one piece of Siemens-Martin steel and bored down the centre to test the uniformity of the metal. They are, approximately, 71 feet long, 11

inches in diameter, .69-inch depth of thread, and work in massive collar-bearings attached to the supports of the tank and also fixed in the overhead platform connecting the towers. Two coupled shafts, driven by 150-horsepower electric motor, actuate the bevelled wheels which turn the screws. In thirty days of from eight to ten working hours, six hundred ships passed through the elevator. The whole machinery has been skillfully designed and carried out so carefully that no hitch has occurred, and the elevator has in every way proved satisfactory and effectual.



SOCIETY OF BEAUX-ARTS ARCHITECTS.—REPORT OF COMMITTEE ON EDUCATION.

THE past year has been a successful one from this Committee's standpoint. In our opinion, the standard of excellence of the work of our students has been steadily improving.

The number of sketches received from students during the year is two hundred and seventeen, an increase of twenty over last year's total of one hundred and ninety-seven. There are now on file with the Committee over a hundred sketches submitted by students for the current problems.

The total number of *projets* rendered was fifty-nine, as compared to seventy-seven of last year.

The falling off in the rendering of *projets* is on account of the fact that through the past summer not one student finished his *projet*, and for the exhibition which was to be held through the week beginning November 10 no drawings were on hand, and there was therefore no exhibition, and of course no judgment. The cause of this is partly that students, who are most of them employed in architects' offices, have been kept unusually busy this last summer, and have not found time to carry on their school-work.

The unusually large number of sketches on file for the current problems indicates, however, that there is no falling off in the students' desire to take part in our competitions.

We awarded one Medal, twelve First Mentions, twenty-six Second Mentions, and eight Third Mentions. The Medal went to John G. Dentz, of the University of Pennsylvania, a pupil of Professor Laird. The medalled drawings were photographed, and also the drawings by J. F. Abele, awarded a First Mention in the same competition, and those of Arthur A. Fisher. Atelier Donn Barber, awarded a First Mention in the Class B Plan problem of February 15, 1902, and lantern-slides were made and the drawings shown to the Society's members at the following meeting.

All the sketches now made for our problems are made according to the "Loge" system. The Loge system is now in practice, at least as regards the work done in our Society's competitions, at the University of Pennsylvania, Cornell, Columbia and Syracuse universities. It must be understood, however, that Columbia University does not, as an institution, take part in our work, but, through the courtesy of Professor Ware, the Architectural Department rooms are placed at our disposal on Saturdays for the holding of our "Esquisse en Loge." These *esquisses* are taken part in by the students of the Atelier Barber, the Atelier Hornbostel, the Atelier Perkins, and all others in or about New York.

Mr. Pietsch has opened an atelier in Washington, and has forwarded a number of sketches made by his pupils for the current problems.

Prof. Frederick M. Mann, of Washington University, St. Louis, Mo., has asked to have our programmes sent him, so that his students can take part in our competitions. Mr. S. H. Capper, of McGill University, Montreal, has done the same.

The present Committee feels justified in reporting the past year of its work as successful, and believes that the coming year is full of promise. We have only one complaint to register, and that is the lack of interest on the part of many of the Society's members, which prompts them to wriggle out of going to Columbia to take charge of the *esquisses*. If the Society does not help its Committee on Education in this particular, the work will soon go to the bow-wows. It is absolutely necessary that we have some one to take charge. The Columbia University authorities have requested that the Society be represented on these occasions by a responsible person, to properly direct the students and prevent them from indulging in the usual student pranks at the expense of the University's draughting-room furniture.

We will either have to continue what we have been doing in the past, that is, to have two members of the Society on hand for half a day each, or else we will have to hire a suitable person to represent us. The former course would be undoubtedly more satisfactory to the University, and the latter very much simpler and easier for us.

The Society should instruct this Committee as to which method to follow, or else let us decide the matter for ourselves and take whatever action we see fit under the authority given the Committee by the Constitution.

No definite action has as yet been taken with regard to issuing certificates of proficiency to students who obtain a certain number of values in the Society's competitions. We think this matter should be followed up and a definite plan decided on and carried out.



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

THE HIGH-SCHOOL BUILDING, SOUTH BOSTON, MASS. MR. HERBERT D. HALE, ARCHITECT, BOSTON, MASS.

EAST FRONT OF THE SAME BUILDING.

DETAIL OF SOUTH FRONT OF THE SAME BUILDING.

THE GREAT HALL: COUR DE CASSATION, PARIS, FRANCE. M. E. COQUART, ARCHITECT.

This plate is copied from *l'Architecture*.

A PARIS BAKE-SHOP. M. LAUZANNE, ARCHITECT.

This plate is copied from *La Construction Moderne*.

Additional Illustrations in the International Edition.

SOUTHEAST VIEW: HIGH-SCHOOL BUILDING, SOUTH BOSTON, MASS. MR. HERBERT D. HALE, ARCHITECT, BOSTON, MASS.

REAR VIEW OF THE SAME BUILDING.

MAIN ENTRANCE TO THE SAME BUILDING.

DETAIL OF CENTRAL PAVILION OF THE SAME BUILDING.



[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 OLD CITY-HALL, HARTFORD."

February 17, 1903.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Dear Sirs,—In regard to the designer of the old State-house at Hartford, concerning which Mr. George Keller's interesting letter was published in your issue of February 14, I find the following statement in the Leffingwell "Record," a genealogy of the descendants of Lieut. Thomas Leffingwell, one of the founders of Norwich, Conn., by Dr. Albert Leffingwell:—

"Joshua Leffingwell, the third son of John Leffingwell, Jr., and Hannah (Edgerton) Leffingwell, was born at Norwich, December 26, 1762, and died June 8, 1811. Removing early in life to Hartford, Conn., he became an architect and builder, and in company with his brother John, he erected the Hartford Bank, the Centre Church, the old State-house (now the City-hall), and other public and private buildings of the city."

The "Record" interestingly continues: "During later years, he was accustomed to ship dwelling-houses and other structures to Trinidad, West Indies; loading them on shipboard at Norwich, he sailed with them, spent the winter in erecting them, and returned to Hartford in the following spring. He married, about 1792, Elizabeth Cook, daughter of Capt. Moses Cook, of Hartford; she died before him, but the date is not known."

Yours very truly,

GUY KIRKHAM.

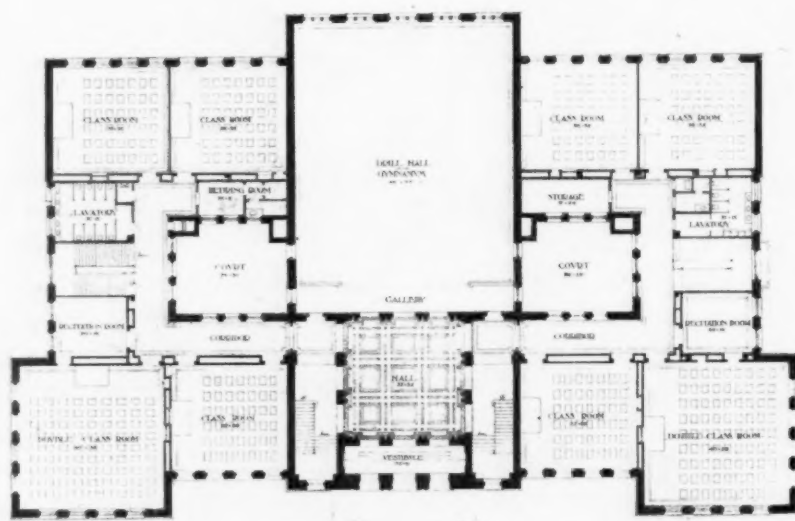
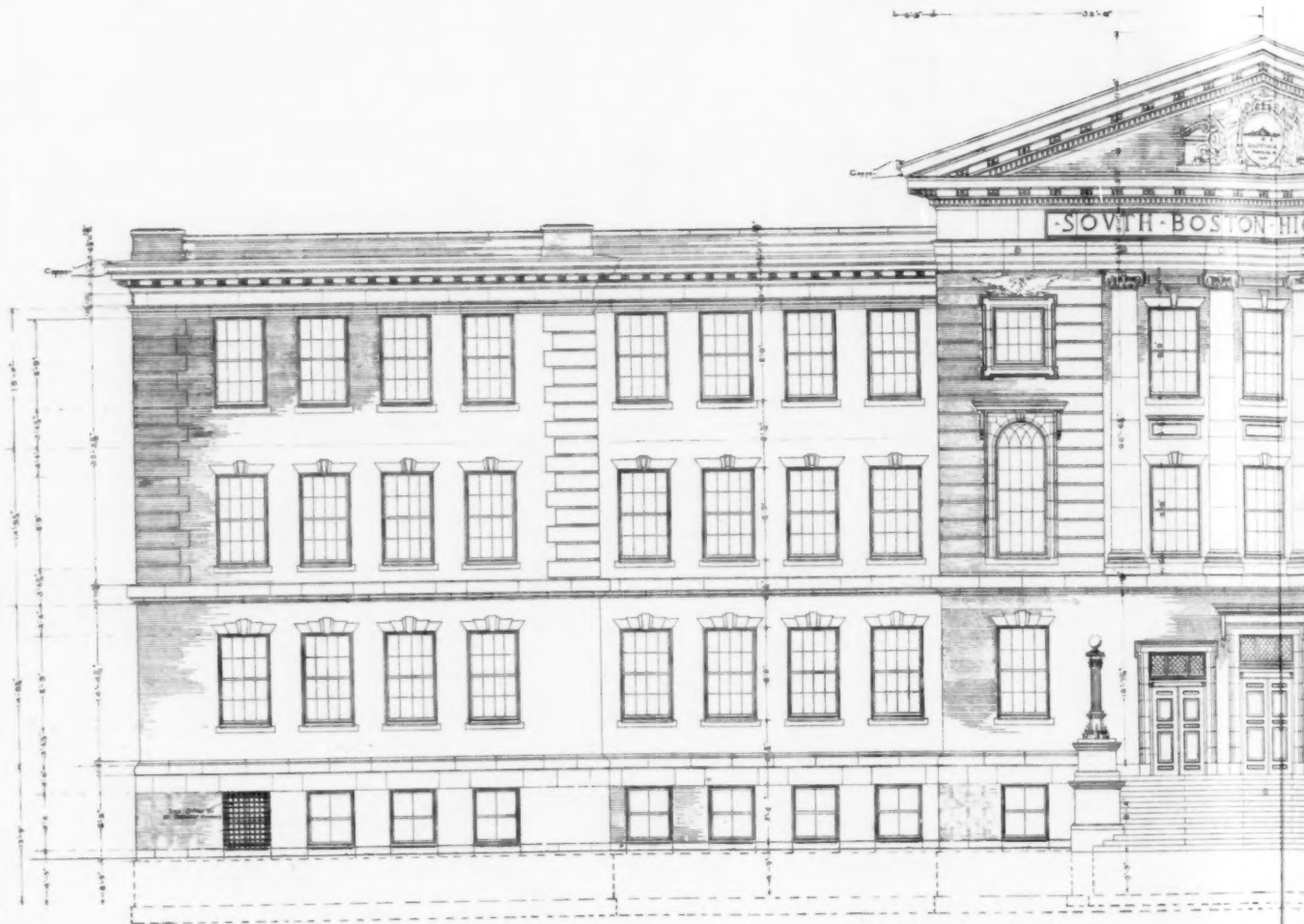


THE WELLINGTON MONUMENT.—A letter by Mr. Spielmann in the *London Times* a few days ago, in regard to a rumor that the Dean and Chapter of St. Paul's were taking steps to complete the Wellington Monument by the addition of the equestrian statue intended by Stevens, has led to a correspondence which has brought out the fact that a private Committee has been at work raising subscriptions and selecting a sculptor to complete the monument, in ignorance of the fact that the President of the Royal Academy has been endeavoring all this while to impress on the Government the duty of doing so. The Bishop of

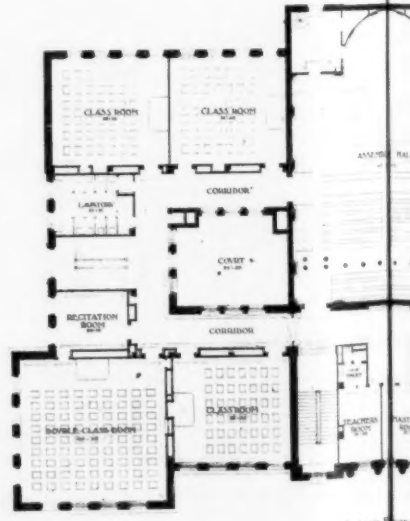
Stepney, who was concerned in getting up the private Committee and subscriptions, expresses his regret that he did not know of Sir E. Poynter's efforts with the Government; but his reply does not meet the case. As Sir E. Poynter says, the Wellington Monument is a matter of national interest; and we do not see that the Dean and Chapter of St. Paul's had the slightest right to consider it as their concern, and to appoint *sub rosa* a sculptor of their own choosing, without any appeal to public opinion. Stevens's work is one of the greatest productions of modern English art, almost unique in its artistic character; and the selection of a sculptor to complete it is not a thing to be done in a corner. It is a matter of the greatest importance that the sculptor selected should be one of the foremost artists of the day, and one whose work would be likely to be in harmony with the grand style of Stevens's design. We have no assurance of this in the present case; and the action taken by the Dean and Chapter in initiating such a work on their own responsibility, and without inviting public opinion, is a serious mistake. The Wellington Monument is not a mere ornament of their Cathedral; it is a work of national interest, placed in the Cathedral, and for which they are responsible to the nation. They had no right to make their own private arrangements for its completion, and select their own artist; and the strongest practical protest ought to be made against such a procedure.—*The Builder*.

EXCAVATIONS AT SUSA.—The contract made between France and Persia to give to French excavators the right to dig in ruins has brought forth the discoveries at Susa, the capital of Elam to the east of Babylon, made by the expedition under M. Jacques de Morgan, formerly Director of Excavations in Egypt. Work was carried on during portions of five years, 1897 to 1902, and many objects discovered by De Morgan, Father Shell, Lampré, Jéquier, Gautier, etc., on the old ground first studied in 1886 by M. and Madame Dieulafoy were shown last summer at the Petit Palais in Paris. Among De Morgan's finds is a bronze column 13 feet high with votive inscription, cast in the best manner, as well as bronze weapons, mirrors, door-ornaments, rings, nails, seals, and other small objects. A finely cast but mutilated altar of bronze shows that it was surrounded by serpents and supported on the heads of five human figures which were hacked off, probably when Assurbanipal took Susa and caused all the marble and bronze and other statues he did not carry away to be destroyed by his soldiers. Jacques de Morgan has embodied his discoveries in his "*Histoire d'Elam*," and in reports of the expedition. The Persians may inherit their taste for colored tiles from the Elamites, who clothed their walls with brilliant tiles giving pictures of events, landscapes, towns and animals, and especially long texts setting forth the names of kings and their relatives. A chapel of King Shutruk Nakuvkte II was found, whose walls were clad in blue-enamel tiles. De Morgan holds that the use in Elam of enamel for tiles, dagger-knobs, vases and reliefs goes back to the twentieth century before Christ. This part of Persia contains two races of men, one Semitic, the other non-Semitic, who called their land Anzan and Susa, while the Semites called it Elam. The power was alternately with one or the other race. De Morgan has a theory that the Anzanites were of Negrito blood, just as Houshaye has argued that the present Persian race is composed of Aryan Persians, Turanians, and black-skinned Negritos. Although the climate of Elam is almost insupportable from May to October, the discoveries indicate a very high and very ancient culture, with a rich and large population. De Morgan reckons that to thoroughly excavate the great mound of Susa will take twenty years.—*N. Y. Times*.

ROUND HOUSES.—Round houses, though not unknown even among ancient structures, and common to the huts of many native tribes, are hardly to be seen in everyday life in England. Yet such have occasionally been constructed, and with very good reason, for the advantages which their builders urge seem theoretically sound, and though they may perhaps be somewhat overrated, form an interesting subject of inquiry. The following, says the *Illustrated Scientific News*, are some of the special qualities claimed as appertaining to edifices of this kind: 1. We know, from geometrical teachings, that the circumference of a circle is the shortest line enclosing a given area, therefore a circular wall will contain the least amount of material and involve the least amount of labor to construct for a given internal space. 2. For the same reason, such a building will have a smaller surface of outside wall, so that it would be warmer. 3. It is contended (though the point is challenged by some architects) that, in practical building, a plain wall, even though curved, is easier and cheaper to build than one containing many corners. 4. Such a shape is specially suitable in exposed situations, as the wind glides off without shaking the house so much. It also prevents snow from drifting against the walls. 5. The whole arrangement of the house for dwelling in is compact and convenient. Passages are reduced to a minimum, and a well-warmed central hall may be arranged. 6. Further, such details as laying the electric-light wires, gas-pipes, bell-wires, etc., are greatly simplified. Let us take an instance: Suppose the round house to be 40 feet across. The outer walls will then be 125 feet in length, while the superficial area enclosed will be 1,256 square feet. Now, take an ordinary-shaped house. This latter, if containing the same amount of room, will have walls 183 feet long, or nearly half as much again. If the house, in both cases, be divided into a hall of 315 square feet and six rooms averaging 157 square feet, the round house would have a central hall 20 feet across, the remaining space being divided into six divisions. Each of these rooms would have three inner walls to one outer, while the hall would not have any of its wall exposed. This house, it may be noted, is two-storied, and the centre hall has a gallery around it giving access to the bedrooms. The conical roof is surmounted by the "lantern," which gives light to the hall. Kitchens, stables and other outbuildings are also built on the same pattern, and the whole is said to have cost considerably less than is usual for a house of its size.—*London Mail*.



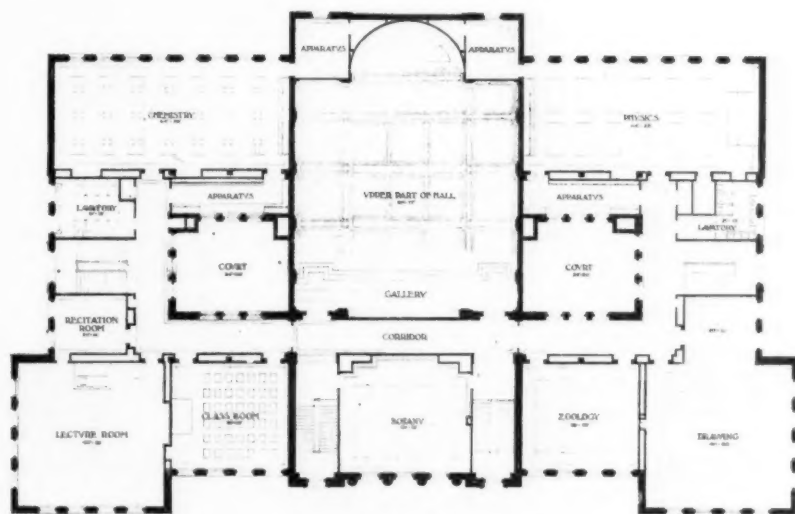
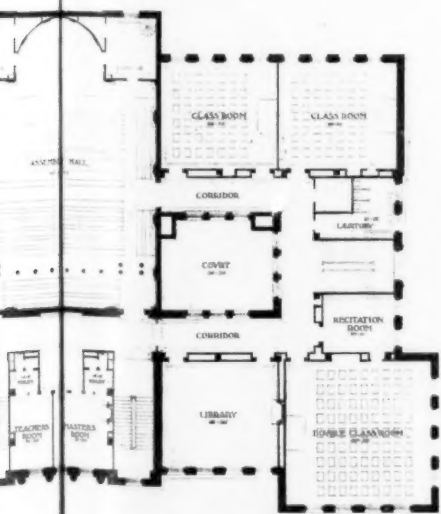
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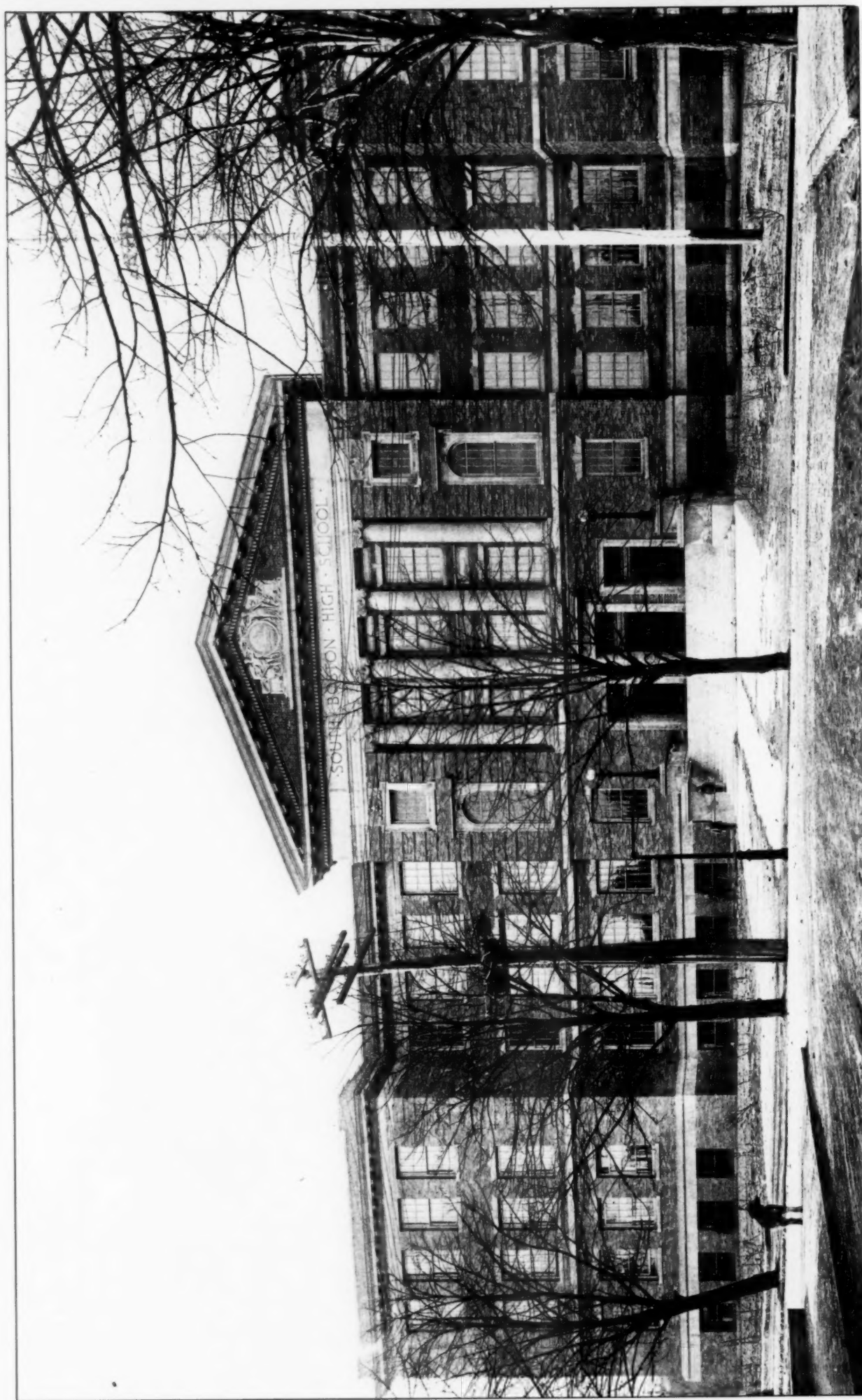


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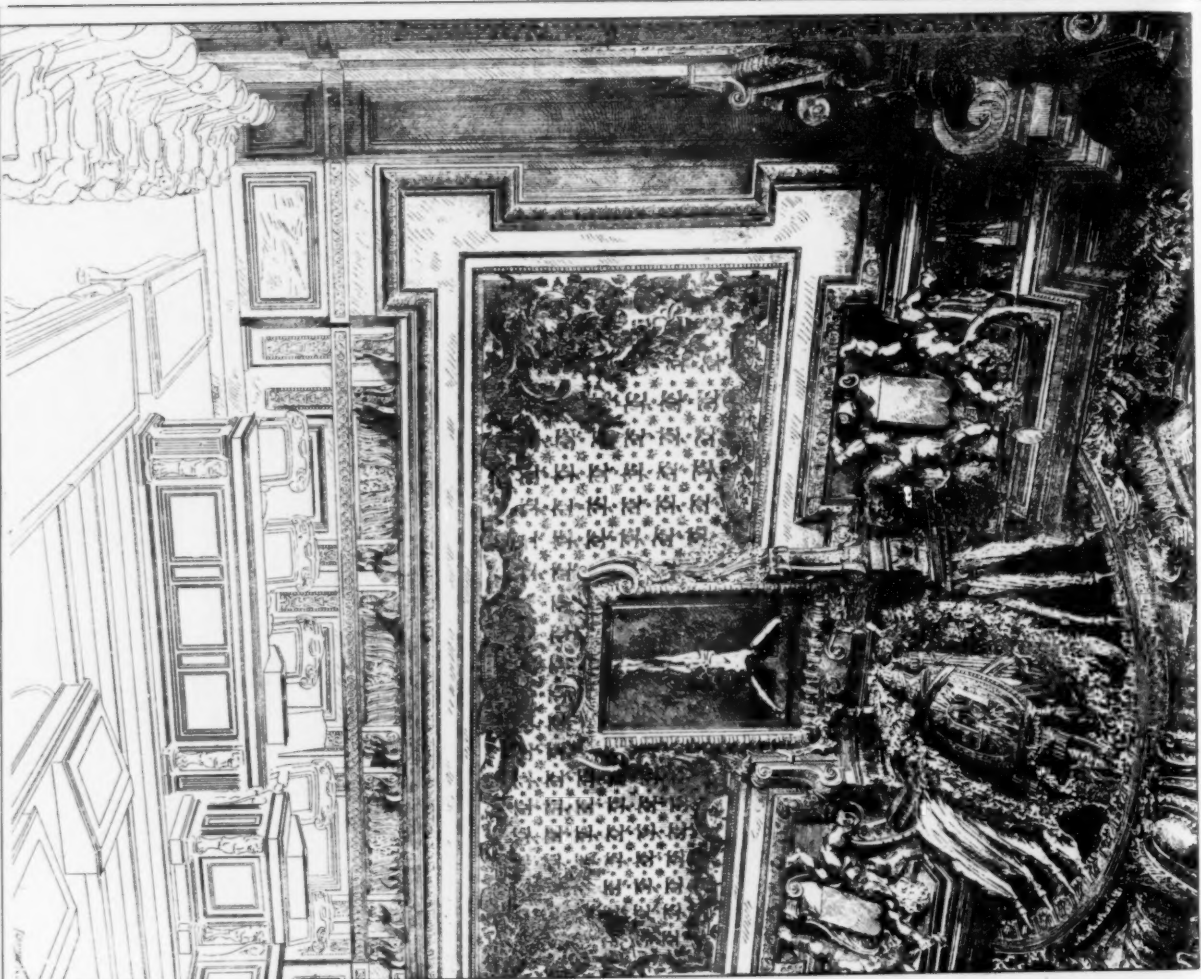


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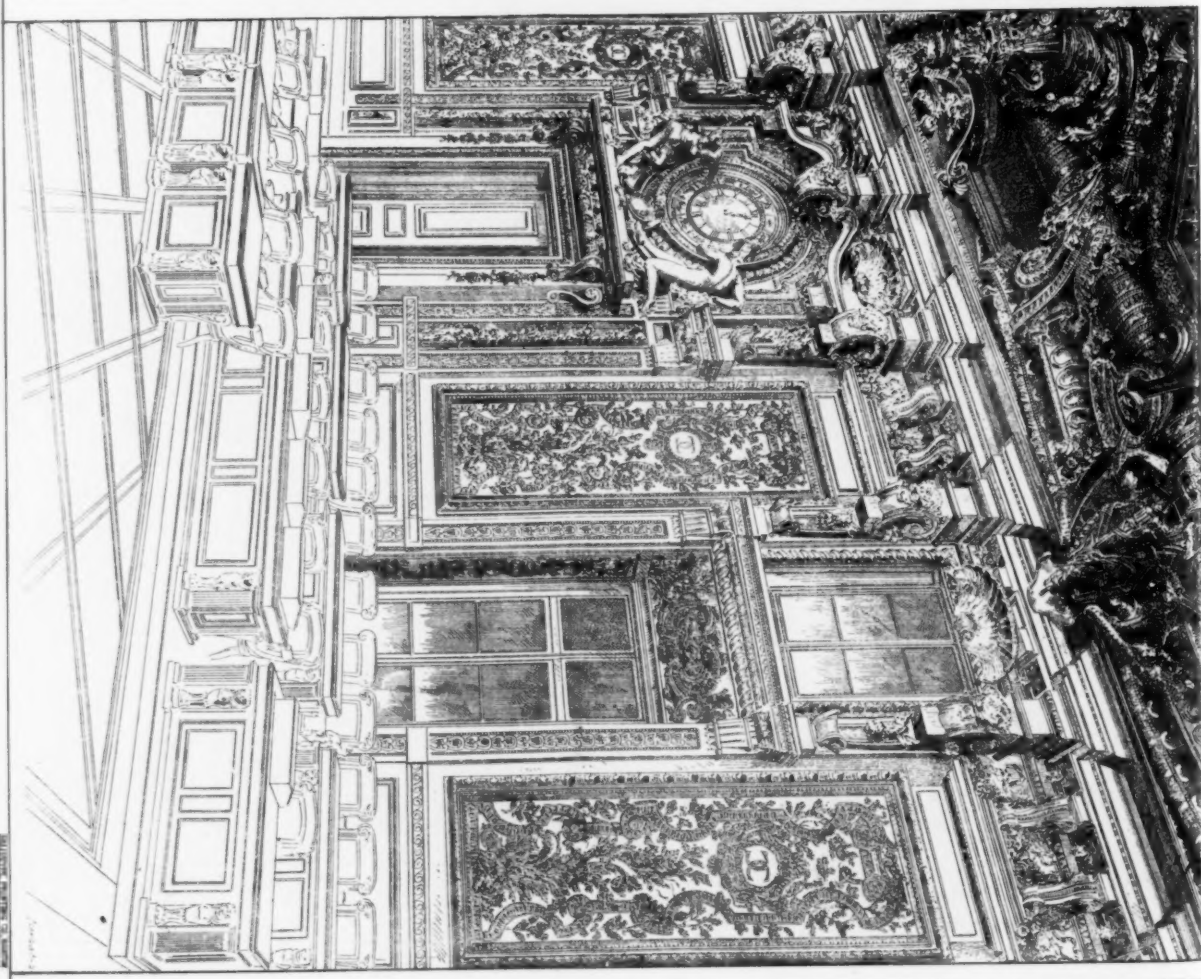
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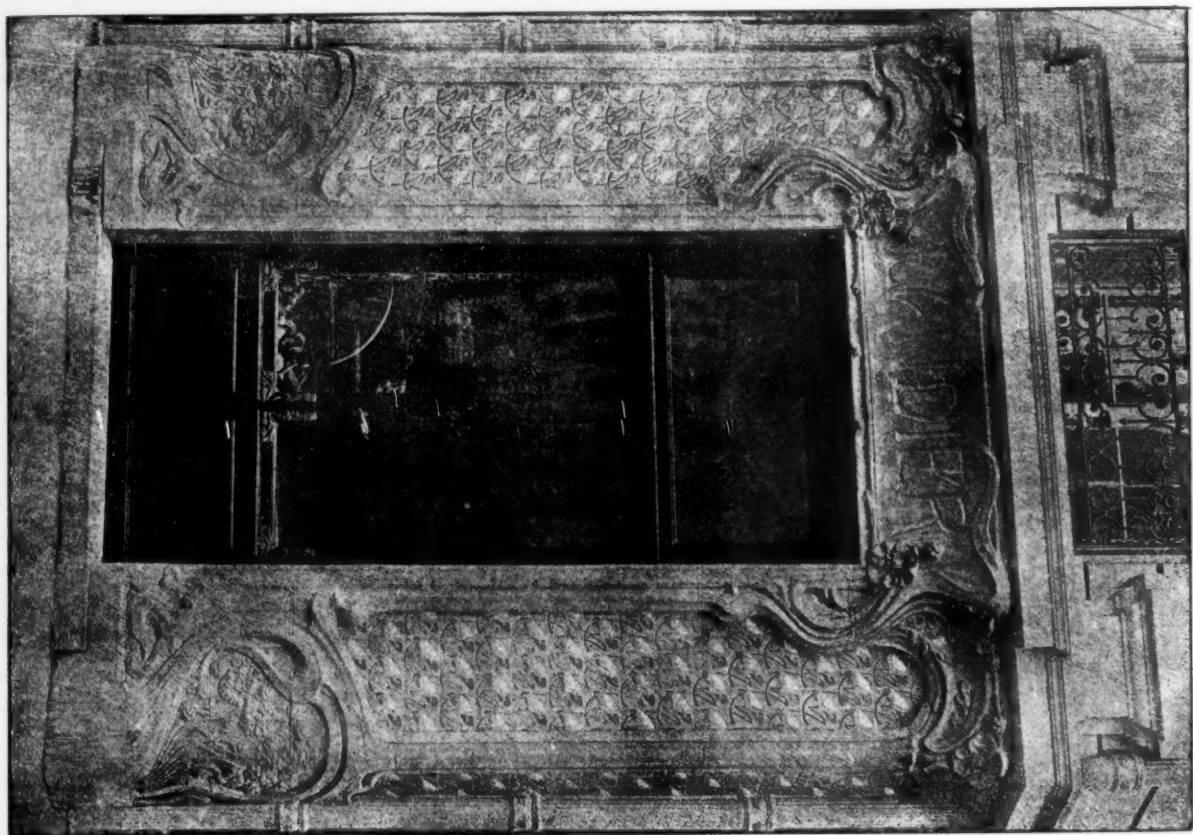
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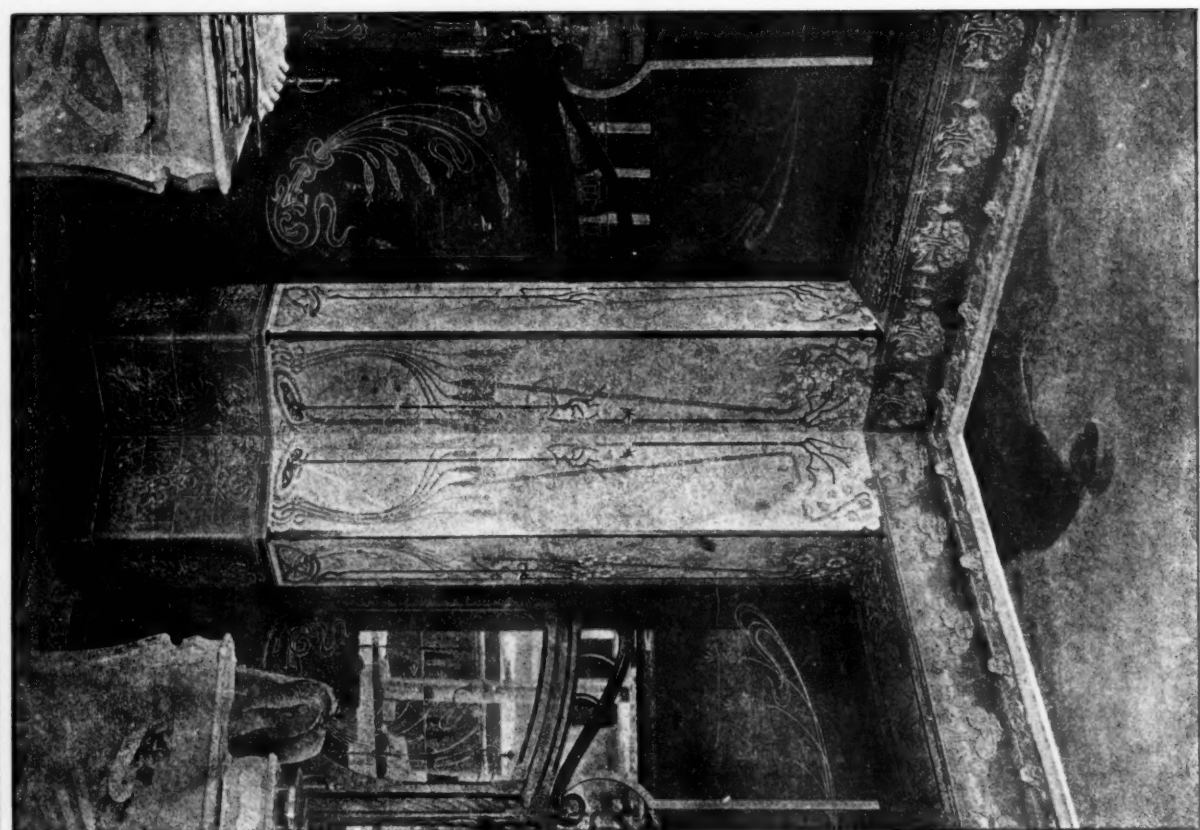
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The American Architect
Feb. 21, 1903
No. 1417

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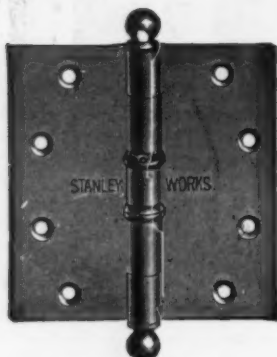
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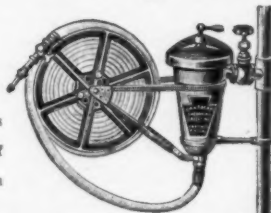
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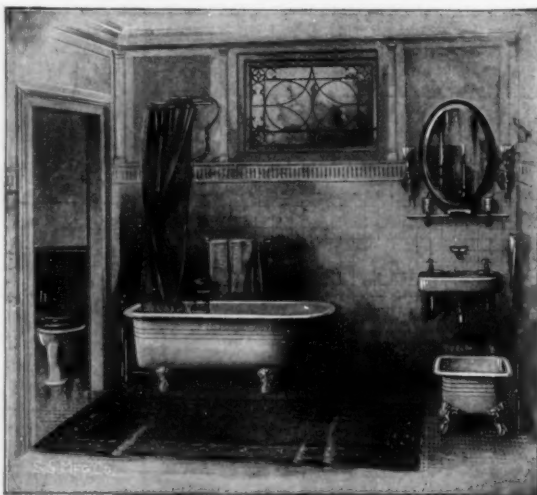
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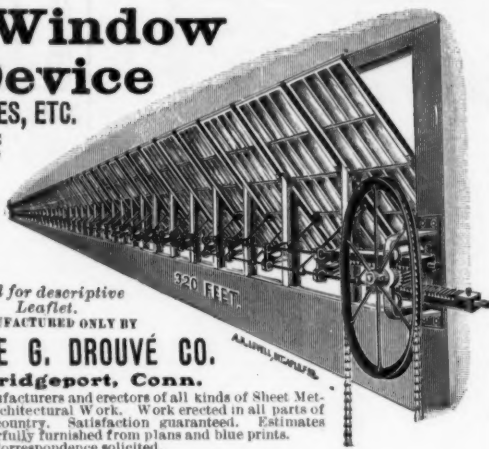


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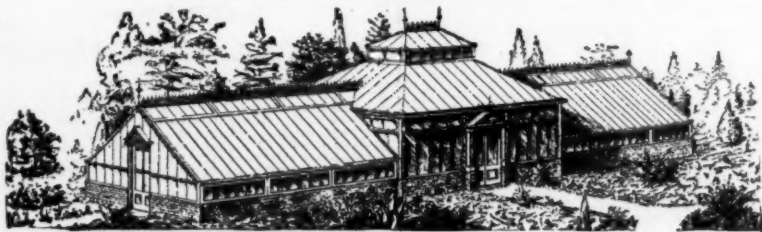
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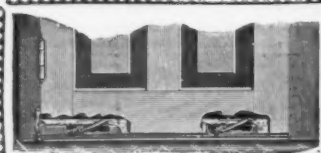
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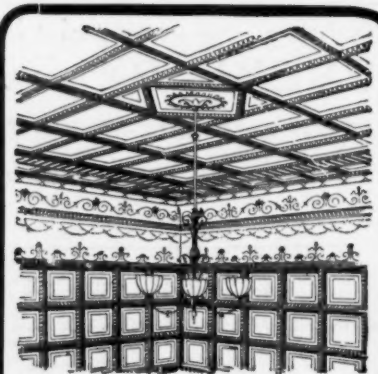
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Important Litigation Relating to Magnesia Covering Patents

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

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

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

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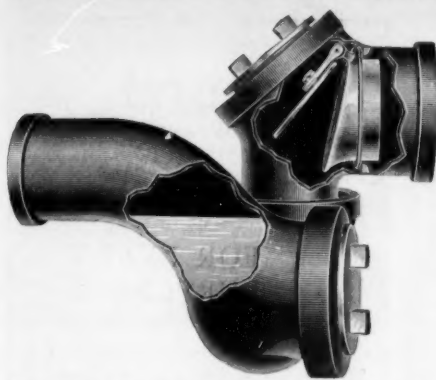
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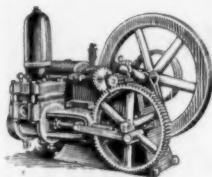
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BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

and fitting it up as a hotel. Architect Harry Hake, 140 Union Trust Building, has prepared the plans.

Cleveland, O.—Plans have been drawn by Fugman & Uhlrich, 89 Euclid Ave., for a nine-story office-building to be erected at Huron St. and Euclid Ave. Cost, \$350,000.

Colorado Springs, Col.—The Colorado National Bank Building Co. has had plans prepared for a four-story brick office building to be erected at Huelfano and Tejon Sts. for the Colorado National Bank.

Columbus, O.—The construction of a plant consisting of a number of buildings and having a capacity of 1,200 barrels daily is proposed by the Portland Cement Co., capitalized at \$400,000.

A plant will be built here by the Rotar Woven Wire Fence Co., having a capital stock of \$300,000.

Council Bluffs, Ia.—The First Congregational Society will erect a \$30,000 church.

Deal Beach, N. J.—A handsome Roman Catholic Church will be erected here next summer. Most of the money for the lot and building has been raised. Daniel O'Day, Vice-president of the Standard Oil Co., has contributed \$10,000 to the fund, and other summer residents have given liberally.

Hartford, Conn.—An outcome of the railroad strike will doubtless be the erection in this city of a new State arsenal and armory for the 1st Regiment. The idea is to erect just across the street from the Union Railway Station an armory building, occupying an entire city square, which shall have a fine drill-hall, company and officers' quarters and a large section to be devoted to the purposes of an arsenal. While the expense for the building will be not far from \$500,000 it is probable that the recent call of the troops to active duty will greatly influence the legislature in its action the feeling being that the equipment of the Guard should be of the best and that it should be cared for under the best possible conditions.

Hornellsville, N. Y.—Andrew Carnegie gives \$25,000 for the erection of a library here.

Indianapolis, Ind.—John Stem, Claypool Building, has made plans for three engine-houses to be erected in the city. Appropriation, \$25,000.

Jefferson City, Mo.—It is reported that Governor Dockery in a message to the State Legislature has recommended an appropriation of \$100,000 for improvements to the capitol building.

Jersey City, N. J.—The plans of Edw. M. Patterson, 76 Montgomery St., have been accepted and a five-story brick building will be erected at Henderson St. and Newark Ave. for Emanuel Gross. Cost, between \$50,000 and \$60,000.

The erection of a \$500,000 hospital building is proposed.

Logansport, Ind.—The Board of School Trustees are having plans prepared for a public library building, to cost \$25,000.

BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

Macon, Ga.—It is reported that the plant of the Acme Brewing Co. is to be enlarged at a cost of \$100,000.

Madison, Ind.—It is reported that Hanover College has received a gift of \$25,000 from Mrs. Eliza S. Hendricks, widow of ex-Vice President Thomas A. Hendricks, for the erection of a library in memory of her husband.

Mansfield, Mass.—Work on the new factory buildings to be erected here by the Walter M. Lowney Chocolate Manufacturing Co. will begin the first of March. Over 400 persons will be employed in the factory and Mr. Lowney will erect dwelling-houses to be occupied by his employes. This town has laid out a number of new streets and put in water.

Marblehead, Mass.—Naugus Head, at a point near Fort Miller, is suggested as the site of the proposed Naval Academy. The water in the harbor of Naugus Head is deep, enabling large ships of war to anchor safely, and there is excellent opportunity for the study of coast defence. Fort Miller and the other forts fronting on Salem Harbor would be of practical use in the training of the men.

McKeesport, Pa.—It is reported that the Elks will erect a temple on 5th Ave., to cost \$50,000.

Middlebury, Vt.—Joseph Battell, a temperance advocate and millionaire, has offered to erect modern buildings on the site of the recent large fire, if the citizens will guarantee that a saloon shall never be located here.

Minneapolis, Minn.—An office-building will be erected by the Twin City Rapid Transit Co. at 11th St. and Hennepin Ave., costing \$100,000.

Moosehead Lake, Me.—A Massachusetts company has bought land on the west side of Moosehead Lake, opposite Kineo, and intends to erect a \$300,000 tourists' hotel. Money for the enterprise has already been subscribed and work will begin in the spring.

Morgantown, W. Va.—Riter-Conley Co., 55 Water St., Pittsburgh, Pa., has the contract for the erection of an \$85,000 building for the West Virginia Plate Glass Co.

Newark, N. J.—Ludlow & Valentine, architects, 100 Broadway, New York City, are about to take bids on a store and loft building, 29½ x 75', of brick with cast-iron columns, tar and gravel roof, at 83 Commerce St., for Mr. M. W. Adams.

Newport, Tenn.—Arrangements have been made for the erection of a \$60,000 tannic acid factory building.

Oak Park, Ill.—C. B. Seoville contemplates the erection of a business building at Lake St. and Oak Park Ave., to cost \$200,000.

Oberlin, O.—Fire recently destroyed the chapel building of the Oberlin University. Funds are now being raised for the erection of a new building, to cost perhaps \$125,000.

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BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

Omaha, Neb.—John McDonald, N. Y. Life Building, has prepared plans for a brick edifice for the congregation of the First Christian Church, to cost \$40,000.

John Harte has secured the contract to erect a three-story brick building, 50' x 68', for an exchange for the Nebraska Telephone Co. Cost, \$36,000.

Perth Amboy, N. J.—Plans have been prepared for an edifice for the congregation of St. Mary's R. C. Church, to be erected at Center and Mechanic Sts., at a cost of \$60,000.

Pittsburgh, Pa.—A permit has been granted the Pittsburgh Opera-house Co. for remodeling its building to conform with the widening of Diamond St. Estimated cost, \$100,000.

It is said that a five-story brick and stone store and flat building will be erected on Penn Ave., Turtle Creek, by the East Pittsburgh Construction Co. Cost, \$35,000.

Red Wing, Minn.—The executors of the Sheldon estate have asked three prominent architects of the State and one outside, to submit sketches for an auditorium to be erected here during next summer. The donation is \$40,000.

Reinbeck, Ia.—The Congregational Society will erect a church to cost \$15,000.

Rankin, Pa.—The Italian Catholic congregation are considering plans for the erection of an edifice here, to cost \$50,000.

Roanoke, Va.—The Norfolk-Western Ry. Co. is having plans prepared for a stone depot to cost about \$100,000.

San Bernardino, Cal.—A site has been purchased on 3d St. by the San Bernardino Opera-house Co. for the erection of a \$75,000 opera-house.

Seattle, Wash.—Magnus Kjelberg is considering the erection of a seven-story hotel at 4th and Madison Sts.; probable cost, \$100,000.

Sheboygan, Wis.—Ferry & Clas, of Milwaukee, have prepared plans for a brick theatre to be erected for the Sheboygan Theatre Co., at a cost of \$25,000.

Spokane, Wash.—It is stated that the Medical Lake Hotel & Sanitarium Co., recently formed, will build a hotel and sanitarium at Medical Lake. It will be three-story, 70' x 120'.

St. Louis, Mo.—Washington University has made another purchase of property in the western part of the city, on which it will locate the Smith Academy and the manual training school. The tract is on Von Versen Ave., near Union Ave. and the Masonic Home of Missouri.

St. Paul, Minn.—The Senate has passed a bill providing for an appropriation of \$1,500,000 for the completion of the Capitol.

Foley Bros. & Kelly will erect a six-story warehouse on Broadway, 100' x 200'. Cost, \$175,000. Plans by J. Walter Stevens, Drake Block.

A. F. Gauger has had his plans approved for the new C. K. Davis school-building in the 5th Ward. Cost, \$30,500.

Sullivan, Ill.—It is stated that plans have been accepted for the erection of a series of buildings, including 4 dormitories, an administration building and a power-house for the Orphans' and Old Folks' Masonic Home, to be erected here, to cost from \$300,000 to \$400,000.

Terre Haute, Ind.—Crawford Fairbanks offers this city \$50,000 for the erection of a library.

Two Harbors, Minn.—The railroad brotherhoods have plans for an opera-house to cost \$50,000.

Washington, D. C.—Plans for the \$175,000 five-story brick and steel Y. M. C. A. building, 75' x 100', to be erected at 17th and G Sts., are being prepared by Architects Harding & Upman, 1316 G St.

Waterloo, Ia.—Henry Myers is reported to be considering the erection of an opera-house at Park Ave. and Sycamore St., to cost \$40,000.

Winnipeg, Man.—The C. P. R. will erect an immense depot and will make other improvements in its yards, expending a total of \$2,500,000.

APARTMENT-HOUSES.

Chicago, Ill.—Winthrop Ave., Nos. 238-240, 2 three-story bk. aparts., 45' x 120'; \$50,000; o., H. Weymouth, 721, 84 La Salle St.; a., W. M. Walton, 17, 90 La Salle St.; b., Fritz Nelson, 765 N. Harding Ave.

Ellis Ave., Nos. 4065-67, three-story bk. apart., 54' x 95'; \$20,000; o., A. B. Camp; a., Frank L. Fry, 164 La Salle St.; b., C. R. Story, 4304 Cottage Grove Ave.

EDUCATIONAL.

Brooklyn, N. Y.—Stone Ave., nr. Glenmore Ave., five-story & cellar bk. school, 62' x 100'; \$105,000; o., City of New York; a., A. W. Ross, 131 Livingston St.

FACTORIES.

Chicago, Ill.—Polk St., Nos. 1204-24, two-story bk. factory, 108' x 217'; \$30,000; o., Miller Brothers; a., J. F. & J. P. Doerr, 1222 Chamber of Commerce; b., Leafgren Brothers.

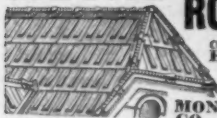
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Brooklyn, N. Y. — Ocean Parkway, cor. Beverley Road, two-st'y & attic fr. dwell., 31' x 34' 8", shingle roof; \$6,500; o., J. P. Hoffman, 820 Beverley Road; a., J. S. Kennedy, Temple Bar.

Lyme Ave., nr. Seagate Ave., two-st'y & attic fr. dwell., 20' x 54', shingle roof; \$7,500; o., P. Duffey, 5th Ave. & 159th St.; a., P. J. Van Note, Bay 35th St.

Surf Ave., nr. Poplar Ave., two-st'y & attic fr. dwell., 22' 10" x 53' 8", shingle roof; \$7,500; o., G. L. Felt, 246 W. 106th St., N. Y.; a., C. Saxe, 541 W. 124th St., N. Y.

Bushwick Ave., n w cor. Hart St., two-st'y & attic bk. dwell., 24' 8" x 54'; \$13,000; o., Dr. E. Frei, 184 Meserole St.; a., A. R. Koch, 26 Court St.

Chicago, Ill. — N. Forty-third Ave., No. 2641, two-st'y fr. dwell., 30' x 47'; \$6,000; o., C. H. Risch; a., V. A. Matteson, 806, 184 La Salle St.; b., H. H. Spear, 24 6 N. 42d Ave.

Washington Boulevard, No. 1969, two-st'y bk. dwell., 22' x 50'; \$5,000; o., Jas. O'Brien; a., H. E. Stevens, 13 Dearborn St.; b., T. D. Foster, 291 Millard Ave.

New York, N. Y. — Ryer Ave., nr. Burnside Ave., 3 two-st'y bk. dwells., 16' x 42'; \$15,000; o., Katherine P. Hooks, 1986 Walton Ave.; a., W. C. Dickerson, 149th St. & 3d Ave.

Woodlawn Road, nr. Perry Ave., 3 two-st'y & base, fr. dwells., 20' x 60'; \$16,500; o., Jas. O'Neill, 371 Montrose Ave., Orange, N. J.; a., Charles S. Clark, 709 Tremont Ave.

Avenue A, cor. 6th St., Unionport, two-st'y fr. dwell. & store, 36' x 55'; \$6,500; o., Henry Feulner, Unionport; a., Bernard Ebeling, West Farms Road & Bronx Park Ave.

OFFICE-BUILDINGS.

New York, N. Y. — Broad St., cor. Front St., eight-st'y & base, bk. & st. office & stores building, 25' x 65' 11" x 64' 4", concrete roof; \$70,000; o., Balthasar Diehl, 115 Hamilton Pl.; a., Max Muller, 3 Chambers St.

STABLES.

New York, N. Y. — Twenty-ninth St., nr. 10th Ave., six-st'y bk. loft & stable, 98' 9" x 100', asphalt & slag roof; \$50,000; o., Chas. P. Rogers, 145 Fifth Ave.; a., John A. Hamilton, 32 Broadway.

Eighteenth St., nr. 8th Ave., five-st'y bk. stable, 75' 4" x 98' 8", slag roof; \$45,000; o., David W. Stein, 932 President St., Brooklyn; a., Charles T. Mott, 96 Nassau St.



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(Stables Continued.)

Sixty-eighth St., nr. Avenue A, six-st'y bk. stable & loft, 53' x 99' 6", plastic slate roof; \$50,000; o., Mrs. Emma Lowe, 429 E. 69th St.; a., Waldemar H. Mortensen, 447 E. 68th St.

W. Forty-eighth St., Nos. 604-606, five-st'y bk. stable, 50' x 95', plastic slate roof; \$25,000; o., Jos. Mack, 603 W. 48th St.; a., Fred'k Jacobsen, 54 W. 18th St.

THEATRES AND HALLS.

Brooklyn, N. Y. — Broadway, cor. Stockton St., three-st'y bk. theatre & restaurant, 100' x 187' 6", composition roof, steam heat; \$210,000; o., Broadway Theatre Co., 756 Flushing Ave.; a., J. B. McElpatrick & Son, 1402 Broadway, N. Y.

PROPOSALS.

BUILDING.

[At Haines, Alaska.]

Constructing Quartermaster's Office, Skagway, Alaska. Sealed proposals will be received here until March 5, 1903, for the construction including plumbing, heating and gas-piping, of one field officer's quarters, two double captains' quarters, three double lieutenants' quarters, two non-commissioned staff officers' quarters (double), two double barracks, one hospital, one hospital steward's quarters, one guard-house, one administration building, one bakery, one storehouse, one coal-shed, one quartermaster's stable, one wagon shed and one oil house, at new army post, on Portage Cove, Haines, Alaska. Plans and specifications may be examined at this office and any further information will be furnished upon application. Plans may also be examined, and specifications of the work, together with copies of general instructions to bidders obtained from offices of depot quartermaster, San Francisco, Cal., depot quartermaster, Portland, Ore., and quartermaster, Seattle, Wash. CAPT. W. P. RICHARDSON, constructing quartermaster, Skagway, Alaska. 1417

PAVING.

[At Newburgh, N. Y.]

Sealed proposals will be received by the City Clerk at his office in City-hall, Newburgh, N. Y., until March 2, 1903, for furnishing materials, paving and permanently improving a portion of Broadway in said city. Specifications containing further information for bidders, and form of proposal will be fur-

PROPOSALS.

nished upon personal application to the undersigned City Clerk. Plans and cross-sections of the work can be seen at the office of the City Engineer, City-hall, Newburgh, N. Y. D. J. COUTANT, City Clerk. Everett Garrison, City Engineer. 1417

SCHOOL.

[At Versailles, Ind.]

Bids are wanted March 2 for erecting a 6-room brick school, according to plans and specifications prepared by W. S. Kaufman, architect, of Richmond. F. M. THOMPSON, Sec'y School Bd. 1417

OFFICERS' QUARTERS.

[At Fort Riley, Kan.]

Fort Riley, Kan. Sealed proposals will be received here until March 3, 1903, for construction of two double sets of non-commissioned staff quarters. Information furnished upon application here; also at offices of depot quartermasters, Chicago, Ill., St. Louis, Mo., and Omaha, Neb. CAPT. G. O. CRESS, Q. M. 1417

OFFICE-BUILDING.

[At Bottineau, N. D.]

Sealed bids will be received by the undersigned until March 24, 1903, at Bottineau, N. D., for the erection and completion of a three-story brick store, office and lodge building, at Bottineau, N. D., according to plans and specifications by J. W. Ross, architect, at Grand Forks, N. D. Plans on file at the architect's office, Grand Forks, N. D., and at E. Estresvaag's at Bottineau, N. D. E. ESTRESVAAG, Bottineau, N. D. 1417

NOTICE TO CONTRACTORS.

STEEL DRAW.

[At Middlesex Fells Parkway.]

Commonwealth of Massachusetts. Metropolitan Park Commission. Sealed proposals for building a steel retractile draw for Wellington Bridge, Middlesex Fells Parkway, Somerville and Medford, will be received at the office of the Metropolitan Park Commission, 14 Beacon St., Boston, Mass., until March 2, 1903. Pamphlets containing further information for bidders, form of proposals, contract and specifications, can be obtained, and plans can be seen, at the office of the Engineering Department, 14 Beacon St. WILLIAM B. DE LAS CASAS, EDWIN B. HASKELL, EDWIN U. CURTIS, DAVID N. SKILLINGS, ELLERTON P. WHITNEY, Metropolitan Park Commission. Wm. T. Pierce, engineer. 1417

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PROPOSALS.

PLUMBING AND HEATING.

[At Orange City, Ia.]
Sealed proposals will be received at the office of the Auditor of Sioux County until March 3d, 1903, for the installation of plumbing and steam heating in the Sioux County Court-house. Bids on either of the above items or both combined will be considered. Plans and specifications will be on file at the office of the architect and of the County Auditor. (Signed) Wilfred W. Beach, architect, 700 Toy Building, Sioux City, Ia. JOHN BOEYINK, County Auditor, Orange City, Ia. 1417

PLUMBING.

[At Fort McKinley, Me.]
Office of the Constructing Quartermaster, 185 Middle St., Portland, Me. Sealed proposals for installing the necessary plumbing in 11 public buildings at Fort McKinley, Me., will be received at this office until March 2d, 1903. Information, specifications, plans and blanks on application. CAPT. A. W. YATES, Quartermaster, U. S. A. 1417

COURT-HOUSE.

[At Decorah, Ia.]
Bids will be received by F. A. Masters, auditor of Winnebago County, Ia., at Decorah, until March 3d, 1903, for the erection of a court-house building, in accordance with plans and specifications, as furnished by Kinney & Detweiler, architects. Plans and specifications will be on file with the county auditor; also at the office of the architects, 909 Northwestern Building, Minneapolis, Minn., after February 12th, 1903. Separate bids will be required on heating and on plumbing. F. A. MASTERS, Auditor of Winnebago County, Ia. 1417

TRAINING WALLS.

[At St. Augustine, Fla.]
U. S. Engineer Office, St. Augustine, Fla. Sealed proposals for constructing training walls in St. Johns River, Fla., will be received here until March 10, 1903, and then publicly opened. Information furnished on application. FRANCIS R. SHUNK, capt., engr. 1418

HIGH SCHOOL.

[At Audubon, Ia.]
Sealed bids will be received by the undersigned for the erection and completion of a high-school building at Audubon, Ia., according to plans and specifications prepared for same by Liebbe, Nourse & Rasmussen, architects, Des Moines, Ia. Plans will be on file at the office of secretary of board or architect's office. Bids will be received until March 7th. G. W. COSSON, Sec'y B. O. E., Audubon, Ia. 1418

Treasury Department, Office of the Supervising Architect, Washington, D. C., February 16, 1903. Sealed proposals will be received at this office until 3 o'clock P. M. on the 23d day of March, 1903, and then opened, for the completion of the U. S. Post-office at Richmond, Kentucky, in accordance with drawings and specifications, copies of which may be had at this office, or at the office of the Custodian, Richmond, Kentucky, at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect. 1418

Treasury Department, Office of the Supervising Architect, Washington, D. C., February 14th, 1903. Sealed proposals will be received at this office until 3 o'clock P. M. on the 19th day of March, 1903, and then opened, for the enlargement including plumbing, heating apparatus and electric conduits and wiring of the U. S. Post-office, etc., at Minneapolis, Minnesota, in strict accordance with drawings and specification, copies of which may be had at this office or at the office of the Custodian at Minneapolis, Minnesota, at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect. 1418

Treasury Department, Office Supervising Architect, Washington, D. C., February 14th, 1903. Sealed proposals will be received at this office until 3 o'clock P. M. on the 18th day of March, 1903, and then opened for repairs, painting, etc., at the U. S. P. O., Buffalo, N. Y. 1418



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CONCRETE PIER.

[At Duluth, Minn.]
Capt. D. D. Gallard, Duluth, will receive bids until March 9 for the construction of the concrete south pier of the Superior entry. The contract will involve the expenditure of \$200,000. When finished, the pier will be about 3,300 feet long. 1418

ELECTRIC LIGHT PLANT.

[At Fort Stevens, Ore.]
Office of G. Q. M., Vancouver Barracks, Washington. Sealed proposals will be received here until March 6, 1903, for furnishing and delivery of all material required by the plans and specifications for the construction of electric light plant at Fort Stevens, Ore. Information furnished on application. F. H. HATHAWAY, C. Q. M. 1418

SCHOOL.

[At Williston, N. D.]
Josephine G. Littlefield, clerk Grinnell District No. 4, will receive bids until March 10 for the erection of a school-building, 18' x 24'. 1418

HOSPITAL.

[At Springfield, O.]
Proposals for the erection, including steam heating, laundry machinery and elevators, of a four-story brick and stone city hospital, will be received until March 5 (extension of date). R. C. Gotwald, architect, Gotwald Building. 1417

PROPOSALS.

Treasury Department, Office of the Supervising Architect, Washington, D. C., February 7th, 1903. Sealed proposals will be received at this office until 3 o'clock P. M. on the 7th day of March, 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. 1417

Treasury Department, Office of the Supervising Architect, Washington, D. C., February 9, 1903. Sealed proposals will be received at this office until 3 o'clock P. M. on the 16th day of March, 1903, and then opened, for the installation of a conduit and electric wiring system for the U. S. Post-office at Wilkesbarre, Pa., in accordance with the drawings and specifications, copies of which may be obtained at this office or at the office of the Superintendent of Construction at Wilkesbarre, Pa., at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect. 1417

BUILDINGS.

[At Athena, Ore.]
Proposals for the erection of a two-story business block to cost about \$45,000 will be received by N. A. Miller until March 20. Buildings to be erected according to plans and specifications prepared by C. E. Troutman, architect, Pendleton. 1418

GATES.

[At Nashville, Tenn.]
Bids will be received at the U. S. Engr. Office, February 28 for 4 pairs of steel lock gates, filling valves, etc., for Locks A and No. 1, Cumberland River. 1417



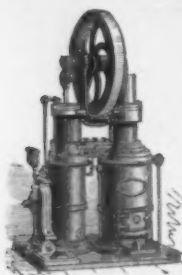
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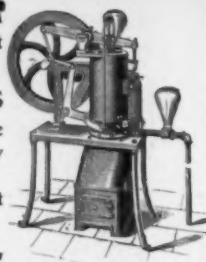
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CODE OF PRACTICE FOR SUB-ESTIMATING AND SUB- CONTRACTING

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

ARTICLE I.**Obligation of Principal Contractor to Sub-Contractor.**

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

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

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

ARTICLE II.**Award of Sub-Contracts.**

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

ARTICLE III.**Penalty for not Awarding Contract to Lowest Sub-Bidder.**

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

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

ARTICLE V.**Payments to Sub-Contractors.**

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

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

ARTICLE VII.**Obligation of Sub-Contractor to Principal Contractor.**

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

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

ARTICLE X.**Bids to Architects or Owners.**

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

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

SUGGESTIONS.

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

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

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ADOPTED BY THE SOCIETY, FEBRUARY 1
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SECTION 1. No Member should enter into partnership, in any form or degree, with any builder, contractor, or manufacturer.

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

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

SECTION 4. No Member should guarantee an estimate or contract by personal bond.

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

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

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

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

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

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

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

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

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

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

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

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

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