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FOR weeks the attention of the public has been turned on the horrors of the burning of the excursion steamer "General Slocum," and the newspapers, at least, have hailed with enthusiastic approval the coroner's verdict, which makes a number of men criminally responsible for the loss of over a thousand lives, and they seem to gloat over the idea that these unfortunates may have to suffer other punishment than the sorrow and torment due to their own consciences. We feel that these men are sufficiently punished already and that further visitation of punishment would be vengeful merely, not disciplinary. The men, with perhaps one exception, have done no more wrong than nine men out of ten of us do every day of our lives in calmly deciding to disregard the laws and ordinances of the community in which we live. We take chances ourselves every day that the law can, in our case, be successfully evaded and no ill to others come from the evasion. These men are no worse than we; they happen merely to have been found out and already are bearing a terrible punishment in the way of uneasy consciences. And now it is proposed to make them suffer, as an example to others, who will forget it the next day. Punishment applied in this way does little good preventively speaking, but punishment visited upon those whose duty it is to enforce the law, but who do not enforce it, would be punishment well applied and likely to be fruitful in preventive ways. The corps of steamboat inspectors either know or they do not know that the vessels they pass are safe and well equipped. The real responsibility rests with them, for owners and crews are doing only what all the rest of us, members of the business world, are doing every day, that is, paying regard to just what portion of the laws it pleases us to give heed to, and taking the chances with the rest, no matter what the risks to ourselves and others actually may be. We beat the customs when we can; we exceed the speed limit on our autos, and road-wagons; we have grave doubts about

that elevator-rope, easily assuaged by an inspector's certificate—paid for, perhaps; we know that that boiler under the sidewalk has warped plates, but we do nothing to correct these things simply because some official has not found us out and put the law's compulsion upon us. The place to apply punishment in nine cases out of ten is upon the officials who do not enforce, not upon the casual few, out of many undetected, who break the laws. In matters of education and discipline, it is easier to deal with the few than with the many, and until means are found to compel officials to enforce the law the public must suffer the consequences of its non-enforcement, and we do not believe that a more efficient means can be found for making officials understand that the public expects them to enforce the law than to punish them for the infractions their own negligence allows some other members of the public to effect. We were glad to see in the indictment of the Mayor of Chicago by the coroner's jury, at the time of the burning of the Iroquois Theatre, an indication that this view of official responsibility might in future have its proper effect on official action, but unfortunately the Grand Jury took a more lenient view of the matter. In the case of the "General Slocum," the inspector who actually examined the boat is likely to be made the official sufferer, when everyone believes that he discharged his duty in a normal manner, quite in the style his superiors expected him to discharge it, the manner in which his fellow-inspectors are known to discharge it. One thing at least seems indisputable: the United States Government is responsible for the loss of these thousand lives; the United States Treasury is morally responsible in civil damages to the heirs-at-law of the victims and unless the United States makes such reparation as can be made then the government and the country are undeserving of the love good citizens desire to entertain for them.

A MAN who for sixty-seven years—the entire life's length of Leonardo da Vinci—had practised art industriously and successfully may well be called an artist, even if during that long time he had accomplished nothing of much significance. But George F. Watts, who, in his eighty-seventh year, laid down his brush for ever last week, could claim the title on many different scores. It is rather bewildering to imagine the vast number of canvases that such rapid workers as Sargent and Herkomer might cover in a working life of sixty-seven years and though working at a more leisurely rate the number of paintings that Mr. Watts actually finished is very considerable. Probably few painters of his standing and ability keep on hand so many of their own works as did Watts; he was well-to-do and had rather an objection to selling his work for money, preferring to make a present of it to some friend or to a public gallery. This trait was well shown when he presented to the National Gallery of British Art his collection of over forty portraits of noted Englishmen—we believe it was his hope, at one time, to make this Watts Collection an even hundred

of portraits of men of real standing in the intellectual life of the country. Like Meissonier and Gérôme, Watts in his later years took up the sculptor's modelling tools, but, while Meissonier was content to model statuettes, nothing would suit Watts but the colossal. One who knows the real laboriousness of modelling at large scale cannot but wonder at the vitality of an octogenarian who in the last two years of his life was engaged in modelling the colossal equestrian group called "Physical Force," for the tomb of Cecil Rhodes, in South Africa. Another colossal equestrian group in bronze by Watts is the "Hugh Lupus" that stands before Eaton Hall, the Duke of Westminster's place, near Chester.

MR. WATTS was of humble birth, yet in his later years twice declined a title, the alleged goal of every Englishman's ambition. In place of the vulgar glory of a title to be shared with many an unworthy fellow-wearer, he was glad to accept a far more significant honor when King Edward bestowed upon him, amongst the first, his new Order of Merit. It was thirty years after he first exhibited at the Royal Academy that, in 1867, he was himself made an Academician, although he had offered himself for an Associateship in 1849, and another thirty years had elapsed when, in 1897, at the age of eighty, as a consequence of a special exhibition of his works then held, he had the pleasure of receiving a congratulatory address signed by hundreds of the most eminent of Englishmen in many walks of life. In 1843 and again in 1848 his designs were selected in competition for two of the historical frescos which decorate the Houses of Parliament. One of his interests in recent years was to establish a record of heroic deeds, and for this purpose he erected in St. Botolph's Church, Aldersgate, London, a wall whereon are inscribed the names of those who perished while endeavoring to save the lives of others—a sort of precursor of the Carnegie Hero Fund.

GOVERNOR BATES of Massachusetts has appointed a very excellent commission to consider the revision of the existing building laws of the Commonwealth, an architect, a lawyer and a real-estate trustee, a body large enough for a real working force and combining the needed experience in the proper degree. At present, the State laws are mainly concerned with the proper building and maintenance of factories, schoolhouses, hotels and public buildings, but as the State becomes more thickly settled the State Police, upon whom rests the enforcement of these laws, find it desirable to give more and more attention to the methods of building employed in mill villages and small factory towns which as yet have no local code of laws of their own; and for this reason it has become advisable to add to the present laws some of the refinements of particularization that belong to city building codes. There is always some chance of clashing between a municipal building ordinance and a State law, as we recently pointed out in the case of the proposed State theatre law, and, hence, a temptation to appeal from Peter to Paul, at times, according as one law or the other may seem to be most considerate of the desires of the builder. All difficulties of this kind, however, might be easily removed by an enacting clause that the conditions of the State law should never

take the place of more stringent similar conditions already adopted, or to be adopted, by any municipality.

FROM the fifteenth to the twentieth of October next there will be held in the Grand Palais des Champs-Élysées an international congress of unquestionable interest, far greater, it seems to us, than the International Congresses of Architects, where the field is altogether too broad to be covered at one series of meetings. The one we now refer to is the Premier Congrès international d'Assainissement et de Salubrité de l'Habitation, and, like all sanitary congresses, it will consider matters of hygiene which appeal to the individual in all classes of society. The work of the Congress will be divided between six sections, the sixth of which covers a very unusual line of investigation since it concerns "les Habitations flottantes," that is, the hygienic condition of men-of-war, vessels of the mercantile marine, fishing-smacks, house-boats and canal-boats. The other five sections concern themselves with Urban Dwellings, Country Dwellings, Workmen's Dwellings, Furnished Apartments and Lodging-houses—including hotels at the seaside, at medicinal baths, and in cities, and Boarding-schools. To a considerable extent the announced syllabus for each section is identical, but the items in which they differ show how thoroughly the entire scheme has been studied and organized. The committees in charge of each section will prepare in advance of the meeting a thorough report on its branch and distribute it in print to all members of the Congress, so that they may have time to prepare for the discussion. It should be well worth the while of any architect visiting Paris at that time to spend the twenty francs which will secure him a membership in the Congress, its printed report, a share in the gaities and excursions and an artistic badge as a souvenir. Further information may be had by addressing the secretary, M. F. Marié-Davy, 7 Rue Brezin, Paris (14^e Arrondissement).

HENCEFORWARD eternal vigilance on the part of the public, the bar associations and professional societies of all kinds will be needed to prevent the general public from receiving outrageous wrong at the hands of organized labor. The labor unions have been aroused to the fact that the common and statute laws as they exist grant their members no privileges that other men cannot claim with equal justice; and as decision after decision has made this clear, an unendurable condition of things from the point of view of Labor has been revealed, and the champions of organized labor, as a consequence, have set themselves to procure the enactment of laws which shall give to the unions special privileges that the rest of the world does not enjoy. So, if other cities do not wish to be reduced to such a condition of servitude to the unions as now exists in San Francisco, they must give close and continued attention to all measures that are brought before the legislative bodies of States or towns. A bill has just passed its second reading in the English House of Commons, by a narrow majority, which will practically nullify the famous Taff Vale decision of the House of Lords, which gave all English employers high hope that they might once more conduct their business as the existing laws gave them to understand it might be conducted.

LESSONS OF THE BALTIMORE FIRE.¹

MR. PRESIDENT AND GENTLEMEN:—Before proceeding with what I have to say concerning the Baltimore fire, I wish to express my sincere appreciation of the honor conferred upon me in the invitation to address you on a subject of such moment to yourselves. Having been in charge of a number of building enterprises for the United States, I have always been deeply interested, from a professional point of view, in fire-resisting construction. If my opinion seems worthy of attention on the part of those having the most at stake in every fire, it is comforting assurance that my time and study have not been spent entirely in vain, notwithstanding my lack of commercial interest in the subject.

What I shall say of the lessons to be drawn from the Baltimore fire applies especially to fire-resisting buildings in a congested district, where the conflagration hazard is serious and imminent. For buildings more fortunately placed, my deductions might be considerably modified.

Nothing happened at Baltimore that might not have been foretold from a study of the fire records of the past, provided the conditions had all been known and fully appreciated. Some of these conditions, however, would hardly have been estimated at their full value before it was disclosed by the conflagration itself, and it needed just such a catastrophe to fully emphasize certain truths, which, though plainly revealed in previous fires, have never received due consideration in the design and erection of modern buildings. A careful study of the results at Baltimore is therefore necessary, and, if properly made, it should lead to better buildings and smaller fire losses.

To an engineer engaged in such a study of the Baltimore ruins, the following general facts stand out in bold relief:

First. In our designs so far, we have resorted to inadequate measures for fire resistance, and almost none at all for fire prevention. We have worked almost entirely on the basis of a fire originating within; exposures have received scant attention, and the conflagration hazard almost none at all. Like a general on the defensive, who has provided meagre protection for his front, and none at all for his flanks and rear, we find an active and aggressive enemy, after the battle, in possession of most of the field.

Second. More mass is required to resist fire than to carry superimposed loads. In the craze for lightness and cheapness, the modern fire-resisting building has been reduced to a degree of flimsiness wholly inconsistent with satisfactory behavior in a severe fire; and it may be added that this same flimsiness will insure equally unsatisfactory results against the slower but always active elements.

Third. The standard of workmanship in these buildings is very low—often criminally so. The factor of safety provided in the design against other contingencies is drawn upon for 100 per cent as tribute to dishonesty and carelessness. Owners need to learn the value and the necessity of adequate inspection, and it does seem that some architects should enlarge their ideas of what is meant by the word "supervision."

Before going into details, a meaning will be suggested for the term "fireproof building." To deserve the name "fireproof," it is submitted that the building should be so constructed that it will stand in any fire that is liable to rage around it, not only protecting its own contents from ignition, but acting as a positive barrier against the spread of the conflagration; if a fire is started within, it should be confined, by the qualities of the building itself, to the unit of space in which it begins; in either or both events, the parts of the buildings exposed to fire should suffer no material damage except to renewable finish, and this finish should not constitute a large percentage of the cost of the building.

Considering first the outside walls, it is evident that no building stone of any kind is even reasonably fireproof. The amount of stone should be kept down to a minimum, and it should not be used at all in stories above the second, except, possibly, for window-sills.

Ornamental terra-cotta—especially when it is very ornamental—is liable to spall; it should be as simple in design as possible, of a stable and fireproof color and the thickness of the material itself made much greater than is now customary; it should not be less than 1½ inches; all cavities should be filled with cement, mortar or concrete, and heavy projecting courses of cornices should be securely tied back with steel anchors. If these pre-

cautions were always observed, it is probable that ornamental terra-cotta would give a much better account of itself than it did at Baltimore, where it suffered very general damage from both spalling and discoloration.

The prevailing material of outer walls should be first-class brickwork. The brittle, dense face-bricks, made by the dry process, spalled rather badly at Baltimore; the same was true of enamelled and other extremely hard bricks. Face-bricks, bonded to the wall only by metal ties, were stripped from the walls in large areas, as especially exemplified in the Continental Trust Building. Bricks should be made of good refractory clay, and burned to the point of maximum toughness, but not to vitrification; they should be laid in cement mortar and bonded with real headers. Walls so constructed, and of sufficient thickness, are an ideal barrier against fire; but they must be of adequate thickness, and the Baltimore fire proved that they are generally too light. The minimum thickness of an outside wall should be two whole bricks—that is, from sixteen to eighteen inches. Outside walls only a brick and a half thick were badly cracked at Baltimore—they had not mass enough. Yet their behavior indicated that another half brick would have made them thick enough, in the upper stories at least.

It is much to be doubted whether the typical steel-skeleton structure, carrying its walls by stories on the steel frame, is ideal as a fire-stop. It is probable that the outer walls would suffer less damage in a fire, if they were self-supporting from the foundation up, but well anchored to the steel frame by heavy ties at short intervals. This would make one homogeneous mass, not liable to be thrown into the street by an expansion or twisting of the spandrel beams, which destroy the integrity of the curtain-wall where they are used. It would interpose a greater thickness of protecting material between the steel and all external agencies of destruction, whether the elements or a conflagration. It would require more time to build, for work could not be started in different stories at the same time. Some designers would object that it would cause eccentric loading of wall columns if the weight of the wall is taken off them, but this can be overcome by a little special designing. A brick wall, over 300 feet high and of uniform thickness, is safe enough under its own weight if it is secured against buckling, as it would be if anchored to the frame. Of course, a wall should be thicker in the lower stories for fire-resisting purposes, and this would make it still more stable structurally; but in no case would it be necessary to make any part of it more than 3½ bricks thick, even in the lowest stories, if the work is well done. The steel saved in wall columns and spandrel beams would almost pay for the extra thickness of walls.

Window openings in outer walls should be reduced to a minimum in both size and frequency. The current type of office buildings has its windows unnecessarily and dangerously large. There is ground for suspicion that this often results as much from a desire for low first cost as for light and air. Mullioned openings are bad in all cases, for the mullion is almost sure to fail; if it carries any weight, it is dangerous; if it does not, it is severely damaged itself, and, by its expansion, is apt to damage the masonry surrounding the opening. This is notably the case where the mullions are of naked metal. All window openings, therefore, should be single, and light piers of any sort, whether called mullions or not, should be avoided in exterior walls.

No lintel is equal to a brick arch. Hollow terra-cotta and stone spall under the fire and metal lintels are almost necessarily left exposed. In the Continental Trust Building the spandrel beams of the rear and court walls were immediately above the window openings carrying the terra-cotta lintels, which, in turn, served as protection for these beams themselves. The terra-cotta cracked and spalled and exposed the beams; the naked cast-iron mullions in the windows added their quota of destructive effort, and the walls were almost totally destroyed.

Even good brickwork is liable to spall on square corners where exposed to the fire. As far as possible, therefore, all salient angles should be rounded to a radius of at least three inches, if liable to such exposure. This applies to other forms of masonry, including concrete, as well as to brickwork. Before leaving the subject of materials for the masonry of the outer walls, it should be stated that the behavior of Portland-cement concrete at Baltimore is quite a sufficient indication that it is a suitable material for outer walls, so far as fire resistance goes, although not as good as the best brickwork. The behavior of hollow tile indicates that it is entirely unsuitable for outer walls in its ordinary commercial forms, which are all entirely too light.

The protection of window openings is the most vital and serious question demanding the attention of those concerned in

¹Address of Capt. John Stephen Sewell, U. S. A., at the Annual Banquet of the National Board of Fire Underwriters, Delmonico's, New York, May 12, 1904.

fireproof building operations in congested districts. From the underwriter's point of view, the so-called fireproof buildings in Baltimore were but little more desirable as risks than the non-fireproof buildings; in both classes of buildings the contents were a total loss; in the non-fireproof buildings the same was true of the buildings. In the fireproof buildings the average cost of really restoring the buildings to their original condition would hardly be less than sixty per cent of their original value. When considering what shall be charged for the conflagration hazard the underwriter has, therefore, but a small margin of allowance for the current types of so-called fireproof construction, even on the building itself, and none at all on the contents; the adequate protection of openings, combined with a slight increase in thickness of walls, would at least double this margin on the building, besides removing almost entirely the conflagration hazard from the contents. To what extent and how the external openings shall be protected is, therefore, to be most seriously considered. It would seem that the time is at hand when all windows should be glazed with wired glass, which, on principal fronts, could be polished; sash should be made of metal adequately stiffened; and frames should be of cast-iron or sheet metal stiffened. In addition to this, all external openings should have some means of absolutely closing them, even on wide streets. One would hardly have thought the fire in Baltimore would have entered the Continental Trust Building from the west, but it did. Shutters or other fire-stops on principal streets could be left open ordinarily, and closed only when a fire in the vicinity threatens the building; but when the emergency arises they should be available. Whether tin-covered wooden shutters are adequate seems open to debate; very light corrugated rolling-shutters are certainly inadequate. It would seem that a good form of shutter would be a steel plate about three-sixteenths of an inch thick, stiffened around the edges and hung like a sash. This would require a box-head frame, in addition to the regular window frame, the box head being required to give a full opening for light; but if walls were made as thick as they ought to be, this would be a simple matter. The frame would have to be of steel or cast-iron, well pocketed into the brickwork, with a little room for expansion. There are certain compositions in the market, made up with asbestos as a base, which can be worked like wood, are incombustible and retain their rigidity even under high temperatures. If these compositions should prove equal to their present promises, there is no reason why sash-frames, fire-doors and fire-shutters should not be made of them. The fire-shutter could be a single sheet, $\frac{1}{2}$ inch thick, sliding like a sash. A box-head frame for this form of shutter also would be necessary, to enable the full glass opening to be exposed. Had the fireproof buildings in Baltimore been provided with such shutters they could have been closed in ample time, and probably the total loss to these buildings and their contents would have been not over twenty per cent of what it actually was. The possibility of providing really efficient fire-shutters by hanging them like sash, is a strong argument for thicker walls. Another is the fact that fire will not communicate as readily through even unprotected openings in thick walls as in thin ones. To sum up what Baltimore taught about outside walls, we may say:

Thickness should be increased to a minimum of two bricks in upper stories with a reasonable increase below; better results will be obtained by building the walls continuous from the foundations up; stone should be reduced absolutely to a minimum. Terra-cotta should be heavier, and of plain design and stable color. Bricks must be the prevailing material, and they must be hard and tough, but not vitrified; they must be bonded with real headers. Openings must be as small as possible, without mullions, and finished with brick arches and bull-nose bricks, as far as possible. All openings should have adequate fire-stops, even though they are habitually left open on principal fronts. Wired glass and incombustible sash and frames should be used everywhere.

It goes without saying that roofs should be as carefully looked after as the walls. The various forms of vitrified-tile roof-finish are probably the best. Skylights need the same attention as windows, though their exposure is not generally quite as severe.

Coming now to the interior construction and finish, we have, in any case, only to consider the effects of an interior fire; even though the contents of a building be ignited from without, it is only the fire due to the combustion of the contents that really tests the inside work. Notwithstanding the high repute in which cast-iron for columns is held by some underwriters, it is too unreliable from a structural point of view to be approved by engineers. Steel columns adequately fireproofed, are able to

meet all requirements, and should always be used, where a brick or concrete pier is not applicable.

The Baltimore fire was not needed to demonstrate the fact that structural metal of all kinds must be protected from high temperatures, by some adequate form of incombustible, non-conducting covering. Nor did it need this fire to prove that the floor arches and partitions must be of similar material. What the Baltimore fire did demonstrate, however, was the extent to which the materials in common use performed their functions.

The material used for fireproofing, whether in the form of floor arches, column covering, beam and girder protection, or partitions should, as nearly as possible, conform to the following requirements:

1. It must be incombustible.
2. It must undergo no molecular change in a fire.
3. It must be a reasonably poor conductor of heat.
4. It must have considerable mechanical strength, and be applied in such form that it will be able to perform any necessary structural duty, and at the same time to resist the stresses set up by the sudden application of heat followed by the equally sudden application of water.

It is not sufficient that the fireproofing protect the steel; it should itself be intact and without need of repairs, after not only one, but several, ordeals of fire and water.

The Baltimore fire proved that the only material that fulfills all of these requirements is good brickwork laid in cement, with real bond. Concrete is almost as good, but is subject to a gradual molecular change, due to calcination. Plaster of Paris is deficient in mechanical strength, and becomes calcined very quickly. This applies more or less to all of the forms in which it is applied. Hollow tile, in all of its usual forms and applications, is too brittle and too flimsy; if it were always made of tough, refractory clay, in the form of porous terra-cotta, with webs never less than $\frac{1}{2}$ inches thick, it would probably be almost as good as brickwork.

All forms of plaster of Paris fireproofing failed utterly at Baltimore, except the lime of tile floor arches, which, thanks to a considerable thickness, stood very well; but if plaster of Paris enters largely into lime of tile, these arches were probably deeply calcined, and damaged much more than they appeared to be.

Hollow tiles gave a poor account of themselves; in most cases they protected the steel, but will have to be renewed themselves. This is no fault of the material, but of the form in which it is applied. The webs are too thin; on the exposed faces of the tiles, the webs become hot clear through; the rest of the tile is surrounded by dead air-spaces and remains comparatively cool. The exposed webs yield to the strains induced by this condition, and drop off. The dead air space as a factor in fireproofing, is a fallacy, except where it exists in the form of pores, or where the webs are so thick that the entire variation in temperature occurs within their thickness, so that the inner side of the exposed web remains cool. What is needed for fire-resistance is a homogeneous material, of low conducting power, and of sufficient thickness to win the battle on the first line of attack. It was noticeable, at Baltimore, that where the plaster adhered, the tiles were not much damaged; this in itself is an indication of the value of greater thickness in the exposed webs. It has been quoted as a tribute to the hollow tiles, "that not even the plaster was damaged"; but the truth is, it is rather a tribute to the plaster, which was between the tiles and the fire. Where it adhered, it saved the tiles; where it failed, their failure was general. It follows from this that it is worth while to finish all fireproofing with good hard plaster, the best form of which is ordinary lime mortar gauged with Portland cement.

Concrete gave an excellent account of itself in the Baltimore fire. It is not equal to brickwork, nor as good as hollow tiles would be, if they were always of good porous materials, at least $\frac{1}{2}$ inches thick; but it is better than any commercial form of hollow tile, and better than the best plaster of Paris compositions. It calcines to some extent and spalls at square corners. All salient corners should be rounded and an allowance of at least an inch in thickness should be made for calcining. If this were done, it would be good for a number of severe fires without other repairs than plastering. It has been urged that the condition of certain cinder-concrete partitions and filling between floor sleepers at Baltimore proves this material to be utterly worthless. The fact is that this concrete was probably worthless from the beginning, as any one knows who has seen the average cinder-concrete gang at work. Cinder concrete, well made from

clinkers and ashes and free of combustible matter, is one of the best fire-resisting materials we have. But it is not safe to indorse cinder concrete in general terms, because so much worthless trash is paraded under this name. Broken bricks, broken slag, gravel and broken stone, all make good fire-resisting concretes, the stone being the least desirable. The aggregate for fire-resisting concrete should all be capable of passing a $\frac{3}{4}$ -inch or, at most, a 1-inch screen.

The ideal column in a fireproof building is one built up of rolled steel members, covered with four inches of good brickwork or concrete, and with all the interior space filled with concrete. Pipes should not be carried up inside of the column coverings,—only, however, because they should not be concealed. To the buckling of heated pipes was attributed the failure of many terra-cotta column coverings at Baltimore. But if the column coverings had not failed first, it is hard to see how the pipes got hot enough to buckle. Once the covering opened, no doubt the buckling of the pipes completed its ruin. But the initial failure must have been in the covering itself. The ideal girder protection is, on the lower flange, at least $2\frac{1}{2}$ inches of solid porous terra-cotta or good concrete, with four inches of brickwork or concrete to protect the webs. The ideal floor system is a segmental brick arch, with protecting skewbacks at least two inches thick under the flanges of the floor beams, or an equivalent construction in good concrete. For the floor arches heavy porous terra-cotta hollow tiles could be substituted, if a flat ceiling is wanted. For partitions, either bricks, the heavy hollow tiles described above or good concrete, built from the floor arches below to the ceiling above will meet all requirements. Nothing less than a solid brick wall is a safe enclosure for a fireproof vault; those walled in with hollow tiles failed in many cases at Baltimore.

Reinforced concrete in the hands of competent designers and good workmen is capable of displacing steel entirely for buildings of moderate heights, and of displacing steel girders, beams and floor members everywhere, with improvement in fire-resisting qualities as compared with current types of structures. But it is too early in the day to hope for general acceptance of this view, although there is not the least doubt of its correctness in the minds of those who have given the subject thorough and impartial investigation.

Much could be added on the subject of sub-division of floor space, isolation of stairways, elevator wells, etc., and on sprinkler systems, and other means of preventing fire or extinguishing it in its early stages; but no new lesson was taught at Baltimore, and an engineer could hardly hope in any event to add to the underwriter's store of knowledge on these subjects. It may be added, however, that combustible trim—floors, ceilings, wainscots and other finish in marble and stone, plaster, grille work, chandeliers, etc.—in fact, all that is ordinarily included under the term interior finish, can never be fireproofed; viewed as a risk, they are all in the same class with the wooden tables, desks, chairs, etc., used by the occupants of the building.

Finally, it may be said that much of the damage at Baltimore was due to poor workmanship as well as to flimsy design. Many terra-cotta partitions and column coverings were so loosely laid up that they were entitled to fall down without any other excuse at all. There were cubic yards of bricks in the walls of the Continental Trust Building which were simply thrown in loose without any pretense of laying. It should be remembered that good workmanship may save a defective design, but no excellence of design can adequately provide against dishonest work.

M. CHOISY AND THE ROYAL GOLD MEDAL.

M. AUGUSTE CHOISY, the distinguished French writer on architecture, to whom the Royal Gold Medal has been awarded this year by the Institute, was a student in the Ecole Polytechnique in Paris, and, passing out very high in the examination list of that school, he elected to enter the service of the Ponts et Chaussées, which holds a higher rank than that of the Engineers or Artillery. He had already at an early date employed his leisure time in archaeological research, devoting his attention specially to the methods of construction employed in ancient times, a study for which his career in the Ecole Polytechnique peculiarly fitted him; and some of his essays communicated to the French Academy received the warm approval of its members. One of the results of these studies was his appointment as "professeur-adjoint" in the History of Architecture of

the Ecole Polytechnique in collaboration with M. de Dartein, the senior professor.

The earliest mention recorded in print of his researches will be found in Viollet-le-Duc's "Dictionnaire Raisonné de l'Architecture Française," Vol. IX, published in 1868, under the article "Voute." On page 477 is entered the following note, which we quote in full, as it shows the line of study which M. Choisy had selected for investigation:—

"Un jeune ingénieur français, M. Choisy, va publier prochainement un travail très complet sur la structure des voutes Romaines, d'après les monuments. Le recueil que nous avons eu entre les mains, donne au détail les divers procédés employés par ces grands constructeurs, et démontre, de la manière la plus évidente, que l'économie dans la dépense était une de leurs principales préoccupations. Nous engageons les architectes, qui veulent sérieusement connaître les procédés employés par les Romains dans les constructions à recourir aux travaux de M. Choisy sur cette matière."

We gather from this note that M. Choisy's researches became known to Viollet-le-Duc, who, when writing his article on vaulting, recognized that the principles underlying the construction of the Gothic vault had already been followed in Roman work, with this exception, that in the latter style the supporting ribs were concealed in the vaulted mass, whilst in the former style they were not only made prominent features, but in their development evolved a new style. Already, in the fourth volume of the dictionary, published in 1859, under the article "Construction," page 2, Viollet-le-Duc had shown that he was acquainted generally with some of the principles of the Roman vault, but M. Choisy's interpretation and the minute and detailed observations which he had made enabled him to carry the subject much further in 1868 than he had been able to do in 1859, although it went outside the sphere of his dictionary. It is quite certain that there was no one to whom M. Choisy's researches would appeal more strongly than to Viollet-le-Duc, with his powerful reasoning faculties. M. Choisy's work, "L'Art de Bâtir chez les Romains," was, however, not published till five years later, viz., in 1873, so that it would seem that his professional duties on the one hand, and his desire on the other to make his researches as complete as possible, prevented an earlier issue.

The economy in expense which Viollet-le-Duc in his note says was one of the Roman masons' principal preoccupations referred mainly to that of the centering employed for these immense vaults, and this had only been recognized to a certain extent by Viollet-le-Duc in 1859, if we may judge by his statement, page 2, Vol. IV. M. Choisy's notes showed that the brick arches were not continuous, but, as shown on page 466, Vol. IX, in Viollet-le-Duc's drawing, Fig. 1, were erected over special centres only and held together at intervals by bands of brick on edge, the bricks in question measuring about 1 ft. 6 in. square and 2 in. thick. M. Choisy's second discovery, however, was even more important, for he showed that in the erection of these great vaults the first task undertaken was the construction of what was virtually only a shell consisting of two courses of Roman bricks laid in cement and breaking bond, which were laid direct on the boards carried by the centres. It was on the top of this shell that the brick arches and ties were built, the value of this shell becoming apparent in the next process, when the spaces between the ribs and ties were filled in with pozzolana concrete laid in horizontal beds. The shell, together with the centering, was sufficiently strong, on account of its arched form, to bear the superincumbent weight, and the trouble which might have been caused by the twisting of the boards if the wet concrete had been laid on them was disposed of by the employment of the shell. Viollet-le-Duc's drawing only shows one layer of bricks, but M. Choisy, in his work, "L'Art de Bâtir chez les Romains," proves that they were invariably in two thicknesses, with considerable variety in their method of breaking joint. M. Choisy's researches in this one constructional feature are of great interest and value, and so convincing in their proofs that they have been universally accepted. The economy of centering is also shown in the diagonal ribs of the Palatine Palace vaults and in those of the arch of Janus in the Forum Boarium and of the Thermæ of Diocletian. In each case one of the diagonal ribs was built first and the centering shifted to build the second, proved by its butting up against the first. These questions, however, constitute only a small portion of the information given respecting the construction of Roman buildings.

M. Choisy's next research would appear to have been in that

of Byzantine construction, and in his work, "L'Art de Batir chez les Byzantins," published ten years later, he, applying the same principle of observation, worked out the schemes employed in the construction of the vaults throughout Greece, Asia Minor, Constantinople, and Syria, a subject which had never been treated before, and his book to this day is still the only authority. His studies in Greece led him to an inquiry into the interpretation of various inscriptions found there on marble slabs, for, just as the Egyptians wrote their records and accounts on papyri and the Assyrians on terra-cotta tablets, the Greeks inscribed theirs on marble. In 1882 a marble slab was discovered near Athens on which was written in ninety-seven lines of text the complete specification for the building of the Arsenal at the Piræus. In his "Études sur l'Architecture Grecque," published in 1883-4, M. Choisy translated this inscription and illustrated its reading by a conjectural restoration of this arsenal, which not only followed the clear description given, but constituted a lesson in the methods employed by the Greeks in the construction of their timber roofs; a lesson all the more valuable because, on account of their ephemeral character, no examples have come down to us. In the same work also he published an illustration of the construction of the roof of the long wall leading to Athens, also derived from an inscribed slab. Another inscription related to the work required for the completion of the Erechtheum, which for various reasons had been delayed, and here he was able to restore conjecturally the marble roof of that temple and to describe portions of its architectural features which were comparatively unknown.

The lectures which for many years M. Choisy had been delivering at the Ecole Polytechnique probably laid the foundation for his next work, "A History of Architecture," which was published in 1898-99. This work, though confined to two modest Imperial octavo volumes, contains the pick of what might easily be extended to a dozen or more, as it commences with Egyptian architecture, passes in review all subsequent styles, including Indian and Chinese, and terminates with the Renaissance to the end of the XVIIIth century. There is, unfortunately, no preface, which is the godsend for reviewers, and probably on that account it has been so far insufficiently reviewed here in England. The historical and chronological portions are very brief, M. Choisy's object would seem to have centred more, firstly, in the systems of construction employed by different nations and in all times; secondly, in the constructive and decorative forms found in each style; and, lastly, the principal monuments. The chapters describing the various styles follow chronologically and, consequently, also the gradual developments, but M. Choisy seems to have felt that if he once commenced the usual historical account his book would have extended to many more volumes. He has made up for this deficiency, if it is one, by the drawings which he specially prepared for the work; and these drawings have this exceptional interest, that they represent clearly in the fewest possible lines all the principles of the forms or features he is describing. In the series of about thirty drawings illustrating Romanesque architecture in France he conveys more information than is found sometimes in a folio volume. The drawing of Notre Dame du Port, Clermont, Fig. 30, page 230, Vol. II., is not only extremely beautiful in its lines, but the isometrical view given represents plan, section, and perspective all in one illustration. M. Choisy's last work, published this year, goes back to the earliest style. In "L'Art de Batir chez les Egyptiens" he returns again to some of the theories put forward in his "History," but he develops them farther, and, among other subjects, his description of the method employed in the building of the Pyramids and of the immense temples at Thebes, with the clear proofs he gives at every step, is one of the most brilliant results of his inquiring mind. M. Choisy follows most worthily, therefore, in the wake of one of his predecessors, M. Viollet-le-Duc, who, in 1864, forty years ago, received the Royal Gold Medal "for his works tending to promote or facilitate the knowledge of architecture or the various branches of science connected therewith."—*The Builder*.

MORALS AND ART.

THE controversy in New York between Signor Biondi, the sculptor, and the trustees of the Metropolitan Museum of Fine Arts has a genuine interest for the country at large, because the museum is really a national institution, and also because the great problem involved is brought sharply home to managers and directors of every collection of pictures, sculpture and objects of art in every city and town in the world. From the dawn of art to the present day the question has been asked, What is the relation of morals to art? And this is the subject of debate

in New York, with prospect of long litigation, unless the museum retraces its steps, drags Biondi's group, "The Saturnalia," from the basement, and exhibits it in full view of the public for one year.

The "Saturnalia" took the Grand Prix at Paris and high awards at the Buffalo Exposition; the sculptors of New York do not dispute the technical excellence of the artist's handiwork; there is life, passion, and meaning in the faces; the grouping is effective, the relation of the figures in this striking and vigorous work, the one to the other, is harmonious, and they all severally combine to make a strong, complete whole.

But the riot of drunken men and women, the utter devilry and baseness suggested in the faces and attitudes of the debauchees, all contrived with force, accuracy, and high mastery of detail and technic, are, say the American judges, immoral. The group, notwithstanding the sculptor's professed object to enforce the lesson that sensuality and debauchery bring their own dire penalties, reaches its end by paths which are not approved by an American public or by American artists.

The old issue is thus pretty clearly defined, What has art got to do with morals? In the ateliers of Paris, in the Latin Quarter, in the books of a vast number of intelligent and brilliant writers on aesthetics, the answer has been given with much emphasis that morals have nothing whatever to do with art. The moral element of life is as necessary, they will admit, to the health of the human race as ozone is to the lungs, but art and morals are two entirely different and separate affairs. Even old Aristotle cited the case of, as one would say, "a perfect thief"; the doctors will say of a blemish in the human anatomy that "this is a beautiful sore," and so critics of that school will contend that in the world of art it is only a crude Philistinism which has a quarrel with any faithful representation of life or nature that is skillfully and faithfully done. They resent the trammels which a too conscious and conscientious—or, as they would say, prudish and hypocritical—audience insists on throwing about their opportunities to depict life as it is—to mirror nature. Thackeray, for instance, though he was by no means an "art for art's sake" kind of a man, complained mournfully enough in his "English Humorists" that not an English writer since Fielding had dared to paint in novels the English people as they really were.

These considerations bring to view the great problem of the fine arts in their relation to life. What is, or should be, the underlying purpose of the artist, whether novelist, painter or sculptor? Is it merely to mirror nature as faithfully as may be? Shall we keep honor on the man who with infinite pains merely gives a transcript of the dark corners, and who makes us feel, for instance, that we have really walked through the haunts of vice and have felt the horror of the murder alley? The answer, according to idealists, is that unless that artist makes us resolve to do away with the slum he is not a noble artist. Of all the definitions of the artist and his aims, perhaps one of the best was given by Goethe, who was an "artist" if ever one lived, and of the type of the universal cultivated man. He said:

"The highest problem of every art is by means of appearances, to produce the illusion of a loftier reality."

It will be seen that the use of the word "loftier" indicates that Goethe thought the artist had a mission; he is the interpreter of life and nature; he is a teacher of the high and beautiful in humanity to the public. If the artist works with repulsive or questionable subjects, he must have in view that certain end and purpose which Hume declared to be inseparable from the work of every true artist. That end must be a lofty one, and he must so subdue his subject and his questionable materials to his purpose that the grand result will be the beauty which is not alone truth, but is also the "good."

All this academic discussion, which has gone on for ages and will go on for ages to come, has really little to do with the particular question whether Biondi's "Saturnalia" is a good thing to display in the Metropolitan Museum. At the Salon, in an exhibition of contemporary sculpture, where the interest is not in the subject, but in the technical achievement, it was in the right place. In a public museum, designed for the edification of the general taste and frequented by uninstructed people who would or could look upon it not as a piece of sculpture merely, but as the representation of a revolting scene, it would be as clearly in the wrong place. There is no prudery nor Philistinism in this. The directors of such an institution can incur no obligation to an individual artist that will weigh against their public responsibility.—*Philadelphia Ledger*.

ILLUSTRATIONS

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

COMPETITIVE DESIGN FOR A MEMORIAL CONTINENTAL HALL FOR THE NATIONAL SOCIETY DAUGHTERS OF THE AMERICAN REVOLUTION, WASHINGTON, D. C. MESSRS. C. H. ALDEN, JR.; CALVIN KIESSLING; L. B. ABBOTT, ARCHITECTS, BOSTON, MASS.

THE purpose of this competition was to obtain designs for a building which would be a monument to the heroic men and women of the Revolution as well as an administration building for the Society. The building was required to contain: An Auditorium, which was to be the main feature of the building, and offices, etc., for carrying on the Society's work. Thirteen columns emblematic of the thirteen original states was required to be a feature of the design.

The competition was open to architects introduced by members of the society. This design was one of eight selected by the professional adviser for final consideration. The following description was submitted with the drawings:

"The Auditorium has been given a level floor as best suited to the different purposes for which it may be used. A floor sloping towards the stage can be substituted without materially altering the design. The stage can then be on the level of the corridors. If the level floor is retained, a temporary sloped floor can be erected upon it.

"The general form given the Auditorium is founded on satisfactory acoustic principles. For heating and ventilation, fresh air can be introduced in centre of ceiling and withdrawn through vents at bottom of walls, so that floor area is unobstructed.

"The thirteen columns, as the main feature of the design, are treated as a decorative motive set off by simple wall surfaces. This Colonnade expresses on the exterior the Auditorium and Museum. Under the columns are medallions with the seals of the original states.

"The offices are grouped together with the exception of that for Historian General, which is placed adjacent to Library for convenience of access to historical books. The Museum is directly associated with the thirteen symbolic columns and has provision for large memorial windows.

"The Library and Board rooms are purposely removed from the portion of the building most frequented by the general public.

"The room for Curator is placed near the entrance to control the entire building. A reception room was considered a desirable addition, and is also placed near the entrance.

"Heating, ventilating and lighting plants are in the basement. Additional coat-room space is also in the basement, connected with coat-rooms on first floor. Additional toilet-rooms are in the basement, at foot of main staircases. The room for janitor is under toilet-room, at rear, near service entrance.

"The portion of building in rear of stage can be shut off from the public by doors on landings of rear staircases.

"When it is required to exclude the general public from the floor of the auditorium, foyer, committee-rooms, etc., as at meetings of the Congress, the front entrances can be reserved for delegates, etc., and those at the side can give the public access to gallery and other portions of the building."

THE JOB HAINES HOME FOR AGED PEOPLE, WATSESSING, N. J. MR. ERNEST GREENE, ARCHITECT, NEW YORK, N. Y.

THE DRAPERS' COMPANY'S LIBRARY, CARDIFF, WALES. MR. W. D. CAROE, ARCHITECT.

The building here shown, which is reproduced from the pages of the *British Architect*, forms part of the large group now building for the University of South Wales.

EXAMPLES OF AUSTRIAN IRON WORK.

THESE subjects are copied from *Zeitschrift für Bauwesen*.

Additional Illustrations in the International Edition.

HIGH SCHOOL, WINCHESTER, MASS. MR. HERBERT D. HALE, ARCHITECT, BOSTON, MASS.

RIVER VIEW OF SAME.

VIADUCT OVER THE GEBSTÄTTELSTRASSE, MUNICH, BAVARIA. TH. FISCHER, ARCHITECT.

This plate is copied from *Blatter für Architektur*.

PARK GATES: GATEWAY, TRINITY COLLEGE, OXFORD, ENG.; GATEWAY, MONTACUTE HOUSE.

COMMUNICATIONS

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

"BIG BEN."

July 5th, 1904.

TO THE EDITORS OF THE AMERICAN ARCHITECT:

Sirs:—Referring to your note in your issue of July 2d, it may be of interest to point out that Messrs. Wright and Smith, in their book, "*Parliament, Past and Present*," state that "Big Ben" is named after Sir Benjamin Hall, First Commissioner of Works. The immediate occasion for giving this name to the bell is not given by these writers, but the important office Sir Benjamin Hall held was probably sufficient to entitle him to this distinction. Yours very truly,

BARR FERREE.

NOTES & CLIPPINGS

INVESTIGATING THE ADMINISTRATION OF THE CHANTREY FUND.—The Academy has received wholesome discipline in the appointment by the House of Lords of a committee for investigating the administration of the Chantry Fund. Lord Lytton displayed much astuteness in framing an indictment against the trustees which could not be answered by the apologists for the Academy. The practice of buying inferior works at high prices for the encouragement of British art and the convenience of Academicians will now be modified.—*I. N. F. in N. Y. Tribune*.

THE EXPLORATIONS AT ANAU.—The Carnegie Institution at Washington has received from Professor Pumpelly a preliminary report of the investigations which he is making under the auspices of the Institution on the ancient site of Anau, near Aschabad, in Russian Turkestan. He reports gratifying success, the expedition having explored over 136 feet of successive culture strata, containing at least four almost uninterrupted culture stages, extending apparently for thousands of years through the neolithic and bronze into the beginning of the iron age, and having correlated the stages of culture with important events in the physiographic history and with the introduction of irrigation.—*N. Y. Evening Post*.

THE PERPETUAL FIRE AT THE CHEQUERS INN.—The Chequers Inn, at Slapstones, near Osmotherly, must be unique among English inns in one respect. It boasts of a fire which for more than a century has never been allowed to go out. The place is a quaint little building, to which many visitors resort on account of its never extinguished fire and the turf cakes baked upon its hearth. It has been in the occupation of one family for more than a hundred years.—*Tid-Bits*.

CRITICISM AND LIBEL.—The Supreme Court of Wisconsin decided not long ago that a newspaper critic of art, music or books may bang an artist's art all he wants and still not be liable for damages, so long as he leaves the artist's personality alone. By submitting his productions to the public the producer, so the Court maintained, invites public criticism, and if the criticism is unfavorable he has no redress but to do better next time. That seemed to be an eminently fair and proper decision. In Germany, however, they order things differently; apparently, a critic over there may say anything he likes, if only an artist has once allowed his portrait to be publicly displayed. The violinist Kubelik has just lost his suit against Dr. Gehrman, musical critic

of the *Frankfurter Zeitung*, who had called him a "stupid-looking man of superfine, effeminate appearance," and bandied sundry other little personal pleasantries. The court judged that Kubelik has called for criticisms upon his personal appearance as well as upon his art by having full-length portraits of himself displayed as advertisements in show windows. To add judicial insult to the failure to prove injury, the court also submitted that "It is customary everywhere for critics to describe the personal appearance of artists for the benefit of their readers who were not present at the concert, and Kubelik probably would have been better satisfied if the description had been more satisfactory."—*Boston Transcript*.

A SCENIC TUNNEL AT NIAGARA.—The scenic tunnel, under the Horseshoe Falls of the Niagara, which has just been completed, was undertaken for the Niagara Falls Queen Victoria Park Commission in order to provide a perfectly safe view of the cataract from below. A shaft was sunk 127 feet and from this a tunnel was constructed, curving out under the Horseshoe Falls 800 feet. From this laterals were run into the gorge, where large observation-rooms will be constructed of glass where tourists can sit in easy chairs and look out. A large electric elevator has been put into the shaft, and from the bottom a large board walk has been constructed to the mouths of the various tunnels.—*N. Y. Tribune*.

PROTECTING THE PURITY OF PERSIAN DYES.—The Shah of Persia, it is said, is rigidly enforcing the law, made in 1900, forbidding to bring into the kingdom aniline dyes, whether in a dry or liquid form, as well as all coloring materials into which aniline enters as a component. Since this edict was pronounced many consignments of anilines have been confiscated. In one part of Persia, it is said, a dyer found using anilines was punished by having his right hand cut off. No one would indorse such drastic measures as that to preserve the ancient art of dyeing, but it is a comfort to feel that the beautiful rugs coveted by all people of taste are not to be permitted to give way to the machine-made and chemically dyed products of the west.—*Boston Transcript*.

DEFERRING "THE END OF THE WORLD."—Close to the old Augvaldnes Church on Karneon Island, Norway, and leaning toward it is a stone pillar about twenty-five feet high called the "Virgin Mary's Needle." Tradition holds that when the pillar touches the church the world will come to an end. The superstitious local preacher whenever he imagines that its point is getting nearer to the sacred building mounts the pillar, it is said, and chisels a bit off the top so as to save the world from an untimely end.—*Exchange*.

RESTORATION OF THE ATHENIAN STADIUM.—The restoration of the famous Stadium, of Athens, begun in 1895, with funds given by a Greek merchant, has progressed until they are now placing the last of the 52,000 marble seats which the great amphitheatre contains. The seats, railings, etc., are all of the creamy white Pentelicon marble. It is the intention of the committee having the restoration in charge to build a marble propylæa, or entrance, resembling the ancient one. Some urge the finishing of the outer walls of the Stadium by surmounting them with a marble colonnade. When the propylæa will be commenced is not known.—*New York Tribune*.

ENGLISH HISTORIC OAK TREES.—Our historic oaks are, with every great storm, diminishing in number. Dumorey's Oak, in Dorsetshire, 2,000 years old, disappeared from this cause in 1703. Wallace's Oak, at Ellerslie, was 700 years old when it was blown down some fifty years ago. We have still, however, the Cowthorpe Oak, near Wetherby, in Yorkshire, estimated to be over 1,600 years old; and William the Conqueror's Oak, in Windsor Great Park, has attained the ripe age of 1,200 years. Perhaps the finest oaks of great antiquity in the land are to be found in the dukeries. About half a mile from Welbeck Abbey is Greendale Oak, credited with 1,500 summers, and now a mere ruin sustained by props. Through its hollow interior a coach and four has been driven.—*London Chronicle*.

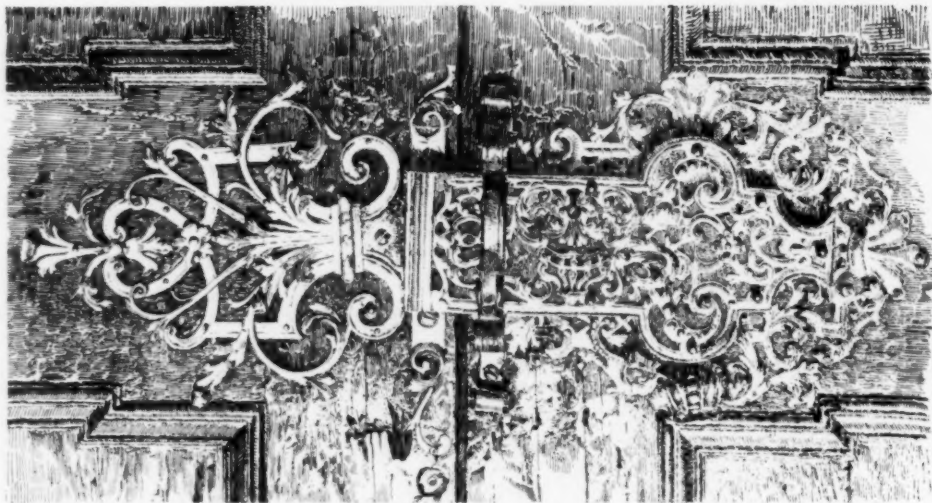
RAILLESS ELECTRIC ROADS.—"For several years," says the *Electrical Review*, "experiments have been made in Germany with railless electric roads. Among the most important are several in Westphalia and two in the vicinity of Dresden—the so-called 'Haidebahn,' connecting with an electric tramway terminus at the outskirts of the town, and the 'Koenigsstein' road starting from Koenigsstein, a town lying on the Elbe, about twelve miles above Dresden. A large proportion of the passengers carried on both lines are tourists or Sunday strollers. The Haidebahn covers a distance of 3.1 miles. Wagons run every half hour, the fare being 10 pfennigs (2.38 cents) for the shortest ride and 20 pfennigs (4.76 cents) for the full distance. The Haidebahn runs over a slightly undulating road, while the one at Koenigsstein covers about two miles of hilly highway. The speed of coaches

varies considerably with the slope of the road, not, it seems, because of a lack of motor power, but for the sake of the comfort of passengers and the reduction of wear and tear on the machinery. It seems that neither of these two lines has proved a marked success from a financial point of view, partly because located at points where travel is sparse, but mainly because of the expense in operating. The electric energy required to move cars over dirt roads exceeds by 100 per cent the power necessary to draw cars over iron rails, and this difficulty should be carefully considered by parties in the United States who contemplate similar enterprises."

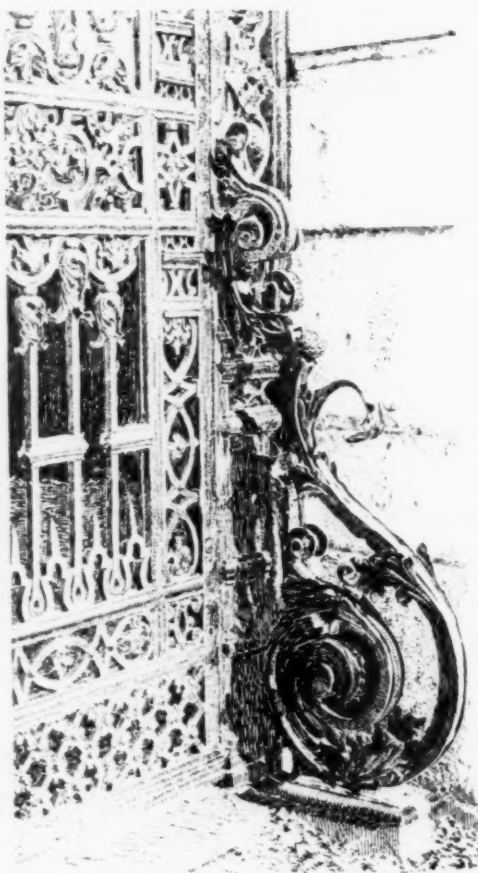
RELIGIOUS SYMBOLISM IN CHINESE ARCHITECTURE.—Religious superstition asserts itself in Chinese architecture, and the universal sacredness of the numerals three and nine is shown in the arrangement of temple doors. There is a triple gateway to each of the halls of the imperial palace, and the same order prevails at the Ming tombs, and the sacred person of the Emperor when he was in his Peking home could only be approached, even by the highest officials, after three times three prostrations. The Temple of Heaven has a triple roof, a triple marble staircase, and all its mystic symbolisms point either to three or its multiple.—*Tid-Bits*.

CHLOROFORMING METALS.—Panteism, which metaphysicians say is going out of fashion, will receive a filip in the philosophical world from an extraordinary announcement made by M. Jean Becquerel at the Academy of Sciences. The statement in question refers to the mysterious N-rays which are emitted by human and other living bodies, and also by certain inanimate substances, in particular by metals. Animals put under chloroform, it has been ascertained, cease altogether to emit the rays. The emanation recurs when the effect of the anæsthetic has gone off. Death causes final cessation of the emission of N-rays. Flowers, from which also the rays emanate usually, were subjected to chloroform and likewise went to sleep, the emission ceasing, but recommencing after a time, presumably when the influence of the anæsthetic had disappeared. This is a sufficiently remarkable phenomenon, but it is nothing to the next observation reported. Similar experiments have been made with the inanimate substances which possess the property of giving out the N-rays, and, as announced in the Academy, it has actually been found that these substances behave exactly as do animate beings under the same conditions. That is to say, a metal emitting the rays in a normal state ceases to emit them when subject to chloroform vapors. In short, anæsthetics apparently will send to sleep these metals as well as flowers and animals.—*London Telegraph*.

TRADES UNIONS' LOSS IN NUMBER.—The *New York Labor Bulletin*, for June, just issued by the State Department of Labor, says that the first quarter of 1904 was characterized by an unusual amount of idleness among organized wage workers. The outdoor trades—building and engineering work—suffered from the extreme severity of the winter, and there was some depression in the iron and steel and wood working industries. The proportion of unionists idle during the first three months of 1904 was 14.6 per cent, as contrasted with 5.5 per cent in the corresponding period of 1903—the best year of the last decade. Of the 55,710 workers who did not work at all in January, February or March, 34,365 belonged to the building trades and 10,631 to the transport trades—chiefly lake navigation. Nearly all of this idleness was due to weather conditions, as projected building operations compared favorably with those of previous years. In New York City there was a slight falling off in the estimated cost of buildings authorized this year as compared with last year; but in Buffalo, Rochester and Syracuse the cost of projected buildings exceeded that of the corresponding period of any recent year. Extremely cold weather retarded operations until spring, and in March the dispute regarding the working hours of bricklayers' laborers threw nearly twenty thousand men out of employment. A dispute between the union lithographers and their employers resulted in a stoppage of work from March 17 to April 20, on the part of 2,118 workmen in New York City, Buffalo and Rochester. A few minor disputes at the same time added to the number of idle employes, so that at the end of March no fewer than 25,723 union workers were idle on account of disputes, and the total number idle for all causes was 103,996, or 27.2 per cent of the number reporting, as compared with 12.1 per cent a year ago. At the end of March the number of labor organizations recorded by the Bureau of Labor Statistics was 2,556, a decrease of 27 from last September. In the six months, between September and April, 143 new unions were added to the list, but in the same period 170 organizations went out of existence either by dissolution or by amalgamation with other unions. The aggregate membership of all New York unions fell only 268 short of being 400,000. This is a nominal increase of 4,134 since September. The membership of unions in the leading cities was nearly stationary, New York City alone making any substantial gain. The number of women in trades unions in March was 14,166, a decline of 600 since September.



Lock-plate from the Nicholauskirche, Prague, Bohemia.

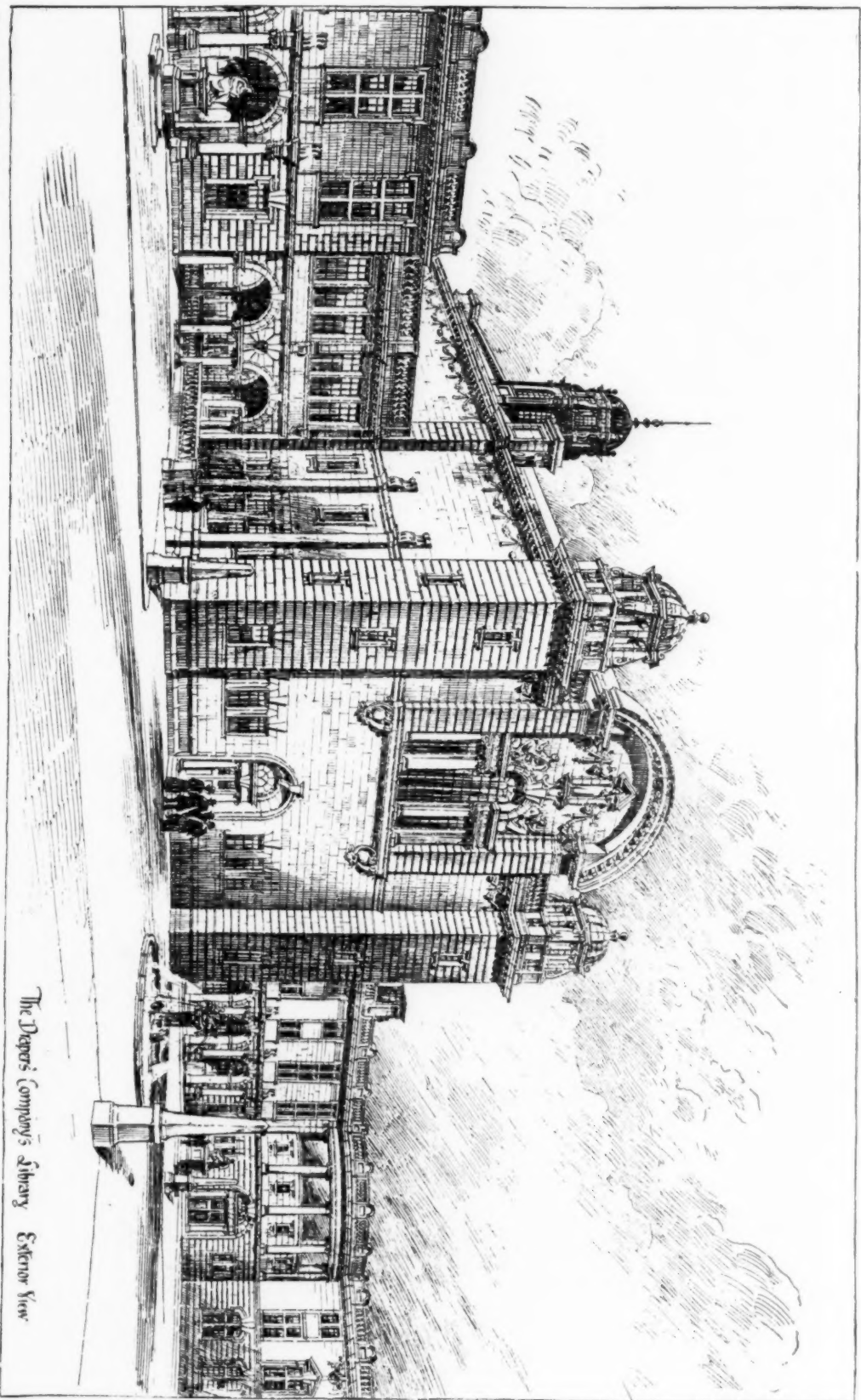


Park Gate Wheel Guards.

From Architektonische Rundschau.

Austrian Iron Work.

*The American Architect,
July 9, 1904.
No. 1489.*

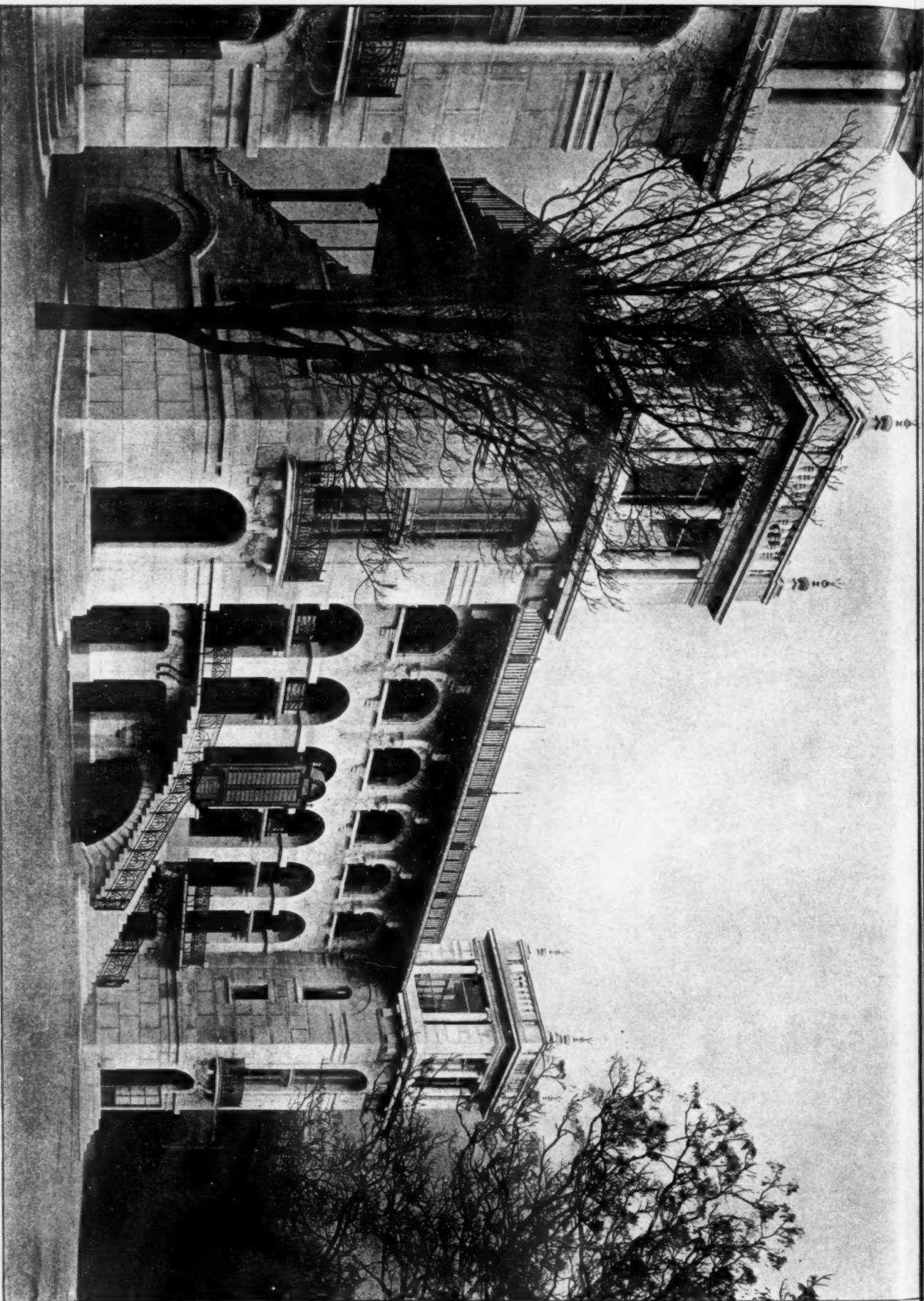


From the British At.itect.

The Depository Company's Library Exterior View

A Portion of the University of South Wales, Cardiff, Wales.
W. D. Caroe, Architect.

The American Architect,
July 9, 1904.
No. 1489.

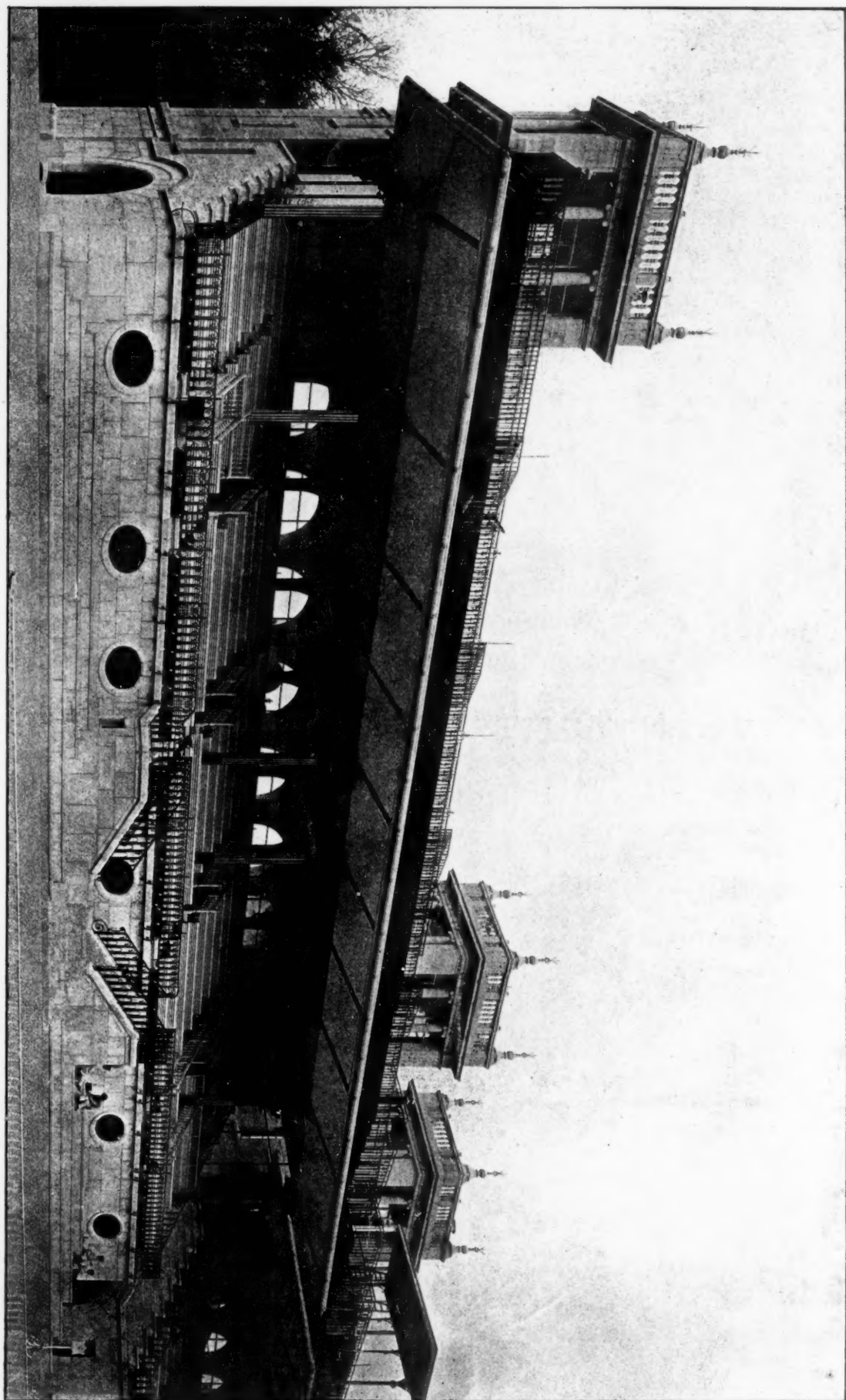


FROM LA CONSTRUCTION MODERNE.

THE GRAND STAND AT LONGCHAMP, PARIS.
M. GIRAULT, ARCHITECT.

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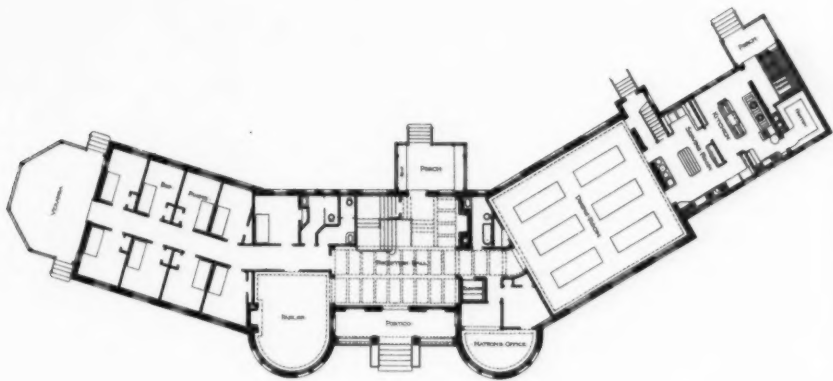
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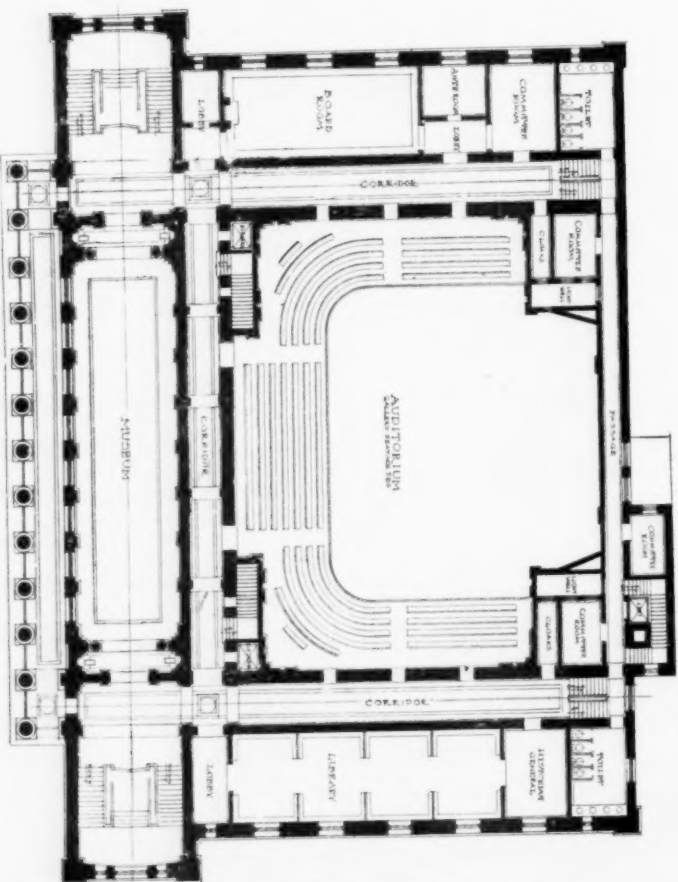
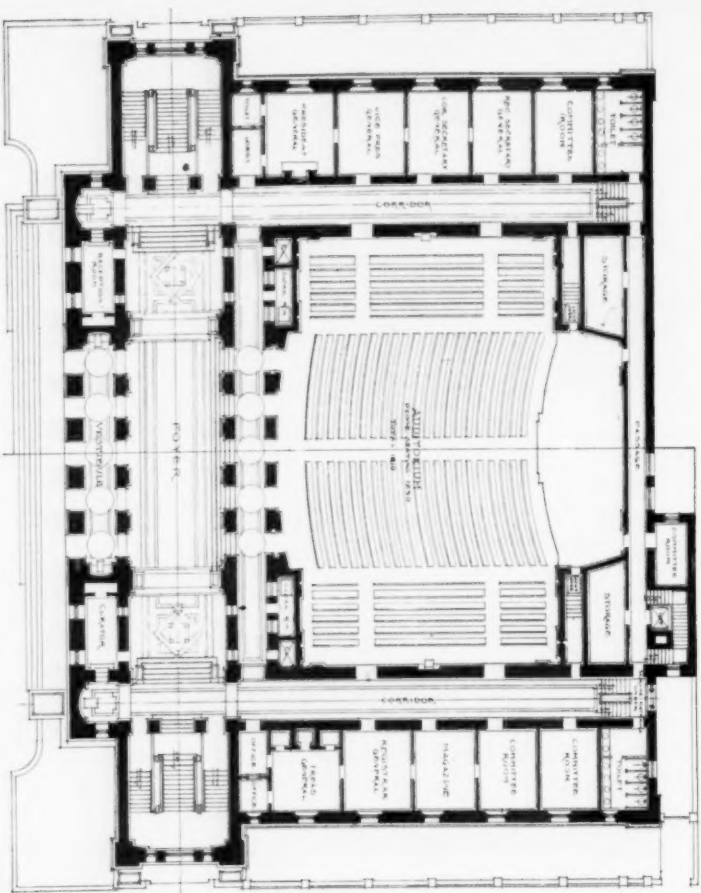
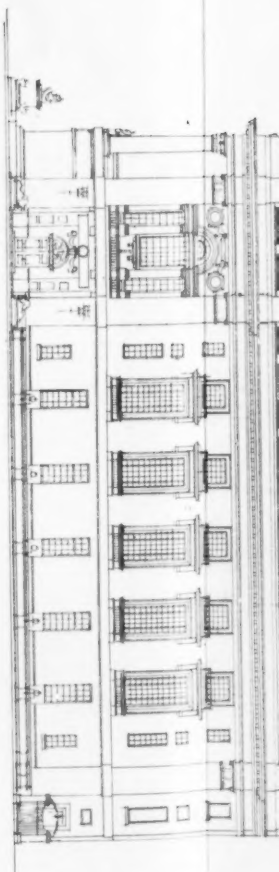
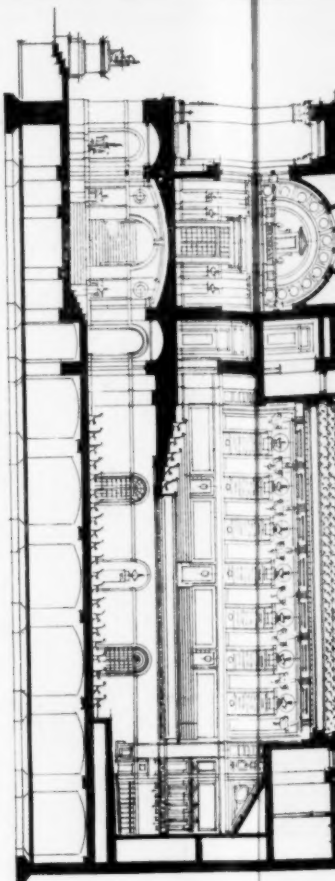
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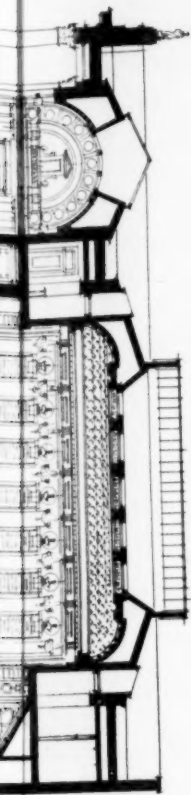
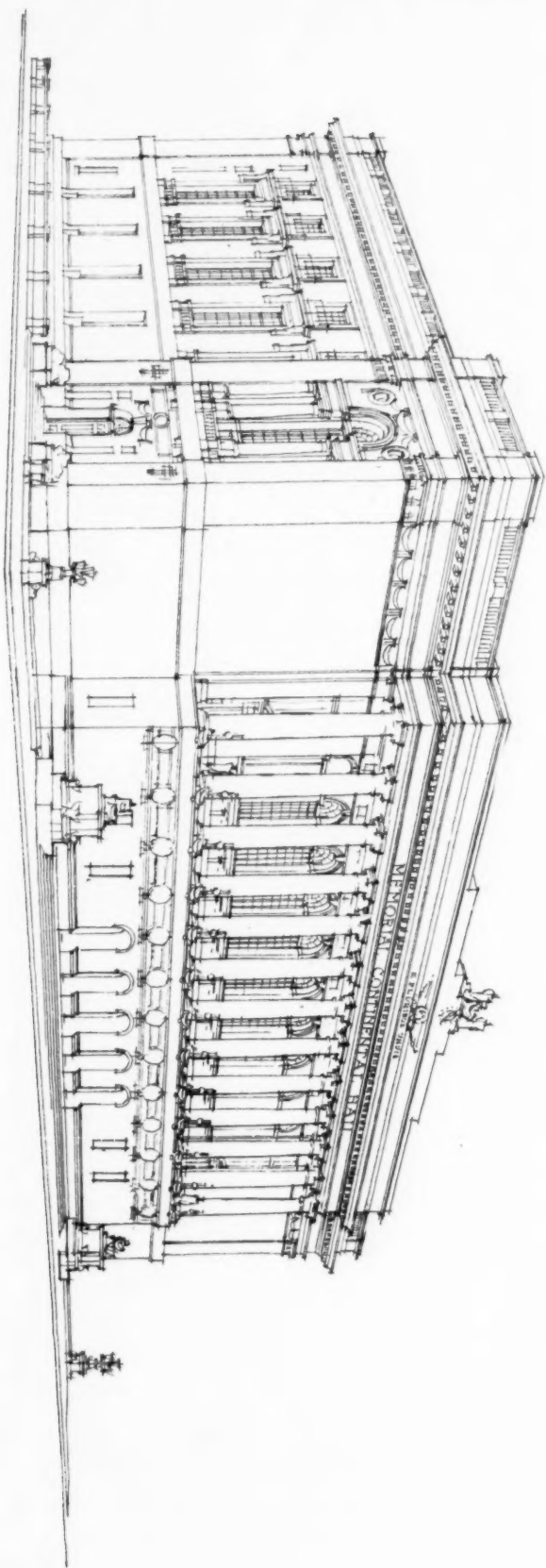
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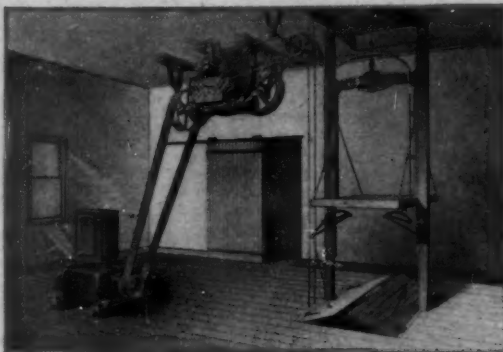
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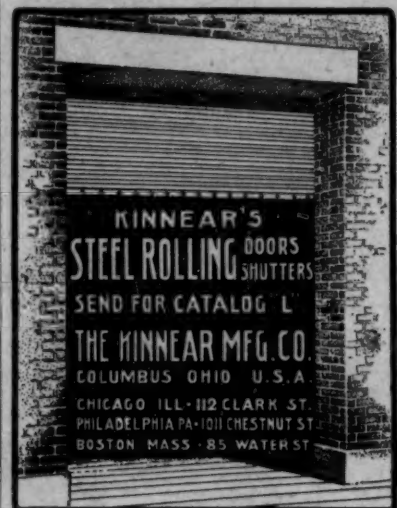
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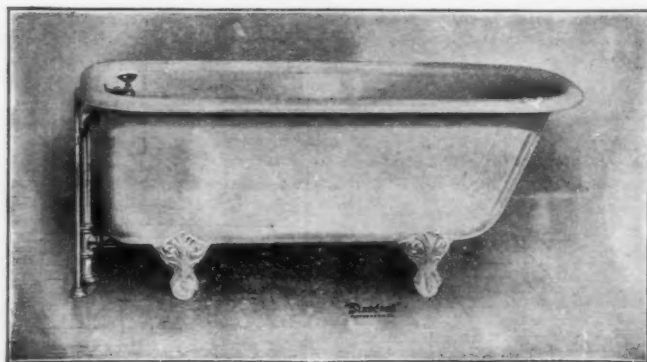


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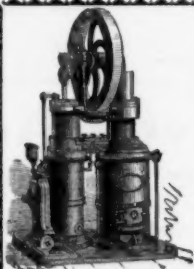
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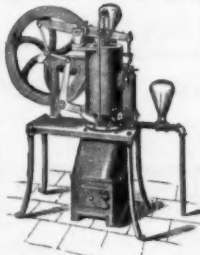
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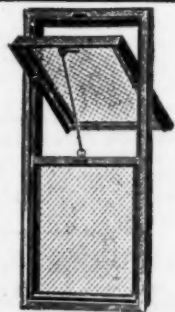
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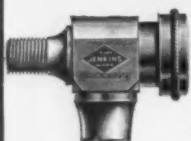
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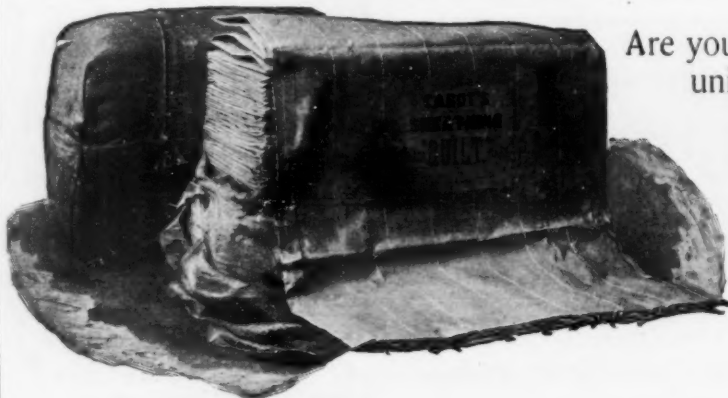


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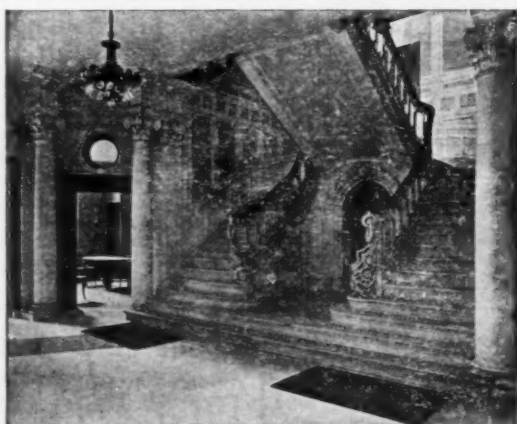
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ARCHITECTS' REMOVALS, Etc.

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BUILDING INTELLIGENCE.

(Reported for the American Architect and Building News.)

ADVANCE RUMORS.

ALVA, OKLA. TER.—The County Commissioners have approved the plans for a

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BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

\$40,000 court house, and it is stated will ask bids and award the contract for erecting same about July 15.

BALTIMORE, MD.—The directors have accepted plans for rebuilding the Franklin Square Hospital, at Calhoun and Fayette Sts., at a cost of \$30,000, and it is reported will soon ask bids for the construction. Herbert G. Crisp, architect.

BERLIN, N. H.—Frank B. Gilbreth, 176 Federal St., Boston, has been awarded contract for large mills in Berlin, N. H., for the International Paper Company.

BOSTON, MASS.—The lot of vacant land on the corner of Saratoga and Byron Sts., East Boston, assessed to the Baker Congregational Church, has been transferred to the Congregational Church Union, which will improve with a handsome new building for copucancy. The total land area is 14,500 feet.

George A. Carpenter will erect a new building at the corner of Washington and West Sts. The site is one of the most valuable in the city, and the new building will be one of the finest of its kind, being of stone and steel, and as near fireproof as it is possible to have a building. The plans for the new building, which will be eight stories high, are by Bowditch & Stratton. The building is to cost above the land about \$300,000. The contract has been awarded to the Thompson-Starratt Company. The old buildings on the site are being torn down.

CAMDEN, S. C.—Edwards & Walter, of Columbia, have been commissioned to prepare plans for a court house for Kershaw County.

CENTRAL FALLS, R. I.—The Committee on Education of the City Council has accepted plans and specifications prepared by Robert C. N. Monahan, of Pawtucket, for an eight-room school to be erected on Dexter, Hunt and Wetmore Sts. Appropriation, \$35,000.

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BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

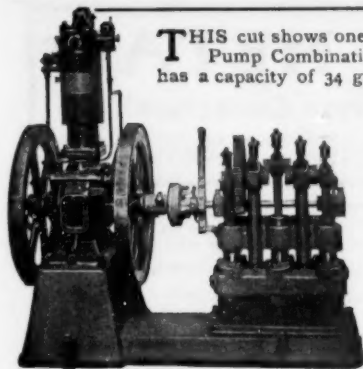
CHICAGO, ILL.—The Rev. Father Casimir Sztuczko, pastor of a newly organized Polish Roman Catholic congregation, has a building fund of \$100,000 for a new church, school and rectory to be built on Noble St. Plans are being prepared.

It is stated that Byron L. Smith, president of the Northern Trust Company, has purchased a site at Monroe and La Salle Sts., and intends erecting a bank building, at a cost of about \$2,000,000.

W. G. Kreig is drawing plans for a \$200,000 hollow-squared flat building in Sheridan Park. He also is making plans for three more flat buildings in the same neighborhood, to cost \$75,000.

Pond & Pond have completed plans for three exchanges for the Chicago Telephone Company. The West Pullman exchange will be a three-story structure, 72x125 feet, costing \$35,000, and two lesser three-story buildings, 20x56 feet each, at 1,197 Sheffield Ave. and 6,308 Stewart Ave., will cost \$12,000 each.

Former Mayor James E. Patten, of Evanston, will soon proceed to erect his second large building in the vicinity of the Rock Island terminal station. It will be a twelve-story structure of 106x120 feet at the southwest corner of Harrison and Sherman Sts., of fireproof construction and so arranged that the building can be readily



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BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

remodeled for office purposes. C. A. Eckstrom, Chicago, has made the plans, and the cost of the superstructure is estimated at \$325,000. The foundations are already in.

Frank B. Abbott, of Chicago, is the architect for a manufacturing building to be erected at the corner of West Jackson Boulevard and Green St. for the Rubel estate. It will be eight stories high, 180x126 feet in ground dimensions, of mill construction, and will cost \$200,000.

CLINTONVILLE, O.—D. Riebel, of Columbus, is preparing plans for a school estimated to cost \$20,000.

COLLEGE PARK, MD.—Owens & Sisco, of Baltimore, have prepared plans for improving the administration building at the Maryland Agricultural College, at a cost of about \$25,000.

COLORADO SPRINGS, COL.—The plans of Architect A. J. Smith, of this city, for the proposed new Teller County court house have been accepted, and it is intended to begin work on the new structure by July 15. The new court house will cost \$50,000, according to the present plans.

DETROIT, MICH.—The Matheson Motor Company, of Holyoke, Mass., has purchased a lot of land, 550x450 feet, corner of Boulevard and St. Aubine Ave., and will erect a factory for the manufacture of the Matheson automobile.

EAST BURKE, VT.—Elmer A. Darling, one of the proprietors of the Fifth Avenue Hotel, in New York, has been making arrangements for building a summer home on his fancy farm known as Mountain View Farm. New York architects have drawn plans for a \$40,000 house, which will be colonial in its style of architecture. Mr. Darling expects to have the foundations in this season and the house completed next summer.

EAST CLEVELAND, O.—Searles & Hirsh, of Cleveland, are preparing plans for a three-story high school to be erected on the site of the Shaw Academy. Estimated cost, \$70,000.

EVANSTON, ILL.—Plans have been prepared for a gymnasium for the Northwestern University, to be erected at Sheridan Road and Willard Place, at a cost of about \$250,000.

HARRISBURG, PA.—A building permit has been granted Bishop Shanahan for the erec-

BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

tion of the new St. Patrick's Roman Catholic cathedral on State St. Cost, \$110,000.

HAVERHILL, MASS.—The School Board contemplates building a new high school and are considering a site.

HAZLETON, IND.—Mrs. John C. Loomiller proposes to erect a public library here, and equip it, at a total cost of about \$25,000.

HOMESTEAD, PA.—An issue of \$30,000 bonds has been voted for the erection of a town hall.

INDIANAPOLIS, IND.—Gillespie & Carrel, 1,123 Broadway, N. Y. City, and Brown & Davis, Fosdick building, Cincinnati, O., have been employed to prepare plans for the First Baptist Church. The building will cost \$90,000. A. A. Barnes, J. C. Moore and Arthur Jorden, Building Committee.

Vonnegut & Bohn, Indiana Trust building, have completed plans for the Methodist General Hospital and Deaconess's Home. The hospital will be built on the pavilion plan and is estimated to cost \$300,000. C. E. Bacon, chairman Building Committee.

JOPLIN, MO.—The First M. E. Church Society have decided to build a new church to cost about \$30,000. A committee to select location and secure plans so that the work may be started by September 1, this year, if possible, has been appointed.

LA CROSSE, WIS.—The Board of Education intends erecting a fireproof high school at a cost of about \$100,000, and will soon ask plans for same.

LUDINGTON, MICH.—E. C. Van Leyen, Detroit, has completed plans for a two-story grammar school building.

LUDLOW, MASS.—The contract to erect the Polish Catholic Church at East Main and Parker Sts. has been awarded to Dennis Murphy, of Chicopee, at about \$25,000.

LYNCHBURG, VA.—The contract for building the \$40,000 Academy of Music, Sixth and Main Sts., has been awarded to C. W. Hancock & Son.

MARINETTE, WIS.—J. E. Clancy, of Green Bay, has been commissioned to prepare plans for a new insane asylum for Marinette County, to cost about \$75,000.

MILWAUKEE, WIS.—The Zion Evangelical Church is to build a new edifice at Eleventh and Harmon Sts., to cost \$30,000.

MONMOUTH, ILL.—The citizens have voted



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BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

in favor of issuing \$25,000 bonds with which to erect a new school.

MONTGOMERY, ALA.—The congregation of the First Baptist Church has accepted the plans of G. L. Norrman, of Atlanta, Ga., for an edifice to be erected at Perry, Alabama, Scott and Lawrence Sts., at a cost of \$60,000. Rev. Chas. A. Stakely, pastor.

NEW YORK, N. Y.—York & Sawyer have been appointed architects of the new Manhattan Eye, Ear and Throat Hospital, which has been located for many years at Forty-first St. and Park Ave., and which is to have a new home next door to the Baron Hirsch Trades School in East Sixty-third St. The capacity of the present hospital is fifty ward patients, with eight rooms for private patients. It is proposed on the new plot to construct eventually buildings which will accommodate about 400 ward patients and perhaps fifty private patients.

NILES, O.—A \$75,000 hotel will probably be built in this city by MMr. Bergen, proprietor of the McClure House at Franklin, Pa.

PENDLETON, IND.—The Christian Church is preparing to erect a \$15,000 edifice. Address pastor.

PHILADELPHIA, PA.—A building permit has been granted to Jacob Myers & Sons, for the superstructure of the Jefferson College Hospital, which is to be erected at Tenth and Sansom Sts. It is to be a nine-story fireproof structure, 107x166 feet, and will cost \$800,000.

PITTSBURG, PA.—A \$75,000 school is to be erected at Beechwood Boulevard and Hazlewood Ave., Squirrel Hill district.

PLEASANT CITY, O.—Architects Searles & Hirsh, Cleveland, are preparing plans for a bank building to be erected at this place, for the People's Savings Bank Company. It will be a two-story brick building, costing about \$12,000.

PROVIDENCE, R. I.—Extensive additions to the Calvary Baptist Church, corner of Stanwood and Broad Sts., costing about \$70,000, are to be made in the near future from the plans of Arthur E. Hill.

The contract to construct the Ann Mary Brown building at Brown University has been awarded to a Worcester firm. The building will be built of granite and will cost \$45,000.



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BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

SAN DIEGO, CAL.—The American National Bank, which was recently organized here by a number of Los Angeles capitalists, has purchased a fifty-foot lot on Fourth St., above D, and will at once begin the erection of a substantial brick structure. The height of it has not yet been determined upon, but it will probably be four stories.

SCHENECTADY, N. Y.—Architect William T. B. Mynderse has completed the plans for the new banking house which is to be erected by the Schenectady Savings Bank at the southeast corner of State and Clinton Sts. These plans have been approved and only a few detail matters have yet to be decided upon. The bank building will face on State St. It will have a frontage of 48 feet on that thoroughfare and will extend back 100 feet. Forty-five feet will be the total height of the structure. Although it will be a one-story edifice, its height will equal the ordinary three-story building.

SEATTLE, WASH.—Jas. Stephens, architect of the School Board, has been authorized to prepare plans for a four-story eighteen-room brick and stone addition to Central School, which is to cost about \$100,000.

STERLING, ILL.—Plans for a \$40,000 church have been submitted to the Fourth St. Methodist Church Society by Architect Wheelock.

ST. LOUIS, MO.—The Sisters of Charity, in charge of the St. Philomena Industrial School, have purchased a site at Cabanne and Union Ave. and are having plans prepared for a new building, which it is proposed erecting at a cost of about \$250,000.

TILTON, N. H.—Principal G. L. Plimpton of the seminary, together with Rev. J. M. Durrell and Arthur T. Cass, have been appointed a committee to arrange plans for raising \$50,000 for erecting the new gymnasium building.

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BUILDING INTELLIGENCE.

(Apartment-Houses Continued.)

TRAVERSE CITY, MICH.—G. Maffioli, of Rockford, Ill., has been awarded the contract to build the post office at \$45,000.

UTICA, N. Y.—The Plymouth Congregational Church Society have accepted the plans for the new church submitted by Fred'k H. Gouge. To be of stone construction, 130x70 feet, and will cost about \$50,000.

WEBSTER, MASS.—The erection of a high school at a cost of \$70,000 is being considered.

WEST CHESTER, PA.—Sketches for a new \$65,000 post office for this borough are being made in Washington, and the plans and specifications are to be ready by the middle of July. Two sketches, one showing brick and stone buildings, and the other of granite, will be submitted, but the structure to be determined upon will be of the latter material. The lot is ready for the builders, and it is expected that the foundation will be commenced in a few weeks.

CLUB HOUSES.

NEW YORK, N. Y.—Sixtieth St., near 5th Ave., six and seven-st'y bk. and stone club house, 75x100.5, tile and copper roof; \$230,000; the Harmonie Club, 45 West 42d St.; a., McKim, Mead & White, 160 5th Ave.

HALLS, THEATRES, ETC.

DALTON, ILL.—Brick and frame Y. M. C. A. building, 60x85; cost, \$18,000; o., Chicago & Eastern Illinois R. R.; a., Atchison & Edbrooke, Evanston.

MERCANTILE.

NEW YORK, N. Y.—Greenwich St., cor. Dey St., twelve-st'y bk. and stone loft building, 48.5x77.2, plastic slate roof; \$120,000; Brent Good, 130 West 57th St.; a., Geo. E. Harding, 253 Broadway.
Cannon St., No. 35, seven-st'y bk. and

BUILDING INTELLIGENCE.

(Mercantile Continued.)

stone store and loft building, 25x100; \$20,000; Lipman & Gold, 64 East 111th St.; a., Horenburger & Straub, 122 Bowery.

West Broadway, cor. 3d St., twelve-st'y bk. and stone store and loft building, 25x100; \$140,000; Ann Foley, 255 West 111th St.; a., C. Cavinato, 66 West 3d St.

STABLES.

BROOKLYN, N. Y.—East Fourth St., near Beverley Road, one-st'y frame stable, 25x18, shingle roof; cost, \$400; Henrietta Smith, on premises; a., B. F. Huson, Ocean Parkway and Fort Hamilton Ave.

PROPOSALS.

JAIL, RESIDENCE, ETC.

[At Jamestown, N. D.]

The County Auditor of Stutsman County, North Dakota, will receive at his office in the courthouse, in the city of Jamestown, N. D., separate bids for: 1. Erecting a Sheriff's residence, jail building and tunnel. 2. Erecting a boiler-house and tunnel. 3. For a steam-heating plant. 4. Plumbing for above buildings. 5. Steel and cell work for jail. All bids to be as per plans and specifications on file in the County Auditor's office and at the office of E. J. Donohue, architect, 58 Gilliland Block, St. Paul, Minn. Bids will be received until August 22, 1904. ANDREW BLEWETT, County Auditor, Stutsman County, N. D. 1490

IRONWORK, ETC.

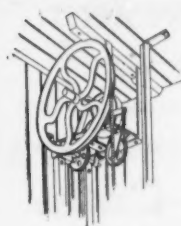
[At Elmira, N. Y.]

Bids will be received by Dr. Chas. F. Howard, Pres. Bd. Mgrs., N. Y. State Reformatory, Elmira, on July 12 for the steel, iron stairs, cut stone, etc., for the new Domestic Building at the Reformatory. 1489

ELECTRIC PLANT.

[At Boston, Mass.]

U. S. Engineer's Office, Boston, Mass. Sealed proposals for boilers, engines, generators, cable and conduit for electric light and power plants will be received here until 12 M., July 11, 1904, and then publicly opened. Information on application. W. S. STANTON, Lieut. Col. Engrs. 1489



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LIMESTONE.

[At Washington Barracks, D. C.]

U. S. Engineer Office, Washington Barracks, D. C. Sealed proposals will be received here until noon, July 9, 1904, and then publicly opened, for dark-blue Indiana limestone for Army War College Building. Information furnished on application. JOHN STEPHEN SEWELL, Capt., Engrs. 1489

CONSTRUCTION.

[At Puget Sound, Wash.]

Sealed proposals, endorsed "Proposals for Extension of Storehouse," will be received at the Bureau of Yards and Docks, Navy Department, Washington, D. C., until 11 o'clock A. M., July 30, 1904, and then there publicly opened for constructing a three-story brick building, 60 x 105 feet, at the Puget Sound Navy Yard, Wash. Plans and specifications may be inspected at the bureau or will be furnished by the Commandant of the navy yard named or the bureau, upon deposit of \$15 as security for their return. MORDECAI T. ENDICOTT, Chief of Bureau. 1489

Treasury Department, Office of the Supervising Architect, Washington, D. C., June 28, 1904. Sealed proposals will be received at this office until 3 o'clock P. M. on the 28th day of July, 1904, and then opened, for the steam heating and ventilating apparatus, etc., complete in place, for the U. S. Court-house and Post-office Building at Salt Lake City, Utah, in accordance with drawings and specification, copies of which may be had at this office, or at the office of the Superintendent at Salt Lake City, Utah, at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect. 1489

Treasury Department, Office of the Supervising Architect, Washington, D. C., June 25, 1904. Sealed proposals will be received at this office until 3 o'clock P. M., on the 2d day of August, 1904, and then opened, for the construction (except heating apparatus) of the U. S. Post-office and Court-house at Pierre, South Dakota, in accordance with the drawings and specification, copies of which may be had at this office or the office of the Postmaster at Pierre, South Dakota, at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect. 1489

Treasury Department, Office of the Supervising Architect, Washington, D. C., June 22, 1904. Sealed proposals will be received at this office until 3 o'clock P. M. on the 18th day of July, 1904, and then opened, for the low pressure steam heating apparatus, complete in place, for the U. S. Post-office, at Lawrence, Mass., in accordance with drawings and specification, copies of which may be had at this office or at the office of the Superintendent at Lawrence, Mass., at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect. 1489

Treasury Department, Office of the Supervising Architect, Washington, D. C., June 27, 1904. Sealed proposals will be received at this office until 3 o'clock P. M., on the 1st day of August, 1904, and then opened, for the construction (including heating apparatus, electric wiring and conduits) of the U. S. Post-office at Maysville, Kentucky, in accordance with the drawings and specification, copies of which may be had at this office or at the office of the Postmaster at Maysville, Kentucky, at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect. 1489

Treasury Department, Office of the Supervising Architect, Washington, D. C., June 29, 1904. Sealed proposals will be received at this office until 3 o'clock P. M., on the 4th day of August, 1904, and then opened, for the construction (including plumbing, heating apparatus, electric conduits and wiring) of the U. S. Post-office at Hutchinson, Kansas, in accordance with the drawings and specification, copies of which may be had at this office or at the office of the Postmaster at Hutchinson, Kansas, at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect. 1490

Treasury Department, Office of the Supervising Architect, Washington, D. C., June 30, 1904. Sealed proposals will be received at this office until 3 o'clock P. M., on the 8th day of August, 1904, and then opened, for the construction (excepting heating apparatus) of the U. S. Post-office at Pekin, Illinois, in accordance with drawings and specifications, copies of which may be had at this office or at the office of the Postmaster at Pekin, Illinois, at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect. 1490

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