

THE AMERICAN ARCHITECT AND BUILDING NEWS.

VOL. LXIV.

Copyright, 1899, by the AMERICAN ARCHITECT AND BUILDING NEWS COMPANY, Boston, Mass.

No. 1225.

Entered at the Post-Office at Boston as second-class matter.

JUNE 17, 1899.

CONTENTS.

SUMMARY:—

The Honest and the Dishonest Contractor: How the Architect may help the one and balk the other.—The Decoration of St. Paul's.—Curious Result of enforced Life Insurance in Germany.—Penny-in-the-slot Telephones.	89
PAINT-FACTS AND PAINTING SPECIFICATIONS.—III.	91
LETTER FROM CANADA.	92
THE DECORATION OF ST. PAUL'S.	93
AMERICAN ARCHITECTURE FROM A GERMAN STANDPOINT.	94
ROSA BONHEUR.	95

ILLUSTRATIONS:—

House of Dr. Augustus Thorndike, Commonwealth Ave., Boston, Mass.—House at Tuxedo Park, N. Y.—Santa Maria della Spina, Pisa, Italy.—St. Stephen's Parish Church, R. C., East 28th St., New York, N. Y.—Middlesex County Court-house, Lowell, Mass.	
Concours de Façades: House on the Boulevard de la Villette, Paris, France.—Concours de Façades: Maison Rue du Roi-de-Sicile.	
Additional: Equestrian Statue of General U. S. Grant, Fairmount Park, Philadelphia, Pa.—Central Railway-station, Osnabrück, Prussia.—Interior Door and Confessional in the Basilica of Notre Dame de Fourvière, Lyons, France.—Monument to Alfred Krupp, Essen, Prussia.—New War Office, Whitehall, London, Eng.—Plan of the Same.—New Government Office, Whitehall, London, Eng.—Plan of the Same.	95
NOTES AND CLIPPINGS.	95

ONE of our advertisers writes us to say that business in his line is in such an unsatisfactory condition that he is obliged to retrench expenses. While his firm has, ever since its foundation, many years ago, always paid in full for its materials and labor, it is obliged now to compete for contracts with people who take work for less than it will cost, hoping to get out of their engagements somehow later; and he says that the "champions of labor" often use their influence, which is powerful in municipal affairs in the city from which he writes, to get public contracts for persons who pay their men the lowest possible wages, or cheat them out of their pay altogether, and shut out the reputable contractors, who pay the highest Union wages punctually every week. Under these circumstances, our correspondent thinks that he must save, by discontinuance, the cost of the advertising card which has appeared in our pages every week for many years.

WHILE we cannot quite agree with our correspondent in the opinion that the way to revive a drooping business is to stop advertising it, and we think that a judiciously-worded presentation to the architectural public of his claims to its support would do much to fortify him against the injurious effect of unfair competition, it is impossible not to sympathize with the honest people who pay their bills, and live up to their contracts, but find themselves thereby at a disadvantage, in their efforts to earn a living, in competition with the dishonest ones, who never intend to pay for their materials or labor, if they can avoid it, and, from the moment of signing a contract, devote themselves to searching for ways of evading it. Our correspondent seems to think that the public sees no difference between the two sorts of contractor, and will employ the cheapest man, whatever his character; but if the public does not make distinctions, the architects do, and there are few cases in which their preferences do not count for something. We can truly say that the first lesson that a young architect learns, after he engages in business on his own account, is that the worst thing he can do for himself, as well as for his client, is to have anything to do with doubtful contractors. His clients, no doubt, sometimes force upon him men whom he does not know, or knows unfavorably, but if he has any business sense, he makes it distinctly understood that he disapproves the choice, and assumes no responsibility for the consequences of it; and in many, perhaps most, cases of the kind his client afterwards compliments him for his prudence, and, in case he did not follow his advice, expresses his regret for his obstinacy.

WE do not mean to say that a contractor may not be unknown to an architect, and yet be honest and capable, but architects know more about contractors than the latter suppose, and obtain from one another information in regard to strangers, so that the contractor whom the architect disap-

proves is, in general, a good person for the client to avoid. Even where no specific charges are made, any architect can judge from a contractor's work whether he is a thorough mechanic or not, and can form an opinion of him accordingly. In public contracts, however, as our correspondent complains, the architect is often not consulted in the choice of the contractors, who are chosen either because they are the lowest bidders, or through some secret understanding with the officials who make the decision; and it is in the execution of these contracts that the most impudent frauds are committed. So well understood has it been that, in public work, certain contractors would be favored under any circumstances, that reputable mechanics have almost ceased to bid on such work, and architects of character, when employed on public buildings, often have to use their personal influence to get decent contractors to estimate on them; and, if the contract should, by any chance, be awarded to one of the latter, the architects have sometimes to fight hard to meet the attempts which are made to take it away from them, or annoy them. It may seem strange that a dishonest contractor can bid lower than an honest one on the same plans and specifications, especially as an honest man, who pays punctually for his materials and labor, can always get them cheaper than his dishonest rival; but the explanation of the riddle is, simply, that the honest man does what he has agreed to do, while the other sort of man substitutes for what he has promised to do something very different, hoping that the substitution will pass unnoticed, as it often does. Once, when we had a public building in charge, a sub-contractor, then unknown to us, made his appearance, and asked for an extra allowance for using a certain material on the roof. As the other estimates, to our knowledge, had been based on using this material, we declined to allow an extra for it, and asked the sub-contractor why he did not estimate on it, like the others. He coolly answered that if he had done so, he would not have got the job; this, of course, meaning that he had figured to get a higher price for what he secretly intended to do than the honest men, who proposed to do just what the specifications called for. On being informed that nothing short of what the specifications required would be accepted or certified for payment, the sub-contractor, after grumbling for two or three weeks, concluded to submit, and carried out this part of the contract, after the reluctant fashion of his kind. Meanwhile, a change was made in the building, which involved some extra work from the same sub-contractor. Before ordering the extra work, he was required to fix the price for it, which he did, and the price was accepted. After the extra work was done, he sent in a bill for it, amounting to three times the sum for which he had agreed to do it. On being confronted with his own letter, in which he had offered to do the work for one-third the amount of his bill, he acknowledged that he was bound by it, but said that he had lost money by being held strictly to the specifications for the contract work, and had taken this means for recovering a part of his loss; adding that he hoped the bill would be passed, as he had always been allowed before, in public work, to make up in this way any losses that he might have sustained in carrying out his contract. It is, we hope, unnecessary to say that, for once, he failed to receive the benefit of this amiable rule, and was allowed for his work the price that he agreed to do it for, and no more. Nevertheless, there was probably some truth in what he said, and it is probable that habitual contractors for public work expect to get business away from honest men by bidding on less than the specification requires, trusting that they will not be found out when the contract comes to be executed; or, if their trick is discovered, and they are held to their promises, that they will be allowed, after the troublesome architect is out of the way, to make up their loss by extortionate charges for extras. Of course, the public, in the end, pays them, in this way, quite as much for their inferior work as it would have had to pay the honest men for better work; but this is not so much to be regretted as the fact that the honest men are, by this system, discouraged, and put to inconvenience and loss; and it is quite time that they, with the architects, who are, they may be sure, their firm friends under all circumstances, should make some effort to reform, by the force of public opinion, the scandal of public contracting work. The principle on which this should be done is simple enough. Let all contractors for public work be held strictly to their contracts, and the shiftless

and dishonest ones must soon be driven into bankruptcy. As a rule, the plans and specifications for public buildings are matters of record, and accessible to all citizens. To agree to carry them out, and fail to do so, is a fraud upon the public, and every citizen is entitled to see whether such fraud has been committed; so that the agent of a citizens' association, or of any body of honorable men interested in the public building-work, has a right to go over any structure, new or old, erected at the public expense, with specification and note-book in hand, and ascertain whether the contract has been carried out; and, if the report is unfavorable, representations made in the proper quarter, and in a suitable manner, would have to be heeded.

THE matter of the decoration of Saint Paul's Cathedral, in London, has reached an interesting stage. It is well known that architects generally have disapproved the scheme now being carried out, but their well-meant suggestions that it might be improved have been received so ungraciously that, until within a short time, they have held their peace about it. Not long ago, however, the Dean of the Cathedral made an appeal to the public to contribute funds for continuing the work, in which he rather went out of his way to cast an imputation on the people who failed to help in what he considered the fulfilment of a sacred and patriotic duty. This was too much for the architects, some of whom soon made it known that the operations going on in the Cathedral appeared to them likely to result in the permanent disfigurement of the most dignified church building in England, and that they did not believe that either patriotism or religious sentiment required them to give money for continuing such works. They gave reasons, which should have been satisfactory to persons of ordinary cultivation, for their opinion, saying that the Byzantine treatment of the decoration, which would have been well enough adapted to the unbroken surfaces of Saint Sophia or Saint Mark's, was not suited to the Renaissance of Saint Paul's, whose delicate Classical effect was nearly ruined by the intrusion of a crowd of large and glaring mosaic ornaments close to the mouldings and modillions of the order. We think that the architects might have said a good deal more than they did against the decoration, but the little that they said was, apparently, enough to exasperate Sir William Richmond, the artist in charge of the work, who published a letter in the *Times*, in which he expressed his indifference to the architecture of the Cathedral, and to architects in general. Some twenty-five of the most distinguished architects in London thereupon published a joint protest against the continuance of Sir William Richmond's work, as well as against any future attempt to carry out any scheme of decoration for the Cathedral which should not first be submitted to competent experts; and the President of the Royal Academy excited general astonishment by intimating officially, although indirectly, his disapproval of Sir William Richmond's course, although the latter is a member of the Academy, and official criticism of a member by the President is something almost unheard-of. Fortunately, the Richmond scheme cannot be carried out without money, and, as the lofty indifference of the Dean and the artist to anybody's opinion but their own seems likely to diminish materially the flow of contributions for the work, there will probably be time for the people interested to reflect upon the matter before funds will be available for extending the decoration much further.

A CURIOUS illustration of the influence that insurance companies may have, if they choose, in lessening the hazards against which they insure, and, thereby, in saving their money to pay dividends to their stockholders, is to be found in the recent files of German medical journals. Every one knows that, about three years ago, a law was passed in Germany, requiring every adult, in receipt of an average income of less than about seven hundred and twenty dollars a year, to take out a policy of insurance, guaranteeing him a certain resource in case of sickness or decrepitude, which would help to keep him from becoming a public burden. There was at the time a good deal of discussion as to the advantage to a man's character of compelling him by force to exercise the prudence which ought to have been cultivated in him by education, and the discussion is not yet ended; but the law was adopted, and is thoroughly enforced. In consequence of it, more than eleven million people took out policies in less than two years, and a large number of new insurance companies were formed to take care of the business thus offered. Insurance companies in Germany, whether new or old, are sub-

stantial affairs, formed to keep their contracts, instead of to fleece the public for a time, and then go into bankruptcy, like many of those on this side of the ocean; and, as claims began to be made on them for indemnity, their officers, with a view to the improvement of their business methods by analyzing the claims, began to collect statistics of the causes to which disabling sickness, of the kind that the policy-holders were insured against, was mainly due. They soon found that about one-half of the sick indemnities were paid to persons incapacitated for work by tubercular disease of the lungs. They then, with characteristic German thoroughness and intelligence, set themselves at work to see whether the losses, to themselves and their policy-holders, from this cause could not be diminished, and learned that pulmonary tuberculosis, although commonly regarded as incurable, was known to have been alleviated, in a large proportion of the cases undergoing the treatment, by rest and free exposure to fresh air and sunshine in certain "sanatoria," mostly carried on by private physicians, in the valleys of the Engadine, the Black Forest, and elsewhere. What interested them particularly was the fact that very many, in some cases one-half, of the patients who had received the sanatorium treatment for two or three months, recovered sufficiently to go back to their work, while, if they had remained at home, they would, in all probability, have lingered in a helpless condition for some months, and would then have died. The insurance officials found no difficulty in convincing themselves that for every consumptive policy-holder who could be so far cured as to be able to go back to work, a very appreciable sum would be saved to the treasury of the company insuring him, and, being satisfied that the sanatoria were really efficacious in this direction, they began to inquire whether business considerations and charity toward their fellow-men could not be successfully reconciled by the establishment of such institutions in Germany. Two, we believe, already existed there, but both were private affairs, intended for patients who could afford to pay for the best accommodations, while the insurance companies needed a large number of houses, where poor people could be taken at a low price. The first step was to interest the municipalities of the large cities in the subject, on the ground that, while the insurance companies would do their part, in behalf of their policy-holders, there was still a large class of sufferers, particularly among children and foreigners, in whom the companies had no interest, but who must be taken care of by somebody, and could be better and more economically treated in connection with insured patients than by themselves. This argument proved very successful, and we believe that about thirty such establishments are now building, or are already completed, in Germany alone, nearly all of which owe their existence, in great part, to the contributions made, both for foundation and maintenance, by the insurance companies. Under such enlightened medical direction as is everywhere available in Germany, these sanatoria seem likely to be of immense benefit to the country possessing them, and, indirectly, to mankind, and the insurance companies really deserve honor for having risked large sums in promoting a movement which is, in the end, likely to be profitable to them, but which will be equally profitable to thousands of poor consumptives, in whom the insurance companies have no interest.

BERLIN seems to be the first large town to be provided with "penny-in-the-slot" telephones. Very soon, public telephone-stations are to be established throughout the city, arranged with a simple contrivance, by which, on taking the receiver from its hook, a slot is disclosed in the case of the telephone, large enough to receive a ten-pfennig piece, of the value of two and one-half cents. The piece drops into a box, in which it is caught between two pieces of brass, thereby making connection between the battery and the transmitter. The box has a glass front, so that this part of the operation can be seen. It would not appear that a coin, caught between two brass poles, would make a sufficiently good contact for telephone purposes, but a mercury cup, or something of the kind, may be provided to assist its work. However that may be, so long as the coin keeps its place, the telephone can be used, and it is only necessary to call the central exchange, and ask for the number desired. When the conversation is over, and the receiver hung again on its hook, the coin is released, and drops into the cash-box below, and another one must be put in before talking can be renewed; and it is arranged that the operator at the central station, when she thinks that the conversation has gone on long enough, can terminate it.

PAINT-FACTS AND PAINTING SPECIFICATIONS.¹—III.

ZINC-WHITE AND ITS USES.



Escutcheon from the Monument to Alexander III, Moscow, Russia.

THE whitest of all white pigments is zinc-white, the oxide or rust of the metal zinc. Though by no means free from faults, it is, next to white-lead, the most valuable white base for mixing tints of the pigment colors, and owing to the fact that it does not become yellow when not exposed to sunlight, as white-lead is apt to do, as well as to the fact that it does not darken by exposure to sulphur or ammonia gases, and also to its non-poisonous character, it is particularly valuable for interior painting, where a pure white paint is desired, provided it be used over a suitable priming of pure white-lead.

The great faults of zinc-white are its lack of covering power as compared with white-lead, which renders it necessary to apply more coats to produce a given result. Five coats of zinc-white about

equal in covering power three coats of white-lead. Another serious fault is its property of growing translucent or showing a loss of body on exposure to the air, thus causing the paint to gradually lose covering power, so that although the full quantity of pigment may remain, it has lost its power to hide the texture and color of the surface to which it was applied. But by far the most serious fault of zinc-white is its property of combining with linseed-oil to form a hard and brittle soap which shrinks on drying. Hence, except over a carefully prepared priming, composed of some soft and elastic pigment like white-lead or a combination of lead and ochre, which will yield with the zinc-white, any paint which is composed wholly or largely of zinc-white will in time crack, flake and peel from the wood. It is much more difficult and expensive to repaint a job that shows this evidence of cracking than it is to repaint one which has simply chalked off as white-lead does, since in the first case, the old surface must either be scraped or burned off before a good smooth job can be made, while in the case of the chalked surface, a simple application of a coat of thin paint, containing a large proportion of linseed-oil, will serve to incorporate the flaky particles together, binding them in with the new paint to form a perfectly smooth surface.

The use of zinc-white as a substitute for white-lead in house-painting was first suggested by Courtois, a manufacturer of Dijon, France, near the close of the last century, but it was not until 1847 that Leclaire, a house-painter of Paris, devised a cheap method of producing it by heating the metal zinc in retorts and exposing the escaping vapors to a current of air drawn by a chimney or exhausting-fan through the condensing apparatus. This method, with slight modifications and improvements, is employed to-day in the manufacture of French zinc-white, whether it be made in France, in Belgium or in this country. The oxide-of-zinc powder, or dry zinc-white, collected as it comes over from the retorts, varies in quality, that farthest away being the finest, whitest and freest from particles of metallic zinc. From the French custom of assorting the qualities, and distinguishing the finest and whitest by branding the packages containing it with a seal of green wax, securing the tapes which surround the packages, the finest quality of French-process zinc-white has come to be generally known as "green seal," while the less carefully selected, which is apt to be off color, is branded with a seal of red wax and is known to the trade as "red seal." The architect should bear these distinctions in mind, and when wanting the very finest and whitest paint for interior work should specify that the final coat should be of "strictly pure French-process zinc-white, green seal, ground in pure bleached linseed-oil, and thinned only with pure bleached linseed-oil." Poppy-seed oil has been used for grinding the finest qualities of zinc-white, but as the painter seldom used this oil to thin it with and as the advantage of superior whiteness gained by its use is neutralized by the addition of linseed-oil by the painter, the use of poppy-seed oil has practically been abandoned, though it will be furnished when ordered, at an advance in price. Where the architect feels that he can depend on getting what he has called for, and the owner is willing to pay the price for an extra white job, he can specify, "green seal, French-process zinc-white, ground in pure poppy-seed oil and thinned with pure poppy-seed oil."

Although French-process zinc-white, made direct from the metal zinc is dense, opaque, and dries with a smooth velvet-like surface that cannot be surpassed for a finish for the best class of interior work, it is too expensive for ordinary outside painting, or for use in ready-mixed paints or combination leads,—in which zinc-white is a very important and essential constituent. It is, in fact, more expensive than white-lead, and to enable producers of zinc-white to compete with white-lead, it was early seen that some cheaper process of production must be found. In 1850, Samuel T. Jones, an American, invented a furnace for the sublimation of the zincite ore which occurred at Sterling Hill, N. J., to oxide of zinc, or zinc-white, without first converting it into the metal zinc, or spelter. The supply of

this ore soon becoming exhausted, Col. Samuel Wetherill perfected a process by which Franklinite ore is mixed with finely powdered anthracite coal in a specially constructed furnace, an air-blast applied under a perforated grate supplying the oxygen. While zinc-white produced by the "American process" is said to have the least impurities, the French process is invariably preferred for the better class of work, because it has a peculiar silky texture or mellowness which it is impossible to obtain in zinc-white made by the American process. In ready-mixed paints, where extra fine quality and velvety softness are not essential, since the zinc is used merely as one of the chief constituents of the white base, it is needless to say that the cheaper American-process zinc is invariably used instead of the more expensive French process.

Because of the difficulty of mixing dry zinc-white with oil to the proper consistency for painting, by the ordinary method of stirring together by hand with the wooden paddle usually employed by old school painters in mixing their paints, this material has been condemned by them in spite of its many valuable qualities. Good results cannot be obtained unless the zinc-white and the oil have been thoroughly incorporated by being ground together by machinery. The zinc-white imported from France and Belgium is brought here in the dry-powdered state and is often bought by painters in the original packages. Few painters possess the necessary machinery for grinding dry paints and the result is a poor quality of paint. Just as good quality French-process zinc-white is made in this country as any that is made abroad, and American paint manufacturers, as a rule, grind the dry zinc in oil and sell it in the paste form, in the same manner that white-lead and other pigments are sold. When French zinc-white is specified, it will ordinarily be to the advantage of the property-owner if the domestic article is used instead of the imported, since better results will be obtained. The term "French zinc" has nothing whatever to do with the place of manufacture, but has come to be a purely trade term denoting the process.

However valuable pure zinc-white over a suitable priming of white-lead may be for interior work, both on account of its whiteness and the purity of color-tone of tints formed with it—which are not affected by the action of sulphur or other gases, such as are often generated in the combustion of ordinary illuminating gas—it is not at all suited for exterior painting; and though occasional instances may be cited of pure zinc-white lasting for a long time under particularly favorable conditions, on an average it will not last one-fourth as long as white-lead, but will soon begin to crack and peel from the surface. Even should it not do this, in less than a year it will have so lost in opacity as to cease to cover the surface properly. But when combined with white-lead in the proper proportions, zinc-white becomes a very valuable pigment for exterior painting. Its hardness and oil-absorbing properties tend to correct the fault of chalking, inherent in white-lead, while the elasticity and density of the white-lead counteract the brittleness and lack of opacity of the zinc. Combined in the proper proportions, thoroughly mixed and incorporated by machinery, ground together and not merely mixed by hand, the combination of white-lead and zinc-white forms an ideal paint for use as a final coat over under-coats of a softer and more elastic pigment. Such a paint, when properly and honestly made, and free from adulterants, will outwear either pure white-lead or pure zinc-white. Although it has a tendency to flake, rather than to chalk, the flakes will be so minute, because the large proportion of white-lead prevents the zinc from uniting into large scales, that the effect is practically the same as that of chalking; hence the surface presented for repainting will be in good condition to incorporate with the oil of the succeeding coats, forming a smooth surface without the need of burning or scraping off. In many of the cheaper ready-mixed paints or combination leads, barytes or whiting is used as substitutes for white-lead, with the idea that as these substances are chemically inert, they will act as retarders of the inevitable scaling of pure zinc-white, or will correct its faults. While they do this to a certain extent, and while many of these paints may outwear white-lead, they perish by flaking in fairly large scales, or by cracking to the wood. If they peeled entirely from the wood, this might not be injurious to the house, except that the wood surface would be left entirely bare of paint, but instead of this, portions of the scale will cling tightly to the wood, while other portions will curl up, resembling the appearance of birch-bark. Rain will penetrate behind these scales, and being detained there will cause the wood to decay. Frequently burning-off is necessary before repainting is possible, and this is not only an expensive but a dangerous operation, fires frequently resulting from the incautious use of the painter's torch.

The use of barytes as an extender of zinc-white has been advocated by some writers on the ground that it makes a thicker and more porous coating, but this seems to be really an argument against the use of this material, since the general experience of painters points out that thin coats of paint are more durable than thick coatings. Three thin coats are always to be preferred to two thick coats, even though more material is applied in the two coats than in the three. Moreover, porosity, due to the comparatively coarse texture of the barytes, would seem to be an undesirable quality in paint, because the object of painting is to cover the surface with a weather-proof envelope, and this certainly would not be attained if the paint were porous. If all that is desired is to change the color of the wood, then a stain that will sink into the surface and which will not hold moisture would be much preferable to any paint having a porous

¹ Continued from No. 1220, Page 52

character. Barytes possesses no real pigment value of itself, and a board may be painted three coats with a mixture of finely-ground barytes in oil without being concealed. In fact, at a short distance it would be impossible to detect that any coating had been applied to the wood. How is it possible then for it to add anything to the good qualities of zinc-white?

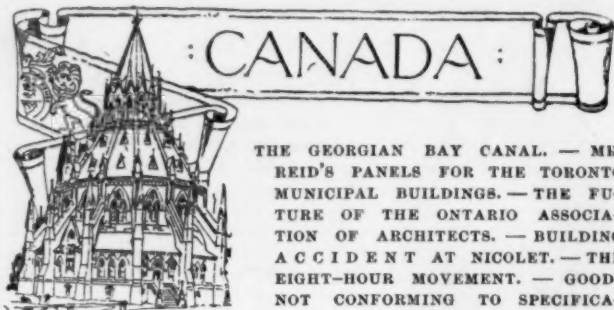
Experience has shown that to obtain the best results, the zinc-white should be combined with white-lead in proportions varying from 10 to 40 per cent. For ordinary work from 20 to 25 per cent of zinc-white will be sufficient to counteract the chalking tendencies of the white-lead and make a more durable paint than can be obtained by the use of white-lead alone. At the seashore, where the action of the salt air is peculiarly trying on paint, the percentage of zinc-white may be increased even as high as 50 per cent. But it must be understood by the architect that the beneficial effect of the addition of zinc-white to white-lead will not be obtained unless these two materials are thoroughly incorporated together by machinery. It is impossible for the painter to mix them together by hand so that their proportions will be uniform throughout their entire mass, and unless this uniformity is assured the paint will exhibit chalking in places, while in other places it will peel and crack. It is because it is practically impossible to mix zinc white and white-lead intimately together by hand in the ordinary manner of mixing paints that so many painters have found poor results from the use of zinc-white and have condemned it. The architect who desires to use zinc-white should specify that the last coat of paint should be formed of "pure white-lead and pure zinc-white ground together in pure linseed-oil, and tinted with pure colors to such tints as may be directed by the architect. The zinc-white not to exceed one-third of the white base by weight." Such a combination of pure white-lead and zinc is ground by many of the best paint manufacturers and when guaranteed to be pure, the architect may feel assured that it will give good results.

There are several brands of ready-mixed paints on the market which are composed of pure white-lead and pure zinc, without the addition of any barytes or other inert pigments. Some of these are very carefully made and have a record of durability that leaves nothing to be desired, and moreover offer to the architect the opportunity of selecting the exact shades he desires to use on the house. But before specifying any of these paints it would be well to visit a house that has been painted with the brand in question some five to seven years before, and examine critically the condition of the light colors. If there is evidence of minute cracks running over the surface of the paint, then it is well to avoid specifying them, because these indicate a tendency toward flaking that will increase after repainting. If on the other hand, there is no tendency toward cracking or peeling, but on the contrary one to flake off in minute scales, so small as almost to resemble powdering or chalking, then such mixed paint may be safely specified. But it should be understood that to insure good results no paint containing zinc-white should ever be used on the first or priming coat, since it is impossible in this case to avoid cracking or flaking off, and the best practice would be to confine the zinc-white to the final coat, which is sufficient to protect the softer under coats from the action of the weather.

Aside from the fact that zinc-white acts as a corrector for the chalking tendency of white-lead, it is used by mixed-paint manufacturers because of the difficulty of making a pure white-lead and linseed-oil paint that will not grow fatty and spoil in the cans. Many mixed paints are made without any white-lead, and such a paint will keep indefinitely when hermetically sealed, because zinc-white has but little chemical affinity for the oil, and the process of saponification, which is slow at best, does not seem to begin until the paint is actually spread out in a thin layer on the building. These paints are made of zinc-white in combination with barytes or whiting, or both, as these substances are absolutely inert. Paints of this kind owe their popularity to the fact that they retain their gloss longer than a pure white-lead paint, and are somewhat more durable on first painting, but they invariably perish by cracking and peeling. Perhaps the reason for their extensive sale is the fact that they can be sold at a low price, and there are always people who look to first cost rather than to ultimate economy. The architect, however, will do well to avoid paints of this class and, if he feels satisfied that the addition of zinc-white on the final coat will prove advantageous, to specify such paints as are composed only of white-lead and zinc-white.

Zinc-white is the white base that is used in the preparation of the liquid enamels or modern substitutes for the old-fashioned china glossing. These are made by mixing the pigment with a clear varnish, and are intended to be applied over a priming of white-lead. As the binding medium in this case is varnish, which behaves very differently from linseed-oil, and does not combine with the zinc-white to form a brittle soap, but simply holds it in suspension, there is no danger to be apprehended that paints of this class will peel or crack, provided the varnish is of good quality and sufficiently elastic. These enamels are necessarily high priced, and to do a first-class piece of work with them requires the services of the experienced mechanic.

While the architect who specifies that his work shall be painted with strictly pure white-lead in linseed-oil follows a safe and conservative course, still it must be admitted that properly used zinc-white is a very valuable pigment. EDWARD HURST BROWN.



THE GEORGIAN BAY CANAL. — MR. REID'S PANELS FOR THE TORONTO MUNICIPAL BUILDINGS. — THE FUTURE OF THE ONTARIO ASSOCIATION OF ARCHITECTS. — BUILDING ACCIDENT AT NICOLET. — THE EIGHT-HOUR MOVEMENT. — GOODS NOT CONFORMING TO SPECIFICATIONS.

THE long-projected scheme of connecting Lake Ontario with Lake Huron by a canal to the Georgian Bay has taken definite shape at last. The object of the canal is to make a short cut for vessels from the Upper Lakes to the St. Lawrence River and save all the distance of transit through Lake Erie and the Welland Canal and then across Lake Ontario. A company has been formed that calls itself "The Dominion Syndicate," having headquarters in London, Eng., with a capital of half a million sterling, and it is intended to complete the canal within three years. The chairman is Sir Edward Thornton, ex-British Minister to the United States. Mr. McIvor of the Cunard Line and Mr. Jones of the Dempster Line are members. Sir Benjamin Baker is consulting engineer, and Lord Kelvin consulting electrical engineer. The canal will open up a fine territory for manufacturers and it is expected that the banks of the canal will soon be lined with factories. Electrical power will be developed, of course, and the means of transit will be perfect. From a commercial point-of-view, the value of the canal is unquestionable, but it is also considered to be of Imperial importance, and a subsidy will be requested from the British Government as well as from the Dominion. The outlet on Lake Ontario will be Toronto, which will be an immense benefit to that city and will raise it to a position of importance such as it has hardly dreamed of attaining heretofore.

The Corporation of the City of Toronto has just taken over and accepted as a gift from Mr. G. A. Reid of the Royal Canadian Academy some decorative panels for the new Municipal Buildings. The presentation to the city was made for Mr. Reid by Mr. Byron Walker, President of the Guild of Civic Art, Mr. Reid being a member of that Guild. Mr. Walker explained that the object of the Guild of Civic Art was "to provide honorary committees of judges whose decisions shall be accepted in the case of all public works into which the element of artistic beauty enters. It was to give technical expert advice even to the City Engineer or Board of Health." In his capacity as a member of this Art Guild, Mr. Reid together with other artists some two years ago urged the City Council to undertake truly decorative works for the new building and not to allow or be content with stereotyped productions of the ordinary decorators' character. They backed-up their suggestion by offering their services for a mere nominal consideration rather than have the dissatisfaction of seeing the walls daubed with stencil repetitions of meaningless scrolls. The Council at the time did not see its way to accept the offer, and Mr. Reid then offered to do part of the work personally and give his services free. This the Council willingly accepted, with the result just achieved.

Mr. Reid's work consists of two panels representing pioneers (a) reaching a spot in the forest selected for their encampment and (b) commencing work by felling trees and surveying. There are also four spandrels of the arches of the entrance-hall filled with winged female figures emblematic of "Discovery," "Fortune," "Fame," and "Adventure." A scroll running above their heads has the quotation, "Hail to the pioneers remembered and forgotten, their names and deeds, we honour here."

The Ontario Association of Architects has issued a circular to its members asking their opinion on certain suggestions put forth by a committee in conference with the Council who are of opinion "that action should be taken to make registration more attractive and of more practical benefit to members,—to those who may register in the future and to our students." The suggestions are nine in number and have resulted from the serious remark of the treasurer at the last convention of the Association—"That financially, we would, in the course of a few years, cease to exist unless radical changes were made." It has at last been acknowledged that the policy pursued by the Council since the Association was founded eleven years ago has failed, and they are now asking for a general opinion on the points urged by those who opposed their policy. This awakening is a move in the right direction, but it is to be feared it has come too late. When the Council is wide awake it will perhaps ask the opinion not only of present members, who may be presumed to be satisfied with the existing management, but of those who were members which at one time included about 93 per cent of the architects in the Province. These are the men that the Council should appeal to, as upon their support or their want of interest must the future of the Association depend. The Council complains that its individual members have worked and worked, but that no credit is given to them for their efforts, and they blame the seceders, those

who have ceased to pay their fees, and designate them very uncomplimentarily. Unfortunately it is not customary to give much credit for hard work when all that sweat of brow is expended in a wrong direction. They do deserve credit for the way in which they have worked according to their lights, but they must allow those who do not agree with their methods to be a little chary of praise.

The village of Nicolet, Quebec, some fifty miles from Montreal, has been the scene of a serious building-accident, that ought to be a warning to careless builders and the architects who allow them to be careless. A large Roman Catholic Church was in course of construction, and not far from completion, when a pier in the basement gave way and a large portion of the building collapsed. It is stated that the piers, which were of brick, were built in the winter. A fire had recently been lighted to dry the building, and probably acted upon the mortar where it could reach it, which, undoubtedly, had been frozen. An investigation, however, will be made, with a view to ascertaining who is responsible for the disaster, which has caused a loss of about \$40,000. Some of the workmen had very narrow escapes. It was noticed that one of the piers was buckling, and chains and other appliances were obtained and an attempt made to save it, but before the intended operation was completed the accident happened.

The bill to amend or supersede the Workman's Compensation for Injuries Act, now in force in the Dominion, about which I wrote in my March letter, was thrown out, as it was reasonably expected it would be, on the ground that it was altogether too one-sided, it practically insisting upon the payment of compensation for almost every accident resulting in injury to a workman. Now a bill is before the Dominion House for the purpose of regulating working-hours, making eight hours the length of a working-day for all workmen and laborers. It provides that the employment of any workman or laborer for more than eight hours a day shall be an indictable offence, with a maximum penalty of \$1,000, or six months' imprisonment, or, in the discretion of the court, the infliction of both fine and imprisonment. It is not very likely that this eight hour movement will be successful.

A case recently decided in Toronto gives a note of warning to manufacturers who, living at a great distance from the place to which their goods are shipped, are not careful to comply with the architect's specification. Pilkington Brothers, of Saint Helen's, England, glass manufacturers, supplied plate-glass for the Municipal Buildings, at Toronto, under order from the contractor, A. M. Brown, to the amount of 15,000 feet. The specification called for the very best quality of extra-fine, British, polished, plate-glass, one quarter of an inch thick. The architect rejected a great deal of that sent, as not up to the quality specified, and the makers brought suit against the city and contractor to recover \$4,721. Finally, a compromise was effected, by which the contractor agreed to purchase the glass himself, at 20 cents a foot, the plaintiff receiving \$1,400 in full payment for the rejected glass. The expense of taking back the glass to England would have been very great.

THE DECORATION OF ST. PAUL'S.

A LENGTHY letter from Sir William B. Richmond, R. A., appeared in the *Times* of Saturday, May 6. The following extracts from it relate to his treatment of the cathedral; the remainder cannot be considered as treating of a technical subject:—

THE amateurs, anonymous artists and literary adventurers who have rushed into print, call for no answer to their effusions; they have answered themselves by the exposure of various emotions and diatribe. As far as the literature (which must have been almost as instructive and entertaining to the general public as the ritual question, with which it perhaps bears an indirect affinity) has a defined direction, it has expressed indignation chiefly that I should have had the temerity to make use of color upon the mouldings and flat spaces of stone other than those spaces which it is vaguely stated Wren intended to adorn with mosaic. But I am also blamed for cutting back the stone. Now Wren could not have placed his cement and cubes anywhere on the walls without cutting back the stone, because thereby levels would have been relatively changed, therefore the cutting back of the stone for the purpose of laying the mosaic is not a crime but a necessity, to preserve the proportion designed by Wren; all the levels are exactly where Wren left them. That argument against me is easily disposed of. The charge against me, which I intend to meet, is the coloring of the mouldings and stone and the bright color that I have employed.

Broadly speaking, stone has always received color upon the walls of interiors in the form of marble or pigments; generally it was also prepared by a thin and protecting cement or "stucco" as a ground for the pigments, from the days of the Memphic dynasties in Egypt down to some 200 years ago, when architecture for the first time attempted to stumble along alone, divorced by circumstances from her supporting sister painting, and in a degree also sculpture, much to her injury and theirs. Even in the interiors of houses in England, oriental rugs designed for carpets were, in the time of Henry VIII, fastened upon walls, no doubt to hide the prison-like character given to an interior of an apartment by a bare wall of stone. Bare stone is not a congenial material for the inside walls of any building, however desirable it is for prisons or fortresses. Why do we cover our brick or stone walls with plaster, hangings, paper or colored pattern

of any kind? Surely because left bare they have a comfortless, unfinished appearance, which, upon the outside of a building, is not felt. And if this applies to the interiors of rooms, palaces, even public buildings, why not to churches? It is only a prejudice which stands in the way, and a very recent one, too. It is desirable that a prison or a fortress should appear forbidding or grim, but should either of those engaging sensations be aroused in a church, which should suggest hope, encourage every healthy desire and as far as possible satisfy a craving for every form of beauty which art has the power to bestow? I do not say that a Quakers' meeting-house or a Presbyterian conventicle would be the proper places for splendor—it would be incongruous there; but as an offshoot from the great Catholic church, which has inherited many of the customs and ceremonials of that church from pagan and Jewish ritual, in the metropolitan cathedral, the centre of English worship, splendor of color, as well as justly-balanced proportion, is surely appropriate. Such a cathedral, however Protestant, should not strike cold to the soul as if it were but a well-proportioned and dignified alley leading to the shades. It should arouse emotions which tend to possess the imagination with joy, not gloom; color, not greyness. It should be full of pictures, bright and encouraging; there is grey and gloom enough in London and its people without accentuating them in St. Paul's. Architecture without color is like the skeleton and muscles without the flush of beautiful color given by the skin, the scarlet lips, blue eyes and golden hair of a beautiful woman. We want something more than anatomy, construction and proportion; we want life, color, sparkle, all the attributes of a warm, generous existence and nature. In England the Puritans and iconoclasts, with their cold yet hell-fire worship of the shades that lead there rather than the rosy if thorny avenues which lead elsewhere, revolted against color and ornament, indeed, against beauty of all kinds, calling them vain imaginings and Satan's most powerful weapons. This depressing spirit still presides over a considerable portion of the English character, which inclines to associate sterility with nobility, and gloom with "a reasonable hope." Belonging to that spirit is St. Paul's Cathedral, severe, prison-like, accurate, a magnificent skeleton which cries out for life and color in the centre of a gloomy and smoke-begrimed imitation of ashen-colored Hades. What a contrast such a spirit bears to that inspiring one which the Jewish, Egyptian, Assyrian, Persian, Greek, Roman, Byzantine, Moorish, Norman, French and English once were dominated by—the love of form, color, metals and jewels, which impelled them to cover every nook and corner of their places of worship with the most costly material and every art and artifice of man's intelligent craftsmanship, generous and exultant, radiant with joy and hope, emblems of an ideal world. For the Temple of the Jews, the Parthenon of Athens, were adorned with every conceivable material and color. The Parthenon, though built of marble, was colored in its interior, and exterior, also, in a minor degree, mouldings, sculpture, walls, caps, drums and bases, and though built of marble it received in many parts of it a thin coat of stucco polished with wax, whereon gold and color were applied. The Temple of Apollo Epicurus, at Bassæ, built of porous stone, was likewise so treated within and without; indeed, so were all the Doric, Ionic and Corinthian temples. The most delicate carvings of the Moors, as well as the plain stone surfaces of Arabs, Byzantines and the Normans (far more delicate and sensitive than any of the carvings or mouldings in St. Paul's) were gilt and colored with positive tones of pale blue, red or green, as I know by careful examination of many of the mosques and churches built by those cunning and beauty-loving peoples.

A few days ago, while searching among fragments of sculpture in one of the ground-floor galleries of the Louvre, I found an Ionic cap and base of the best period, and carved in stone, whereon large portions of a pearl-white stucco, no thicker than this paper, were still adhering. The stone temples at Girgenti were so treated, and still retain traces of stucco. At Selinus, where the temples are of marble, there remain large portions of color, mostly blue, white and a warm black, relieved by thin lines of red; and in the various museums of Syracuse and Palermo, besides others in Italy and elsewhere, are shown almost innumerable examples of the polychromatic treatment of architecture which would turn my Lord Wemyss's hair grey with horror if he beheld them. The tomb of Ti, at Memphis, though its ornamentation is carved in limestone with the most delicate refinement, is strongly yet delightfully colored. We know that both the stone and brick interiors of Roman buildings were covered with variously-colored stucco, generally imposed upon a deep and splendid red, and we know with what alacrity Raphael and Pinturicchio borrowed from the colored wall-decoration and gesso ornament discovered in the Baths of Titus, and employed the like in the loggia and stanze of the Vatican and in the Camera Borgia, also in that palace. We know how Giulio Romano used gold and color upon the mouldings, caps, ribs and elsewhere of the now much-abused Palazzo del Te, at Mantua, a building fine in its way and decorated, if with not the most perfect taste in every instance, still magnificently. All the stonework and most of the woodwork of our English cathedrals received a thin coat of "gessoduro," whereon color and gold were applied. Bases, shafts, caps, cornices, ribs, flat and curved stone surfaces were figured with pattern gold or pictures, elaborate and delightful, we know, as remains happily give us testimony.

How would the purist have liked the Treasure House of Atreus, that superbly-proportioned dome, naked now, revealing its structure of stone masonry, the most perfectly jointed that I have ever seen,

when it was lined with copper and bronze, enlivened with embossed nail-heads dantly chased? I wonder! Or Nero's house of gold and ivory, or Xerxes' palace at Persepolis, not a bit Puritan or Quakerish or morbid, I warrant, nor reminding of "The Shades," but lively, invigorating and healthily hopeful. In periods when art was in unison with all its faculties and used them in the various countries that I have previously named (I omitted Spain inadvertently), all of which periods may be termed classical, color on architecture was not an adjunct — it was integral. Monochrome interior walls are a modern innovation, not an ancient tradition of taste, partly, as we have seen, an innovation created by a variety of regrettable conditions, brought about by the modern forces of Puritanism, division of labor and individualism. The later Renaissance builders (and Wren came quite at the tail of them) were absorbed by the study of the revival of late Classical ornament, and they busied themselves with its revival, but forgot, or did not know, probably, that color had played a very important part in architecture, even in the very periods which they were attempting to resuscitate, and it is partly due to that indifference or ignorance of polychroming that painting generally became divorced from architecture, except in the case of framed pictures in churches, which became the fashion in the seventeenth and eighteenth centuries, but that fashion never took root in England; hence the fallacy soon became current that to be "pure" and "classical" architecture must abjure color. This belongs to the same misconception of the artist's function which led Poussin, the poetical French classicist, to fear the charms of Venice lest they might allure him away from form and design. But, in truth, this innovation of an idea which would place form upon a kind of throne of virtue is not classical in the very least; it is not more than 200 years old, and what is that compared to the 4,000 years of another tradition? The later Renaissance churches are artificial imitations of late Roman design. They have very little of the classical spirit in them at all; it is a gloomy reforming cloud which they anticipated and which was sympathetic to the end of the seventeenth century, and so on till forty years ago, when a revival in a more healthy direction was started. As it were, the skeleton of architecture survived and even her muscles survived something like death, for the obdurate laws of construction bind her with bands but slightly flexible. But the real life of it, that generous completeness which made architecture up to 200 years ago so human and sympathetic, went when her two sisters gave her but slender support, and ceased to claim close and almost indissoluble relationship. The very fact that Sir Christopher Wren had it in his mind to decorate St. Paul's with mosaics proved him to be a man far in advance of his time in England, and I suspect that the only reasons which went towards their non-achievement were due to lack of money and weariness, and consequent apathy on his part, induced by the abominable treatment he had received. If Sir Christopher had carried to an issue what was at some time his intention to do, he would have very swiftly discovered, as I did (and hence most of the censure), that the decoration in color of the panels alone must be far from satisfactory, but there can be but little doubt that Wren's mosaics would have been *deep*, not *fair*, in color tone; fair color was not in fashion in his time, and he, a much cleverer man than many of his advocates make him out to have been, would have recognized the almost insuperable difficulty of bringing his colored spaces into harmony with their stone surroundings without the aid of an echo of color, and a strong one, too, upon the stone mouldings and plane surfaces. For it should not be forgotten that the stone of which the cathedral is built, when clean, is very white, and color is apt to appear dark in contrast with it. Finally, for the two reasons which I have suggested as probable, St. Paul's was not decorated, but painted with oil color from top to bottom; better that perhaps than the mealy-colored stone which is so rapturously admired by some whom one suspects of being color-blind — a not uncommon inconvenience experienced by Londoners, I am informed. Surely it is well not to forget that Wren's foreign experiences were limited to Paris; he never saw any completed building fully furnished and colored; much of the glass in our English cathedrals had been destroyed before his time; the wall-paintings, hacked off or covered with white-wash, had been submitted to the barbarous followers of John Knox and mobs of Puritan savages. It is only in the last thirty years that any knowledge of "the art" — by that I mean the union of the triad — has become the possible property of even a few; and it is surprising how little architects, sculptors and painters assist by practice, though in theory they may accept it, a union which is before long quite inevitable. The reunion of the arts is as certain as the victory of good over evil is; pedants may desire to delay it, orators may rant about classical purity, Nonconformist temperaments may regard color as devilish, sensual or what not, and prudes may still love the nudity of architecture and reluctantly permit her to wear a fig-leaf or two; but the very fact of the almost hysterical wear that has gone forth (not at all representing public opinion in the press, but only a minute section of it) shows that the purist trembles upon his seat, which totters under the weight of his condition, and the prude lets down her veil at the sight of architecture once more vested after the fashion of the Babylonian lady in the Apocalypse, perchance. The architects will presently have to join hands with the painters and sculptors and admit them to their confidence, not autocratically but modestly, and use them and consult them, also, even about architectural design; for it is all very fine for architects (or builders, as they should properly be called) to imagine themselves supreme in the

knowledge of their own work (I do not mean the specification side of it, but the artistic), because there are a few painters yet among us who would not be afraid to enter into the lists in competition with them either upon the question of construction or design, notwithstanding the gibes of an American or two. The whole tendency of artistic growth is wide and far reaching; its tide is setting strongly, too strongly to be stemmed by a clique of architects, a few painters and an amateur debate in the House of Lords. If the painters and sculptors hold together the architects and the public must follow, in time: and when the "Triad" is accomplished a committee of taste, to be represented by Lord Wemyss, will not be much in requisition, and we shall not have to appeal to him for instruction; yet we wish for him every opportunity of exercising his favorite pastime of setting the world in order.

AMERICAN ARCHITECTURE FROM A GERMAN STANDPOINT.

THE *Berliner Tageblatt*, in its illustrated supplement, recently had some interesting comments on American architecture apropos of the recently-published book of Paul Gräf, "New Structures in North America." It says: —

"When the German architects, who have been in Chicago, are asked how they build over there, they answer, with a certain significant look, 'Donnerwetter!' And they are right. The same exclamation of admiration is called out by Paul Gräf's book, and it is not only a platonic satisfaction that finds expression thus, but at the same time the feeling that there is something to be learned from it.

"To begin with, the simple practicality of the buildings is to be observed. The qualities that so often come to the front in German buildings, straining for effect, intentional conspicuousness and strangeness, are entirely lacking. 'Most of us,' remarked Gabriel Seidl, recently, 'build not a house, but a poster for our building-business.' For this reason the decoration goes beyond the limit of what is necessary and in good taste. The Americans know as little of this 'architecture game' as our older architects; they have the same sound, craftsmanlike feeling that lays all the stress on the thing done, none at all on exploiting the person who does it.

"In the next place, admiration is called forth by the originality of each house, its individuality, gained only through the fact that its form is determined in each case by its interior arrangement, and nothing is built for the sake of the façade. That is the reason, in the last analysis, why there is seen so little ornamentation intended merely to cover the intellectual poverty of a façade.

"In the third place, the observer is struck with the way in which delicate decorative elements of old periods are utilized. The builder is never under the sway exclusively of one old style. Antique art is not, to the child of this country, which has no old castles and no traditions, something that he must accept in its entirety, whose style he must copy with scientific accuracy; it is, on the contrary, as it was to the artists of the early Renaissance, a treasury of 'motives,' with which he can work freely, according to his taste. It never occurs to him that he must build a Romanesque church or a Romanesque house; but he builds a modern church or a modern house, for which he chooses here and there a Romanesque decorative motive. Compare the little churches in Detroit with the Berlin churches and see what this means. Our churches are almost without exception school examples of old styles; on their walls is piled everything that has been preserved as an ornament of the period, not on one building, but on many. Their effect is always cold and petty, while the American churches mentioned have a pleasant and dignified appearance, though almost without ornamentation. Or compare the Romanesque house of Chicago with the Romanesque Kaiser Wilhelm Memorial Church, which, with its endless round-arch arcades, has the effect of a mausoleum. And in the American building, how gracefully the ornamental capitals come out as central points, while in the Berlin church the mass of uniform ornamentation leaves no impression!

"On examining in detail the chief points of superiority in the effect of American buildings a special charm is found in the admirable use of the material. The rough, peasant-like finish of the hewn stone, though it often seems a little exaggerated for our taste, gives, nevertheless, the impression of being hand-work, and quite excludes the idea of machine-like smoothness that with us is a dominating one. By the contrast with smooth blocks or simple surfaces of terra-cotta or of wood, or both, fine artistic effects are produced.

"Now what is the significance of these buildings for us, for our architects and builders? Are they models to be copied? Certainly not; for their own lesson is precisely against imitation. They tend rather to stimulate design according to the need predicated by each building, according to the material at hand and according to the national taste. They tend to show us how great the possibilities are in such a procedure; how much more genuine richness lies in following it than in exaggerated bedizenment with superfluous ornamentation. Our best architects, indeed, are travelling in this same road. But the American buildings speak more plainly on account of their energetic and almost extreme carrying-out of this tendency.

"And these teachings are not limited to exterior architecture. The same spirit has controlled the planning of the comfortable interiors, which are, to be sure, better known to us, and have had their influence."

ROSA BONHEUR.



WHEN we lament that the greatest animal painter has passed away, are we saying too much? Landseer was a great artist, but Landseer's animals were nearly always in repose; whereas action, and sometimes violent action, was the principal characteristic of Rosa Bonheur's "bonnes bêtes." Moreover, there is a suppleness and a solidity about the technique in her pictures which Landseer never attained; his work was always more or less sketchy, and he generally painted the animal with a view to some idea or sentiment. Rosa Bonheur's beasts are just as one sees them in the fields, or in the farm-yard; her lions are not civilized, and her lioness is ready to spring upon you should you interfere with her cubs. There is one other painter who makes one feel the savageness of the lioness — Rubens, in his "Dying Lioness," writhing in agony; but the Englishman's Trafalgar Square beasts are noble, possibly, but flimsy, and not too vigorous.

"The Horse Fair," which appeared in 1853, set this part of the world on fire. How admirably studied are the animals, and how splendidly drawn, both men and beasts. The smaller example of this picture is in the National Gallery, London.

Only the other day Mlle. Bonheur was offered the *médaille d'honneur*, but she considered the picture she had sent to the *Salon* unworthy of the honor. For many years she has not exhibited, and this year she only sent one, which had been commenced or laid by in 1867. But her modesty was regrettable, for now, after only three days' illness of congestion of the lungs, she has gone from us forever.

Born at Bordeaux, in 1822, she came of an artistic set. But her early days were a struggle between drawing and *le ménage*. Being poor, the house had to be personally superintended — so had the brothers and sisters. Still there was time for both, and many were the visits made to the *abattoirs*, dressed in blouse and trousers, to study the habits and forms of the various beasts. How could she have gone in woman's attire? Nevertheless, people dubbed her masculine and unwomanly, without pausing to contemplate the impossibility of a woman associating with drovers and slaughterers in feminine skirts. In these days little notice would be taken of such "eccentricity;" but forty or fifty years ago we did not wear "rationals."

Her first picture was "Le Labourage Nivernais," for many years in the Luxembourg. At By, in the forest of Fontainebleau, she had often a menagerie, for she purchased the beasts she wanted for the time being. Thus the lions which she painted were kept on her premises, and when done with were sent to the *Jardin des Plantes*.

There is a certain hardness about her manner of painting, particularly skies; but of late this was less perceptible, and the picture at the *Salon* shows an enormous advance in breadth and atmosphere, which is extraordinary in an artist of seventy-eight.

In France women are honored as are men, if they be their equals; in England they are not, although there are certainly more than two lady artists who, without being the equals of our greatest men, are certainly the superiors of our smallest; but even this narrow but august body honored the distinguished Frenchwoman. Now we shall lose that one unique woman's name in the Royal Academy's lists. At the *Salons* she received the Third Class Medal when she was twenty-three years of age; the First Class in 1848; First Class in 1855; Second Class in 1867, and the Legion of Honor, personally given to her by the graceful act of the Empress Eugénie, in 1865.

She has gone from us full of honors and of years; a tremendous worker and a noble artist — artist in all things; enthusiastic, modest, conscientious — working from love more than for fame, always doing her best and never satisfied while better could be done. Her body has passed away from us and we shall see it no more. But her works will endure, may we not say, for centuries; for what are three or four hundred years in the life of a picture? S. BEALE.



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

HOUSE OF DR. AUGUSTUS THORNDIKE, COMMONWEALTH AVE., BOSTON, MASS. MESSRS. PETERS & RICE, ARCHITECTS, BOSTON, MASS.

[Gelatin Print issued with the International and Imperial Editions only.]

HOUSE OF CHARLES H. COSTER, ESQ., TUXEDO PARK, N. Y. MR. WILLIAM A. BATES, ARCHITECT, NEW YORK, N. Y.

SANTA MARIA DELLA SPINA, PISA, ITALY.

ST. STEPHEN'S PARISH SCHOOL, R. C., EAST 28TH ST., NEW YORK, N. Y. MR. ELLIOTT LYNCH, ARCHITECT, NEW YORK, N. Y.

MIDDLESEX COUNTY COURT-HOUSE, LOWELL, MASS. MR. OLIN W. CUTTER, ARCHITECT, BOSTON, MASS.

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

CONCOURS DE FACADES: HOUSE ON THE BOULEVARD DE LA VILLETTE, PARIS, FRANCE. M. RABIER, ARCHITECT.

CONCOURS DE FACADES: MAISON RUE DU ROI-DE-SICILE. M. DEBBIE, ARCHITECT.

This and the preceding illustration are copied from *La Construction Moderne*.

[Additional Illustrations in the International Edition.]

EQUESTRIAN STATUE OF GENERAL U. S. GRANT, FAIRMOUNT PARK, PHILADELPHIA, PA. MESSRS. DANIEL C. FRENCH AND E. C. POTTER, SCULPTORS, NEW YORK, N. Y.

[Gelatin Print.]

CENTRAL RAILWAY-STATION, OSNABRÜCK, PRUSSIA.

This plate is copied from the *Zeitschrift für Bauwesen*.

INTERIOR DOOR AND CONFESSIONAL IN THE BASILICA OF NOTRE DAME DE FOURVIÈRE, LYONS, FRANCE. M. SAINTE-MARIE FERRIN, ARCHITECT.

This plate is copied from *L'Architecture*.

MONUMENT TO ALFRED KRUPP, ESSEN, PRUSSIA. OTTO LANG, SCULPTOR.

This plate is copied from *Deutsche Bauzeitung*.

NEW WAR OFFICE, WHITEHALL, LONDON, ENG. MR. W. YOUNG, ARCHITECT.

PLAN OF THE SAME.

NEW GOVERNMENT OFFICE, WHITEHALL, LONDON, ENG. MR. J. M. BRYDON, ARCHITECT.

PLAN OF THE SAME.



NO REDWOOD SAPLINGS. — The redwood forests of the Pacific coast are described by Mr. Henry Gannett in the *National Geographic Magazine*, as occupying a narrow strip hugging the coast from the southern boundary of Oregon, through Northern California, with an area of 2,000 square miles, in which the standing timber is estimated at 75,000,000,000 feet. As measured by the amount of merchantable timber per acre, this is probably the densest forest on earth. In the Southern States and in Minnesota, tracts containing from 5,000 to 10,000 feet per acre are regarded as heavily forested; but around Eureka, Cal., the lumber companies have realized "an average of between 75,000 and 100,000 feet per acre." It is said that "there is on record a single acre, near Garberville, which yielded in the mill 1,431,350 feet in lumber. There was sufficient lumber on this acre to have covered it with a solid block of frame dwellings ten stories high." The reverse side of the picture is the fact that there is no young growth nor sign of reproduction from seed. This indicates that, with the clearing away of the present forests, though the supply at the present rate of cutting will last 300 years, the redwood "as a source of lumber" will cease to exist. The progressive drying of the climate is suggested as the cause of the failure of the reproductive power.

G. F. WATTS'S METHOD OF WORK. — Mr. G. F. Watts, who is now in his eighty-third year, constantly exposes his canvases to the full rays of the sun, to let the light burn into the wet paint and dry with it. He believes there need be no fear of fading after a process that so severely tests the colors. Mr. Watts's method is individual. He uses no mahlstick, his brushes are of a great size and hardness, and he has always been more fond of stripping than of delicate brush work, often pounding the color into his canvas to insure permanence. He has rarely worked directly from the living model, but modelled fragmentary studies in wax and clay for the particular parts of the figure required in his picture. In place of a palette he uses a white slab, fixed to a modelling bench to catch the full strength of the light, and he has found no inconvenience, but many advantages, in walking to it from his easel for each brushful of color. This recalls to mind Lord Palmerston's famous expedient for coercing himself into a little steady daily exercise at the Foreign Office, by having his inkstand placed upon a table several paces away from the desk at which he worked, so that he had to walk five or six yards, counting both "journeys," for each dip of ink. He also attributed his maintenance of sturdy health and jaunty manner under the trying conditions of office routine to this simple practice, as also to his habit of doing his work standing. — *M. A. P. in the Boston Transcript*.

ARTISTS EN LOGE FOR THE PRIX DE ROME.—A promise has been made to lodge art students competing for the Prix de Rome in the Palace at Compiègne, but has not as yet been kept. The ten selected to compete must meditate in cells at the Ecole des Beaux-Arts. The ordeal to which competitors are subjected was begun to-day. They are to work in solitary confinement during seventy-two days, but the first thirty-six hours are the most trying. The cell is bareer than any in a monastery, where the crucifix relieves the blankness of the walls. All the furniture would not fetch 100 francs at the auction mart. It consists of a mattress, pillow and bolster, a rush mat, an easel, a chair and a small table. There is nothing else. As light comes from above, there is no outlook. The competitor is thrown completely upon himself, but especially during the first three days. He is then deprived of all communication with the outside world, and is to all intents and purposes in jail. The sketch of his competing picture must be made in that time. He may subsequently modify his design, but must not change the main features. The figures are to keep their original attitudes, no figure is to be withdrawn, and the design is to be duplicated. One of the two drawings is sealed up and sent to a jury. The student keeps the other. This done, the door of the cell is unlocked, the occupant can go in and out, pay, but not receive visits, and is free to take his meals where he pleases. He may take his drawing to his master, and consult with him as to the best means of hiding general defects or enhancing what is meritorious by means of changes in detail and by effects of color. It sometimes happens that there is a triplicate, so that a copy may be given to the professor should he be disposed to work it up. But this is against the spirit of the rules. In point of fact, it is rare not to see the master's hand in the Prix de Rome paintings when they are finished and ready to be exhibited. The subjects are chosen by the jury, and generally are classic or historical, and demand what is termed here a noble style of treatment. Plutarch, Tacitus and Caesar are the great purveyors of subjects. Scenes from sacred history are sometimes chosen. There is no more uninteresting exhibition than that of the Prix de Rome. Seldom indeed is originality shown, or the promise of future excellence given. Most of the pictures are, so to speak, cooked according to recipe, wanting in expression and crude in coloring. To obtain a Prix de Rome enables the student to complete his art education in Italy at the cost of the State. When there he lives at the Villa d'Medici, and is under the special patronage of the French Ambassador. The stay in Rome widens his aesthetic views, and awakens, perhaps, the historical sense, for Rome is a museum city. It is of the most service to students who devote themselves to religious art and portraits. It certainly helps them to understand Italian art of the grand period. — *Paris Correspondence to the London News.*

LA COLONNE DU PALMIER, PARIS.—The fountain in the Place du Châtelet, Paris, is now called the Palmier, from the column having a resemblance to a palm tree tightly enclosed in bands. It was formerly known as the Fountain of Victory, from the figure offering two laurel wreaths with which the column is surmounted. But with more reason it could be described as the Fountain of Sphinxes, for four of these figures are employed to emit water. In its first state the water came from four cornucopias. The fountain was constructed in 1807 from the designs of Bralle, the architect, who secured the aid of Bosio, the sculptor, to cooperate with him. The idea was ingenious. The bands encircling the column served for inscribing the names of places when French troops conquered. At the base of the column are figures to typify Faith, Vigilance, Law and Force. Originally the fountain stood in the Place du Châtelet, about forty feet distant from the present site. It was found to be an obstruction to the new Boulevard de Sébastopol, and in 1858 M. Ballu, the architect, was instructed to remove it. The fountain was inclined to a horizontal position, and then moved *en masse*. On arriving at the place arranged, it was raised by machinery to a new pedestal, with the four sphinxes as supporters. M. Ballu superintended the operations, which were performed in about twenty minutes. The fountain was lately allowed to become dilapidated, but it is now in the hands of restorers. — *The Architect.*

MEISSONIER'S PAINTSTAKING.—That is a curious story which Verestchagin tells in the *Contemporary Review* in illustration of the extreme conscientiousness with which Meissonier executed his work. Few know, he says, the labor and expense the Frenchman bestowed on the preparations for it.

I remember, for instance, his painting a horseman, in a dress of the last century, passing along a deserted road in a strong wind. The cloak was flowing and the head of the rider, with his cap over his ears, was bowing before the storm, which was bringing on heavy clouds and lashing the grass and trees. Both the horse and the rider were first beautifully modelled in wax. The former model had a bridle and saddle elegantly worked out in every detail, from the real materials. The rider's cloak, hat, and spurred boots were also miniature masterpieces, executed after drawings of the period. In order to get the folds of the twisting cloak, it was dipped into thin glue, so that it stiffened in its proper pose. In short, everything was ingeniously fitted up so as to insure the greatest possible perfection of the picture, and showed, at any rate, very uncommon demands upon the artist's skill.

"But how did you paint the snowy road in your picture of 'Napoleon in 1814'?" I asked him.

In reply, he picked out from under the table a low platform, about a metre and a half square, and said:—

"On this I prepared all that was required: snow, mud and ruts. I kneaded the clay, and pushed across it this piece of cannon several times, up and down. With a shod hoof I then pressed the marks of the horses' feet; I strewed flour over it, pushed the cannon across again, and continued to do so until I obtained the semblance of a real road. Then I salted it, and the road was ready."

"What did you salt it for?"

"To get the brilliancy of the snow. Why do you smile? How else could you do it?"

"It was very ingenious," I answered. "*Je vous fais mes compli-*

ments. But, if I had been you, I should have gone to Russia, where nearly every road is dug up in the way represented, and should have painted a study from Nature."

"Yes! But *nous autres Parisiens* do not move about so easily."

STORING THE SUN'S HEAT.—It is well understood that the great desideratum for the successful working of apparatus dependent upon the sun's heat is that the sun should shine uninterruptedly upon it, through air devoid of all moisture. With this in view a machine is proposed for realizing the requisite, by storing the sun's heat. This consists of a large conically shaped reflector of highly burnished copper which has located in its centre a boiler made of heavy glass. The heat obtained is stored in a reservoir of sand, surrounded by a heavy woollen covering, which is said to effectually prevent the heat from radiating, while retaining it in the sand until it is required; and the reflector may be moved backward or forward in a horizontal plane by means of a lever, while a pair of cog-wheels running in a toothed rack enables it to be elevated or depressed. In operation the conically shaped funnel is set at the proper angle facing the sun, and the heat converging upon the reflector from all directions is transmitted to the reservoir of sand; engines and dynamos may thus be operated under this arrangement by simply drawing on the heat thus stored up. — *Le Monde Scientifique.*

STEALING ELECTRICITY NO THEFT.—In December last the Provincial Court at Elberfeld sentenced three mechanics each to one day's imprisonment for stealing from an electric current. The men had secretly attached a wire to a cable laid in the house where they lodged, and thus got their room lighted by electricity for nothing. The court decided that electricity possessed the essential properties of a movable object, but this was appealed against, and the case has finally reached the Senate of the Supreme Court of the Empire. The Senate holds that the judgment of the Provincial Court must be quashed, for the reason that those properties are wanting in electricity which would be necessary to constitute it a movable object in the sense of the law. In the sentence it is stated that electricity must be reckoned as one of the energies of nature, like sound or light. As the law provides only against theft of movable bodies, it is inapplicable in this case. Damage to property can also not be pleaded, for this requires that the substance of the object must be affected. It cannot again be said that a property has been withdrawn from the wire, for electricity is not one of the properties of copper wire. The Senate, therefore, as mentioned above, came to the unanimous conclusion that, with the law in its present state, tapping an electric current is not theft. — *Berlin Correspondence of the London Leader.*

A CORREGGIO USED AS CLOAK-LINING.—The two greatest dandies at the Empress Maria Theresa's Court were Count Crobor and Marquis Tarconca. These two men made a wager as to who should appear in the most costly costume at the next Court ball, jewels to be debarred. The Marquis Tarconca appeared in most gorgeous apparel, and was considered by every one to have triumphed over his rival, who was attired in a plain satin suit. While the jury were deciding Count Crobor threw open his plain satin cloak, and, placing it on the ground, showed that it was lined with one of Correggio's most famous works. The Count won the wager—1,000 ducats—but the Correggio had cost 100,000 ducats. The same count once paid a visit to Paris with a large party of friends, and entertained them at a "dinner" which lasted three days and nights. It is interesting to note that this extravagant nobleman died in penury some thirty years later. Having exhausted his means, he was pensioned by the Emperor Francis, but in 1765, when Francis died, his pension was reduced to about £80 a year. One morning in midwinter the frozen corpse of the Count was discovered on a heap of refuse on the shores of the Danube. — *Vienna Correspondence of the London Post.*

THE RUINED CITY OF XOCHICALCO.—Prof. W. H. Holmes, one of the head curators of the National Museum, has returned from a trip to Mexico under the auspices of the Smithsonian Institution. He accomplished the exploration of the ruined City of Xochicalco, "Hill of the Flowers," something not done hitherto in a scientific and thorough way. The hill is a series of stone-faced terraces from base to the summit. It is a network of walls, finished in selected or cut stone and well plastered. The summit is about one-fourth of a mile square, and in the centre stands a temple of simple but artistic character. Its walls are covered with rude glyphs carved into them. The temple is about sixty by eighty feet square, and is surrounded by a very complete system of courts and pyramids. Professor Holmes says the city belongs to the pre-Spanish period, and that to remodel and build the summit in the extensive way now indicated must have taken centuries of time. Therefore he concludes that the city is much more than 500 years old, as there is no record of its capture and occupancy by the Spaniards. — *Washington Star.*

THE FAILURE OF CRUDE OIL TO LAY DUST.—Crude oil has been pronounced a failure in laying the dust on the driveways in Boston's parks. Because of its successful use in allaying the dust nuisance on railroad beds, and its use on highways in some western localities in hardening muddy spots, it was thought to effect an economy by substituting it for water on the parkways. But the important fact was overlooked that railroad trains run on tracks. When the oil was applied to the park roadway it was found that the compactness which is the result of the use of water on dust was absent, and that as soon as traffic began to go over the road the ground assumed a disagreeable "mealiness." People also began to complain of the odor which arose from the oil, and to say that if the oil was used extensively the park would not be an agreeable place in which to drive. The bicyclists, too, had a grievance, and said that the oil would injure the tires of their wheels. So, considering everything, the Park Commissioners decided to make no more experiments with crude oil. — *N. Y. Evening Post.*

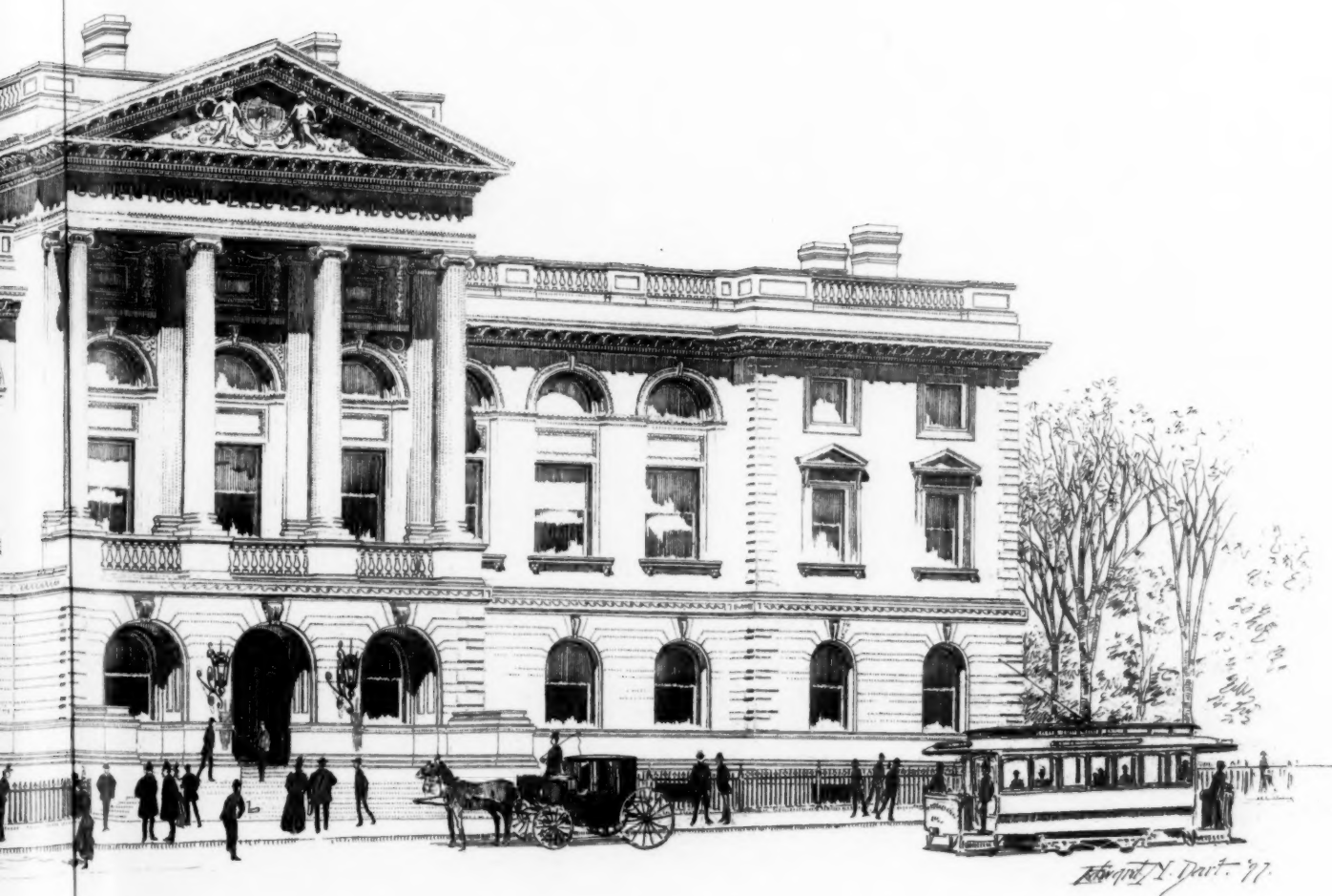
e
e
e
t
a
s
r
l
y
o
s
a
;
y
.
s
l
t
e
l
s
e
n
f
s
.
e
t
e
l
s
.
s
s
n
.
r
l
e
l
e
l
t
l
y
e
n
e
f
p
l
h
n
e
t
t
s
n
e.
l,
n
s
n
n
b
s
o
is
as
le
se
k
o,
ir
ed

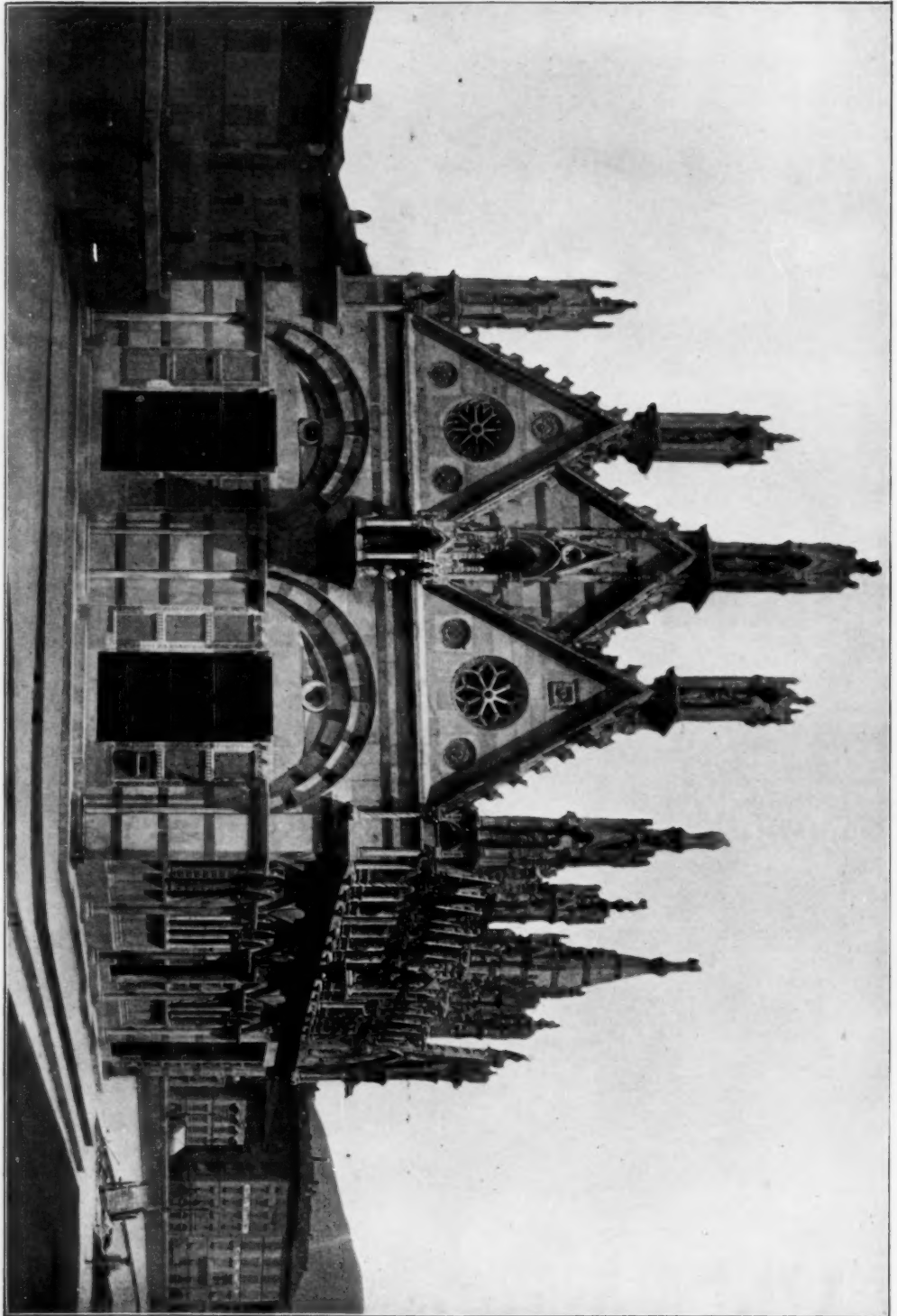
MIDDLESEX COUNTY COURT HOUSE AT LOWELL, MASS.

Levi S. Gould
Saml. O. Upham
Francis Bigelow
Olin W. Cutler

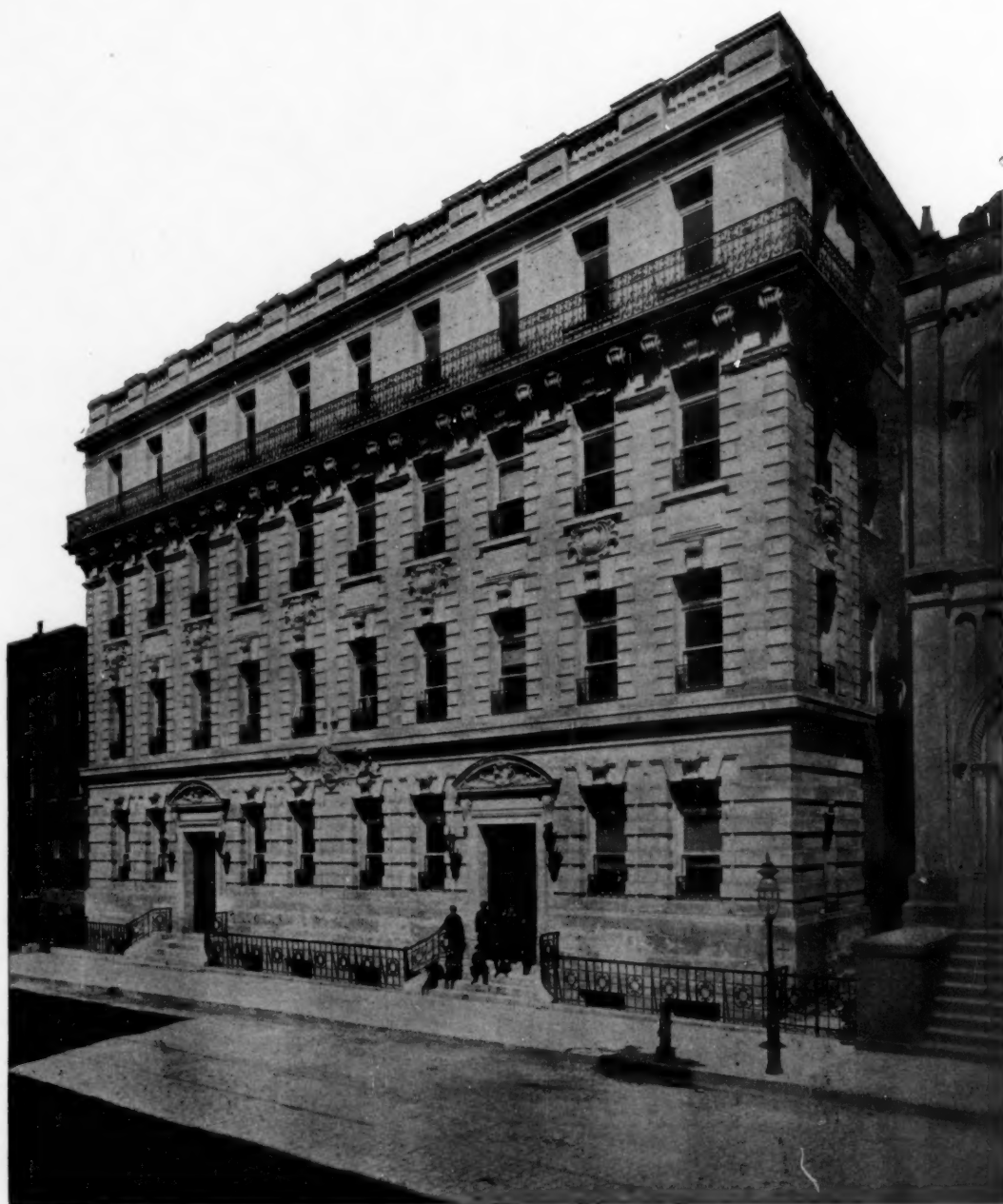
Commissioners
Architect







SANTA MARIA DELLA SPINA, PISA, ITALY.



ST. STEPHEN'S PARISH SCHOOL, R. C., EAST 28TH ST., N. Y.
ELLIOTT LYNCH, ARCHITECT.



• RESIDENCE OF CHAS. H. TUXEDO • PAID •
• WILLIAM A. DATES •



HAS. H. COSTER, ESQ.,
DO PARK,
ES. ARCHITECT.