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THE struggle between Mayor Cooper and the Superintendent of Buildings in New York still continues. In reply to the mayor's summons to appear before him to answer certain charges, Mr. Dudley obtained a writ of prohibition which has for the present stopped this proceeding, and by a similar writ prevented the Fire Commissioners from taking possession of his office and papers, as they were authorized to do on the coming into effect of the new statute for the consolidation of the Fire and Building Departments. The ground on which the execution of the statute is resisted is its unconstitutionality under a recent amendment to the organic law of the State, which prohibits the change of any existing statute except by an express act reciting the law to be amended. This precaution was not apparently observed in the Public Burdens Act, which certainly amends the statute which created the Building Department, and it is therefore claimed to be void. Meanwhile, the Fire Commissioners have appointed Mr. Thomas McAvoy as superintendent, but have forborne to take actual possession of the office until a decision has been reached on the legal points involved. This will take some time, and Mr. Dudley has, it is said, improved the opportunity to take a voyage to Europe. We trust that Mr. McAvoy, as successor to Mr. Dudley, may prove to be the right man in the right place. He is "endorsed by the Fire Commissioners," and according to the New York papers, "nothing is said against him;" which does not imply that he has as yet attained the conspicuous professional reputation which he will have a chance to earn, and which should belong to the man who is to fill a post of such grave responsibility. If the Department, by approving a plan, relieves its author of all accountability for it, as seems to be now the theory, certainly none but an architect or engineer of the first class can properly fulfil the duties of the office. One of the first exercises of the new incumbent will be the criticism of the plans for the vast Barnum building, two acres in area under a single roof, and five stories high. It would tax the science of the best of living architects to pass an authoritative judgment on such a design, and the public will not, we hope, forgive another exhibition of careless ignorance.

A YEAR or more ago a scheme was talked of for building on the site of the present Madison Square Garden a vast theatre, museum, and place of varied amusements, and plans of the building were drawn by Mr. A. H. Thorp, if we recollect rightly, but nothing was done. The late sad occurrence seems, however, to have made a complete transformation of the place desirable, and the ground is announced to have been definitely sold to a company which will at once commence the erection of a building substantially as originally proposed. This time the name of Mr. P. T. Barnum is used to give lustre to the enterprise, and Mr. Vanderbilt is said to be a large stockholder. The situation of the building will be all that can be desired, and the financial success of the enterprise should be reasonably certain. In the present state of public feeling, it seems probable that special care will be urged upon the proprietors in

guarding those who will frequent the place against the dangers of fire and bad construction; if so, the circumstances will be particularly favorable.

AN insurance case has just been decided, after five years litigation, of importance to all who hold policies. In 1875 the Oceanic Hotel, at the Isles of Shoals, was destroyed by fire. Some time previously the owner had procured a policy on the building in the Hudson Insurance Company, transacting the business through brokers in the usual manner. Not long after, the Hudson Company became dissatisfied with the risk, and ordered its agent to reduce the amount or have the policy cancelled. The agent communicated with the representatives of the proprietor, offering to cancel the policy and reinsure the building in the Lancashire Company, for which he was also agent, using the return premium from the Hudson to pay for the insurance in the new company, and his proposition was accepted, and the policy forwarded to him for the purpose of making the change. On receiving it, he immediately wrote "Cancelled" across it, but put off the fulfilment of the rest of his agreement—the taking out of a new policy in the Lancashire—until a more convenient time. Before that time arrived, the hotel was burned. The Hudson Company claimed that the policy was effectually cancelled, although no reinsurance had been made, and forwarded the return premium, with which its agent had undertaken to pay for new insurance, as being all that was due from them. Naturally, the owner of the building refused to receive it, and on this ground the court decided that the cancellation was incomplete, and that the Hudson Company was still liable. One would think that the fact of the owner's having acted in perfect good faith, in returning his policy to the agent of the company only for the sake of reinsurance, would necessarily imply that the insuring company was still liable until its agent had completed his part of the transaction, whether the premium returned after the loss had been accepted as an instalment on the amount due, or not; but underwriters manage to spread so many snares to entrap their patrons that it is useless to rely on honest intentions.

It is seldom that a competition is decided without complaints of unfairness from some quarter, and that invited for the new Washington Monument at Philadelphia seems to have been no exception to the rule. The committee of the Society of the Cincinnati, which had the matter in charge, has as yet made no report of its proceedings, but it is understood to have accepted a model submitted by a Prussian sculptor, Seimerring. It is now asserted that Seimerring's design was copied, or rather appropriated, from Rauch's monument to Frederick the Great, in Berlin, with a few Indians added to give local color, and a little change in the grouping. How this may be, it is impossible for us to say at present, but we hope there is no danger of the Society's making itself ridiculous by erecting a second-hand memorial. A more serious charge, which is made in conversation by the disappointed competitors, is that the accepted design violated the conditions set forth in the published circular inviting designs. If this should prove to be true, there is no question of their right to have the award set aside by process of law. Committees of this kind cannot be too careful in drawing up the terms upon which competitive designs are invited, or in keeping rigidly to them in their selection. It is well established that the stipulations of the circular of invitation form the terms of a valid contract between the party issuing it and each competitor who makes and sends in a design in accordance with it, and an award in violation of the terms can only be made at the risk of having to pay damages to all those who were careful to fulfil strictly their part of the agreement.

MOST of our readers have before this learned of the sad fate which is only too surely proved to have overtaken one known to a very large number of them, Mr. Hubert M. Warren, of the Warren Chemical and Manufacturing Company, who was a passenger on the steamer Narragansett on the night of the 11th. It is ascertained that he occupied a state-room aft of the wheel-house, in that part of the boat struck by the prow of the Stonington, and in the terrible violence of the collision it is hardly possible to doubt that he was one of the first victims. No one with whom Mr. Warren's very extended business relations have brought him in contact can have failed to be im-

pressed with his kind and modest ways, his devotion to his work, and the perfect integrity and frankness which characterized his dealings, and many of those whose acquaintance with him was of the slightest will feel sincere sorrow at his loss, and deep sympathy for his large family of children, now doubly orphans.

WE have received the catalogue for 1879-80 of the Illinois Industrial University, at Champaign, in that State, of which we have repeatedly had occasion to speak. It is pleasant to find that the institution counts already four hundred and thirty-four students, of whom we find twelve to be pursuing the four-years course in architecture, one of the most extensive and thorough of those included in the university scheme. We are sorry to find no students mentioned as pursuing the Builders' course, a special selection of studies from the architectural curriculum, occupying but one year, and well suited to the needs of a class of men who feel the want of training of this kind more keenly, and can profit more by it, than almost any members of the community. In the Architectural course, which forms a division under the head of Engineering, if anything, the technical part of the course, as compared with the strictly æsthetic, appears to us perhaps rather too prominent; not that we would wish the graduates in architecture to be ignorant of the least important detail of building work, but because we should regret anything which might lead them to forget in practical details the preëminent claims of their profession as a fine art. For the same reason, we confess having misgivings as to the utility of some of the shop practice which forms a part of the exercises. Admirably calculated as this training is to form good superintendents, or clerks-of-works, the actual practice of veneering and dovetailing can do little to develop the artistic sentiment upon which success in the profession must more and more depend, and it is questionable whether some students may not be led by an aptitude for this kind of technical work, which might be of great use in another profession, into embracing one which requires mental qualifications of an entirely different kind, and thus wasting their lives in unsuccessful competition with those for whom education and endeavor might have done less, but nature more. The study of architecture purely as a fine art has as yet hardly been thought of in this utilitarian country, but architects feel every year more strongly the inadequacy of the artistic as compared with the material training with which their juniors come to them furnished, and there is, or soon will be, a field of great usefulness for an institution, supplementary perhaps to the technical schools, where architecture shall receive attention, not as a branch of engineering, but as correlative with painting, sculpture and music.

THOSE who have had occasion to import works of art will remember the vexatious and often ludicrous annoyances caused by the imposition of heavy duties, assessed in a manner which rendered their collection needlessly difficult, and their evasion sometimes injudiciously easy. A favorite story of General Butler's is to the effect that a large metal-importing house in New York, once observing that the patriotic framers of the tariff prescribed that works of art by American sculptors residing abroad should be admitted into their native country free of duty, turned this provision to their private benefit by engaging an American "sculptor" on the other side of the water, whose duty it was to melt down the lead which his employers desired to import, and cast it into what were by courtesy supposed to be statues of Washington, which being "works of art" passed the American custom-house free. Lately, a gentleman who desired to import some Tanagra figurines, inquiring as to the duties, learned that they would be classed with pipes and spittoons as "manufactures of burnt clay," and subjected to an *ad valorem* duty of some thirty per cent. We should judge that it would generally be advantageous to the importer to leave the valuing of goods of this class to those who administered the tariff, and perhaps it is owing to the unaccustomed strain thus thrown upon the faculties of the appraisers that a bill has recently passed both houses of Congress under which classical antiquities are to be admitted free of duty.

THE competition question continues to engross the attention of the English architects. At the last meeting of the Institute which we find reported, a memorial, or rather two distinct memorials were presented, signed by no less than twelve hundred and seventy-four architects, praying that action might be taken for the regulation of these trials of skill between mem-

bers of the profession. In accordance with a general understanding that it would be well not to attempt too radical a reform at first, for fear of failing altogether, most of the memorialists insisted principally upon one point, that of the employment of an expert adjudicator as a condition without which no reputable practitioner should enter any competition. Those eminent and public-spirited architects who originated this movement have reason to be gratified at the enthusiasm with which it has been taken up in the profession, and some definite result may be looked for. The Royal Institute of British Architects, some weeks ago, appointed a committee, consisting now of twenty-two members, to consider the matter during the interval while the memorial was circulating for signatures, and the document having now been completed and presented, the committee will be called upon to report, and their report and the prayer of the memorialists will be considered together. Among the signers of the paper prepared for members of the Royal Institute (printed in our issue for May 1) were one hundred and fifty-three Fellows and a somewhat larger number of Associates, and a document almost precisely similar was signed by nine hundred and sixty-two architects not members of that body. The President, in receiving the memorial, spoke of it as one of the most important communications ever made to the Council of the Institute, and the *Builder* goes so far as to reproduce the names of the signers at length, in order, as its editor says, "that the world at large may see as much as possible of the signs of better things to come."

THE Cape Cod Ship-Canal, an undertaking of considerable importance not only to Massachusetts, but to other States on the Atlantic coast, seems likely to be soon in train for actual construction. A charter for the building of the canal was some years ago granted to a corporation which did nothing but make a few surveys and keep others out of the field. Last winter, however, a new association was formed, which applied for another charter, proposing to complete the work at once, and the Legislature granted their request, with the condition that the new corporation should not come into possession of the franchise granted to the old company, provided the latter would make*and record before July 1, 1880, a new location for the canal, and would furthermore raise a subscription of four hundred thousand dollars, one quarter of it actually paid in, and expended on the work, before the first of the ensuing November. Stimulated by the prospect of losing their charter, the old company has made great exertions, and seems in a fair way to fulfil the conditions imposed upon it. A ship-canal at this point may be expected to exert a strong influence on the course of future navigation. For coasting vessels, especially, the shortening of the distance between the harbors of New England and the Provinces and the ports of the Middle States will be of importance, while the risks which attend the winter passage around the Cape, and through the exposed Vineyard Sound, will be in a great measure avoided. The great future value to coast-wise commerce of the singular line of sheltered sounds, protected by sandy islands, which extends along so great a portion of our Atlantic coast, is hardly yet appreciated. Even at present, boats can float in smooth water by means of sounds, rivers and canals from Connecticut nearly to South Carolina, and it can hardly be many years before the line is much extended.

ONE more great Asiatic country seems to be on the point of invasion by Caucasian curiosity and avarice. The great peninsula of Corea, half-way between Japan and China, and containing a population half as large as that of Japan itself, has long been closed as rigidly against foreigners as were once the neighboring nations. Very lately, however, it has been reported that intestine political disturbances had prepared the way for a different state of feeling toward Europeans, and the Chinese Government, perhaps in the hope of gaining some advantage in its struggle with Russia, is said to have counselled the opening of its vassal kingdom to strangers. In accordance with this information the United States frigate *Ticonderoga* has been detailed, under Commodore Shufeldt, to proceed to Corea, and Mr. Mangum, the American Consul at Nagasaki, has been sent with the frigate as diplomatic agent for the United States. The result of this expedition will be looked for with interest. Another such success as the Perry expedition to Japan is not to be hoped for, but Corea is said to be a rich and fertile country, and the Western nations will be glad of another opportunity to exchange the blessings of their civilization for a suitable equivalent in cash or merchantable goods.

HOW TO LEAVE PLUMBING FOR THE SUMMER.

JUST at this season, when thousands of the inhabitants of city and suburbs are closing their houses, to leave them for a sojourn of two or three months in the country or at the seaside, some hints as to the danger of leaving plumbing work to itself for so long a time, and the modes of providing against this danger, will be timely. Few people need to be told that a week or two of hot weather is enough to evaporate the sealing water from the traps of wash-bowls, baths, or even water-closets, leaving an open passage from the drains into the house, through which sewer vapors flow freely, often saturating curtains, carpets and furniture with their faint, sickly odor, to salute the family on its return home in the autumn. When we reflect also that the reopening of the house usually takes place in the most fatal month of the whole year, September, when the system is especially susceptible to zymotic influences, and that the return of delicate persons from the fresh country air to the stifling atmosphere of the city is generally attended with a certain depression of the vital powers, the danger of sudden exposure to the influence of a house where foul vapors have for months been floating undisturbed, and their deposit accumulating and corrupting in the darkness, is evident, and the trifling care which is necessary to give reasonable security against at least the unchecked circulation of foul air in the rooms will be well repaid.

An inspection of the cupboard under an ordinary wash-bowl will teach quite enough of the principles of plumbing to enable the householder to proceed intelligently. He will here usually see the waste-pipe descending a few inches below the plug, there to be joined by another pipe, which, if he looks sharply, he will find to be connected with the little cluster of holes in the basin through which the water overflows when the basin is too full. Below the junction of the waste and overflow the pipe makes a bend, generally with a brass screw or nut in the bottom, at S; this is the trap. Beyond this, the pipe probably disappears through the floor, but if he could trace it farther, he would find it passing straight to the drain. In the bend of the trap lies about half a pint of water, as the figure shows, and this water forms the only barrier between the rooms and the deadly gases which fill the pipes beyond. If his house is a very modern one, he may notice a ventilating pipe issuing from the point V, or possibly a little cistern, called a round trap, may take the place of the bend in the pipe. Neither of these will alter the precautions to be taken: the ventilated trap will dry out more quickly, and the round trap less so, than the plain bend, but there is no other difference so far as we are at present concerned. If the house is an old one, he may very likely see the basin waste passing off out of sight without any sign of a trap. In this case it is probably carried into another larger trap, usually that of a water-closet, and the same water which seals the large trap seals also the smaller one. This will also make no difference in the measures we are to take.

It is evident by the figure, that if the water held in the trap should evaporate down to the level LL, the vapors on the lower side would at once begin to slip between the bend and the surface of the remaining water, and would pass more and more freely as the water diminished. Very often not more than a teaspoonful of water need be evaporated before this action begins, and in any case it is but a matter of a few days. Some means must be found for preventing the gas from issuing into the rooms after the inevitable drying up of the water seal. There are two paths by which it can so escape; the water-plug or valve, and the overflow. The overflow can be closed by pasting several thicknesses of paper over the cluster of holes in the basin,—by beginning with a soft, thin piece, it can usually be made to stick,—or by closing all the holes with small corks. The last is the more reliable way. The waste-valve or plug should then be closed, and the basin drawn nearly full of water: if the water does not run off, however slowly, the plug is tight, and the basin may be left without further anxiety. The water should be allowed to remain, as it will serve to hold the plug down by its weight, and to prevent some kinds of plugs from drying. If the plug or valve prove not to be tight, another cork should be tightly fitted to the waste. No further precautions will be necessary.

Bath-tubs should receive precisely the same attention. The overflow holes, usually being of irregular shapes, can hardly be stopped with corks, but two or three thicknesses of stout paper stuck on with copal varnish rather than gum will answer admirably. The waste will be tested and secured as before.

Water-closets are more dangerous, and more difficult to seal than the others. The trap, which is a very large one, and usually concealed between the floor timbers, can be reached through the receiver of the closet and closed by a cork, which must usually be four inches in diameter; but this is a disagreeable operation, and still, with most closets, leaves the foul interior of the receiver above the trap ready to scatter the seeds of disease as soon as the water in the movable pan which closes the orifice of the basin has evaporated. The best way is, therefore, to flush the closets with plenty of water,

then letting the handle fall back into its place, dip out with a sponge most of the water in the pan, and fill it up with sweet or lard oil until it is heard dripping into the trap below.

With hopper-closets, such as are often set for servants' use, and may in general be distinguished by having no movable pan closing the bottom of the basin, the latter opens directly into the trap, and the best means of protection is, after well washing out the basin, to dip out half a pint or so of the water in the trap by means of a sponge tied to the end of a stick and dipped into the trap through the basin, afterwards filling up with oil until it is heard overflowing.

Kitchen sinks and laundry wash-trays next need attention. The waste plugs of the wash-trays should be closed, and tested by filling with water, or fitted with corks, and the overflows, if any exist, should be pasted over with paper, or corked. The copper boiler must also be looked after; some are fitted with waste plugs, like the wash-trays, and should be similarly treated. Sinks, and slop-sinks, which have simply a strainer at the lowest part, may have this strainer closed by a piece of soft leather or rubber, held down by a heavy weight, or putty may be spread over it.

Finally, the tanks must be looked after, beginning with the large one which is usually to be found in the attic. This will have an overflow and a waste plug. The waste plug, or the valve which supplies its place, is almost always tight, and beyond seeing that it is in its place, no further care need be taken of it, except to fill the tank partially with water if it should be empty. The overflow may be in the form of a hole an inch or so in diameter, in the side of the tank, near the top, which should be tightly closed with a cork; or it may take the shape of a "standing waste," consisting of an open copper or brass pipe standing upright in the tank, the mouth of which is to be corked as before. In case of doubt as to the position of the overflow, it may be distinguished by holding up the ball of the ball-cock and letting the water flow in until it is seen to be running off. The level of the surface of the water will then point to the overflow pipe.

There will also be small cisterns placed above most of the better class of water-closets, and these may possibly have overflows, which, if they exist, should be corked.

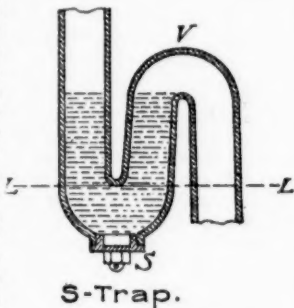
This will include all the plumbing appliances usual in dwelling-houses, which need protection. Any others, such as foot-baths, urinals, etc., can be treated upon similar principles. In general, overflows need to be even more carefully protected than waste-pipes, since the latter have usually a plug or valve which affords at least some protection, even without the help of the trap, while the former, as soon as the trapping water is evaporated, furnish a wide passage for foul vapors.

It is presumed that the soil-pipes, drains and apparatus are free from any leakage that the peppermint test will show, and in good condition, these directions being only intended to provide against the inevitable consequences of leaving ordinary well-constructed plumbing appliances to take care of themselves for a length of time in warm weather. After the traps have been flushed as directed, and water enough drawn in the baths and basins to cover the plugs to a good depth, the street supply may be cut off if desired, and the pipes drained. There is no advantage, but rather disadvantage in this, except that it saves some slight risk of damage if leakage should occur. If any rooms are to be occupied during the summer, a certain portion of the plumbing may be left in its usual condition, care being taken to use water frequently in all such apparatus, to be sure of keeping the traps supplied, and on returning at the end of the season, water enough to replenish the traps should first be drawn in all the bowls, baths and sinks, throughout the house, and the corks or paper seals of the overflows then removed; otherwise there will be danger of flooding the rooms. Where oil is used in water-closet traps and pans, it should be inodorous, as its surface is exposed; and a considerable quantity of water must first be dipped out, to be replaced with the oil, otherwise this will flow away over the surface of the water, without forming a thick coating upon it, as it should, to prevent evaporation. For the same reason, it is useless to pour oil down into an inaccessible basin or bath-trap, already full of water; it will simply run over the top of the heavier water, and be lost in the drain. If such protection is desired, the brass screw at the bottom of the trap should be loosened with a wrench, and a portion of the water withdrawn at that point. This will leave a space between the water surface and the point of overflow, in which the oil can remain.

The means of similarly protecting the plumbing work of country houses, exposed to danger of freezing through the winter, may form the subject of a subsequent paper.

THE CHRISTMAS-CARD COMPETITION, NEW YORK.

It is doubtless well known to the readers of the *American Architect* that an exhibition has just been held at Mr. Moore's gallery of the designs,—more than five hundred in number,—which had been entered in competition for prizes offered by Mr. Prang. The prizes were so munificent,—\$1,000, \$500, \$300, and \$200 respectively,—that it was expected numerous artists of standing would compete, and that the exhibition would be one of great interest. For although the article in question was intrinsically of minor importance, it was, nevertheless, one to the making of which might be applied the greatest skill of design and the utmost play of fancy, and for which every sort of treatment would be appropriate, from the extreme of so-called representative art on the one hand, to the extreme of so-



called conventional decorative art on the other. It was supposed, furthermore, that this decorative work, of which there has been so much talk in recent years, would come very strongly to the front, and that we should have convincing proof of the good accomplished by our numerous "Decorative Art" societies in fostering it. I am sure I am expressing the general sentiment when I say that the public was disappointed in its expectations. The average level of the work was very low. One was driven to question whether it could have been lower before the days when decoration and, indeed, art in general was so much talked about. And the very best of the designs, while, as I understand, Mr. Prang is pleased with them as appropriate for his purpose and likely to come out well from the hands of his lithographers, were not very inspiring as works of art in themselves considered. It is as works of art chiefly that the general observer will be interested by a report of them,—as signs of the average ability of our artists, professional and non-professional, in the minor provinces of design. As I have said, their contemplation in this light led to no very satisfactory conclusions. One would think that the much that has been said and written about art of late years would at least have brought home to uneducated and incapable people the fact that they were uneducated and incapable, even if it led them no ways on the road toward better accomplishment. But a large number of these designs looked as if the competitors had never touched brush or pencil before. A lot of children in untrained nursery experiments might be expected to do better. It was wonderful to think that such productions could have been sent in to the judges in the faith, of course, that they had at least a chance of being rewarded. Passing to the designs that were not beneath criticism, a large number were found to consist of simple floral subjects such as the world already possesses by the thousand, not even characterized by any effort at novelty of arrangement or at the representation of unfamiliar blossoms. Even roses which are difficult of execution were conspicuous by their absence, while field flowers, pansies, and the like, mustered in large quantities. There were one or two moderately good pictures of these last-named flowers,—otherwise nothing in this line deserved particular mention. Of landscape designs there were some that were well-done, though it is hard for any such to be very appropriately applied to Christmas-cards.

If we pass now to the figure subjects, I may say without fear of erring on the side of severity, that not a dozen draughtsmen were represented who had drawn the figure fairly well, and scarcely three or four who had drawn it really well. Mr. Sandier who took the second prize, and the "Unknown" to whom the third was awarded, had certainly done so. One was inclined to wonder, at first sight, why the principal prize had not fallen to one of them, instead of to Miss Emmet, whose work was certainly less well executed. But the jury,—most capable judges, who were, of course, as well aware of this fact as any of those who questioned their decision, were not instructed by Mr. Prang to award the prizes solely with reference to perfection of execution, but also, and chiefly,—though of course by no means exclusively,—with reference to the subject-matter and conception of the card as original and appropriate to the Christmas season. This was, it need hardly be said, entirely proper, and must have been well understood by the competitors from Mr. Moore's circular. From this point of view Miss Emmet was well entitled to her success. There was no card in the exhibition which showed as much as this one that special thought had been given to the subject and some power of composition applied to its development. The central rectangular division of the design represented a group of surplised choristers on a gold ground. A wide, dark border encircled this, ornamented by a vine of passion-flowers, and, in the left-hand lower corner, by a shepherd and his sheep, greeted by an angel in the corresponding upper corner. Mr. Sandier's designs were, as I have said, most beautifully executed. He is a well-trained draughtsman who was, I believe, with M. Viollet-le-Duc, and is now chief designer for Mr. Herter of this city. No fault could be found with the drawing or finish of his delicate little figures, but they all bore the stamp of the professional decorator, in their scheme of color which was kept in one or two tints, and in their lack of any special appropriateness to the occasion which had called them forth. The prize card, in oil, showed a single greeting figure, and was all in scarlet and gold. His other two, in *aquarelle* if I remember rightly, were frieze-like rows of little figures, that would do excellently well, if magnified, for the border of a wall-paper. There is no doubt that they showed a far better trained eye and hand than Miss Emmet's, but in all that pertained to the *thinking* part of the subject, if I may so speak, hers was superior. And I am much mistaken if, when they all come to be reproduced by the same process, it is not found the most satisfactory. Miss Emmet has done other things that show her powers to better advantage; and when grace of fancy and good taste are native, and a desire to excel by honest work has been proven, technical perfection will not be long of acquisition.

The third prize was awarded to a card showing, in a rather stiff arrangement, an infant Christ in the manger on a dark blue background, with rows of well-drawn cherub heads in the border. The design was appropriate, if not indicative of much originality, and should print exceedingly well. Miss Morse, who took the fourth prize, showed three cards done in water-colors and in pale tints, not well-drawn and not original,—pretty, but suggestive of much English work that we are familiar with. It was hard to see why she had been rewarded to the exclusion of one or two others,—notably of

the author of the designs whose motto ran "Is it well done?"—designs which showed simple but effective large figures. Some well-executed work was signed "To be or not to be," but the subjects were so confused as to be hardly clear even with the help of a long written explanation.

The best comic design was one called The Modern Santa Claus, representing a negro footman laden with toys. It was curious to see how decorative an effect was produced by so simple a device as placing his smiling face against the centre of the big bicycle-wheel he was carrying.

I do not think that very many professional artists entered the competition. One felt certain of recognizing Mr. F. S. Church's touch, however, and Mr. Hamilton Gibson's. And there were, moreover, three exquisite designs to be seen which were unlike anything else on the walls, and unlike the work of any one else with whom I am acquainted, except Mr. Tiffany. They were purely conventional in character,—interlaced lines of gold filled in with most varied and delicate colors, the legends which showed their object being incorporated into the general decorative effect. They were among the best things, if not themselves the very best things—for execution—in the room, and a prize could only have been withheld from them for the reason that they were not deemed sufficiently appropriate. We may be sure, however, that neither these nor anything else that was good will be consigned to oblivion. I am told that Mr. Prang has purchased all that are fitted for his purpose, and the public in its next winter's purchasing will have a chance to sustain or to reverse the decisions of the jury. Nor must it be understood from what I have said of the technical and imaginative inefficiency of most of the work called forth by Mr. Prang's munificent offer, that that offer has not been productive of good results. I was viewing the cards from an absolute standpoint, not from the relative standpoint of those from which the public has had to make its choice in former years. Looking over a scrap-book where children's hands have collected the various greetings with which they have been favored for a couple of seasons past, I do not find one in which the figure-drawing is really good. Perhaps their acquaintances have been unfortunately unanimous in poor selections, but I do not think so. There are some English cards where roses and other flowers are most exquisitely given, and some, both English and German, where the figure-drawing is just tolerable; but of our native productions not even so much as this can be said. I am sure that we shall all rejoice at the improved display on our stationers' counters next winter, and agree that Mr. Prang has not done unwisely in offering similar prizes for another competition a year from now.

One was satisfied, in conclusion, to notice that there were but few futile attempts to imitate Japanese effects, and, so far as I remember, not one representation of a horse-shoe or a four-leaved-clover!

Among the recent additions to the collection of American pictures always on exhibition at Mr. Moore's, I noticed a small canvas by Mr. Shirlaw, representing a ragged boy and his dog, capitalily painted in a roughish style, and remarkable for its vitality and expression. What a contrast to the smooth insipidity, the tasteless "finish," of Mr. J. G. Brown's unnatural ragamuffins! Well worthy of attention were also two large decorative panels by Mr. C. C. Coleman. His brush is sometimes so clever in the rendering of textures—witness the brown glazed pot in one of these pictures—that one cannot help wishing he would turn his attention to compositions that should be true studies of still-life, that should have relief and atmosphere and a natural beauty other than the somewhat affected grace he seeks. He is too clever a painter and possessed of too excellent a taste to keep to this Japanese style of work, lovely as it sometimes is in its way, without provoking a protest from all who value him.

Beside Mr. Moran's Turner, we are shown a proof of the owner's etching. It is of large size and shows some marvellously good work. I heard an artist who is also a good critic say recently, that he would not have believed that such work could have been done on this side of the water. It is especially remarkable for its strength, a quality in which our workmen in this line are not apt to excel. But as it stands, the etching is not a very good rendering of the painting. It is only, I am told, a "trial proof after the first biting," and in his subsequent work on the plate the artist will undoubtedly bring the whole into greater harmony, and render with greater accuracy the superb balance and unity of tone which distinguish the original. As it now stands, there is too sharp a gradation between the foreground and the distance of the print.

M. G. VAN RENSSELAER.

HOUSE DRAINAGE.¹—I.

It remains to consider the proper methods of constructing the private drains leading from each house, and the various fixtures and appliances for receiving the refuse from the house, in a manner which shall serve the convenience of the household and guarantee the speedy removal of all the sewage, without risk of leading into the house any of the gases of decomposing matter which may originate either in the sewers or the drains themselves.

Wherever the water-carriage system is used for removal of excreta, it is very desirable that sewers should also be provided. But as many suburban communities may not yet have provided sewers, and

¹ A lecture by Mr. Edward S. Philbrick, C. E., delivered before the students of the Massachusetts Institute of Technology.

many good houses are frequently being built in isolated places where sewers cannot be expected to be constructed for a long time, it becomes important to consider the best substitute for sewers in such cases. The ordinary way is to dig a hole in the ground and line it with loose stone or honeycomb brickwork, into which the sewage may be led, and from which it is hoped it may soak away into the soil and be out of sight. Where the soil is very porous and the surface sloping away from the house, this method may succeed for some months and even years without much risk to the house, *provided* this cesspool is far enough from the house to prevent its odors from being carried back through the air, and provided pains be taken that the gases evolved by the decomposition always going on within the cesspool shall not be conducted back into the house through the drain-pipe.

But this method can never be satisfactory. The great risk of all such contrivances is the contamination of the soil and the drinking-water, where this is drawn from wells or cisterns on the same premises. Dr. C. F. Folsom, Secretary of the Massachusetts Board of Health, relates, in the *Medical and Surgical Journal* for March, 1880, that a well which he tested was proved beyond a doubt to be contaminated by a privy vault one hundred feet distant, the well being sixteen feet deep. There was no unusual taste in the water, but suspicion had been directed to it from typhoid fever among those who drank its water. It follows, then, that all porous cesspools must be condemned. They store up the filth in the soil just deep enough below the surface to be out of sight, and out of the reach of the absorbent powers of grass roots, while even when ventilated they do not give access to a sufficient quantity of air in contact with the decaying mass of organic matter to ensure its decomposition. The soil close about them soon becomes saturated with a vile compound, filling its pores by degrees, and finally refusing to carry off even the water, except during the driest part of the year. Such contamination of the soil in the neighborhood of dwelling-houses is, under all circumstances, to be avoided. Cesspools should therefore be made tight by brick floors and walls, laid in hydraulic cement and plastered with as much care as if they were to act as rain-water cisterns. What then is to be done with their contents when filled? The best way in theory doubtless is to use it for fertilizing the soil. This may be done by pumping and carting where there is not enough land near the house suitable for its absorption. It can be distributed on the land by gravity where there happens to be land low enough, though small house-lots seldom give this opportunity. In accomplishing this where there is land adapted to the purpose, an *intermittent* flow is desirable, both for the sake of flushing the pipes and avoiding deposits within them, and to allow the air an opportunity to follow the sewage as it soaks down into the pores of the soil. The air, thus admitted alternately with the fluids in the finely-divided pores, serves to oxidize a large portion of the organic matter—to burn it up, as it were, and form such new compounds as to favor its more ready appropriation by vegetable life. This intermittent flow has been attained with some degree of success by Field's flush-tank. So far as its flushing power goes, it leaves little to be desired, but it is doubtful whether there is time enough left between its periodic discharges, ordinarily, to allow of much oxidation in the pores of the soil, for this process is a slow one, and must necessarily require a good deal of time where the quantity of sewage is considerable.

Mr. Rogers Field has introduced this process in England, and Col. Geo. E. Waring, Jr., has introduced it in this country and applied it for this purpose with some success. He distributes the sewage from the flush-tank below the surface, in porous drain-pipes with loose joints laid less than twelve inches under the surface. The end sought is to fill the whole system of these pipes with each discharge, from the tank, and the sewage is to soak away from the joints of the pipes while the tank is being refilled. In some places this plan has worked well, while in others the joints of the pipe or the pores of the soil, or both, have apparently become choked with the solid particles held in suspension by the sewage, to such a degree that the absorbing power of the soil around the pipes has become impaired. The result is that the sewage bursts up to the surface and becomes a nuisance near the lower end of the system of distributing-pipes. This fault can perhaps be remedied or avoided by a thorough underdraining of the soil and by taking proper pains in laying the drains and providing sufficient surface of land for absorbing a given amount of the sewage. Different localities and different soils give very different results, and it becomes very largely a question of judgment in matters of detail, to adjust the parts of this system so that it will work without further annoyance. It seems to be yet a matter of doubt, however, whether the distributing drains will remain *permanently* porous in any particular case where the quantity of sewage is considerable. The weak point in the system seems to be that certain portions of the pipes and the surrounding soil become so lined with the solid particles of the sewage that the pores are closed by degrees. This capacity for continued absorption will, however, depend very much on the physical character of the soil and the perfection of its underdrainage. The water must of course be given a free path to escape from below the pipes that distribute the sewage, either by selecting a locality with a subsoil that is always dry and loose, or by rendering it so by deep drainage. A perfect uniformity of condition in the porosity of the soil throughout the whole system of distributing-pipes is hardly possible to be attained. It follows that when the less porous places begin to clog, a larger duty is imposed upon the remaining portion, till sometimes the greater part seems to become

obstructed. The only remedy is to dig out the pipes and clean them, and the frequency of this operation can only be determined by actual trial.

In all cases where a distribution of sewage is made on the surface or underground, a thorough under-drainage is absolutely necessary. Any locality where this cannot be attained within reasonable limits as to cost is therefore quite unfit for this method.

Distribution of the sewage on the surface, though requiring more attention at stated times than the method just described, is sometimes made use of with success, even on the small scale of one or more houses. I have myself a house occupied for three or four months of the hottest part of the year, where it is managed thus. (See Fig. 5.) A tight cesspool is made in the ground, about one hundred feet from the house, of a capacity sufficient to hold about one week's

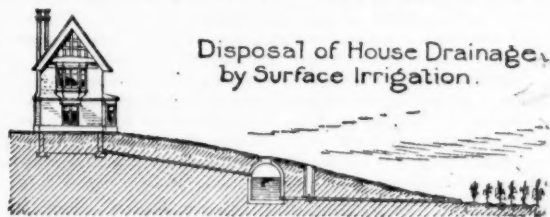
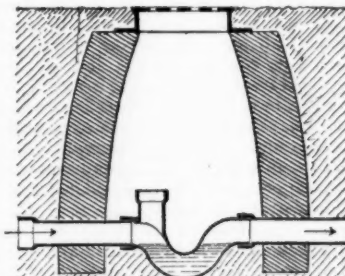


Fig. 5.

accumulation of sewage. When filled, this fact is indicated by an overflow discharging on the surface behind the stable, which pipe also serves as an air-vent. A trench was dug from the bottom of the cesspool, about one hundred and fifty feet long, with its bottom graded so as to drain the cesspool on to the surface of the ground in this distance. A four-inch stone-ware drain-pipe was laid and buried in this trench. Just below the point where this pipe passes through the wall of the cesspool, a common four-inch brass-faced water stop-gate was set in the pipe (C) with a four-inch pipe set upright from its top to the surface of the ground, through which a wrench or gate key can be inserted, to open and close the gate. By opening the gate, the whole contents of the cesspool are by this means discharged at will on the surface at the lower end of this pipe in five to ten minutes. At this point of discharge lies a plot of land used as a kitchen garden. While the sewage is flowing, a man with a hoe guides it here and there between the rows of peas and corn, so as to secure a tolerably uniform irrigation. The soil is light and sandy, and absorbs the whole in half an hour. By choosing for this process a time when the wind blows from the house to the garden, no inconvenience results, and the garden shows the benefits of this application of liquid manure. If this plan were to be used during the whole year, it would require more breadth of land and a greater distance from the house to avoid offence. But under the existing circumstances, where the character of soil and the slope of the surface, and direction of prevailing winds, all combine to favor this method, it has proved very satisfactory, and might be equally so if applied to a combination of houses. If the drain were allowed to discharge continually, directly from the house to the garden, it would flow as a dribble and accumulate a mass of filth at the point of discharge that would become a nuisance. The amount of attention required in this case is trifling, being only about ten minutes once a week, which is well repaid by the benefit to the crops.

The apparatus is all durable, and not likely to get out of repair. Its application without the labor of pumping is of course limited to those places where a sufficient slope of the ground exists to allow the bottom of the cesspool to be drained on to the surface of the ground within a reasonable distance. If no such slope exists, the labor of pumping by hand might be serious, and would, in case of a combination of several houses, justify the erection of a wind-mill or horse-power pump. If the houses were supplied by water under pressure, a larger quantity would probably be used than if it were all pumped, so that the size of the cesspool would either be increased, or the periods of emptying be made more frequent, all of which items must vary considerably with local circumstances and the wants of the families concerned.

Whenever cesspools of any kind are used, especial care must be taken to break the continuity of the drain between them and the house. The most efficient way to accomplish this in a climate where the winters are as severe as with us, is to have a running trap in the drain, of similar section with the drain itself, round and smooth, and to open the drain to the air on the side of the trap towards the house. (See Fig. 6.) As it is desirable to have this trap accessible, it is usually walled around up to the surface with a cover like that of a coal-scuttle at the top. In order to



Main Trap and Air Hole for House Drain.

Fig. 6.

admit the air freely this cover should be perforated with holes. When sewers are provided, some writers on the subject favor the omission of this trap on the main drain, on the ground that it obstructs the continuous flow of the sewage, and that the air of sewers, when properly constructed and ventilated, is not likely to be so bad as that of the house-drains. But I prefer the outside air to either, and do not regard the slight delay of drainage in passing through this one trap, as of much consequence. If it is so constructed as to have no square corners for accumulation of deposits, and if all the drainage of the house flows through it, nothing can stay there long. But this trap should never be applied without the air-hole as described above.

The material generally used for drains outside the house-walls is glazed stone-ware. It is a good material for the purpose when well made. It is furnished in lengths of two and three feet, with special forms for branches and bends. The defects to be avoided in using it are chiefly distorted forms, easily detected by the eye. It should be put together with hydraulic cement, care being taken to keep the joints concentric. Some people recommend hemp gaskets, to be used to hold the adjacent pieces concentric; but unless more length of socket is provided than in the forms now made, there is not much to be gained by using the gasket. Care should be taken to provide a continuous support for the pipe between the sockets by bedding it in cement for the whole length, unless good packing gravel is at hand which can be rammed in on either side. If this is not done, the weight of the filling is likely to break the pipe, particularly the smaller sizes. Care should also be taken to wipe out the surplus cement that is likely to project on the inside. If this is not done, solid rings of cement will be thus formed, that will dam up the sewage and entirely stop the pipe.

In laying pipes that are too small to allow a man's arm to work inside, say nine inches and smaller, this wiping the inside joint must be done with a swab held by a rattan, about a foot longer than the joint of pipe, kept in the last piece laid down and drawn through every joint after the cement is applied. In making connections between drains all rectangular junctions called T-branches should be avoided,



Fig. 7.

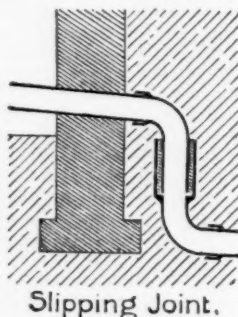


Fig. 8.

except on vertical lines. The joints known as Y-branches are the only ones fit to be used on horizontal lines. (See Fig. 7.) The use of rectangular connections is sure to be followed by deposits, through the eddy caused by the conflict of currents, as explained in the case of sewers.

A most important matter in laying drains is the character of the foundation on which they are laid. If upon filled land, it is liable to settlement, and since the stone-ware pipe, jointed with cement, is perfectly rigid, the least settlement breaks it somewhere, and leakage occurs. The buildings generally rest upon piles in such places, and the drain being therefore on a rigid foundation where it leaves the house-wall, is sheared off near this point by the settling of the material outside the wall in which it rests. The substitution of iron pipe for the stone-ware between the house and sewer does not remedy the trouble, for even iron would be broken under such circumstances. Where there is a foot or two of fall to be spared, the trouble may be remedied by making a step downward in the drain just outside the house-walls (See Fig. 8), making a vertical joint with a long lap and packing it with elastic cement; but this extra fall can hardly be provided in Boston upon the filled lands, without getting below tide-water, at least not until the new system of drainage shall come into use, through the intercepting-sewer now in progress. The weak point being just outside of the house-walls, can generally be made accessible in the same man-hole which serves for access to the main trap and air-hole; so that breakage can be detected and repaired without great cost, and, if inspected frequently, without incurring the risk of saturating the soil with filth in contact with the cellar walls as is often done by such leakage. I have seen it in some cases penetrating through stone foundation walls and up through concreted floors from the saturated soil outside. It is next to impossible to shut such filth out of the cellars after the soil once becomes thus polluted, for it is both fluid and gaseous, and penetrates the minutest pores. Even where the soil is firm, drains are often found to be broken just outside the cellar walls if they are laid above the bottom of the cellar excavation, as is sometimes done, owing to the loose condition of the soil that is filled under them at this point, where recently excavated. This can be corrected by puddling the filled material under the drain by water, and waiting a week or two after such puddling before laying the drain. It should be remembered that drains when once laid

and buried are out of sight and out of mind. A slight defect through poor workmanship can only be detected after some months, perhaps years, during which time the soil may have got polluted to an incurable degree. It therefore becomes of the first importance to see that the drains are laid in a permanent and workmanlike manner at first, otherwise the pollution may go on till the house is rendered untenable which would otherwise have been healthful.

The size and inclination of house-drains are important matters, to be settled by proper principles. Where but little rain-water is to be provided for, a four-inch pipe is large enough for any ordinary house drain whether outside or inside the walls. But it is generally desirable to take into the drain the rain-water from at least one half the house roof, for the sake of flushing the outside trap. Moreover, the stone-ware pipe when as small as four inches in diameter is too imperfect in shape to make a continuous smooth conduit, without slight offsets at the joints that interfere with the flow. So it is generally conceded that private houses should have at least six-inch drains when made of stone-ware and receiving some rain-water from the roof. This size is large enough for the sewage of a household of fifty persons or more, unless the rain-fall from more extended roof-surfaces is to be provided for. In this case the size of the drain is to be governed, first by its inclination, which is generally limited by local topography, and second, by the size of the roof to be drained. In our climate, a rainfall of one inch and a half per hour from the roof-surface should be provided for, adjusting the size of the drain to carry this rainfall. In such cases the sewage can be practically ignored, for its volume is insignificant in comparison with the rain-water. The problem becomes then a question in hydraulics, and reference must be had to the governing elements and well-known physical laws, from which we compute the required size. In order to make drains self-cleansing, their contents should have a velocity of at least two and a half or three feet per second. To attain this in a six-inch pipe a slope of one and one half per cent is required, when the drain is running half full, and it seldom is filled above that point. If this rate of slope cannot be attained, some provision must be made for frequent flushing to avoid deposits, for it must not be forgotten that the cardinal rule in drainage is to keep everything moving, and allow no sediment to remain in the pipes. Drains are often made of unnecessary size. This is a more serious defect than would at first appear, for increase of size beyond what is required for carrying capacity is an actual injury, by diminishing the scouring power of the current. It cannot be expected that the interior of our drains and sewers should be so clean as to be entirely free of the gases of decomposing matter, but it is very desirable to reduce their volume to a minimum, and then apply all possible precautions to prevent their mixing with the air we breathe.

The large increase of the quantity of water used in our houses at the present day, compared with that used by former generations, is justly regarded as a most valuable agent for raising the standard of cleanliness among the poor and for contributing to the comfort and luxury of the wealthier classes. But it must not be forgotten that the use of water in this way brings with it an increase of risk if not properly got rid of. The more water we use to dilute our sewage, the further it will penetrate through the pores of the soil, unless securely led off in proper channels, to proper places.

THE ILLUSTRATIONS.

ST. MARY'S CATHEDRAL, TRURO, ENGLAND. MR. JOHN L. PEARSON, A. R. A., ARCHITECT.

For a description of this building, see the letter of our London correspondent.

DOMES OF THE HARTFORD CAPITOL. MR. R. M. UPJOHN, ARCHITECT, NEW YORK, N. Y.

DELTA PSI CHAPTER-HOUSE, NEW YORK, N. Y. MR. JAMES RENWICK, ARCHITECT, NEW YORK, N. Y.

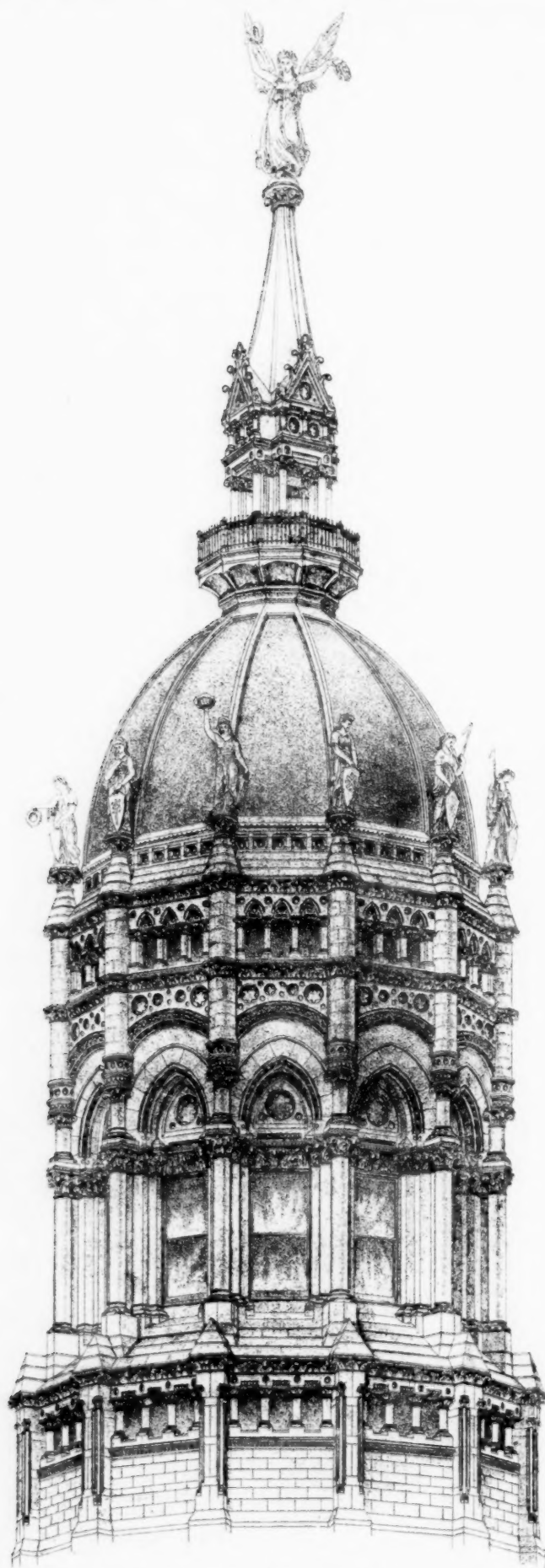
CORRESPONDENCE.

ARCHITECTURE AT THE ROYAL ACADEMY.

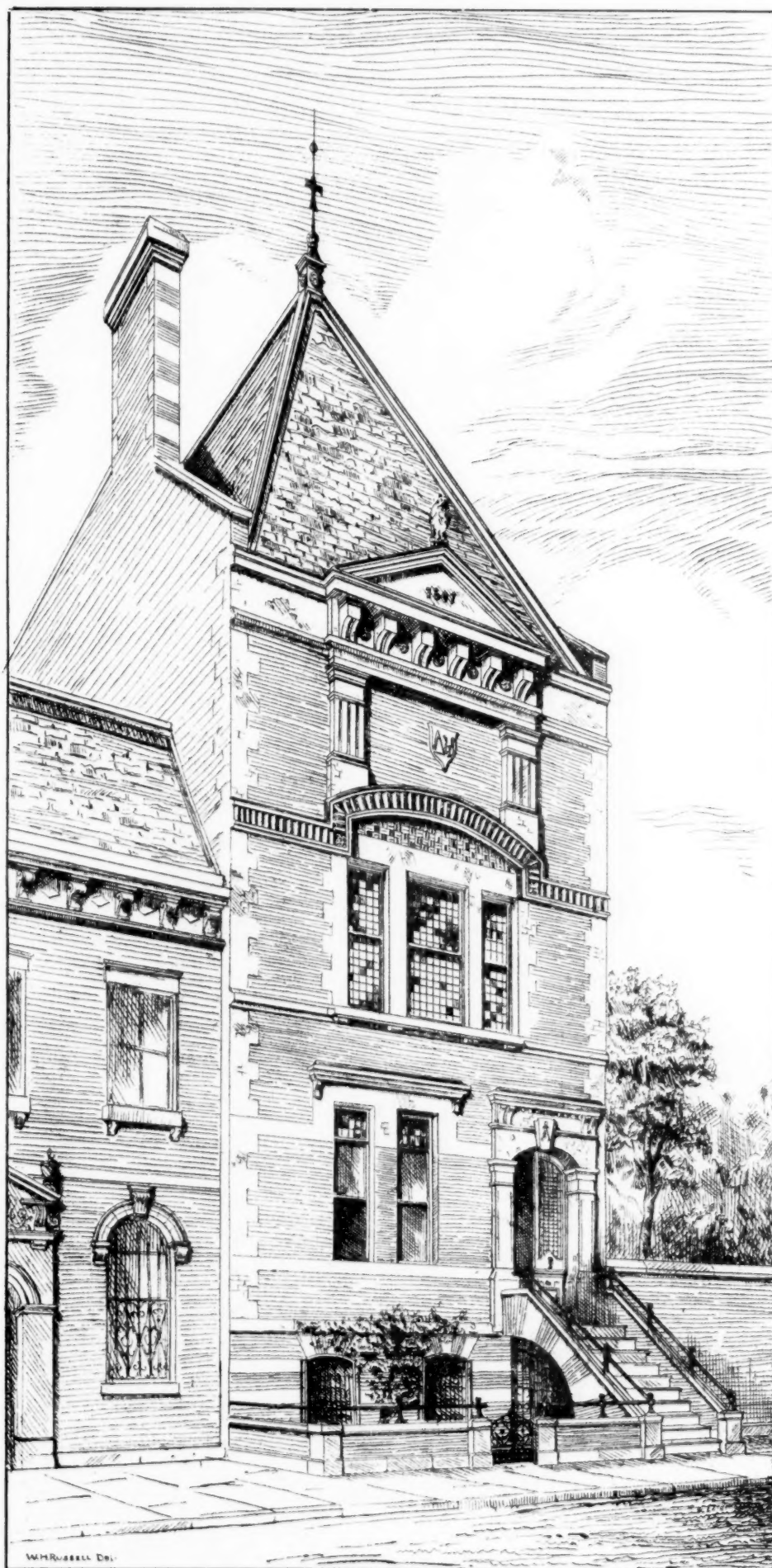
LONDON, May 17, 1880.

THE drawings and designs this year show a fair average of merit, and one is glad to see the general tendency is towards quiet good work, rather than to the fussy architecture of some former years. Though with the exception of one building — which we shall presently mention — there are no very striking designs, still, on the other hand, there are few utterly bad ones; the restlessness which it was to be feared might result from some recent work is toned down, and the outlook generally is typical of an advance in architecture as a fine art.

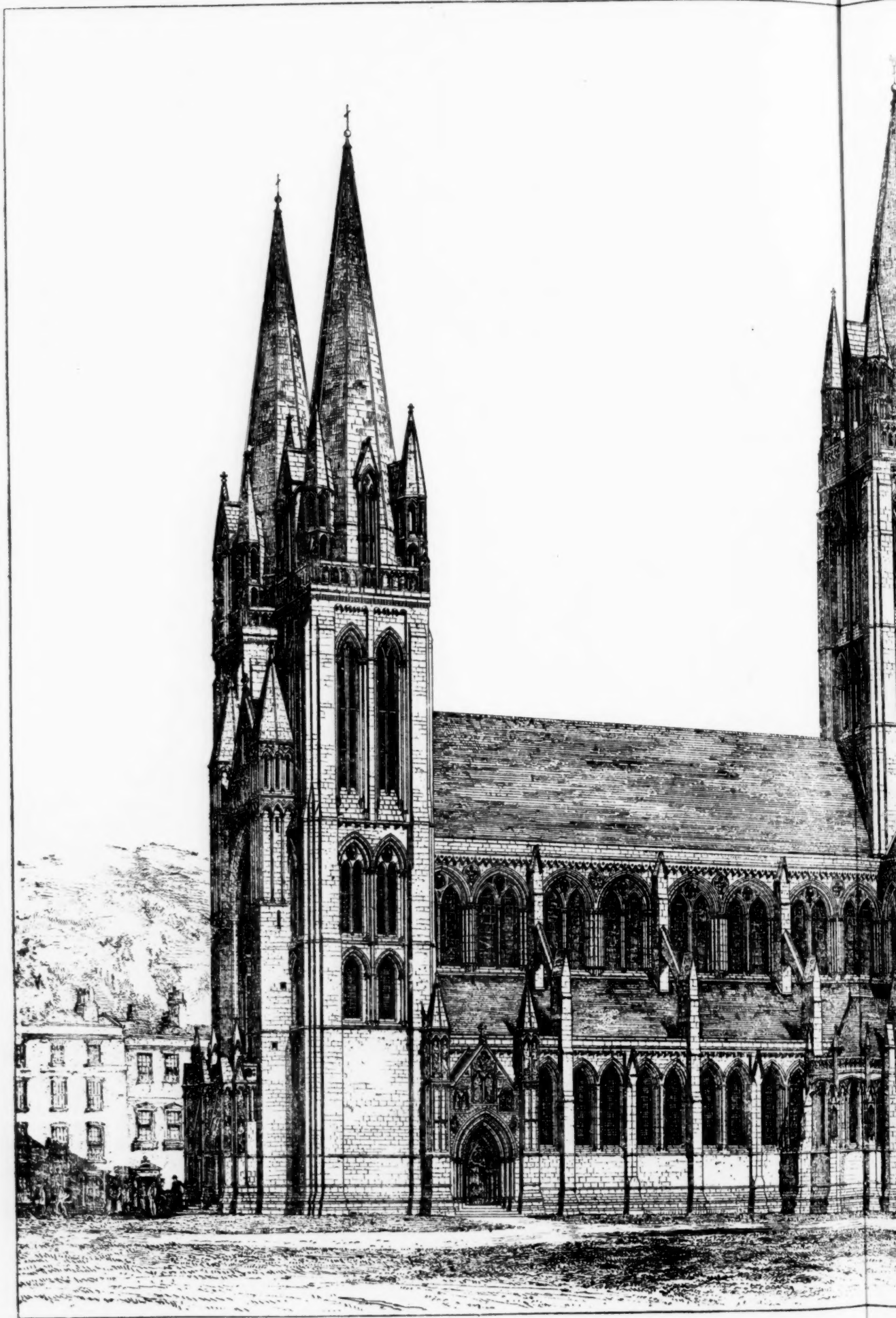
The exception just mentioned is Mr. Pearson's Truro Cathedral, a design so noble in itself, so worthy its author and the occasion which has called it forth, that as far as the architectural gallery is concerned the exhibition of 1880 may be remembered as the Truro Cathedral year; indeed, taken simply as a work of art, there is nothing to surpass it, either among the paintings or sculpture, and it goes to prove what has been asserted before now, that even with their sadly diminished numbers, the architectural R. A.'s and Associates are among the strongest members, artistically speaking, in the Academy. As such a design as this deserves more than a merely passing notice, we propose to give a few details concerning its features. It will be remembered that Mr. Pearson was chosen from among a selected list



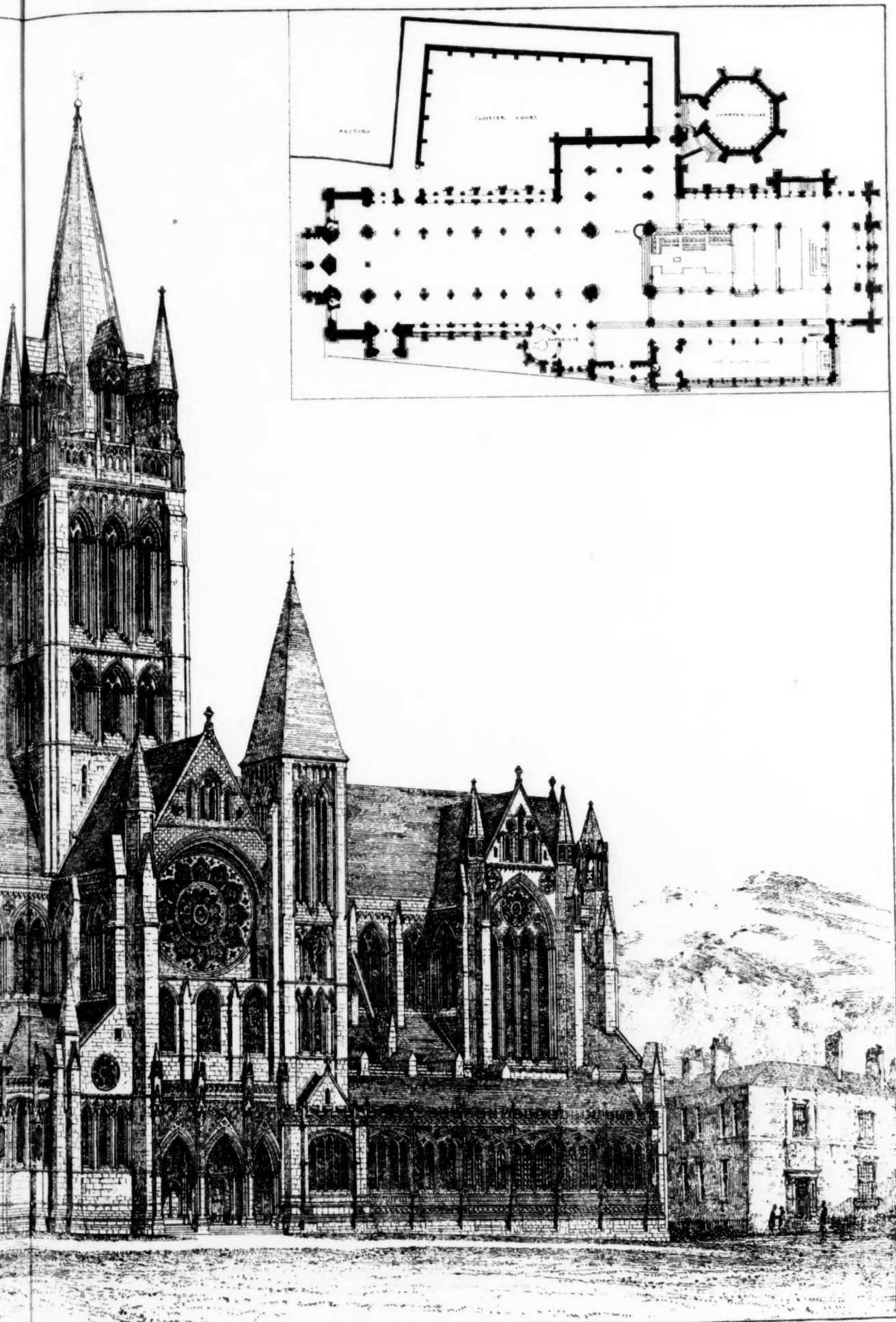
DOGE OF HARTFORD CAPITOL - ROSSCOE ARCHT.



Delta Psi Chapter House New York City · J. Renwick Archt.



TRURO CATHEDRAL
J. L. PEARSON, A. R. C. S.



CATHEDRAL, S. W. VIEW.
PERSON, A.R.A. ARCHITECT

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of architects, chiefly, it was understood, on the strength of his recently completed churches of St. Augustine's, and St. John's, Red Lion Square; and Truro Cathedral may be fairly said to be the legitimate successor of these fine works. Designed in the same style of thirteenth-century Gothic, it is marked by the same thought in planning, the same elegance of proportion, and the same refinement and delicacy of detail. Owing to the purchase of additional property on the north, Mr. Pearson has had the advantage of a larger area to work upon than was at first contemplated. The plan reminds us of Wells in its general proportions and arrangements; indeed, exclusive of the Presbytery and the Lady Chapel of the latter, the two are not far from the same size. The new cathedral is to consist of a nave and aisles, with two west towers, choir with aisles, transepts, with central tower at the crossing, a chapter-house and cloister-court on the north, a baptistery on the south worked into the angle of the nave and transept, while the south aisle of the old church of St. Mary, a structure of the fifteenth century, is retained on the south of the choir, as a chapel for morning services. There is also a crypt under the choir which will be used for vestries, etc. In length it is about 280 feet inside by 65 feet across the nave and aisles, and about 115 feet across the transepts. A clock-tower stands at the junction of the old aisle and the south transept, and the choir is enriched with additional transepts towards the east end. These features add much dignity to the grouping externally, and together with the great central and western towers, give a most cathedral aspect to the whole composition. One of the most noteworthy points in the plan is the admirable manner in which the old aisle of St. Mary's is worked into the choir; indeed, it seems to have given the key-note to the scale on which the whole work is set out. The charming baptistery with its circular end reminds us of the morning chapel of St. John's, while the double aisle walls (the inner one being arcaded) is a favorite arrangement with Mr. Pearson, and his fondness for galleries crops out at the west end of the nave, and the end of the north transept.

The entrances to the church are by a grand double doorway in the west end of the nave, a south porch, and a triple portal leading into the south transept, additional doorways lead also to the cloisters, and to the chapter-house. The general character of the windows is lancet lights; the gables of the nave and transepts are filled with large rose windows, the east end, and transepts of choir, with groups of tall lancet lights. The cathedral is vaulted throughout, and the central tower is open internally, forming a large square lantern, with an open-work gallery all round above the arches of the crossing. All this is most admirably designed, even for such a master of vaulting as Mr. Pearson has shown himself to be; the contrast, for instance, between the vaulting of the nave and choir is most effective, and the result of the whole will be a most noble and impressive interior. Externally, also, as has been said, the proportions and grouping of the several parts is very fine indeed, and it seems almost invidious to find fault. Nevertheless, we take exception to the treatment of the clock-tower, as seen in the southeast view: its roof is commonplace, and the belfry stage lanky in the extreme; it does not seem in harmony with the rest of the work. The central tower is very noble indeed, though the spire might be a trifle higher. On the other hand, the spires of the western towers seem to err on the side of height, as do also their belfry stages; but the simple unbroken buttresses rising from the ground, and the grouping of the pinnacles at the junction of the towers and spires, are beyond criticism. Taking it all through, it is probably the finest church designed since the Gothic revival, and when finished promises to be in every way worthy to rank with its older compeers.

We may add that the Prince of Wales, as Duke of Cornwall, laid the foundation-stone on the 20th ult., and that it is proposed to proceed with the choir and eastern portion first, at a cost of about £35,000. From £60,000 to £70,000 will be required for the rest of the work, so that £100,000 may be set down as the probable cost of the work complete. It is proposed to use Cornish stone for the walls, and cover the roof with red tiles, but these and other matters are still under consideration.

The building is shown in the Academy in four drawings,—which, by the way, might just as well have been hung together,—viz., elevations of the west and south fronts, a longitudinal section looking south, with a small scale plan, and a perspective view from the south-east.

Mr. Pearson also sends two views of Westwood House, Sydenham (Nos. 1120-1130), a charming residence in the style of François I., showing that he knows something of Renaissance as well as Gothic. But having noticed the great work of the year, we will proceed to notice the more important contributions, taking them as they come in the catalogue.

No. 1086. The Council Chamber, Wakefield Town-Hall, by Mr. T. E. Colcutt, is a good interior in free classic, with panelled walls and ornamental ceiling; the weak point seems to be the chimney-piece, which is lumpy and meaningless in design. 1087. Congregational Church, Bromley, by Mr. Jno. Sulman. A view of the west end, the gable of which is very picturesque, and cleverly managed, except the stair to the gallery, which looks very awkward indeed; style, early Gothic, like most of Mr. Sulman's churches. 1088. Grand Saloon, Kenhill, by Mr. J. J. Stevenson. Another interior, with very heavy beams to the ceiling, and very thin furniture—not at all up to what we should expect from its author, after all his study of such subjects. 1090. St. Oswald's College, Ellesmere, Shropshire, by Messrs. R. H. Carpenter and Ingelow. A very collegiate-looking piece of work,

of very English character. 1089. Another college, this time by Messrs. Dunn and Hanson, but not so good as the other, except the chapel. 1091. Garden front of a Surrey house, by G. E. Street, R. A. A most charming bit of half-timbered work, except the summer-house, the balcony of which looks exactly like one of Mr. Street's pulpits, the impression being heightened by the figure in it with outstretched hands as if preaching,—a most unhappy effect. 1100. House at Aigburth, by Mr. J. M. Brydon. A picturesque looking country house, with half-timbered gables, broad mullioned windows, and tall chimney-shafts. 1103. West London School of Art, by Mr. R. W. Edis. A most sensibly treated piece of work, showing a most effective street-front in brickwork, evidently thoroughly well adapted to its purpose. 1106. Boat-house and barge for the Oxford University Boat Club. A charming piece of Old English work, the upper part half-timbered. The barge looks like an old galley of the time of Queen Anne. Designed by Mr. J. O. Scott, and shown in a couple of very effective drawings. 1107. St. Joseph's Catholic Church, Guildford, by Mr. E. Ingress Bell. A very clever little church, in the Early English style, very well drawn and thoroughly good in feeling, both in plan and elevation, particularly the east end. 1108. No. 70 Marine Parade, Brighton, by Mr. R. W. Edis. A picturesque looking seaside house, with plenty of balconies to lounge about on—interesting design in many respects. 1110. Interior of the Church of St. Michael, Camden Town, by Messrs. Bodley and Garner. A very fine interior of a noble town church in sixteenth-century Gothic, very well detailed, as all Mr. Bodley's work is, but the simple barrel roof looks plain almost to bareness, unless it is intended to be decorated, which most likely it is. 1113. "Memorial to be erected at Chiselhurst to the late Prince Imperial," by Mr. E. R. Robson. This is simply a copy of a Runic cross, and might be a monument to anybody, for anything it has to do with the poor ill-fated Prince Imperial. 1117. "A House about to be built," by Mr. J. E. Colcutt. A most picturesque looking residence of a Queen Anne type—shown in a very clever drawing—slightly inclined to be eccentric, perhaps, but very good in detail and general design. 1119. Premises at the corner of Bond Street and Piccadilly, now building by Mr. Alfred Waterhouse, A. R. A. A rather commonplace looking building, in brick and terra-cotta, in Mr. Waterhouse's favorite phase of Gothic—not by any means equal to some of his other works, and so possessing less interest than is usual in his designs. The terra-cotta business seems getting overdone, if this is to be taken as a sample.

1125. Clumber House, Notts, by Charles Barry. A large drawing showing the restoration of this important classic house, with small sketches of its appearance after the disastrous fire which laid it in ruins some time ago. The type of classic of the old house has been retained, but the whole composition seems uninteresting the additions seem large and important, though the plans are on too small a scale to afford much opportunity for studying the arrangement; doubtless they are all that can be desired for comfort and convenience, but somehow, artistically speaking, the result is not very satisfactory, and it does not strike us as what a grand classic mansion should be, or that the most has been made of such a splendid opportunity. Very different is the "House at Sunninghill," by Mr. R. Norman Shaw, R. A., shown in two drawings (Nos. 1126 and 1127). One is the entrance front, and the other the garden front. The mansion is in the old English half-timbered style its architect knows so well how to use. The entrance front is perhaps plain to a fault, but that towards the garden is most charming—full of quiet picturesqueness and homely feeling—all the more welcome that some of Mr. Shaw's Queen Anne efforts of late have not been quite what one expects from an artist of his powers. But here at Sunninghill he is in his old element, and successful accordingly; the arrangement, too, of the plan is exceedingly interesting, and the rooms must be very pleasant to live in. This is Mr. Shaw's only contribution, and is so good that we wish for more from the same clever pencil.

Ere concluding the present notice, we must not overlook No. 1122. Proposed new belfry and ringer's loft to the tower of St. Lawrence's Church, Ipswich. A very clever design in late Gothic, by Mr. Howard Gage. It looks quite like old work, and we hope it will presently become something more than proposed, as it certainly deserves to be erected forthwith: so quiet a piece of work, and so English in feeling, is a relief after some of its more restless neighbors on the Academy walls.

ST. MARKS, VENICE.

THE following letter has been received from Mr. Street, R.A., by the Secretary of the Society for the Protection of Ancient Buildings:—

SUBIACO, March 19.

My dear Sir,—I have recently been able to examine the work executed in this church during the last few years, and at the same time to form an idea from what has already been commenced of what it has been proposed to do on the western façade of the church. It was nearly three years since I had been at Venice, but I am sorry to say that in every particular I find that the statements I made at the Oxford meeting were exact and perfectly justified. As to the state of the fabric, Mr. Stevenson's letter to you of December 18, 1879, was entirely confirmatory of my opinion, and I cannot find a word in Signor Meduna's letter to the *Building News* which contradicts or in any way opposes Mr. Stevenson's statements as to the state of this part of the structure. But as to the future, Signor Meduna complains that "it was asserted by Mr. Street that the

western façade was in a good state of construction, and that the alterations proposed would be detrimental to art." This, he says, is "an erroneous opinion," for that "the propositions which have been made tend in the direction of reparation and nothing more." To "reparation and nothing more," where it is absolutely required, I should be the last to object, and it was because I thought I saw evidences of a design to reconstruct and improve the west front after the manner which has most undoubtedly been pursued in the northern and southern façades that I spoke as I did. Now that I have again seen St. Mark's free from scaffolding, I am utterly unable to harmonize what every one can see already commenced with the "reparation and nothing more" of which Signor Meduna speaks. Nothing can be more exact, more neat and accurate in workmanship, or more true and level in all its lines than the new work recently executed on the southern façade. Few buildings ever erected were built with less regard to any of these modern ideas of what is excellent, and the consequence is that it is impossible to join such new work and such old work without an evident break in the system at the point of junction. Neither on plan nor in elevation does the new work already executed on the western front for a few feet in length from the south-west angle agree with the old plan or the old elevation. This is specially to be noticed in the plan. The whole façade has at its base a marble seat or step. In its former state this was continuous throughout. Signor Meduna's seat or base is already built for several feet, and at the point at which its steps it is 12 centimetres higher than the old step on which it abuts, and 15 centimetres in advance westward of it. It is difficult to conceive how this new work can have been executed by any one who only contemplated repair. What was evidently intended was to make the base straight on plan and level from the south-west to the north-west angle of the front. No other explanation of the work already executed for several feet on the western front is possible. Nor is there any way of getting over the difficulty which has been created, save the taking down of a good deal of the new work. The continuation of the work already done would actually involve the entire destruction of the whole west front! As to the ground plan of this front it is most important to observe that it was originally built and planned on a curved line, the centre being recessed about 25 centimetres from a line drawn from angle to angle. Mr. Ruskin many years ago drew attention to the way in which all the apparently corresponding dimensions of the archways and piers in this façade were varied with, as he said, "a true artistic instinct." I do not recollect whether he noticed the curvature of the plan. I had never before done so. But on trying to make out why Signor Meduna could have made his base project 15 centimetres in front of the old base, I became aware of the fact. The line adopted by him was intended to be carried in a straight line from the south-west angle to the north-west angle. In not one inch of its whole extent would it have stood where the old base ever stood, and in the centre it would have been 33 centimetres (1 foot 1 inch) in advance westward of the old work. If, however, this step, seat, or base is brought forward, it must be assumed that the whole of the rest of the work must be brought forward also. This, of course, means that the west front must be rebuilt in the same way as the north and south fronts, with the same hard straight lines everywhere. I turn now to what has been proposed as to the elevation. Here the base or plinth as far as the jamb of the first archway of the front has been built 12 centimetres above its old level, and the first columns of the front are placed so much higher than they used to be. The capitals of the new columns are about three inches higher than the old, the capitals of the second order of columns are about level with the old, while finally the parapet at the top is 15 centimetres (6 inches) higher than the old. If the intention was not to rebuild the whole front according to the corrected and exact dimensions of the new work, I can only say that one of the most strange blunders of which I ever heard has been perpetrated. Assuming that it was necessary to rebuild the south front, it would have been most easy to accommodate the new work to the old, both in plan and elevation; whereas now the columns with their bases and caps of the southern archway must all be taken down and rebuilt at a new level, then the next arch will be declared to be out of the level, and so on all along the front. In the same way the arcaded parapet already built must be taken down again, or the whole of the old balustrade or parapet will have to be rebuilt on the new level. It seems to me, I must say, to be less damaging to Signor Meduna as an engineer to assume that it was his intention to rebuild the whole front, than to suppose that he went on year by year with the work of renewing the southern façade and south-west angle without observing that he was getting both his plan and his levels different from those of the old work which he had to effect a junction with. I venture to say, therefore, that when we told the meeting at Oxford that the "total destruction and rebuilding of the west front" was proposed, so far from being as Signor Meduna says, "inexact" ("nothing can be more inexact" are his words), we were saying that which was the only possible conclusion from an examination of his own executed work.

Another point on which I spoke at the Oxford meeting also requires a few words from me. This is the renewal of the ancient mosaics of the baptistery. At the Oxford meeting I was able to exhibit several fragments of the old mosaics. These had been to a large extent taken down from the roof, and were lying in a heap in a chamber over the west front. This heap was seen by two of my informants. When at Venice I asked to have the door opened, and my request was refused.

The old mosaic is, no doubt, still there in a confused heap, though the restoration of it is nearly complete. Now, this restoration has undoubtedly, like all the work, been most carefully done. But the result is unfortunate. The new work is done, according to the fashion of the day, on paper and in a shop; its surface is, therefore, much neater and smoother than that of the old mosaic. Some of the old mosaic still remains; and as it does not agree in effect with the new portions, the white plaster joints are got rid of in favor of colored joints, and so the tone of the old work is brought up to something very like that of the new. So also in the merely decorative work the new is much harder and more exact in drawing than the old. I need hardly say that where so nearly complete a renewal of a mosaic has taken place, what is now left has no archaeological value whatever, and can only be regarded as a piece of new decoration founded upon an old design.

I am bound to say that I came away from Venice entirely in despair about St. Mark's. It is a building in which no single axiom of the perfect nineteenth-century workman was ever regarded by the old builders and decorators with an atom of respect. The men who built it drew everything by hand, set out everything by eye, and seem to have had an instinctive delight in curved and rounded and irregular surfaces and outlines everywhere.

The nineteenth-century workman does not care much about the quality of his mortar, his marble or his bricks, but he does care intensely to have every angle perfectly square, every dimension exact, and every line straight. If you add nineteenth-century work and modes of work to such a building, you come of necessity at last to a fatal dilemma. Signor Meduna has done this to demonstration, and the only cure for what he has done is to take some of it down again (at least, as far as the south-west angle) so as to make it possible to repair the south-western arch of the west front exactly on its old lines and levels. The rest of the front can then be left alone. If this course is not pursued, there is, I fear, no doubt but that bit by bit the anticipations which were indulged in at the Oxford meeting will be realized, and the plea will be that the lines of the façade were curved and irregular, and the dimensions of the arches and the piers unequal, and that all this inexactness requires cure and amendment.

Your society will, I am sure, hear with more than interest that the Ducal Palace is also being cleaned and restored. The weather stains are being cleaned from the exquisite capitals, and much new work is being done, but as I was unable to penetrate behind the hoarding which conceals a great part of it at present, I am unable to do more than state the fact.

I remain yours very faithfully,
GEORGE EDMUND STREET.

THE DRIVEN WELL.

FEW people familiar with the tube or driven well appreciate the fact that there is any essential difference between it and what is known as the dug well. The tube well is generally supposed to be a very narrow well, which works in the ordinary manner, the only point of difference being that of diameter. Colonel Green's discovery is, therefore, generally supposed to be simply one of making a very narrow well do the work of a wide one. Had this been the nature of the invention, or had there been no other element than this introduced, no patent would have been granted, and the first experiment with a tube well would probably never have been repeated. We find that people do not really understand the nature of the invention, nor how it happens that a tube well can be put down and give a continuous supply of water, when an ordinary well in the same spot would be dry or the supply intermittent. In the ordinary well we make a subterranean reservoir below the level at which the water stands in the soil, or we tap an underground spring, which partly fills the reservoir, and from this supply we draw our water. To fill the reservoir we depend entirely upon the action of gravity. Frequently, in cases of severe drought, the capillary attraction of the soil is great enough to prevent the diminished quantity of water falling by gravity, just as a sponge which has been thoroughly wet ceases to drip after a time, and holds the remaining water in suspension against the force of gravity. The tube well acts upon an altogether different principle, since the construction is such that gravity is not depended upon to force the water to the bottom of the well. The pump tube is driven through the earth, forming an air-tight cylinder reaching the water-bearing stratum, and upon working the pump a vacuum is formed in the tube, into which the atmosphere forces the water from the lowest stratum reached. This is the essential difference between the tube well and the dug well. In the one case gravity alone carries the water to the well, while in the other the atmospheric pressure of fifteen pounds per inch on the surface of the earth forces the water within it to rise in the tube when a vacuum is formed. It is essential, therefore, that the top of the tube or driven well should be tightly closed, in order that the water may be forced out of the soil. This difference of action explains why it is that the driven well is so frequently successful where it is almost impossible to obtain water from an ordinary well.

Two small pumps were set in a large box of sand, the tubes of each pump extending about thirty or thirty-six inches into the sand. In one case, the pump was surrounded with an open-topped case of perforated brass, some six inches in diameter. In the other, the tube was driven into the sand, as is usual in driven wells. The pumps and their attachments were miniatures of those commonly used for driven wells. Both pumps returned the water to the sand in the box, none being wasted. Water was poured into the sand, and, after a time, stood in the well above the top of the strainer upon the pump

tube. When the pumps were worked, it took but a short time to pump the well dry. On the other hand, the second pump could be worked continuously, the atmospheric pressure forcing a continuous supply to the pump. The well was then filled with sand and tightly packed, making what was equivalent to a driven well inside the perforated brass casing. When this was done, its pump could be worked and furnish a continuous supply, as in the second case. Another experiment was very conclusive. It employed an ordinary wide-mouthed jar and a small pump. Around the bottom of the jar a number of holes about one-sixteenth of an inch in diameter were made. There were twelve, if we remember rightly. The top of the jar was closed by a tight plate having an opening for a stopper in it. This jar was placed in a small square vessel of water which rose to the same level inside as outside the jar. If the plug in the top was left out and the pump worked, the water was rapidly reduced, not being able by force of gravity to flow into the jar as rapidly as it was removed by the pump, thus giving a fair illustration of what happens with an ordinary well in dry times. When the plug was inserted into the cover, the apparatus represented a driven well, and it was found that the air forced the water into the jar as fast as the pump could remove it; consequently there was a continuous supply. It often happens that upon stopping the pump the water stands higher in the jar than outside, owing to some of the air having been carried out by the water. These experiments demonstrate most conclusively that the driven or tube well differs from the ordinary well, not only in construction, but in its method of action. The differences, it will be seen, are radical and of the most important character. The tube well is not only cheaper, but it is more efficient than the dug or open well, and its capacity for delivering water is limited only by the amount in the soil, which is always more than can be exhausted by pumping. — *The Metal Worker.*

THE LARGEST CONCRETE TANK IN ENGLAND.

The students of the Institution of Civil Engineers lately visited the South Metropolitan Gas-works, adjoining the Surrey Canal, Old Kent-road, S. E. They were received by Mr. George Livesey, M. I. C. E., the engineer and secretary, who explained that the works contained few new features, except a series of large gas-tanks and holders, in which the company was trying to solve the problem of erecting, at a reasonable outlay, capacious gasometers that should be water and gas tight, on a low, marshy site, of very unfavorable character for securing stability of foundation. The gasometers stand in line on the company's works in the order of time at which they were erected, as well as in size. The chief improvement has been in the construction of the tank. The soil of the company's works, after a few feet of loam and a layer of gravel, is a fine running green sand, shifting in position, if wet, at every disturbance of the bed; at the depth of about forty-five feet, this is succeeded by a six-inch layer of flints, and that again by chalk deposits of unknown thickness, pierced by numerous springs. The difficulty encountered was that as each fresh excavation for a tank was made, the sand "ran" or "blowed," endangering those already built, and in some cases occasioning troublesome cracks and leaks, which had to be remedied. The first tank of the series was constructed in 1866, and is 127 feet six inches internal diameter, and is embedded thirty-five feet six inches below the surface. It was built in brickwork, surrounded by clay puddling to the ground-level, in order to render the sides impervious, and in the centre a cone of puddle was erected as a support to the roof of gas-holder. The next tank, formed in 1871-2, was 152 feet six inches diameter, and thirty-eight feet six inches deep. It was of "composite" character, of brick and concrete. The excavation was lined with nine-inch brickwork, with a fourteen-inch course of bricks at every two feet to serve as a keying for the concrete backing, varying from forty-two inches at bottom to eighteen inches. Hoop-iron was introduced as bond about every five feet. At the foot was a course of stone, which was also used for piers and for the centre of central cone, and, as before, clay puddle was filled in as a backing. The third tank, built in 1875-6, was 184 feet diameter by forty-seven feet deep, and in this the puddling and brickwork was replaced by concrete and cement rendering. The outer gas-holder was 180 feet across by forty-five feet, and the inner one 177 feet by forty-five feet three inches, and this had a roof of iron supported on timber-work and iron struts resting on a brick cone. This tank stood perfectly for a time, but, after being filled, five small cracks developed, and were now being repaired. The brickwork skin to the earlier tanks was adopted to save trouble in giving a true face to the work; but Mr. Livesey said he was satisfied it was needless as well as costly, and the present tank, like the last, is being constructed entirely in concrete, and when completed will be the largest of its kind. The dimensions as now being executed are 218 feet diameter and fifty-five feet six inches depth. The contractors for this tank are Messrs. T. Doewra and Son, of Balls-pond, N., who also built the previous tanks, and their contract, taken at £26,500, will be completed in about a month's time, and has now been in progress for twelve months, from Mr. Livesey's designs and under his superintendence. In excavating, great difficulties were occasioned by the influx of water, not alone from the sub-soil, but also from springs in the chalk; and a "sump" has been formed to which the water is drawn from under the tank, and is pumped at the average rate of 1,800 gallons per minute into the sewers. The drainage-holes in the tank are rendered round in cement, and will be calked up when the work is complete. Three hundred navvies, fourteen engines of

from six to twenty-five horse-power, three locomotives, and six steam-crane are employed on the works, besides two steam-pumps. Three eighteen-inch, and three fifteen-and-one-half-inch pumps are at work, capable of throwing three thousand gallons per minute, and at the lowest excavations they were in full use. Only one horse has been in use during the work. The concrete used is composed of seven parts of ballast, mixed with broken retorts and clinkers from the gas-works, to one of Portland cement. The walls vary in thickness from three feet at surface to five feet, the lowest portion being only four feet six inches thick. At intervals of every three or four feet, this is strengthened by iron bands, three and one-half inches wide, by one-half inch thick, set edgewise in double row, and the face is rendered to a true surface in three-fourths inch pure cement. This wall has been built by the ordinary boarding by day-labor, no special apparatus being employed. The concrete is mixed in the tank, care being taken by cleaning off the surface before laying another course to secure homogeneity in the work. This wall is backed up by the green sand found *in situ*, which, when kept dry, forms a solid and water-tight packing. The great central cone for the support of the roof, the cylinder upon it, twenty feet high and two feet thick, and the base platform between the tank wall and this cone, are also of concrete, no puddle, brick, or stone, being introduced, even for the heaviest work. Mr. Robinson mentioned that 13,000 fourteen-foot deals, as timbers, and 3,000 struts, of an average length of fifteen feet, had been used in support of the concrete walling. This work, as we have before intimated, is approaching completion, the cement-rendering being in progress over a great portion of the wall. The holder to be placed within and upon this concrete substructure will be in three lifts, rising when full to a height of nearly 160 feet above the surrounding streets. The holder of 1872 at these works was constructed of one-eighth inch plates with occasional ribs of $\frac{3}{16}$ inch metal; the extra thickness, instead of increasing the stability, was found to occasion unequal expansion and a slight "buckling," and the present holder will be throughout of one-eighth inch iron plates. The roof, which is supported by the gas when the holder is charged, will rest, when the vessel is empty, upon a timber frame not unlike the ribs of an umbrella, with simple struts between the beams. The usual cup and grip and water-joints will be adopted to render the tank and holder gas-tight. The total capacity of the new holder will be 5,678,000 cubic feet of gas, and the cost of tank and holder, including the necessary mains and connections, will exceed £50,000. — *The Building News.*

THE DESIGNS FOR THE BOSTON ART-CLUB BUILDING.

TO THE EDITOR OF THE AMERICAN ARCHITECT:

Dear Sir, — For the benefit of your readers at a distance, who may be competitors, or interested in this competition, I send you some notes, partly critical and partly descriptive. As no official notice has been given as to which designs have been selected, I refrain from mentioning the several designs by their respective mottoes. The exhibition of the designs has not been open to the general public, but soon after they were hung, a notice appeared in the *Boston Herald*, whether with or without the sanction of the Club, I cannot tell, but certainly I consider such notices unfair to the competitors, inasmuch as attention is thereby drawn to certain designs, described by the writer as being among the best.

Like every other competition, the *noms de plume* become a very transparent covering to the real names of the authors, but without even knowing the authors, a cursory glance at the drawings will easily show that the best architectural talent of Boston and New York is conspicuous by its absence. This must be disappointing to the Art Club, but can be readily explained by the fact that the time of the best architects is too fully occupied by important work, to try the uncertainties of gaining more in an architectural competition.

A long experience of competitions has convinced me that on the whole they are very unsatisfactory. They may be the means of bringing youthful talent to the front, but an architect's executed works ought to be his best recommendation. The Art Club is to be commended highly for the manner in which the conditions of the competition were drawn up, so as to avoid as much mechanical labor as possible in the representation of ideas. With some exceptions, the instructions have been complied with, and I presume the transgressors will be placed outside the list of competitors.

The followers of "Queen Anne" are fully represented: some designs are Renaissance of a different type, a few are Gothic, and none are in any of the strictly classical styles. In the chaotic state of architecture as a fine art, it is perhaps extremely difficult to give an opinion as to what might be an appropriate style for a club building. I have met some members of the profession who say, Let us have Gothic for churches, classic for public buildings, and "Queen Anne" for houses; and I suppose these same individuals would have Moorish or Turkish art for Turkish baths. However, I have always had great respect for the opinions of the uninitiated in the mysteries of architectural art, so that the remarks I heard in the room, from a member of the Club, whilst looking at the designs, naturally impressed me deeply. He simply said that a lot of the designs "looked like country hotels." A club with an art-gallery, in which to give public exhibitions of pictures, ought to partake of the character of a public building. It ought to have some repose, breadth and dignity about it, and be as beautiful and refined as art can make it. I do not think these qualities are found in many of the designs. We know that "Queen

Anne" is a style which can be treated in many different ways, but certainly it is inappropriate to treat a building of this class as a country house.

Many of the competitors exhibit designs in which the scale of the subsidiary parts to the whole is such that the building, if carried out, would lose the effect of size. Other Renaissance designs look like much larger buildings, compared with the former, owing to the subdivisions of their parts being on a smaller scale. Of the designs in this style, they cannot be said to show much improvement on former efforts, being for the most part weak or commonplace.

The planning in general is superior to the treatment of the exteriors, and shows great diversity. This was to be expected, as the instructions on this point left a good deal to the judgment of the competitors. There were to be two entrances, one public and another private, but as to which was to be most prominent, and whether they were both to be on Dartmouth Street, or one on each front, no suggestion was given. The billiard-room might be on any floor and of any size. I mention these things because a competitor at a distance, who knew nothing of the club membership nor its general working, would be placed at a disadvantage with, say, a local competitor who might be a member of the Club, and acquainted with all its requirements.

The position of the large hall on the second floor formed an important factor in the arrangement of the other rooms. The several plans exhibit this hall in every position. In one design the large hall extends across the whole length of the principal front, and covers about one-half the area. Externally this design shows a blank wall, broken only by some pilasters, and windows on the ground floor. Some of the designs have the outer wall of the large hall relieved by panels with sculpture, but in no case can the treatment of an unbroken wall with openings underneath be said to be very successful.

In more than one design the most valuable space on the first floor, at the angle of the site, is occupied with staircases, and one ingenious designer has made his stairs circular, the members' staircase being placed under the public one, occupies the same space on plan. The task of selecting six designs cannot be very difficult, for one-half of them are unsuitable, and after the designs that do not comply with the conditions have been separated from the remainder, the residue will leave little room for choice.

It will be interesting to note what alterations will be made by the selected competitors in the second competition, and how far they will profit by the ideas of their rivals. The last struggle ought to be a close one, and cannot be long delayed, as the Club gives evidence of being in earnest about building.

Yours truly,

R. B.

THE NEW YORK CHAPTER A. I. A., AND THE EXAMINATIONS FOR DEPUTY INSPECTORS.

NEW YORK, 15 June, 1880.

TO THE EDITOR OF THE AMERICAN ARCHITECT:

Sir, — I have just read the opening paragraph in your issue of the 12th inst.

The report of this branch of the Institute to which you allude mentions the fact that a special committee appointed by it to act in conjunction with the Mechanics' Exchange, reported that while regretting the paucity of eligible aspirants, they had recommended Mr. Robert McGinnis for the office of Deputy Superintendent of Buildings.

A. J. BLOOR.

NOTES AND CLIPPINGS.

A POSSIBLE CAUSE OF COLOR-BLINDNESS. — A Belgian physician is reported to have ascertained, during a journey of observation and inquiry made at the request of the Belgian Government, that the very general and excessive use of tobacco is the main cause of color-blindness, an affection which has occasioned very considerable anxiety, both in Belgium and Germany, from its influence upon railway and other accidents, and also from the military point of view.

MANUFACTURE OF SHEET LEAD IN CHINA. — The making of sheet lead for the lining of tea chests, etc., is a somewhat important industry of Hong Kong. It is made principally in sundry establishments to the westward. On entering one, workmen will be seen with shears busily employed in cutting out the sheets of lead into the required sizes and shapes. The shears are simply a large pair of scissors, firmly fixed to a solid block of wood some two feet in height. The lower blade of the shears terminates in a square piece of iron, instead of being pointed, as is the upper blade. The sheets of lead will also be observed to be of small size and somewhat irregular in shape, and this arises from the method of manufacture, as will subsequently be seen. Going further into the shop will be seen an iron pan raised twelve inches or so above the ground and carefully finished off. Beneath this iron pan is a furnace, and at the side of the pan next the wall is the flue communicating with it. In this pan the lead is melted, and when judged to be hot enough, the workman takes two of the large square paving tiles, which may be seen almost anywhere in the colony, and these are then smoothly and carefully covered with several layers of unsized paper. Having placed these two tiles before him, one above the other, the workman raises the upper tile with his left hand, and, taking a ladle of the proper size in his right, he dips it in the melted lead and then pours its contents on to the lower tile. He then drops the upper tile and quickly presses the lead out into the form of a sheet. The paper being a bad conductor of heat, the lead does not solidify immediately it leaves the ladle, and, as by long practice the workman always ladles out exactly the same quantity of lead, the sheets made vary but little either in size or thickness. — *Metal Worker.*

STATUE OF THE FRENCH REPUBLIC. — The second competition for the great statue of the Republic to be erected at Paris has resulted in the selection of the figure designed by M. Morice.

A TUNNEL UNDER THE ST. LAWRENCE. — A bill has been introduced into the local Legislature of Montreal to incorporate a company to construct a tunnel between the north and south banks of the St. Lawrence at that city. The tunnel is to be used by provincial and American railways, as well as by vehicles and pedestrians. The capital is \$5,000,000. Five years will be required for the completion of the work, if it is ever begun. The Grand Trunk is offering vigorous opposition in the interest of Victoria bridge, of which it has a monopoly, and charges such high tolls that other means of outlet from the city are absolutely necessary.

ONE USE FOR SAWDUST. — A Western exchange says that sawdust can be converted into a liquid wood, and afterwards into a solid, flexible and almost indestructible mass, which, when incorporated with animal matter, rolled and dried, can be used for the most delicate impressions, as well as for the formation of solid and durable articles, in the following manner: immerse the dust of any kind of wood in dilute sulphuric acid, sufficiently strong to affect the fibres, for some days; the finer parts are then passed through a sieve, well stirred and allowed to settle. Drain the liquid from the sediment, and mix the latter with a proportionate quantity of animal offal, similar to that used for glue. Roll the mass, pack it in moulds, and allow it to dry.

MR. STREET AS AN ANTI-RESTORATIONIST. — Not content with obliterating the art and history of St. Mark's, the authorities have begun to clean and restore the Ducal Palace! "The weather stains (says Mr. Street) are being cleaned from the exquisite capitals, and much new work is being done." Poor palace! We really are very sorry to hear of such sad work. . . . There was once a little cross church in Somersetshire of great interest to us. We sketched it, and measured it, and photographed it, till one fine day passing by we found it had been "restored." A curious passage cutting diagonally from the north transept to the chancel had been wholly swept away, moreover it was a mediæval piece of work and had many weather stains on its picturesque three-cornered roof. Mr. Street was the architect. Between the simple village church in England and the fine buildings of Venice there is really no more comparison than between a little ewe lamb and the beautiful daughter of Eliam. — *The British Architect.*

GAS FIXTURES AND MIRRORS. — In *McKeage vs. Hanover Fire Ins. Co.*, New York Court of Appeals, April 20, 1880, it was held that gas pipes which run through the walls and under the floors of a house are permanent parts of the building; but fixtures attached to those pipes where they are simply screwed on projections of the pipes from the walls, which can be detached by simply unscrewing them, are not. Neither are mirrors, put up after a house is built, supported in their places by hooks and supports, some of which are fastened with screws to the wood work and others driven into the walls and capable of being detached without injury to the walls. Such articles are not appurtenances. And the mere declaration of the owner that he intends that such articles shall go with the house does not make them realty, nor does the purchase of them with the house, as between a mortgagee under a mortgage from the purchaser and his lessee, even though the mortgagor, when negotiating for the lease, represents that they go with the house, no mention of that fact being made in the mortgage. And a purchaser from the mortgagor, without notice of such articles, would not be bound by the equities which might exist between the mortgagor and mortgagee by reason of such representations. — *Albany Law Journal.*

CLEOPATRA'S NEEDLE. — The New London (Conn.) *Telegram* has received a letter from Henry E. Davis, of Noank, who acts in the capacity of superintendent of removal to the party engaged in the attempt to bring the Egyptian obelisk to New York. Writing from Alexandria under date of May 11, Mr. Davis says that the original plan was to move the obelisk through the city of Alexandria on a truck which was brought from America for that purpose. The authorities, however, would not permit this, fearing that it would damage the sewers. It was then determined to build a float and lower the Needle onto it. This plan was successfully carried out, and the float was launched on the 30th of March last. It was simply a box, 83 feet long, 22 feet wide, and 8 feet deep, very strongly constructed. At the date of Mr. Davis's letter, the obelisk was in the dry-dock and the float had been demolished. The ship in which the obelisk will be brought to New York was expected to go into dock in a few days. An opening will be made in the bows sufficiently large to admit of the introduction of the Needle, which will be run in on cannon-balls, and the opening will then be closed up. It was expected that the ship would be in dock about six weeks, and that only a few days additional time would be required to complete all the preparations for her departure. After the obelisk was launched, the ways were reconstructed and a barge hauled out, on which were placed the pedestal and foundation stones. The pedestal was on board the ship at the date of Mr. Davis's letter. It weighed 44 tons, and was hoisted and lowered by means of derricks. Concerning the Masonic emblems on the Needle, about which there has been so much controversy, Mr. Davis writes as follows: "The Masonic emblems, about which there has been so much controversy through the papers, are, without doubt, genuine. You will see that the foundation is composed of three steps, the mytic number in Masonry; and inside of these steps was found the square, which is of granite, the same as the obelisk; also, the perfect ashler and the rough ashler, they are granite; the lamb-skin is of the whitest of marble; the square and perfect ashler are polished; the trowel is perfect in shape, although rather rusty; the steps are limestone, that has evidently been subjected to volcanic action at some period of the world, as they are very hard and take a fine polish. Mr. S. A. Zola, the Grand Master of the Grand Lodge of Egypt, says there is no doubt of their being purely Masonic, and he is considered the best authority in Egypt."

BUILDING INTELLIGENCE.

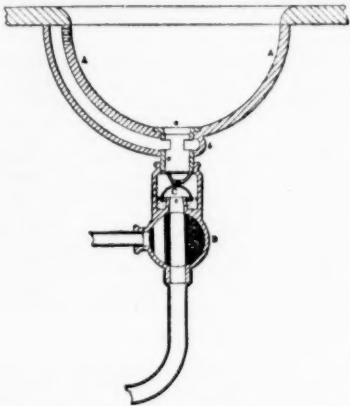
[Reported for The American Architect and Building News.]

[Although a large portion of the building intelligence is provided by their regular correspondents, the editors greatly desire to receive voluntary information, especially from the smaller and outlying towns.]

BUILDING PATENTS.

[Printed specifications of any patents here mentioned, together with full detail illustrations, may be obtained of the Commissioner of Patents, at Washington, for twenty-five cents.]

226,519. WASH-BASIN TRAP.—Jesse L. Hutchinson, Baltimore, Md. A is the wash-basin, and B a cleansing-cock substantially the same as that shown in letters patent No. 215,928, granted to the inventor in 1879. The cock forms a part of the waste-water pipe, and is secured over the end of the metal casing, a, of



the nozzle b; and to adapt this cock as a portion of the present improvements, around the inlet-opening in the same is formed an annular projection, c. C is a bell suspended from the metal casing, a, of the waste-water nozzle, b, in such a manner as to allow the waste-water to pass around it. The said bell fits loosely over the annular projection, c, and forms, in connection with the water, which is at all times retained between this projection and the outer casing of the cock, a trap which prevents the upward passage of foul air. It will be understood that if desired the annular projection, c, can be used in the waste-pipe, and the cock, b, omitted.

228,435. EASEL.—Alpha R. Beal, Newton, Mass.
228,437. MONKEY-WRENCH.—Stephen H. Bellows, Athol, Mass.

228,443. SKYLIGHT.—Frank M. Campbell and Anthony C. Dunlevy, St. Louis, Mo.
228,464. APPARATUS FOR DRYING SHINGLES.—Willard A. Kitts, Oswego, N. Y.

228,467. IRON PILE.—Isaac W. MacLay, Metuchen, N. J.

228,468. THEATRE-STAGE.—Marshall H. Mallory, New York, N. Y.

228,471. SASH-LOCK.—Sparrow M. Nickerson and James P. Tansey, Chicago, Ill.

228,472. SASH-LOCK.—The same.

228,473. ELEVATOR.—Wm. I. Page, Boston, Mass.

228,475. STEAM-HEATER.—John B. Pierce, Buffalo, N. Y.

228,518. PORTABLE AND ADJUSTABLE STAGING.—Alfred Dawes, Chelsea, Mass.

228,523. FASTENER FOR MEETING-RAILS OF SASHES.—Albert E. French, Detroit, Mich.

228,526. WEATHER-STRIP.—Daniel L. Grant, Philadelphia, Penn.

228,569. LATCH.—William E. Sparks, New Britain, Conn.

228,587. MODES OF FORMING HARD-FINISH ON PLASTERING.—William Arrouquer and Thomas Barrett, Worcester, Mass.

228,591. PORTABLE ELEVATOR.—Horace H. Barnes, Dryden, Mich.

228,597. FLEXIBLE BAND FOR BENDING WOOD.—Edward L. Buckingham, Jefferson, Wis.

228,604. WEATHER-STRIP.—John M. Ceis, Albilene, Kansas.

228,607. DOOR-HANGER.—Joseph W. Coburn, East Walpole, Mass.

228,616. RADIATOR.—John DuBois, DuBois, Penn.

228,647. FIRE-ESCAPE LADDER.—John F. H. King, Port Richmond, N. Y.

228,661. STRAINER FOR PRIVY-WELLS.—Barsheba Mensch, Philadelphia, Penn.

228,674. SEWER-GAS TRAP.—Albert F. Pfughaupt, Jr., of Brooklyn, N. Y.

228,707. PIPE-WRENCH.—William C. Westerfield, Chicago, Ill.

SUMMARY OF THE WEEK.

Baltimore.

BUILDING PERMITS.—The following building permits have been issued since the last report:

Chas. A. Flack, three-story brick building, cor. Fulton Ave. and Patterson Ave.

Jacob Saums, 8 two-story brick buildings, Prince St., between Pulaski and Smallwood Sts.

Mr. John Kelso, 2 three-story brick buildings, High St., between Hillen and French Sts.

E. W. Gorman, 6 two-story brick buildings, Burk St., between Canton and Eastern Aves.
Michael Ryan, three-story brick building on Arlington Ave., between Lanvale St. and Lafayette Ave., 19' x 60'.

Boston.

BUILDING PERMITS.—Wood, — Gilbert St., Ward 23, for M. F. Nolan, 1 dwell., 23' x 30'; D. Drew, builder.
Market St., Ward 25, for Sawyer, Hollis & Co., 1 ice-house, 50' x 50'; Stephen Holmes, builder.

Union Ave., Ward 23, for B. F. Sturtevant, 1 building for preserving castings, 50' x 50'.

Brick, — Cor. Beach St. and Harrison Ave., for J. D. W. Joy, 1 office-building, 30' x 94', three stories; I. C. Cooper, builder.

Union Ave., for B. F. Sturtevant, 1 factory for castings, 30' x 90'; C. W. Cole, builder.

St. James Ave., for T. W. Emerson, 1 dwell., 22' x 46', three stories; A. H. Caton, builder.

Marlboro' St., No. 180, 2 dwells., 25' x 62', three stories; S. Stillings, builder and owner.

Kneeland St., cor. Utica St., for Boston & Albany R. R., Passenger Station, 140' x 119'; A. R. Estey, architect; W. H. Russell, builder.

THEATRE.—Mr. Halleck proposes to build a theatre at City Point.

Brooklyn.

ADDITIONS.—Grace Court, one-story brick extension, 17' 3 x 33'; cost, \$2,000; owner, Josiah Dow; architects, Field & Son; builders, J. Brown and T. W. Jones.

Hicks St., No. 122, two-story brick extension, 15' x 20'; cost, \$1,800; owner, R. T. Hicks' estate, Henry St., cor. Clarke St.; mason, J. W. Campbell.

BUILDING PERMITS.—Tompkins Ave., cor. Lexington Ave., 1 three-story brick store and tenement, 29' 4' x 52' x 36' 7' x 52'; owner, Peter N. Wholers, cor. Myrtle Ave. and Walworth St.; architect, Isaac D. Reynolds; builders, M. J. J. Reynolds and S. C. Whitehead.

Bocum St., No. 81, three-story brick factory, 45' x 20'; cost, \$3,000; owners, Tumann & Co., 67 Chatham St.; builder, C. L. Johnson.

Ramsen St., No. 40, one four-story Conn. sandstone and brick dwell., 25' x 68' 4'; cost, about \$20,000; owner, A. T. White, 63 Broadway, New York; architects, Wm. Field & Son; builders, J. W. Hogencamp & Son, and McGuire & Sloane.

Quincy St., 3 three-story brown stone dwells., 15' 8' x 43'; cost, \$12,000; owner, etc., Benjamin Linekin, 216 Greene Ave.

Marcy Ave., 3 three-story brown stone dwells., 20' x 40'; owner, Stephen Phillips, 623 Willoughby Ave.

Pier between South Fifth and South Sixth Sts., 1 two-story brick storeroom, 300' x 225'; cost, \$5,000; owners, Havemeyer & Elder; architect, Theo. H. Havemeyer; builders, Thos. Winslow and J. James.

Even St., cor. Stagg St., 1 four-story brick store and tenement, 25' x 54'; owner, John Trimmings, cor. Stagg St. and Boulevard; architect, Th. Engelhardt; builders, G. Lehrman and C. Wieber.

Broadway, 1 three-story brick store and tenements, 75' x 90' and 75'; owner, H. Battermann, cor. Ewen St. and Broadway; architect, Th. Engelhardt.

HOSPITAL.—The corner-stone of the new Eastern District Hospital and Dispensary was laid last week. C. C. Buck, architect.

Chicago.

BUILDING PERMITS.—Walker's Empire Dock Company, Robey St., two-story office, 24' x 40'; cost, \$2,800.

H. Ruchenbuser, 649 Franklin St., two-story dwell., 22' x 50'; cost, \$2,600.

E. R. Rogers, cor. Ontario and St. Clair Sts., two-story dwell., 24' x 50'; cost, \$6,000.

W. T. Baker, cor. Michigan Ave. and Twenty-Third St., three-story and basement dwell. and store, 50' x 90'; cost, \$50,000.

H. E. Walker, cor. Indiana Ave. and Twenty-Ninth St., three-story brick; cost, \$12,000.

Jacob Steiner, cor. Clayton and Morgan Sts., two-story brick dwell. and store, 30' x 82'; cost, \$5,000.

A two-story dwell. for C. J. Hall, 24' x 53', at 267 Forquar St.; cost, \$3,500.

C. Robb, at No. 312 East Jefferson St., a two-story brick dwell., 36' x 48'; cost, \$4,000.

C. Johnson, cor. Webster Ave., a two-story brick building, 24' x 60'; cost, \$4,000.

Aug. Gantz, 689 Wells St., a two-story brick dwell.; cost, \$3,500.

Thomas O'Connell, a three-story store and dwell., Nos. 365 and 367 Blue Island Ave.; cost, \$7,000.

E. B. Washburn, an addition to dwell., cor. Maple St. and Dearborn place; cost, \$8,000.

Albert Koerner, a two-story dwell., No. 48 Bunker St.; cost, \$3,000.

Mr. Wherle, 5 three-story dwells., cor. of Thirty-Seventh St. and Vincennes Ave.; cost, \$25,000.

Joseph Medill, a two-story dwell., cor. of Cass and Ontario Sts.; cost, \$20,000.

Conrad Seipp, three-story dwell., cor. State and Goethe Sts.; cost, \$20,000.

Cincinnati.

BUILDING PERMITS.—The following building permits have been issued during the month of May:—

Forty-two (42) permits for repairs; total cost, \$12,805.

Total permits for the month, 71.

Total cost for the month, \$194,505.

Total permits to date, 285.

Total cost to date, \$686,080.

New York.

ALTERATIONS.—Madison Ave., cor. Fortieth St.; interior alterations; cost, \$6,500; owner, E. Brown; architects, Gambrell & Ficken.

Chatham St., cor. Baxter St., five-story brick extension, 17' 10' x 9' 6'; cost, \$2,500; owner, S. V. Hoffman; architect, John B. Snook.

Broadway, Nos. 565 and 567, new iron and plate glass show windows on first story front and on Prince St., etc.; cost, \$6,000; lessee, Max Stadler; architects, West & Anderson; builders, Robinson & Wallace and Fred. Robinson.

West Nineteenth St., No. 120, stable to be changed

to a tenement and store, building to be raised to four stories; cost, \$5,500; owner, E. Jansen; architect, Wm. Jose.

Fifth Ave., No. 428, two-story brick extension on rear, 16' x 24'; cost, \$2,500; owner, Charles G. Landon; architect, Charles M. Youngs; builders, Joseph Thompson and Edward Vreeland.

West Twelfth St., No. 219, three-story and basement brick dwell., pitch of roof to be changed; also a two-story brick extension, 21' x 12'; cost, \$2,150; owner, estate of Wm. C. Rhinelander; mason, H. M. Reynolds; carpenter, G. C. Moore.

East Fifty-Fifth St., Nos. 59 and 61, two four-story brick dwells., additional story to be built upon each rear extension; cost, \$2,200; owners, J. N. Ewell and Robert B. Holmes.

Chambers St., cor. West Broadway, new front to be put in first story; cost, \$2,000; owner, Thomas Hope; architect, John B. Snook.

William St., No. 215, front to be rebuilt on new line; cost, \$3,500, owner, Mrs. C. Ceragioli; masons, Peter Testevin's Sons; carpenter, Guy Culin.

Broadway, cor. Broome St., additional story to be built; cost, \$8,000; owner, ———; architect, Stephen D. Hatch.

West Thirteenth St., No. 158, two-story and basement brick extension, 20' 6' x 20'; cost, \$2,000; owner, Mrs. M. C. Black; architect, C. H. S. Hart; masons, W. & S. Conover; carpenter, Edward Gridley.

BUILDING PERMITS.—Third Ave., No. 349, 1 five-story brick tenement, 25' x 66' 3'; cost, \$16,000; owner, Peter Keller, 349 Third Ave.; architect, Julius Kastner.

Fourth Ave., 1 two-story frame storage house, 50' x 100'; cost, \$2,000; owner, E. C. Gates, on premises; builder, A. Towers.

Forty-First St., Nos. 517 and 519, 1 six-story brick factory, 50' x 97'; cost, \$18,000; owner, William Campbell, 515 West Forty-First St.; architects, Thom & Wilson; builder, G. W. Hill.

Fifty-Fourth St., 1 three-story brick stable, 25' x 70'; cost, \$12,000; owner, Robert Lynd, 50 West Fifty-Fourth St.; architect, John F. Wilson.

One Hundred and Eleventh St., No. 319, 1 two-story brick dwell. and office, 25' x 36'; cost, \$4,000; owner, Ratge Bunke, 309 East One Hundred and Eleventh St.; architect, A. H. Blankenstein; builder, H. Hafker.

Union Sq., 1 four-story brick store, 30' x 90'; cost, \$25,000; owner, G. Schirmer, 701 Broadway; architects, D. & J. Jardine; builder, C. Eberspacher.

Thirty-Fourth St., 1 three-story brick dwell. and office; cost, \$6,000; owner, East River Ferry Co.

West Third-Third St., No. 450, five-story brick (brown stone front) tenement, 30' x 82'; cost, \$15,000; owner, James McDonald, 446 West Third-Third St.; architect, Wm. Jose.

Lexington Ave., cor. One Hundred and Thirteenth St. and southwest cor. One Hundred and Fourteenth St., 2 three-story brick (brown stone front) dwells., 17' 7' x 45'; cost, \$10,000 each; owner, Ann E. Davis, One Hundred and Fifty-Eighth St., Kingsbridge Road; architect, J. H. Valentine; builder, J. B. Davis.

Lexington Ave., 10 three-story and basement brick (brown stone front dwells.), 16' 8' x 45'; cost, \$9,000 each; owner, architect and builder, same as last.

One Hundred and Tenth St., 2 four-story brick tenements, 25' x 60'; cost, \$10,000 each; owner, E. M. Meehan, 131 East One Hundred and Ninth St.; architect, Andrew Spence; builder, H. Meehan.

Sixty-Third St., 3 four-story brick (brown stone front) dwells., 16' 8' x 55'; cost, \$15,000 each; owner, James Campbell; architect, Fr. S. Barus.

One Hundred and Nineteenth St., 2 three-story brick (brown stone front) dwells., 12' 6' x 50'; cost, \$6,000 each; owner, Martha White, One Hundred and Thirty-Eighth St., near St. Ann's Ave.; architect, Chas. Baxter.

Eighty-Eighth St., 1 three-story brick apartment house, 22' x 56'; cost, \$10,000; owner, Emma J. Johnston, Astoria, L. I.; architect, John C. Burne.

East One Hundred and Twenty-First St., Nos. 329 and 331, 1 one-story frame school-house, 40' x 50'; cost, \$2,100; owners, Bethel Sunday School Association.

Washington St., 3 three-story brick stores, 18' 9' x 45' x 50'; cost, each, \$7,500; owner, Edward L. Donnelly, 259 West Twenty-Third St.; architect, Joseph M. Dunn; builder, Michael Reed.

Madison Ave., cor. Sixty-Second St., six four-story brick (brown stone front) dwells.; cost, (average) \$24,500; owner, architect and builder, Charles Buck, 63 East Forty-First St.

One Hundred and Twenty-Sixth St., 2 three-story brick (brown stone front) dwells., each 12' 6' x 55'; cost, each, \$7,000; owner, E. Pelham, 574 Lexington Ave.; architect, Geo. B. Pelham; masons, Van Dolan & Arnott; carpenters, Jeans & Taylor.

One Hundred and Fifteenth St., 7 three-story brick (brown stone front) dwells., each 16' 6' x 46'; cost, each, \$7,000; owner, Christopher Keys, on the premises; architect, John McIntyre.

One Hundred and Twenty-Fourth St., 1 four-story brick (brown stone front) dwell., 16' 8' x 50'; owner, Patrick McKegney, One Hundred and Twenty-Fourth St., between Seventh and Eighth Aves.

One Hundred and Fourteenth St., 5 four-story brick (brown stone front) apartment houses, each 21' x 60'; cost, each, \$13,500; owner, Joseph Emerich; architect, John F. Wilson.

COLOSSEUM.—Gillmore's Garden is to be replaced by a colosseum, to be built by the Barnum Museum Company, which was incorporated at Albany on the 7th. The capital stock will be \$3,000,000, divided into 30,000 shares, of which Mr. Vanderbilt has secured \$250,000 worth. The company has purchased the entire block on Madison Square for \$800,000, and will at once proceed to build an immense structure, which will include a colosseum, an opera house, several smaller entertainment rooms, a museum, a tropical garden, and an observatory, to be managed by Mr. P. T. Barnum. The building will be 200 by 225 feet, and will be five stories in height, of brick, stone, and iron. The observatory tower will be 250 feet high, and the structure will be fire-proof. The architect's plans will soon be made public.

FACTORIES.—Messrs. Smith & Howe have prepared

plans for a factory for General Spinola, to be built on Eighteenth St., between Avenues A and B. It will be three stories high, and cost \$20,000.
 Mr. W. R. Wood will have a factory built on premises Nos. 283 and 285, Front St.
GERMANIA THEATRE.—Messrs. H. J. Schwarzmann & Co., have completed designs for the Germania Theatre. It will have a frontage of 80 feet on Third Ave., and 150 on Fourteenth St. The main front will be of stone, other parts of brick with stone finish; adjoining will be a concert hall, of iron, 84' x 103'. The total cost will be about \$300,000.
PARK THEATRE.—The alterations lately mentioned, will include a new front; the cost, including decorations, will amount to \$20,000.
STORES.—Messrs. Thom & Wilson have drawn plans for three stores on One hundred and sixth St., corner Third Ave; brick fronts.
VESTRY-OFFICE.—The vestry-office of Trinity Church, at the corner of Fulton St. and Church St., is to be altered and repaired, at a cost of \$2,000; Mr. R. Deeves, contractor.

Philadelphia.

BUILDING PERMITS.—*Huntingdon St.*, 9 two-sty dwells, 14' x 44'; J. R. Pyle, contractor.
Ridge Ave., three-sty dwell, 17' x 47'; C. C. Linahan, contractor.
Germantown Ave., No. 4715, two-sty brick building, 13' x 42'; C. K. Frankensfield, contractor.
Eleventh St., 15 three-sty dwells, 16' x 56'; H. R. Schneck, contractor.
Commerce St., two-sty stable, 40' x 38'; Samuel Henderson, contractor.
Eighteenth St., cor. Federal St., three-sty dwell, 18' x 36'; Jno. O'Donnell, contractor.
North Twenty-Third St., Nos. 214, 216, and 218, three-sty store-house, 20' x 132'; W. L. Atkinson, contractor.
North Second St., No. 832, three-sty brick building, 20' x 50'; W. R. Farrell, contractor.
Craven St., No. 119, two-sty office-building, 28' x 31'; owner, Philip Griffiths.
Falls Lane, 2 three-sty dwells, 40' x 53'; contractor, John McGill.
Fifth St., cor. Lehigh Ave., 2 three-sty dwells, 20' x 50'; owner, Jacob Marsch.
Spruce St., No. 1914, three-sty brick building, 16' x 68'; E. Hentz, contractor.
Allen St., between Budd & Ludwig Sts., 7 two-sty dwells, 14' x 27'; Edward Gillen, contractor.
Trenton Ave., cor. Margaretta St., Frankford, two-sty factory, one-sty foundry, 87' x 68'; W. H. Bilven, contractor.
Twenty-Second St., cor. Mt. Vernon St., church alterations; A. A. Campbell, contractor.
Holmes St., cor. Otis St., 6 two-sty dwells, 16' x 40'; E. C. Sheppard, contractor.
Fourth St., third and fourth story additions to factory, 54' x 56'; J. S. Steel, contractor.
Economy Mills, Manayunk, third and fourth-sty additions to factory, 70' x 400'; Seville Schofield, contractor.
Clearfield St., east of Sixteenth St., one-sty factory, 32' x 60'; W. Macher, owner.
Ridge Ave., Nos. 3252 and 3254, 2 three-sty stores and dwells, 20' x 50'; Chas. Bartle, contractor.
Bolton St., 5 three-sty dwells, 14' x 45'; J. L. Carre, owner.
Walnut Lane, cor. Germantown Ave., second-sty addition to factory, 31' x 65'; Thomas W. Wright, contractor.
 Wilson Bros. & Co., architects, of this city, are now preparing plans for rebuilding the residence of B. K. Jamison, Esq., No. 3912 Walnut St., lately destroyed by fire.
 Messrs. Cooper & Conard have purchased additional property on Market St., 22' x 120', with the intention of altering their dry goods house adjoining, on the northeast corner of Ninth and Market Sts.
HOSPITALS.—Measures are taking to secure money enough to build a new Homeopathic Hospital.
 The Sisters of the Third Order of St. Francis are to build a new hospital at the corner of Broad and Mifflin Sts., which will be called St. Agnes' Hospital. White freestone will be the material, and the hospital will consist of a main building with two wings, capable of accommodating three hundred patients. It will be four stories high, counting the elevated basement. There will be a dwelling for the Sisters in the southwestern portion of the lot, fronting on McKean St.; a chapel in the rear centre, and the physician's dwellings on Mifflin St. The estimated cost of the whole is \$100,000. Mr. E. F. Durang is the architect.

St. Louis.

BUILDING PERMITS.—Thirty-three permits have been issued since our last report, three of which are for frame structures of slight importance. Of the rest, those worth \$2,500 and over are as follows:—

Owners Name.	Use.	Stories.	Rooms.	Cost.
Lindell Railway Co.,	Stable	2	4	12,000
F. Meise,	Dwell.	2	4	3,000
F. F. Meyer,	Store	3	3	7,000
Robt. J. Kilpatrick,	Foundry	1	3	5,000
M. Manning,	Dwell.	2	10	4,800
E. B. Hanson,	Dwell.	2	18	10,700
Maxwell & Bro.,	Stable	2	6	5,000
H. A. Cunningham,	Dwell.	3	6	6,000
J. J. Rosett,	Dwell.	2	12	3,500
C. Heschmann,	Dwell.	2	5	4,000

General Notes.

ALBANY, N. Y.—The old city-hall is to be replaced by one which is to cost about \$200,000, and Messrs. Dickson, Wright and Ogden, of this city, Mr. Robertson of New York, and Mr. Richardson of Brookline have been in consultation with the commissioners.
ATHOL, MASS.—The building committee of the new church are in consultation with a New York architect, who will soon submit plans for inspection.
ATTLEBORO, MASS.—Geo. A. Dean is building a house on Main St., after plans by Walker & Gould, of Providence, R. I.; mason's work, Patrick Farrell;

carpenter's work, Wilmarth & McKillop; cost, including stable, \$14,000.

BRIDGEPORT, CONN.—A gymnasium, to cost \$7,000, is to be built by Mr. M.

BROCKTON, MASS.—The First Congregationalist Society has voted to remodel and improve the church edifice, as recommended by the architect, Mr. T. W. Silloway, of Boston.

CASCADE, IOWA.—J. L. Conlin, of this place, is preparing to build a two-story brick residence, at a cost of about \$3,000; F. D. Hyde, architect, of Dubuque, Iowa, is preparing the plans.

CLEVELAND, O.—Blackburn & Charlott, architects, report the following from their office:—

A three-sty brown stone front dwell., for Isaac Reynolds; cost, \$14,000.

A two-sty frame dwell., on Cedar Ave., for Isaac Reynolds; cost, \$3,000.

A frame residence for Mr. Stanley, on Clinton St., 38' x 63'; contract, day work.

Two-sty fire-proof building for Cleveland Provision Company, 90' x 42'.

Two-sty frame dwell., for Norman Chamberlain, on Madison Ave.; cost, \$5,000.

Alterations on Benj. Rose's dwelling, on Euclid Ave.; contract, day work.

Four-sty brick building, for Cleveland Baking Co., 43' x 123'; cost, \$15,000.

COCKEYSVILLE, MD.—Mr. Geo. Archer, architect, of Baltimore, is preparing drawings for additions and alterations to Sherwood P. E. Church, to cost \$5,000.

DENVER, COL.—Emmett Anthony, architect, has completed the plans and commenced the work upon the following buildings:—

A three-story store, the front of stone and iron, for M. D. Clifford; cost, \$30,000.

Dwelling-house for Hon. Hermon Silver, Superintendent of U. S. Mint; cost, \$12,000.

Dwelling-house, for Hon. Edward Pisko; cost, \$10,000.

Dwelling-house, Appel Brothers; cost, \$8,000.

DETROIT, MICH.—H. George & Son, brick dwell., Edmund St., near Brush St.; cost, \$6,000.

H. George & Son, brick dwell., No. 35 West Montcalm St.; cost, \$8,500.

Isabella M. Thomas, frame dwell., No. 59 Leverette St.; cost, \$1,500.

Detroit Safe Company, addition to factory, East Fort St.; cost, \$5,000.

FRESNO, CAL.—The corner-stone of the new Catholic church was laid June 20th.

HUDSON, N. Y.—Mr. E. C. Withers, of New York, is preparing plans for a brick residence to be built for the Rev. E. R. Atwill.

IDA GROVE, IOWA.—The town has voted bonds to build a \$10,000 school-house.

LOUISIANA, MO.—Two handsome brick stores are in course of construction on Georgia St. One will be occupied by Dreyfus & Michael, and the other by Wald Bros.

LOUISVILLE, KY.—The foundation walls of the new Short Line freight depot, at First and Water Sts., are nearly completed. No building permit has been taken out, so the estimated cost of this improvement is not known.

The cost of building improvements made during last month, as shown by the permits, is \$126,200, an increase in value of \$17,350 over those of the same month last year.

A building for the Pietet Artificial Ice Company is building on Floyd St., under the charge of Mr. Clarke, architect. The building will be one story high, and will measure 42' x 125'.

W. H. Robinson is to build a two-and-one-half-sty brick dwelling on Broadway, between Floyd and Preston Sts.; cost, \$3,000.

MECHANICSBURG, O.—The corner-stone of the new A. M. E. Church, corner of Race and Walnut Sts., was laid May 30.

MENTOR, O.—General Garfield's residence is undergoing a general remodeling. Messrs. Blackburn & Charlott, of Cleveland, O., are the architects.

MIAMI, O.—The corner-stone of the new Catholic Church of St. Mary's of Good Hope was laid June 6. The building will measure 30' x 85'.

MICHIGANTOWN, IND.—Robert West is putting up a two-story dwelling on his farm; cost, \$3,000. J. W. Hammond, of Frankfort, is the architect.

MILLBURY, MASS.—The Millbury Savings Bank will build a brick block 77' x 52', with a room for both banks on the first floor.

MILWAUKEE, WIS.—The Industrial Exposition Association will erect a mammoth building, covering an entire block. Work will commence as soon as the architects can complete the plans.

MONMOUTH BEACH, N. J.—A \$15,000 frame house is nearly completed for Mr. James M. Dunbar. Plans were drawn by Mr. F. C. Withers, of New York.

MORRIS, MINN.—The Episcopalians talk of building a church and a parsonage this season.

NEW MILFORD, MASS.—The First Episcopal Society accepts the gift of a church site from the late Miss C. E. Boardman, and will comply with her condition that the building shall be of stone.

NORLEYSVILLE, IND.—A brick house which will cost \$6,000 is to be built from the designs of B. V. Enos & Son, architects, Indianapolis.

NORTH ATTLEBORO, MASS.—Mr. H. N. Daggett has broken ground for a large store on the corner of High St. and Commonwealth Ave.

NORTHFIELD, MASS.—A seminary for young ladies will probably be finished the coming fall. It is of brick and granite, and will cost \$25,000. The partitions also are of brick. The main building measures 42' x 100', and will accommodate fifty pupils. A. R. & E. S. Foster, builders, Messrs. Cber & Rand, of Boston, architects.

PATERSON, N. J.—For the Rogers Locomotive Works a fire-proof office-building, 25' x 100' three stories high, is to be built, from designs of Mr. Chas. Edwards, architect, of Paterson. The building will be of brick.

PORTSVILLE, MASS.—The Catholic church is to be taken down and rebuilt.

WORCESTER, MASS.—Proposals for building the new city hospital, as designed by Messrs. Fuller & Delano, were received June 3.

Industrial.

LOCK HAVEN, PA.—At a citizens' meeting, sufficient money was subscribed to ensure a paper and pulp manufactory being built by Armstrong, Dixon & Co., of Philadelphia.

STAFFORD SPRINGS, CONN.—The Rawitsters are making an addition to their mill. They are also building three large tenement houses.

NEWMARKET, N. H.—The town is to exempt from taxation for ten years the mill to be built by the Newmarket Manufacturing Company, in which S. A. Haley is a director.

TRINIDAD, COL.—W. H. Walsh & Co. are building a new mill.

WOOD HAVEN, N. Y.—The Llalance & Grosjean Manufacturing Company are building two new brick buildings.

PHILADELPHIA, PA.—A cotton mill will be built on the site of the Empire Car Works.

PHOENIXVILLE, PA.—Acker & Co. are building a new foundry.

HOUSTON, TEXAS.—The Monument Mills Company are building an addition, 100' x 50', four stories high. Back of that they will put a dyehouse, 118 feet long, an addition to the "Wawbeek" mill, 42 feet long, of the same width and height as the main mill, and a new bleach-house, 120 feet long.

CLANTON, ALA.—J. A. Maddox is building a mill.

Bids and Contracts.

NEW YORK, N. Y.—Mr. T. Kernan has been awarded the contract for building the Deaf and Dumb Asylum, corner Sixty-Seventh St. and Lexington Ave.

The Building Committee of the Stock Exchange have accepted the bids of Mr. Ed. Gridley, for carpenter's work; Messrs. Sinclair & Co., for marble front; and of Messrs. J. B. and J. M. Cornell, for iron work.

The Dock Department have awarded the contract for 5,000 bbbs. of Portland cement to S. L. Merchant.

The contract for tiling St. Bartholomew Church, corner Forty-Fourth St. and Madison Ave. has been awarded to Mr. S. L. Merchant.

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THE NEW ROCKAWAY BEACH HOTEL.

The new Rockaway Beach Hotel is to be well heated by steam, not only for the comfort of the guests during the cold rains which come in the early fall, but so that it can be kept open during the winter. The success of Atlantic City during the past two winters gives promise that this novel plan of the enterprising proprietors will meet with success. The steam-heating is being done by Mr. W. H. Warner, of 114 Leonard St., N. Y., who has also the contract for Mr. Weston's apartment-house at Washington, mentioned in another column. Mr. Warner has just finished the Stevens office-building on Wall St., the new Phoenix Insurance Building in Brooklyn, and is doing some of the fine residences in the upper part of New York City and elsewhere.

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