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By a not unnatural mistranslation, the telegraph is reported as having announced on Saturday last, that the "Dome of the Cathedral of Cologne" was finished on that day, by the placing of the last stone in the final of the second tower. As Cologne Cathedral possesses nothing which could by any possible courtesy be called the "dome," the despatch probably read simply the "Dom," that is, "the Cathedral," without any implication of a cupola. However that may be, the completion of this great church is an important event, not only in architecture, but in history. It is now six hundred and thirty-two years since the building was begun, from plans made either by Satan or by Gerhard von Rile. Both theories have had their advocates, but, at this distance of time, we will not undertake to decide definitely in favor of either. The design is in style much more French than German, imitating, or perhaps we should say, derived more particularly from the Cathedral of Amiens, which was mainly completed ten years before, and its rival, Beauvais, which was still in process of construction. In many respects Cologne shows an advance upon its prototypes; the double-aisled plan is here completely carried out, while the proportions of parts, the curves of arches, and subordination of details, are designed with a precision and certainty which seem to indicate an ideal fully realized,—a science which cannot be surpassed. Perhaps for this very reason, its effect is to most persons cold. The originality, the variety of ideas, even the partial failures, which interest and touch one in the older churches are wanting in the conscious perfection of Cologne. Nevertheless, it is a very noble and beautiful building, and its completion may well be celebrated with rejoicing throughout Germany. Long as it has been in construction, it has arrived, as the French say, a thing which can be asserted of very few of its Continental rivals north of the Alps.

A CORRESPONDENT writes us, enclosing a letter to him from a certain manufacturing company, in which they propose to him, as architect, to allow him a "commission" of twenty per cent of the amount of the invoice on all goods of their make which he may call for in his specifications. He is, as any honorable man might be, a little indignant over what he calls an attempt at bribery, and suggests that we notice it in our columns. While we sympathize sincerely with his disgust at being made the object of such an offer, we cannot feel that it would be justifiable to expose the parties who made it to an imputation which, in the minds of those inexperienced in the customs of trade, might be much more severe than they deserve. Our correspondent remarks that they advertise in our paper, and seems to think that we ought to act a Spartan part, and condemn his tempters at the risk of losing their money. We have played the Spartan in this way a good many times before now, so we feel the less hesitation in saying that in this case, as in the similar ones which are frequently brought to our notice, we think that improper motives are too often attributed by architects to the dealers and manufacturers who make such propositions. Of course, we do not intend that they are to take advantage of them, and we are convinced that only those of the meanest breed do so, but they must remember that the outside world knows little of their professional standard of honor toward their clients, and that for any one who wishes to push the sale of an article the most natural thing in the world is to

try to make it for the pecuniary interest of those who can control custom to help him. The stove manufacturer does not meet with any indignant protests when he offers to the custom a new baseburner, which is just as good, and can be sold for as high a price, as the old patterns, but of which the wholesale cost is less, and it is not very surprising if he finds the disgust of the architect to whom he offers similar inducements rather difficult to comprehend.

THE stove dealers or hardware manufacturers, or builders will, moreover, be still more confused if they happen first upon some of the unscrupulous members of the profession, who consent, as a matter of course, to be paid for the trouble of "introducing" their wares, and as they are not unlikely to fall upon some such, whose names in the directory are indistinguishable from those of the scorners of bribes, it can hardly be wondered at if in their circulars and communications to the profession at large they think it the part of prudence to offer equal inducements to all. The more intelligent of them gain ultimately an obscure idea that most architects think it improper to take the money which they might get so easily, and learn to make their offers a little under their breath, as it were, but we doubt if many of them ever comprehend clearly the frame of mind of the honorable professional man, who places his service to his client, thorough, devoted, and careless of selfish considerations, in the first place, and his remuneration in the second, as distinguished from that of the trader, for whom honest profit is, legitimately enough, the principal object, and the service of his customers secondary. If architects and lawyers would put a stop to the practice of offering irregular commissions, the work must be begun in their own professions. In ours, at least, not much needs to be done. One of the last individuals who was kind enough to suppose that we would ourselves be induced by the prospect of a cash discount to use an article which might not recommend itself by merit, confessed to us that he had never found an architect who would entertain his proposals, and we believe that most offers of a similar character meet with no better reception. The thing that is now needed, is, we think, to confirm and establish the habits which good architects have adopted, by making the betrayal of the confidential relation with their clients, in which they take pride, a legal misdemeanor as well as a violation of professional etiquette, and we hope that all who resent the mercenary propositions which are made to them will use their influence to promote the enactment of statutes to that end, and thereby make their position before the public as honorable as that which they try to occupy with regard to their clients.

It is not many years since the front of the great Cathedral of Paris could only be seen either from a point very near, or across a mass of small or squalid buildings. It is true that in certain ways the contrast and the perspective furnished by the retreating succession of roofs added much to the dignity and apparent size of the building, but fashion demanded that the "façade" should be exposed to unobstructed view, and the present *Place du Parvis Notre Dame* was opened by the demolition of the houses which stood in the way. This *place* is at present rather a barren extent of paving-stones, but it is intended to enlarge and improve it. About sixty feet will be added to the width by the razing of the ancient Hôtel-Dieu, and the extension of the line of *quais* over the site; a colossal statue of Charlemagne, of beaten copper, we believe, which has been rather ignominiously refused a resting-place in several other parts of the city, is to be set up in the middle, and it is proposed to re-establish the ancient "*borne*," or mile-stone, at the left of the portal of the church, from which were measured the distances from the metropolis to all points of France. It was at one time suggested to plant the *place* with trees, but this idea has been abandoned, through fear that the view of the front would be obstructed. Perhaps these demolitions and clearings are necessary for the understanding of the architecture of such buildings, but there is a picturesqueness in the huddling of houses about the flanks of the mediæval churches which touches the imagination in a way that no spacious propriety of surroundings can equal, and some, at least, of those who remember Notre Dame in its neglected days, will be sorry to exchange their recollections of it for the present respectable reality.

OBELISKS, like elephants, do not seem to confer unmixed happiness upon those who own or care for them, judging from the experience not only of Commander Gorringe, but of the public-spirited gentlemen who imported the stone now set up on the Thames embankment in London. It will be remembered that ten thousand pounds was contributed by Professor Erasmus Wilson toward the enterprise of shipping and conveying this to England, and a further sum being needed, Mr. Dixon contributed an additional four thousand pounds, and insured the monument to that amount for the voyage. On the passage, the vessel, or float, in which it was transported was abandoned during a storm, and recovered by wreckers, who claimed salvage. For the purpose of fixing the amount of salvage, an appraisal was made, which put the value of the obelisk at twenty-five thousand pounds, and two thousand were accordingly awarded to the salvors, besides the costs. Mr. Dixon then sued the insurance company for reimbursement, and recovered judgment for fifteen hundred pounds, but an appeal was taken to the House of Lords, which reversed the judgment, and condemned Mr. Dixon to pay the costs of both sides, five thousand pounds more, his law expenses alone thus amounting to sixty-five hundred pounds. This seems to have exhausted the nourishment which Mr. Dixon and his obelisk were able or willing to supply to the lawyers, and the stone was finally set up in its new home. The restorers and art-workmen seem to have fastened upon it now, and are improving it by additions of sphinxes and other ornaments in the Egyptian taste. Whether the New York example will involve the officers and gentlemen who brought it over in similar misfortunes it is too early to say, but it would seem that they may count on one thing with certainty, the ingratitude and discourtesy of all the officials who represent the city to which they are making so noble a gift.

WE have sometimes occasion to speak of cases involving the right of one proprietor to light and air over the estate of another. In England, that chosen abode of every kind of prescription, quarrels over "ancient lights" furnish a rich harvest for the lawyers, and even in France there are frequent cases which even the prescience of the Code has not provided for. In this country, however, although quarrels on the subject are sufficiently numerous, an appeal to law is rare, for the reason that our courts usually refuse to recognize the right of one proprietor, simply by stealing for a length of time air and light which he had not paid for, to gain a property in such light, by which he can deprive his neighbor partially or wholly of the use of his own estate. The New York *Sun* has collected a few decisions which show the drift of our common law on such points. In a case decided in the Supreme Court of New York in 1855, the judge held that—"The person who makes a window in his house which overlooks the property of a neighbor, does an act which he strictly has no right to do. He enjoys an easement of his neighbor's property which in time may ripen into a right; but before sufficient time has elapsed to raise the *presumption of a grant*, he has no right." This seems to us an admirable statement of the matter. The same court in the following year decided in another case that "Darkening another's window, or depriving him of a prospect by building on one's own land, unless a right to unobstructed light has been acquired by grant or prescription" (such as would raise the presumption of a grant) "invades no legal right." Some singular applications of home-made law on these points are to be observed in our cities. It is related that a man in one of our cities was indignant because his neighbor opened windows which overlooked his garden, but could not find any way to retaliate, until, hearing that the offender was a connoisseur of very delicate taste in architecture, he conceived the idea of annoying his artistic sense by erecting in his back-yard a pyramid, or "pagoda," composed of a hodge-podge of all known styles in the worst possible proportions. What the result was we do not know, but we should suppose that such an object would have little terror for a citizen of most American towns.

A CONTRACTOR writes to *La Semaine des Constructeurs* for advice in a case to which many of our readers have probably seen a parallel. He says that he has been awarded a contract for the carpenter-work and joinery of a certain important public building, under the usual penalty for delay beyond a stipulated time, and with, moreover, certain periods fixed in the agreement for particular portions of the work to be completed. Supposing, naturally enough, that the masonry of the building

would be ready to receive his finish at the time mentioned in the contract, he bought his stock, and entered into sub-contracts at four months' credit for making it up into doors, flooring, wainscot and the other details described in the specification. Now, however, although he has done what his agreement required, he finds that the other contractors have not fulfilled theirs. He was bound under penalty to cover in the building before winter, and his roof is all prepared, but the walls are only up to the water-table, and it will be impossible to get them ready for the roof this year. Meanwhile, as he says, his finish is being delivered every day, and his sub-contractors notify him that payment will be required at the expiration of the four months after delivery, but on applying to the authorities for advances on account of work done and ready for fixing, under his agreement with them, he is refused, on the ground that it is not yet set up in the building. Not only does he feel that this is unjust, but, having agreed to a forfeiture of fifty francs for each day of delay beyond a certain date, he wishes to know whether, as his work must wait for the completion of the masonry, whenever that may be, he will have to lose the forfeiture; especially considering that, as he says, the delay of the masonry is mainly owing to the failure of the authorities, or their architect, to deliver plans and details for stone-work. M. Ravon, the legal editor of the journal, replies in a way which must give his correspondent much comfort; saying that the fixing in the contract of certain days for completion of certain work implied a guarantee (*engagement*) on the part of the authorities that the contractor should have the opportunity to fulfill his agreement, and advising him to call for a referee to estimate the delay, and the damage thereby caused to him, and to claim the payments under his contract and indemnity for the loss he may suffer.

Two questions are put to *La Semaine des Constructeurs*, by a city correspondent. The first is: Has an architect the right to require payments, on account, for his services while the building which he has designed is in progress? To this the answer is given, that by usage, and the decision of courts, an architect, whose duties have been necessarily in great part completed before the actual work of building is commenced, is clearly entitled to payments on account before it is completed. Not only this, but it is further asserted that he has the right, if such payments on account are refused, after notice to the proprietor, to stop the execution of the work at the cost and risk of the latter, until his claims are satisfied. The second question concerns builders, rather than architects. In constructing a high wall, adjoining a certain house, but independent of it, a scaffolding was necessarily placed upon the latter, injuring it to some extent. Who, the correspondent asks, should pay for making good the damage, the builder, or the owner of the new structure? The reply to this inquiry, is that this expense is legitimately a part of the cost of building the new wall, although it might not have been foreseen, and consequently should be paid by the owner of the new wall. This opinion should, we think, be taken with allowance. If the contractor had simply agreed to lay so many perch of stone, furnishing the scaffolding therefore, he might, perhaps, justly argue that he was not bound to make good any damage caused by his operations, though even this we think doubtful; and if he had been working by the day, unquestionably the proprietor would have had to satisfy his neighbor's claims; but an agreement, pure and simple, to build a certain wall, would, we think, throw the risk involved in his method of doing the work upon the contractor, and if the clause, that "the contractor shall be solely responsible for all damage caused to neighboring property by his men or through his operations," were inserted in the agreement, as it should be, unquestionably the proprietor would be held harmless.

THE Commission for the preservation of the works of Viollet-le-Duc has adopted the proposition made by M. du Sommerard, famous for his connection with the museum of the Hotel Cluyl in Paris, that the collection of drawings and sketches should be placed in the new museum of the Trocadéro, and the President of the Commission is instructed to confer with the Minister of Fine Arts on the subject. It is proposed also to publish an album of drawings chosen from the collection, under the care of MM. du Sommerard, Ruprich-Robert, Lisch, de Baudot, Laisné, Poussielgue and Parvillier. An addition has been made to the collection of a portfolio containing twenty-three large water-color drawings made by Viollet-le-Duc in 1838, once owned by Queen Marie-Amélie, and presented by the Prince de Joinville.

SUGGESTIONS FOR THE SANITARY DRAINAGE OF WASHINGTON CITY.¹—II.

We come now to the question of the sewerage of the city—that is, to the means by which the twenty-odd million gallons of water poured into it daily by the water-works, much of which serves as a carrier for household and manufacturing wastes, is to be got out of the city and removed to a point where it will do no harm. It has been assumed in the construction of work hitherto executed that the drainage of the streets and the drainage of the houses is to pass off through the same channels. Whatever the objections to this, there are undoubtedly practical reasons why this existing system ought not to be, or at least why it certainly will not be entirely abandoned, but it is an objectionable system, and it surely should not be extended. It seems to me that its objections are so simple and palpable that they must convince all who will consider them. They are largely as follows: Any sewer, as sewers are ordinarily constructed, with the rate of inclination required by the usual slope of the ground, depending upon the simple constant flow of the unassisted household wastes, and having the roughness and irregularity unavoidable in such work, must inevitably retain a deposit along its course, especially toward its upper end, where the amount of flow is slight, and where the solid matters are sure to be stranded for want of sufficient stream to move them forward. This condition is pretty nearly constant while house-drainage alone flows into a channel too wide for it to wash clean. It is aggravated whenever a light rain or a short heavy shower carries into the sewer horse-droppings, papers, and in all manner of nameless rubbish from the surface of the street. Now and then there comes a heavy down-pour, or a long and strong rain, which gives every sewer a thorough scouring out from end to end; but the gradual flow at the end of every such storm too often leaves behind it a deposit of earthy matters which its waning volume and velocity have been insufficient to carry along. Even where this does not happen, the storm once over and its flow subsided, the houses along the route begin again their work of deposit, and we must wait until another heavy rain for the thorough removal of the accumulations. It is during this waiting that the mischief occurs.

It will surely be accepted by all sanitary engineers as very desirable that all waste organic matter should be delivered at the mouth of the sewer at least within twenty-four hours after its production. I believe, and I think that I am supported in the belief by the opinion of the best sanitarians of the world, that this condition is absolutely indispensable to proper sewage. Household wastes retained longer than this enter into a decomposition, extremely foul on account of their original character, and made still worse by the conditions under which they are decomposing. It is in the decomposition of such material in soil-pipes and in sewers, alone, that we are to find the seat of the enemy of which we hear so much under the name of "sewer-gas." This much decried and insidious sewer-gas is probably entitled to most of the blame it receives for its own direct action, and to as much more from the fact that it so often acts as a vehicle for the germs, or causative particles of specific diseases. There is no safety in sewerage or in house drainage until we prevent the production of these gases, and there are no means of accomplishing this, short of the entire cleanliness of every pipe, drain and sewer which serves for the removal of foul organic matter. To secure this condition is within the power of the engineer. There may still be a very slight sliming of the walls of the best sewer, and a feeble decomposition of matters so adhering will be inevitable; but its amount is so slight that it is easily within the reach of simple measures of ventilation to prevent it from causing injury or perceptible odor. It is true that there are very few sewers now existing which are in this condition, but it is equally true that the construction of such sewers would be materially cheaper than that of those which are more liable to become offensive.

I think it may be set down as an indisputable proposition, that before the city of Washington can be considered to be as well drained as it should be, every foot of the sewers with which its houses are connected must be so improved as to be at all times entirely free from deposits of organic matter.

This end is to be secured by the following provisions: (1.) Every sewer should be of such size that its regular flow, except near its upper end, shall be sufficient to carry forward all matters of whatever character that come to it, no halting by the way being possible. Incidentally to this, no matters should be admitted to the sewer which its ordinary flow is not capable of removing. (2.) At the head of each sewer—technically called "the dead end"—there should be placed a flush-tank, discharging at least once in twenty-four hours, a sufficient volume of water to sweep out all material deposited higher up the stream than the point where the efficient natural scouring begins, and to increase the depth of flow throughout the lower portion of the line beyond that at any time reached by the natural current, so that the matters adhering to the walls of the sewer may be washed away. (3.) The material and the jointing of the sewer should be such as to retain absolutely all of the liquid portion of its contents; the water of the sewage is all needed as a vehicle for its heavier materials, and its escape into the soil must produce the deleterious effect upon the "ground-air" before referred to.

The popular idea as to the size of drain required to receive the outflow of a single house, or of a number of houses, is strangely in

error. A pipe six inches in diameter, having an inclination of four inches in 100 feet, has a capacity of discharge of nearly 200 gallons per minute—say 12,000 gallons per hour, or between eight and eleven in the morning, 36,000 gallons. It is usual to estimate that during these three hours about one-quarter of the daily flow is discharged. Such a pipe, then, at such an inclination, would be adequate to the removal of nearly 150,000 gallons per day. If each household averages six persons, and if the daily consumption of water is even 50 gallons per head, the service would be sufficient for 500 houses; or, supposing the sewer to run only one-half full during the hours of greatest use, for 250 houses. It is to be considered, also, that it is rarely necessary to lay a lateral sewer with so slight a fall as four inches in 100 feet, and that an increase of fall secures, of course, an increase of discharge. During the past year, under the direction of the National Board of Health, I have made a number of gaugings in different parts of the country, to determine the actual, practical, dry-weather flow of public sewers during the hours of greatest use. The results of these gaugings fully sustain the estimate just given. Generally, where from 50 to 100 houses contributed to the sewer, the discharge filled a six-inch pipe from less than one to two and one-half inches deep. A sewer in Milwaukee, draining an area of about 70 acres, and serving a population of over 3,000, had the whole of its flow delivered through a six-inch pipe, which it did not entirely fill. A sewer in St. Louis, draining a district having a population of over 11,000, had its entire flow delivered through a twelve-inch pipe, which it only about one-half filled.

The belief is very general that if a given flow of sewage can be discharged through a small pipe, it can surely be discharged through a large one. This is not true. The whole sewage, solid matters and all, will be completely removed by a small sewer, while only the liquid portions and the smaller solids will be removed by a large one. The solid matters, beyond the capacity of the broad and flat stream to remove them, remain as a deposit in the large sewer, always subject to decomposition, and often liable to obstruct the water-way, to lessen the already slight scouring capacity of the flow, and to invite further deposit. This action proceeds without interruption, unless an occasional storm-flow washes away the accumulations. In aggravated cases, where the sewer is very large, and where the storm-flow is slight, the whole sewer becomes filled with the deposit until there is left under its crown only the small channel needed for the ordinary flow.

It is the invariable tendency of large sewers to accumulate deposits in this manner, which constitutes the chief but by no means the only argument in favor of their abolition as house sewers. I have very carefully considered the general features of the existing sewers of Washington, and I believe that these can never be made satisfactory until the larger ones are generally restricted to the removal of storm-water only; their place being supplied, where they are so abandoned, by smaller pipes for house drainage.

Assuming this belief to be well founded, the problem to be considered is, in what way best to make use of such of the sewers of Washington as are suitable for the purpose; and in what way to introduce new works so that the system by which the houses are to be drained shall conform to the best requirements; and in what way best to dispose of the outflow, to the end that no house in the city may be connected with a sewer which at any time or under any circumstances may retain organic matter in a state of decomposition; and that no house may discharge into a sewer whose usefulness is ever, even temporarily, interfered with by storm-water or by back-flow. In short, to give to every house a clean and well-ventilated channel to carry its waste matter to a point whence no ill effect may return.

To determine to what extent and precisely in what manner the present sewers can be made useful as a part of this system would require more detailed knowledge concerning them than I now possess. One important question would be the extent to which it would be cheaper to construct at the heads of the sewers flush-tanks large enough to keep them clean, than to substitute for them smaller pipes, which would be more cheaply flushed. Another would be to determine the cost of making the present sewers absolutely tight. Even pipe-sewers, as ordinarily laid, are very apt to leak at the joints to such a degree as to rob the sewage of its water, and to contaminate the soil.

So far as the present sewers cannot be made to conform to the requirements which I have indicated, they should undoubtedly be reserved for street use only, and new small ones with absolutely tight joints should be furnished to take their place as an outlet for house drainage.

Let us for the moment assume that all of the existing sewers of the higher parts of the city can be made suitable for the work, and that it will be cheaper to flush them, large though they are, than to build others to supplement them. In this case it would be an easy matter for all sewers lying above a certain level—all, in fact, except those which drain the lower and flatter parts of the city—to have their dry-weather flow intercepted, so that the ordinary foul sewage may be led by gravitation directly to a suitable point for its discharge. This may be done by building an intercepting sewer, adjusted in its size to this work only, at a level below the present sewers at the points of interception, connecting the latter with the intercepting sewer by such channels of communication as will admit all of the foul sewage and the water used for flushing. Channels large enough for this purpose would carry into an intercepting sewer the flow of light rains. The waters of heavy storms would pass on through the

¹ Being portions of the seventh Toner Lecture, instituted to encourage the discovery of new truths for the advancement of medicine. Delivered at the Smithsonian Institution in Washington, May 26, 1880, by G. E. Waring, Jr.

present extensions of the sewers beyond the intercepting line, and find their outlet into the B Street sewer or other large outlet mains of the storm-water system. Wherever it became necessary within this high district to build independent smaller sewers for house drainage only, these might be made to discharge directly into the intercepting sewer. It is of but little importance that during heavy storms sewage matter would be carried into and through the storm-water sewers, for the reason that at such times the sewage is enormously diluted, and is discharged into a torrent in the main sewers, which is quite sure to remove it inoffensively. At the termination of a storm the flow of the laterals would be reduced to the capacity of the intercepting inlets long before there would cease to be a considerable flow in the storm-water sewers.

For those parts of the city which lie too low for interception by a sewer delivering above high water at a distant point, it would, unquestionably, be cheaper and better to abandon all communication with the present large sewers, and to construct an entirely independent system for house drainage, depending for this solely on a pumping outlet, at least during the higher stages of the tide.

I see no other way in which the drainage of this lower district can be made satisfactory. For the carrying out of a plan requiring the pumping of sewage, we have the conspicuous example of the Surrey side of London, where not only house drainage, but a large part of the storm-water as well, is lifted above the level of high tide, the lift varying from 28 to 48 feet. The adoption of this plan here would immediately relieve the whole problem of its difficulties. Surface water being left to take care of itself, as at present, drainage to any desired depth could easily be given to the houses of even the lowest parts of the city.

This would involve, it is true, the complete re-sewerage of all of the lower district; but it is, I think, easily demonstrable that no other device would be free from grave sanitary objections, and if the new sewers are adjusted to the work of foul drainage only, as are those of Memphis, now nearly completed, the cost would be incomparably less than that of the original storm-water system.

Aside from storm-water removal, the carrying away of foul sewage, and the drainage of the flats about the city, attention is urgently demanded to a radical and almost universal improvement of the interior drainage of houses. Dr. Townshend, the health officer of the District, in his report for 1879, says: "I think it is safe to say that of the thousands of houses in the District of Columbia which have house-sewer connections, scarcely one hundred can be found which have any vent for these sewers outside the house-rooms." He also says, in speaking of the escape of the gases of the sewers into dwellings: "What remains for the sanitarian, however, is to warn an indolent public against resting in the fancied security of contrivances for the repulse of this arch enemy, which recent research and a better insight have proved to be worthless in the fulfillment of the purpose desired. A few years ago it was considered all-sufficient upon constructing a water-closet in a house to place under the bowl a piece of bent pipe made to hold half an inch or so of water, which was to act as a barrier against all gas, no matter what the pressure under which it was held in the sewers. Numbers and numbers of water-closets erected after this manner were put in houses in this city, and some of them are doubtless still remaining, the occupants resting easy in the belief that their sewers are 'trapped.'"

I learn from this report, also, that out-of-door privies are still largely used in this modern capital. It seems almost an insult to the intelligence of such an audience as this to call renewed attention to the fact that under no circumstances should a privy vault, a cess-pool, or any other device for retaining within the limits of the city the fecal matters and other wastes of the household, be permitted to exist a day longer than is required for its destruction, and for the connection of the house with a public sewer.

The palpable public nuisance of the old-fashioned privy-vault has been vastly alleviated by the use of the odorless excavator, and I think it is fair to say that, for this reason, the invention of the odorless excavator was a public calamity. Even supposing that it were practicable to make any considerable proportion of privy vaults tight—which it is not—or supposing, even, that the Charleston earthenware receptacle should be adopted, the difficulty would be only slightly mitigated; it would be by no means removed. However effectually such work might prevent the contamination of the soil, its inevitable contamination of the atmosphere condemns it totally. During the limited time required for the entire abolition of these nuisances, the odorless excavating apparatus may render a most useful public service, but its continued existence can only be a continued advertisement of the fact that the community employing it has a greater regard for outward decency than for radical purity.

Hardly more are you to be complimented upon the condition of the alleys of the city. Dr. Townshend describes the populated alleys as follows: "Drainage is generally effected by the placing of a sewer-trap, or drop, at the mouth or entrance, to which all wash-water, etc., is directed by a surface-drain having but a slight fall. Into this drain all slops, wash-water, etc., must go, and into such waste material a considerable quantity of animal and vegetable matter is apt to find its way."

"The license to deposit waste-water becomes an incentive to throw refuse, garbage, etc., and often, twenty-four hours after cleaning, we find these alleys again in a filthy condition. The drains become obstructed by small deposits, and the waste-water, etc., soon accumulates and becomes offensive."

I have long held to the opinion that defective house-drains are a far more important factor in the production of disease than defective sewers, and that more of the sewer-gas, to which so many of our ills are ascribed, is produced by decomposition in pipes inside the house than by decomposition in sewers outside the house. Defective sewers are common enough in all conscience, though their construction has been much improved within the past ten or twenty years; but defective soil-pipes and water-closets and traps are almost universal.

By the official statement, the deaths in the District in 1879, from diseases which are believed to be very materially affected by bad drainage, either by soil-moisture or by filth, amounted to just about one-half of the total mortality. I believe that one-fourth of the lives thus sacrificed might have been saved by putting every house into perfect condition as to the dryness of the soil on which it stands and by which it is surrounded, and as to the appliances by which its filth is removed. I believe, that is, that five hundred persons annually die within this District, because of the defective condition of the houses in which they live. I will content myself on this occasion with the remark that leaky drains discharging their contents into or under cellar and foundation walls, leaky soil-pipes discharging foul gases into living-rooms, unventilated drains and soil-pipes wherein the foulest decomposition is incessant, pan water-closets which are as abominable as they are universal, and defective traps, or too often the absence of traps, constitute together a source of disease and death compared with which your sewers and your river bottoms are insignificant. The improvement of these is very essential to the welfare of the city; but however complete it may be made, you will be in far from a good sanitary condition until your houses are put into proper plight.

I have now sketched in a rapid manner the main features of a comprehensive scheme which seems to me adequate to the improvement required. Let me, in closing, relate its essential points:

1. The Potomac Flats or Kidwell Bottoms, and the flats and marshes along the Anacostia, to be reclaimed after the Dutch practice, by embanking and pumping; the embankment or permanent defences to be so placed as to leave the necessary channels for commerce and for the safe discharge of the greatest flow of water.
2. The discharge of the lateral streams and of storm-water sewers to be carried beyond these defences and delivered into the main channels of the river, with such precautions in the case of the Anacostia as will prevent injury to the works by the rapidity and volume of the flow.
3. The complete under-draining or subsoil drainage of the site of the city.
4. The separate removal of the foul drainage; that from the higher portions to be discharged by intercepting sewers into the Potomac, or at a safe point for treatment by irrigation; the intercepting sewers to receive the whole flow of new house-drain sewers, and the *dry-weather* flow of such sewers as may be retained for the double use of carrying surface-water and house drainage. The foul drainage of the lower parts of the city to be thrown into the high-level intercepting sewer by pumping.
5. The abolition of privy vaults and cesspools, and the complete reformation of the interior drainage of houses.

NOTES ON MODERN CHURCH BUILDING.

THE importance of the social organization of most provincial churches to a great extent modifies the problem of church planning. The church is made a central bureau for the dispensation of charities, the diffusion of knowledge, and the encouragement of social intercourse. In planning a building for so many and such various purposes, almost every practical and aesthetic consideration is involved, the excellence of the design depending upon the relative importance given to each consideration. I believe that the deliberations of church building committees would be much more agreeable, and productive of more satisfactory results, if the members, in asserting their opinions, used terms whose significance is clearly determined.

Primarily, the question is not so much how large and elaborate a structure the society would like to have, as how small and simple a building will suffice, for it is much easier to enlarge upon a plan in certain requirements than to contract a whole scheme which is found to be too ambitious. To the average mind, a church means a building with a tower and spire and pointed arches; but if the money expended upon towers and spires throughout the United States could be paid into the treasuries of the respective churches, nine tenths of the church debts would be extinguished.

I do not mean to inveigh against the suitable embellishment of churches, but we constantly meet with examples in which money has been spent on buttresses that resist no thrust, on towers and spires of wood or other perishable material, and on wood or plaster vaulting which only serves to destroy the acoustic properties.

Apart from the objection to shams of any kind connected with a church, these forms and devices were originally born of necessities and conditions that have almost ceased to exist.

The governing requirements of the Protestant church of to-day are much the same practically as of a lecture-room or concert-hall; viz.: seating capacity, ventilation, heating, daylight, artificial light, and acoustic properties. These various questions are so relative that often in determining one the disposition of another is forced upon us so that it is important to appreciate these relations fully. The

seating capacity and the facilities for ingress and egress are usually the most independent requirements, involving only the extent of the floor space and the width, number and relative positions of aisles and doors; but where the congregation is too numerous to be accommodated without galleries, these questions entirely lose their independence and become involved with considerations of heating, ventilation and acoustics. This last requirement is really the controlling one, inasmuch as a hall in which nothing can be distinctly heard is to a great extent useless.

Acoustics, in relation to building, is a science that has not attracted the popular attention it deserves. While here and there an individual has devoted time and money to study and experiment, clearly establishing useful facts, there is a prevalent belief that little or nothing is positively known, and building after building in which acoustic properties are of the first importance, is erected in violation of the simplest acoustic principles.

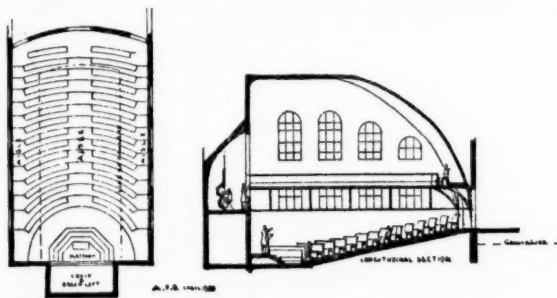
It is difficult under the conditions imposed by an article of this nature to fully explain the reasoning that has established the principles I am about to state; I shall therefore merely state what the essential features of an apartment should be to insure acoustic success.

First. The proportion of length, breadth and height should always be in some simple ratio, — such as 1 : 2 : 3 — 2 : 3 : 4 — 3 : 4 : 5 — 4 : 5 : 6, — some unit of measurement being adopted. No dimension should ever be more than six units nor less than one. This rule is more easily adhered to than at first appears because an increase or decrease of some one dimension is always possible. If the length and breadth of a hall are fixed, the ceiling can be lower or higher in order to establish the desired proportion.

Second. No hall can be made acoustically good with a level floor; the more inclined the floor the better the result will be until every row of seats is nine inches higher than the next row in front; in fact to achieve ideal perfection in this particular, the difference of level between the rows should increase in regular progression from front to rear.

Third. If the point of interest — the position of the preacher or lecturer — is central and fixed, the seats should be set on curved lines so that the listener at the end of a row of seats is as near the speaker as the listener in the centre.

Fourth. The end of the hall opposite the speaker should be curved both in plan and vertically. The ceiling should die into the walls with the same curve, which should always be parabolic.



Fifth. If there are less than 190 cubic feet of space for each person accommodated, the walls and ceiling should be plastered. If there are 200 cubic feet of space for each person, the ceiling should be of wood, and if there are 220 cubic feet or more, both walls and ceiling should be of wood. The greater the space per person, the thinner this wood finish must be and the more air-space must be left behind it. A refinement of this treatment would be to have soft deal panels nearest the speaker with harder wood at the further end of the hall. Carpets tend to deaden sound, and are useful where a hall is too resonant. There is every difference between resonance and reverberation or echo. Large openings in ceilings and projections of all sorts tend to produce echoes, but destroy resonance. Where galleries cannot be avoided it is better to have a shallow one on three sides than a deep one at one end, because the seats under a deep gallery are generally the worst places to listen from, and because in a shallow gallery on three sides all the seats can be made equally desirable, while if the side aisles below are next the wall and the gallery is carried on curved supports instead of columns, the inconveniences of sitting under a gallery are all but obviated.

The organ should be placed at the same end as the speaker, behind and above him, because with all its resonant pipes it reinforces his voice.

Ventilation is an important acoustic consideration, and happily the system of heating and ventilation best for health and comfort is best acoustically. The fresh air should be introduced at the speaker's end of the hall, and of the proper temperature, say not more than 70° Fah. Vitiated-air outlets should be provided in every part of the hall on the floor-line, as such air is heaviest. Where no provision is made below for the escape of vitiated air, the space soon becomes divided into three strata, the hot air above, then the cold air it has replaced, while the audience sit in the lower stratum of bad air which is not only a poor medium for sound, but is disagreeable and injurious.

I have indicated the above dispositions as regards the form of the hall, the arrangement of seats, galleries, etc., in the accompanying

cuts, and in explanation, it is almost unnecessary to add that the speaker or singer should always deliver the voice in the longest direction, and further, that for speaking, this dimension should not be more than 80 feet; beyond this it is difficult, even under the most favorable conditions, for a speaker to make himself heard without an exertion that soon tires him and his hearers.

This question of acoustics has disposed of the considerations of seating, of heating, and of ventilation, leaving only ingress, egress, and light to be discussed.

In any hall where an audience is to be accommodated, due provision for egress covers the question of ingress as the greater includes the less. In churches no better disposition has been made than a broad central aisle with side aisles next the walls, and this disposition, if the doors are well placed and large enough, is usually the best for egress.

Windows should be high enough to prevent the possibility of sunbeams at any hour from entering on the level of the eye; and it should be remembered that if a window exists opposite the speaker it should not have a southern or western exposure. A familiarly ludicrous effect to many church-goers is a clergyman attempting to pour forth his exhortations in the light of a southern and western window of stained glass, which endows him as he moves about, with a purple nose, a green eye, or blue hair; and though he may be blissfully ignorant of these embellishments, he is painfully aware of the blinding sensation.

Sky-lights are acoustically objectionable and are almost unavoidably unsightly, especially at night, when artificial light is used. The management of artificial light is a difficult question involving considerations of comfort, convenience and artistic effect. Central chandeliers or sun-burners are objectionable because they cast shadows, and are especially annoying to the occupants of galleries. Wall-brackets are objectionable because they give disagreeable cross-lights, and are of little use to any one not seated near them. The most successful compromise has been effected by a double row of chandeliers hung from the ceiling, equidistant from the wall and from each other. These should be provided with green globes or shades of such form that the rays fall below the line of vision of occupants of the galleries. Apertures should always be provided in the ceiling above each chandelier for the escape of the gas that rises, and these apertures can easily be made to shut at pleasure if too much heat is lost through them in the day-time, while in summer they will conduce to comfort.

I have devoted little of this discussion to artistic considerations, because these must depend largely upon peculiarities of site, and material, and especially upon the magnitude of each undertaking. The treatment that is effectively picturesque in a small chapel would probably be clumsy and affected in a large church, if not indeed constructively impossible.

"If to do were as easy as to know what were good to do, chapels had been churches, and poor men's cottages princes' palaces. It is a good divine that follows his own instructions; I can easier teach twenty what were good to be done, than to be of the twenty to follow mine own teaching." — *Merchant of Venice*, Act I., Scene II. Portia.

A. F. OAKLEY.

SIR EDMUND BECKET AGAIN.¹

THAT Sir Edmund Becket's Book on Building, of which we printed a notice a year or two ago, should have so soon reached a second edition strikes us as a forcible illustration, both of the fascination which the art of building has for people of all sorts, and the ignorance which generally prevails respecting it. For this is by no means a very wise or a very original book, and its confident way of laying down commonplace propositions, which no one would think of disputing, would hardly impose upon readers whose attention had ever been seriously directed to the subjects of which it treats. "Heavy doors and long shutters should have three hinges instead of two." "Black mortar in the joints of brickwork produces so different an effect that I have found people unwilling to believe the bricks were the same." "Scully drains require ventilating as much as any, and not by an opening under the window." Very true, Sir Edmund, but does a busy Q. C. need to divert his attention to bookmaking to teach the readers or the builders of England such facts as these. Alongside of these truisms we find numberless statements which look very like reckless exaggerations; as that "it is not an uncommon event for a whole ceiling to fall upon a dinner-party in houses cheaply built, in consequence of the omission of hair in the mortar," and that "a small house turned into a large one, either by one alteration or by several, is invariably a failure."

The writer's emotions concerning the architectural profession, with whom he has had so much to do, have apparently not been sensibly modified since his first edition. Wherever he has occasion to speak of architects and their works and their methods of dealing with their clients on the one hand, and with mechanics on the other, his remarks are too evidently inspired by personal feeling and the remembrance of the many rows which he has had with them to have much effect on a discerning reader. He never loses an opportunity of expressing his contempt for the whole profession, individually and collectively, and his constantly reiterated advice to all persons employing an architect is, to make the understanding with him as to services

¹ A Book on Building, Civil and Ecclesiastical, including Church Restoration, with the Theory of Domes and the Great Pyramid, and Dimensions of many Churches and other great Buildings. By Sir EDMUND BECKET, Bart., LL. D., Q. C., F. R. A. S., Chancellor and Vicar-General of York. Second Edition, enlarged. London. 1880.

and charges sure in advance, as with a person not to be trusted. On the other hand the once famous Quarterly Reviewer and his followers get small aid and comfort from Sir Edmund in their theories concerning the hopes of English architecture. "No greater absurdity," says he, "in connection with this subject, has ever been propounded than the idea that architecture is to be revived or improved by getting rid of architects and setting up builders in their stead. . . . If architects' architecture is very often unsatisfactory, common builders' architecture is proverbial for ugliness, meanness and vulgarity."

Between the first and second editions of his book the author has given the world a taste of his capacity as an architect by publishing in the *Building News* the plans and elevations of a large country house, built from his designs. Plans and elevations are alike beneath criticism, and it speaks well for the magnanimity of the architects whom Sir Edmund has roasted in past days that they have thus far borne to avail themselves of the weapon of ridicule which he has put into their hands.

When, however, all is said of the bumptiousness and conceit and general offensiveness of this much-talking baronet, it must be allowed that he has said in this book many sensible things concerning the ways of architects, and the many affectations into which they are led by thoughtless adherence to precedent and the ambition for striking effects. He represents and expresses, — perhaps in a somewhat exaggerated vein, and certainly not in the most perfect temper, but still, on the whole, not unfairly — the not very flattering opinion held of the architectural profession by the world outside; an opinion for which, we must admit, the profession has largely itself to blame, and which, it is mortifying to reflect, is shared not only by ignorant persons, but by all classes, as illustrated by the curious uniformity with which they have been snubbed in the English courts of law, and in all their dealings with official persons and legislative committees. We believe the profession to be worse off in this respect in England than with us, and this is not surprising when we consider the extent to which the *esprit de corps* is lacking among the English architects, and their habit of setting upon the successful man in a competition.

Sir Edmund has his word to say in this edition respecting the ridiculous battle between Scott and the anti-restorationists, in which he himself not unfrequently took a hand, and of which his account is vivacious and entertaining.

THE ILLUSTRATIONS.

SKETCH FOR A LODGE AND STABLE. MR. W. R. EMERSON, ARCHITECT, BOSTON, MASS.

COMPETITIVE DESIGNS FOR A CITY HOUSE. BY MR. T. J. GOULD, PROVIDENCE, AND MR. J. H. FRIEND, NEW YORK.

THESE designs were submitted in the same competition as the designs published in the *American Architect* for July 10, 1880.

STABLE FOR HENRY MAILLIARD ESQ., NEW YORK, N. Y. MR. JAMES E. WARE, ARCHITECT, NEW YORK, N. Y.

The system of stall drainage here employed is based upon sanitary principles. It does away with the usual gutter in the gangway, substituting for it a receiver under the centre of each stall, and avoids the raised platforms, the cause of many a pair of broken knees, thus preserving a level floor throughout the stable.

THE LATE CHARLES P. HARTSHORN.

CHARLES P. HARTSHORN, an architect in active practice in Providence, R. I., and Secretary of the Rhode Island Chapter of the American Institute of Architects, died of cerebro-spinal meningitis at his own home, on Friday, August 14, at the age of forty-seven years.

Mr. Hartshorn devoted himself to architecture from the day he entered the office of the late Thomas A. Tefft (who died in Florence, December 12, 1859, aged 32 years), about thirty years ago, until within a few days of his decease; and, in all these years he was seldom absent from his work, even for a day at a time.

Unostentatious in his manner, pure in his life, untiring in his devotion to his business, a diligent and disinterested citizen, actively engaged in works of philanthropy, he quietly and firmly fulfilled the daily duties which devolved upon him with unswerving fidelity and honor.

His practice was never very large, and for that reason he left his own individual impress on whatever he undertook to do.

His loss will be felt very keenly among his fellows in the profession, because of his devotion to its interests, and although his successor may soon be elected, it will be difficult to find one to fill his place, as Secretary of the Rhode Island Chapter.

He leaves an aged father, an invalid wife, and one daughter, — as well as many friends, in the community in which he lived — to mourn his sudden and unexpected departure. The works of his hands are numerous, and will long remain to recall his memory.

THE TORLONIA MUSEUM AT ROME.

The Torlonia Museum, a creation of the present Prince Alexander, occupies the whole block between the Corsini Palace and the Porta Settimiana, between the foot of the Janiculum and the Lungara. The prince did not lavish much money on the building itself, foreseeing, perhaps, that its magnificent contents would sooner or later migrate to foreign countries, and make a better show in the castles of

foreign Cæsars. He leveled the ground of the old Corsini kitchen-garden, paved it with asphalt, and divided it into galleries 200 feet long by 18 wide. These galleries are separated from one another by means of curtains of dark reddish cloth, drawn across the wooden columns which support the roof; other curtains, very cleverly arranged, subdivide each gallery into compartments, affording room for six works of art only. The ingenuity of such contrivance is worthy of notice by all those who have to arrange temporary exhibitions of statuary; the cost is nothing; the effect is beautiful and well suited to bring forth the works exhibited in their fullest details, not only on account of the harmonious hue of the background, but also on account of the restricted number of pieces exhibited in each compartment. The attention of visitors is concentrated upon single objects, and the eyes do not wander over endless rows of statues and busts, as is the case with the Museo Pio Clementino, with the long gallery of the Capitol, etc. A few choice objects, such as the athletic and archaic statues, the large sarcophagi, etc., are exhibited in separate rooms of more elaborate design.

Three names will be mentioned forever with the Torlonia Museum. That of the owner, who spared no money to make it the largest, if not the best, private collection of antiques in the world; that of Pietro Ercole Visconti, the scientific manager of the business and the writer of the illustrative catalogue; that of Prof. Gnaccarini, the late sculptor, who did the restorations so cleverly as to turn the antique into modern and the modern into antique.

The marbles, nearly six hundred in number, come from various places. The bulk of the collection belongs to the once famous Galleria Giustiniani, which, like the Mattei, the Verospi, etc., shared the decline and fall of the family whose pride it had been. A great many marbles were dug up among the ruins of Porto, the harbor of imperial Rome, built by Claudius and enlarged by Trajan; others come from the farms of S. Maria Nuova and Statuario, which occupy the site of the magnificent Villa Quintiliorum. Smaller groups have been derived from the Vitali collection, from the Villa Albani, from the Villa Torlonia, on the Via Nomentana, from the Ruspoli Palace, from Boville, Centocelle, and Cures.

The most noticeable among the Giustiniani marbles are: (23) the portrait bust of an ugly girl, IVNIA. MARCI. FILIA. FLAVILLA, but full of life and pathos; (31, 32) two statues of Isis in *bigio morato*, one erect and composed, the other stepping towards the right, both with magnificent draperies, but headless and armless; the restorations are of the seventeenth century, and not happy ones; (41) a replica of the Venus of Alcamenes, in good preservation; (100) Prometheus, a colossal figure, representing the son of Iapetus in the act of stealing fire from heaven, or perhaps in the act of vivifying a piece of clay with which he is modeling the new man: this is represented as a kind of Egyptian mummy, very small in size, and in an unfinished stage; pieces of clay are strewn on the ground; (126) a naked, headless (?) hero, restored as Sextus Pompeius; (170, 182) two crouching Venuses, which, like the one in the Vatican, are copies executed by a mere technical artist of a widely celebrated original: the head and arms of one of the two were restored by Algardi, who failed to catch the ideal outlines of the goddess of beauty; (400) the celebrated Vesta Giustiniani, the gem of the whole museum. The charms of this lovely statue are beyond description. The lofty but simple composure, the quiet dignity of the goddess, the ideal expression of her face, fascinate the eyes and the mind of the observer more forcibly than most of the later and more gracious productions of the Greek chisel. The masses of drapery and the sweep of the folds, although falling regularly in a perpendicular line, are not monotonous because, in spite of the stiffness of the heavy stuff, which prevents it from fitting close to the figure, one can imagine, and in fact almost trace, the beautiful and graceful lines underneath.

From the Villa Albani many works have been transferred to the Lungara Museum, notwithstanding the laws which actually forbid with us the breaking up of collections like the Albani without the sanction of the Government. To avoid any trouble the marbles are being removed one by one at long intervals, and casts of the works removed are set up at once in the vacant spaces, made so skilfully that very few have noticed the substitution. Among the Albani contributions to the new gallery the most important are: (67) head of Alcibiades, affording a fair notion of the personal attractions of this extraordinary man; (290) the bas-relief representing a poulterer's shop, so graphically described by Zoega, i. 27, and Braun, 377, n. 16; (268) Pan and Olympus; (276) the famous Bacchic vase; (290) the ornamental basin with the labors of Hercules, found on the Appian Way in the year 1762, and illustrated by Winckelmann, Mon. Ined., 228; (288, 291) two basins of precious colored marble, the unique *tazza di breccia d'Egitto*, formerly in the Albani Casino, and many busts of emperors and eminent men.

Porto, that inexhaustible mine of statuary, has supplied the new gallery with many first-rate works; the Æsculapius and the Hygeia (95, 96), the group of fighting fauns (115), the fine imperial torso which supports a head of Septimius Severus (136), the Cupid (171), the Hercules and Telephus (296), the Apollo (280), and the Minerva (279), which is described as the most remarkable statue of the Torlonia Museum, and as surpassing in perfection those famous representations of the most beautiful Phidian type, the Vatican and Capitoline Minervas. I doubt, however, whether it be so, because I doubt whether the head of the Porto replica is genuine. The olive-tree, anyway, the helmet, the arms, and some of the attributes are modern additions.

The marbles removed from the Villa Torlonia, outside Porta Pia, are few and unimportant. I have noticed a Niobe (141), a group of the Niobides (233), four candelabras (155, etc.), a group of Bacchus and Silenus (309), and some smaller works.

The collection of imperial busts numbers more than one hundred. Of course many of them are only supposed to represent this or that emperor or empress; but, as a whole, they bear comparison fairly well with the Roman numismatics. If those described *ex oraculo* as representing young Tiberius, Otho (with a long beard), Geta, Julia Paula, Julia Aquila, Annia Faustina, Zenobia, Volusianus, etc., were classified among the doubtful, the authenticity of the collection would gain a great deal.

I come now to the question of restorations. They could not have been done more skilfully, sometimes escaping the most experienced eye. In examining the best works of the gallery, at least those which in the Visconti catalogue are described as such, one wonders doubtfully which parts are modern and which are really antique and genuine. The utmost care has been bestowed in selecting marble of the same texture and color as that of the broken statue; the modeling of the missing parts was carefully studied after parallel and genuine works; then, after these pieces had been cut in marble, they were broken again, so as to necessitate the restoration of these restorations. Sometimes they were stained with dirt, to secure a natural hue of antiquity; they were hammered and split here and there, left without polish when the harmony of the whole required it to be done. The catalogue (save in a few instances, which make the matter worse) keeps silence on this subject, and leaves entirely for the visitor to discover whether he is admiring the work of an antique chisel or the imitative powers and ingenuity of a living artist.

This subject of restoration may be discussed from an æsthetic point of view. Artists and archaeologists have fought in its favor, on the ground that one cannot fully appreciate the beauty of ancient works from fragments unless these fragments be completely restored to the original entirety, and unless the general outline designed by the author of the work be brought into evidence. The great majority of living artists and men of science have repudiated the system, and the general feeling now is that an antique work loses one-half or more of its value when profaned by modern hands. Who can guarantee, no matter how exquisite the restorations are, that they express the feeling, the conception, the inspiration of the original? Take, for instance, the Hercules killing the Hydra, found at S. Agnese, and now one of the beauties of the Capitoline Museum. When first discovered the left leg and the monster were missing: Algardi, the great Algardi, restored both with wonderful skill. However, when many years afterwards, the missing pieces were found, they proved to be entirely different from what Algardi had fancied. As regards the Torlonia Museum, these things are carried to such an excess that the question is no more a question of æsthetics, it amounts almost to imposition which has no excuse.

This sounds like a hard judgment, but it is justified from facts which I can relate almost as a personal experience. In April, 1874, Signor Giuseppe Gagliardi, while excavating in Prince Torlonia's Sabine farm, *degli Arci*, which occupies the site of Cures, discovered "*un Cellissimo torso di statua virile in bronzo*" (Comm. in Hon. Mommsenii, p. 416). No head was found, and, besides the head, one arm, both hands, and the right leg and foot were also missing. The torso was brought to town, restored as Germanicus, placed in the best room of the museum, and praised beyond measure in the catalogue as being the best and most trustworthy representation of Germanicus in the world.

In the hall of the athletes the place of honor is given to a torso discovered at Porto in 1866 or 1867, whose head, arms, and legs are the work of Gnaccarini. I could bring forth hundreds of similar instances, and describe one by one all the bits of marble which have grown into full-size figures or groups. Had the prince and his scientific advisers had the good sense to leave the marbles alone, to exhibit them in the same condition as they had come down to us, the museum would have ranked among the finest in the world, and its eventual sale to foreign countries would have been mourned over as a national loss. As it stands now, I doubt whether it would find purchasers, notwithstanding many good and some few unique works. — *The Athenæum*.

THE PROJECTED WASHINGTON MONUMENT FOR PHILADELPHIA.

MR. JOHN SARTAIN writes to the *American Art Review* as follows:—

I notice that there have appeared in your valuable journal brief references to the Washington Monument about to be erected in Philadelphia, and a desire expressed to learn something definite on the subject. All the numerous publications relating to the project have been necessarily indefinite and unsatisfactory, from lack of that distinct information which I now propose to furnish; and the derogatory comments and sneers quite frequent in the papers of late may be attributable to the same cause. These I will attempt to answer. The Pennsylvania branch of the Society of the Cincinnati is the party about to proceed in this noble work, and it is intended to do it nobly, as the public will see in proper time, and acknowledge. Members of the Monument Committee deemed that a premature announcement of incomplete measures was not calculated to promote good results, and therefore delayed publicity until their preliminary plans were matured.

Complaints are made that they have omitted to issue a *general invitation* for competitive models. They did better; they asked designs from distinguished American, and one or two foreign sculptors. Some responded, and some declined, for the time and labor spent on an uncertainty is a very serious matter to artists, besides that they consider their accomplished works erected in public places should be accepted as sufficient guarantee of their ability to execute commissions confided to them. Eminent architects frequently decline entering into these competitive trials for the same reason.

It has happened that the design adopted is by a foreign artist, — Siemering, of Germany; but its beauty and grandeur are such that it is impossible there could be any difference of opinion as to the propriety of the selection. Had any model submitted by an American sculptor at all approached it in merit, it would have been preferred. The two most prominent works of this nature, of modern times, are the monument to Frederick the Great at Berlin, and the Prince Albert Monument in Hyde Park, London. There is also the Scott Monument at Edinburgh. The last two are more architectural than sculptural, one being in Italian Gothic, the other in English Gothic, and it is not easy to draw comparisons between a piece of sculpture and a work of architecture. But one can do so between one equestrian statue and another, and, between the Rauch Monument at Berlin and the Siemering design for Philadelphia, the Frederick design suffers in the comparative estimate. It is a great work, but the pedestal is crowded to confusion with its complete horseman on each of the four angles, and all the rest of the space filled with figures in alto-relievo. Perhaps the sculptor was limited to an allowed space, for his work stands on the Linden Avenue. But Siemering suffered no such restraint, and his plan covers a space of sixty by seventy feet. The sides of the pedestal are enriched by panels of bronze sculpture in low relief; and, being unobtrusive, suffer the eye to rest satisfied and undisturbed while contemplating the Washington on his horse above; and in the same interest the massive symbolic groups are kept away, enthroned at each end.

I will endeavor to convey some idea of the design. The materials are to be bronze sculpture on granite construction. Imagine four broad flights, of thirteen steps each, those at the ends being narrower than those at the sides, ascending to a platform about seven feet above the ground. At the four corners, in spaces nearly triangular, are four groups in bronze, symbolizing great rivers of North America, the dominating form being a human figure of Indian type reclining over a vase of flowing water, an animal on either side indicating the region; for example, a cow and a horse by the Delaware, a buffalo and a bear for the Mississippi, and so forth. Thus the base or foundation has twelve complete figures and animals. From the centre of this platform rises a pedestal of polished granite of three stages, the lower one having straight sides, and bearing appropriate inscriptions, its two rounded ends projecting far enough forward of the second story to serve as a spacious support for two large groups of noble design. Each group consists of three figures, besides numerous accessories, the prominent one at each end being America. In one she sits between a soldier, who eagerly offers her his sword, and a recumbent field laborer, asleep, whom she eagerly endeavors to awaken. Her hair flows free, and she is animated, as in the presence of pressing danger. In the corresponding group at the opposite end, America sits calm and grand, majestic in serene repose, a Phrygian cap on her head, sceptred, while men in military costume are placing at her feet wreaths, flags, and other trophies. The sides of the second stage of the pedestal are enriched by *bassi-relievi*; — one, of a marching army on foot, directed by Washington on horseback; the other, a subject not so intelligible, and which might be changed with advantage to some other, — say, to Washington resigning his military command to the civil authorities. I see nothing else in the whole design where change may be suggested. The third or top stage of the pedestal is a good deal enriched, and in it the diameter both ways is diminished by means of a receding concave. The whole is surmounted by the crowning feature, a fine equestrian statue of the hero in whose honor the structure is raised. On one rounded end of the pedestal are the arms of the United States, and on the other the arms of Pennsylvania. Appropriate inscriptions appear in suitable places reserved for them, and around the band beneath the crown moulding of the pedestal are these words; "Erected by the Society of the Cincinnati of the State of Pennsylvania."

It was at first intended to locate the Monument in the middle of Independence Square, but influence has been brought to bear in favor of Fairmount Park, and there is no doubt this last will be its destination. The funds at the disposal of the Society for this use were insufficient for a monument on so grand a scale; but the courts have lately awarded them the control of another Washington Monument fund, held sacred to the same use, so that, instead of two separate works, we shall have a single nobler one. This was obviously the reasonable thing to do, but the red tape of law is apt to have many knots in it that take time and patience to untie. These two separate monument funds, now united, were each originally extremely insignificant in amount, but, owing to judicious investment and tender nursing through long years, have grown into large and healthy proportions, and the blossom and fruit are now to be gathered. All honor to the few gentlemen who have been thus faithful to their trust, and who are about to crown their labor in a manner so creditable to themselves and to the State of Pennsylvania.

In the year 1833, on the 22d of February, being the one hundred and first anniversary of Washington's birth-day, the corner-stone of

a monument to Washington was laid, with appropriate ceremonies, in the centre of Washington Square, and that was the end of it. It reposes where it was planted, and never germinated. This was a separate affair, quite independent of the two preceding projects, and may be counted as the third abortive attempt. The architectural portion of the design was by Mr. William Strickland, and I engraved and published a print of it in 1833, from Strickland's original drawing, then in the possession of Mr. John Struthers.

The fourth attempt to realize a monument here was a little over twenty years ago. A committee of eighteen gentlemen undertook the work, and included in it were Mr. Markland, Treasurer of the Society of the Cincinnati, and Mr. Joseph R. Ingersoll, who, with a few associates, had charge of a Washington Monument fund, subscribed in 1824-25, when Lafayette came here. Mr. Purvis (of the Philadelphia Saving Fund) was their treasurer. The plan adopted was that these two funds should be united, and a sum equal to their combined amount should be subscribed by the members of the committee, without appeal to the outside public. After the completion of the monument, the balance of money left in hand (or a fresh fund to be raised within the committee) was to be placed with the Cincinnati, that the interest thereof might be employed by them on repairs to the monument, whenever it should need any, thus making them the custodians and conservers of the work forever. As soon as all preliminary arrangements were agreed on, a sub-committee was appointed from the main body, to consider and report a recommendation as to what character the work should take, whether architectural or sculptural. It consisted of John Sartain, Joseph Harrison, Jr., and Evan Rogers. We recommended a colossal equestrian statue, which was adopted. The next step taken was an application to the Legislature for an act of incorporation, which was granted; but when the document was opened it was found that the politicians at Harrisburg had dropped the names of some of the committee who were prepared to contribute their share of the money needed, and substituted the names of Tom, Dick, and Harry. The disgust was such that the whole thing was dropped at once, and thus ended the fourth attempt.

Both these funds, however, continued to increase by the periodical additions of interest, and at length the Society concluded to realize the monument at once with the sum in hand. When Siemering's model arrived, it eclipsed all previous plans and ideas, but it was on a scale beyond their means. Mr. Ingersoll and his associates who had charge of the second monument fund were all dead but Mr. Purvis, their treasurer; and he had applied to the courts to be relieved of care and responsibility of the money, which being accorded, it was transferred to one of the Trust Companies. Now, to unite the two funds for the accomplishment of the one object again required the action of the courts, and they have made the second fund subject to the drafts of the Cincinnati Society in paying the expenses of the work, the testimony of myself, as secretary of the defunct committee, and that of Mr. Purvis, as treasurer of one of the funds, having satisfied them that the merging of the two funds for one monument had been intended and settled on. So its propriety was seen, and action taken accordingly.

SEPULCHRAL MONUMENTS IN ITALY.¹

WITH the dawn of the fifteenth century we enter on a new age, in which Gothic arch and column give way to classical forms, and purely Christian motives become blended with subjects derived from the antique. One of the first to leave the old types and originate fresh conceptions was the Sienese sculptor, Jacopo della Quercia. A close imitation of Nature, together with a rare softness and grace of manner, distinguish all his work. This it is which charms us in his Virgin bending over the upturned face of her sleeping child, now at South Kensington; this, blended with a deeper feeling, produced that masterpiece of sepulchral art, the tomb of Ilaria del Carretto at Lucca.

It was Della Quercia's fate to be all his life tormented by the jealousy and impatience of his fellow-citizens. "God knows," he exclaimed, at the close of his life, "how many complaints and murmurs I have had to bear from my countrymen!" On one occasion he excited their wrath by the frequent visits he paid to Lucca while employed in the construction of Fonte Gaja at Siena. The object of these visits was this very tomb which Paolo Guinigi, lord of Lucca, had commissioned him to erect in memory of his beloved wife, Ilaria. Hardly was it completed than Paolo was driven out by the Lucchese, who pillaged his palace and broke up the tomb; but whether out of love for Ilaria's memory, or reverence for so fair a thing, they forebore to destroy the effigy, which remained in its place against the Duomo wall, with a portion of the ornament which originally surrounded its base. In simple grace and tenderness of feeling this tomb has never been surpassed. Ilaria lies on her couch with closed eyes, and the pure outline of her face clearly seen. Her robe, fastened tight at the throat, falls in thick folds over her feet, which rest on a dog, "because," says Vasari, "of the faith which she kept to her husband;" and round the base of the sarcophagus a band of winged children weave garlands of oak leaves, rose and pomegranate, emblems of the graces and virtues which death had cropped too soon. Standing where it does, in the midway of the Renaissance, between the revival of art and the final spread of neo-paganism that worked its fall, Ilaria's tomb may be taken as a perfect example of the union of classic grace with Christian feel-

ing, and, as the type of a fair and gracious womanhood, is one of those great works that belong, not to Lucca or Italy alone, but to the whole world.

Contemporary with Jacopo della Quercia were Ghiberti and Donatello, with both of whom he competed for the Baptistery gates. Ghiberti only executed one tomb slab, that of Lionardo Dati in S. Maria Novella; but Donatello left the stamp of his powerful imagination on the sepulchral monument, as on every other branch of sculpture. Fired by that love of classic art which he and Brunelleschi had studied in the ruins of ancient Rome, he introduced radical changes in Arnolfo's old type of monument. Greek forms of architecture were substituted for the pointed arch and spiral column, the curtain was looped and twisted in heavy folds, and the angels were generally omitted. The sarcophagus, shaped into an urn or vase and concealed by elaborate ornamentation, was raised on a substructure decorated with festoons, cornucopie and arabesques, and enclosed in a niche, flanked by Renaissance pilasters. Winged genii holding coats-of-arms or wreaths of flowers, caryatides supporting the sarcophagus, or flaming vases as emblems of immortality, show the increasing predominance of Pagan motives. But Donatello's age, although it witnessed the revival of learning, had not lost faith in the unseen, and Christian hopes were still present in the artist's mind. In the upper part of the monument, on the surface left exposed within the recess of the arch, Donatello introduced a medallion of the Virgin and Child, surrounded by adoring angels, carved in the exquisite low relief in which he excelled, scarcely raised above the flat marble, and yet affording endless gradations of light and shade. This roundel of the Madonna, which took the place of Arnolfo's Gothic statues, became the distinguishing feature of Florentine fifteenth-century tombs, on which the sculptor bestowed infinite care and tenderness, and which were to suggest the form of Lucca della Robbia's delicate blue and white medallions, and of Botticelli's most inspired creations.

To the vanity of Papal secretaries and scholars of the Medicean age we owe many of the finest tombs in Tuscany, amongst others that of Leonardo Bruni himself, which Bernardo Rossellino erected in Santa Croce. All of these were the work of men formed on Donatello's style, and many of them his own pupils. Foremost among them was Desiderio di Settignano, "*il bravo Desider si dolce e si bello*," whose tomb of Carlo Marsuppini, another illustrious scholar and Papal secretary, is a marvel of delicate sculpture and skilfully-wrought ornament. An early death ended Desiderio's career. "Nature, indignant at being outdone by him, cut short his days, but her vengeance proved vain, for he had given immortality to living marbles, and they to him." His intimate friend, Mino da Fiesole, had a longer life, and left many more works behind him. Everything which this artist, justly called the Raphael of sculpture, carved, is marked by the same refinement, the same exquisite sweetness and tenderness. From every tomb and altar that he sculptured, his Madonnas meet us forever young and fair, and haunt us with their perpetual smile, almost monotonous from its very sweetness. Yet that there was strength as well as tenderness in his genius he has shown us in the bust of the good Bishop Salutati at Fiesole, one of the most striking heads ever fashioned in marble. The whole tomb, especially the figure of the beggar asking alms at the Bishop's feet, is most impressive, finer, perhaps, than either of those from the Badia which the Arundel series gives. Both, however, are in Mino's best manner, and the figure of Charity, on Count Ugo's tomb, bearing two children, is very graceful and winning. The later years of Mino's life were spent at Rome, in which city he executed many important works, and left lasting traces of his influence. To him Burchard ascribes, with great probability, the tomb-slab of Roderigo Sanctio, originally in the ruined church of the Spaniards, and now in the hall behind S. Maria di Monserrato, which Mr. Thompson gives as an anonymous work.

Another scholar of Donatello, who had much of Mino's grace with sometimes deeper feeling, was Antonio Rossellino, whose noble tomb of Cardinal James, of Portugal, occupies a chapel in the basilica of San Miniato. This young Cardinal, who died at the age of twenty-six, belonged to the royal house of Portugal, and was as much celebrated for his learning and holiness as for the charm of his manner and the beauty of his person. "Keeping in everything the middle way, which is the way of the blessed," writes his biographer,² "he lived in the flesh the life of an angel rather than that of a man, and his death was holy as his life had been." So rare a character deserved a fitting memorial, and the sculptor has given us a faithful portrait of the young Cardinal with the calm beatitude of death resting upon his face. All around we have the usual mourning genii and heavy draperies, the same gracious Madonna blessing the silence of the grave with her heavenly smile, while on either side two kneeling angels, bearing crown and palm in their hands, bend over the sleeping form, and seem to wait the moment of his awaking. These guardian angels are repeated in the tomb of Mary of Aragon, which the same sculptor executed at Naples, and which he adorned with a bas-relief of the Resurrection, remarkable for the same feeling and admirable finish.

By the close of the fifteenth century the Christian sentiment, which had originally been so powerful an agent in artistic conception, was already on the wane; and except in Florence, where a certain earnestness of purpose and seriousness of thought still retained its hold over the sculptor's mind, we find motives of a very mixed character introduced in sepulchral monuments. At Rimini, Sigismond Malatesta reared a temple to his mistress, Isotta, adorned with every variety of Pagan emblem, and placed her remains in a sarcophagus resting on

¹ From the *Church Quarterly Review* of July, 1880.

² Vespasiano.

elephants; and at Bergamo, Bartolommeo Colleoni raised an equestrian statue over his tomb with Mars and Hercules on either side. In a corner of the same chapel is a far more interesting monument which marks the resting-place of Medea Colleoni, the child of the great condottiere's old age. The dead girl is laid there in her flowing robes of brocade, with the short locks curling over delicately-shaped head and slender ear, and a pearl necklace clasped round her long throat, sleeping quietly while virgin-saints keep watch around her. In that happy, youthful slumber she has lost none of the charm and individuality of life, and becomes for us the type of maidenly purity and loveliness, as *Llaria* at Lucca represents the ideal wife. The sculptor of this tomb, Amedeo, belonged to the school of artists which had sprung up round Gian Galeazzo's convent of the Certosa, an important centre of Lombard art, and containing within its own walls many fine monuments. Amongst others are the tombs of Lodovico Sforza and his young wife, Beatrix, of Este, whom with all his crimes, he loved so fondly, and by whose grave he watched the night before his last flight from Milan. Both are interesting for the vivid individuality of the heads, and accurate rendering of every detail of costume. The robe of the duchess is a network of rich embroidery, her long eyelashes are deeply carved in the marble, and the crisp ringlets of luxuriant hair, escaping from under her tight-fitting hood, fall on brow and neck, while pillow and shroud alike are patterned over with the delicate ornament in which Lombard sculptors delighted to show the dexterity of their chisel.

When we enter on the sixteenth century the decline of sepulchral art becomes clearly visible, and neither skilful workmanship nor elegant decoration can supply the absence of thought. In their anxiety to invent original motives, the sculptors of this age placed the statues of the dead in new postures, neither imitating the activity of life nor the repose of death, but endeavoring to effect a sort of compromise between the two, as in Sansovino's monuments of the Cardinals Ascanio Sforza and Girolamo dello Rovere, who are represented raising themselves on their elbows, a prey to troubled dreams and uneasy slumber. Was it that these men shrank from the sight of death in all its silence and rigidity, or did a guilty conscience picture it to their eyes in this unhappy form?

Wherever we turn we find the same futile endeavor to hide feebleness of conception by a lavish use of ornament, and the size and costliness of the material employed. At Venice, where we have before noticed the tendency to worldly pomp, every symbol of adulation is used to enhance the ostentatious splendor of Doges' tombs. Victories, Fames, sea-monsters as emblems of maritime supremacy, adorn the frieze and occupy niches between the pillars; while in one tomb, in the Frari, colossal negroes, in full Venetian costume, bear the sarcophagus on their shoulders. The epitaph of one of these worthies, Bishop Jacopo Pesaro, is amusing from the evident attempt to combine the essence of worldliness with expressions suitable to the office the deceased had held in the Church:—

"Jacopo Pesaro, transported from a noble Venetian family to a nobler among the angels, expects the noblest crown which the just Judge shall give him in the last sentence. He lived the years of Plato."

The last remnants of purer taste lingered on in Florence, where here and there a tomb retains the characteristic of an earlier age. Such is the sepulchral slab which marks the last resting-place of Lionardo Buonafede, Bishop of Cortona, and during many years prior of the great Florentine hospital, S. Maria Nuova. No adulatory inscription was needed to record the virtues of a prelate whose good works were renowned in Florence, nor has the sculptor sought to display his skill by excessive decoration. All we have is the simple peace-breathing effigy of the good bishop, whose ninety years' life had been one long act of love, and to whom death had brought his soul's desire.

ST. JOHN LATERAN.

THE question of enlarging the tribune of the Basilica of St. John Lateran, says the Roman correspondent of *The Times*, has been decided in favor of continuing the works. They were commenced in 1876, by order of Pius IX, it being considered that the space the tribune afforded was insufficient for the celebration of the religious ceremonies with that decorum required in the cathedral church of Rome, *mater et caput* of all others. The works were, however, soon suspended on account of the alarm raised by archaeologists, artists, and historians at the contemplated demolition of the ancient apse, and the great possibility of the important mosaics within it being irreparably injured, if not destroyed, in process of taking them down from their original position and replacing them in the new apse to be constructed. On his Holiness Leo XIII ascending the pontifical throne, he ordered an examination to be made into the archaeological and liturgical exigencies of the case and the possibilities of reconciling them. The investigations were carried on under the supervision of a member of the Sacred College of great authority in archaeology, who ultimately set forth their results in two papers—a general report, in fact, in two parts—which he read before the Pope; and of this report the Cardinal in question has now anonymously published for private circulation a summary, which may be epitomised as follows:—

The first step taken was the nomination of a commission composed of the distinguished archaeologists Baron P. E. Visconti, the Commendatore G. B. de Rossi, and the Rev. Padre Bruzza, to report upon the antiquity of the apse and the mosaics within it, and their decision has been contrary to the opinions expressed by some, that the apse and a

portion of the mosaics belong to the time of Constantine. The pamphlet points out that the construction of the apse is not of that period; that no such stamps bearing the initials of Constantine have been found on the bricks as were discovered in numbers when the apse of old St. Peter's was demolished; that the original apse was reconstructed by Sergius II, in 845, when he was compelled by the canon law to enlarge the cathedral church, and that his apse, after having been repaired by Sergius III, in the tenth century, was in so ruinous a condition at the end of the thirteenth that it was rebuilt from the foundations by Nicholas IV. Moreover, the exactness of these historical details was demonstrated in the course of the works as far as they were carried during the lifetime of Pius IX. The lower portion of the apse of Sergius, of distinct construction from that of Nicholas IV, built upon it, was exposed, and the foundations of the apse of Constantine, of smaller size and nearer the high altar, were discovered within the area.

Notwithstanding, however, the pamphlet continues, these proofs of the archaeological value of the actual apse being much inferior to "the imaginary assertions of some antiquarians," the Pope, desiring that everything should be done to perpetuate its existence, resolved to appoint a commission of architects of known engineering reputation to consider the practicability of transporting the apse by mechanical appliances to the end of the new tribune projected; and to guarantee an impartial and obtain what might be considered an authoritative international opinion, the Chevalier Friedrich Schmidt, Imperial and Royal Councillor of Architecture and President of the Society of Architects of Vienna, M. Auguste Graeff, ex-Minister of Public Works in France and actual Inspector-General of Bridges and Roads, and the Marquis Raffaele Pareto, Inspector of Civil Engineers in the Italian Ministry of Public Works, were invited to sit upon it. This commission met in Rome, and after a diligent examination of the building and the discussion of various systems of mechanical transport, gave an unanimous opinion to the effect that, considering the condition of the construction, which had been weakened by successive restorations and alterations, and the precarious adherence of the mosaics to the walls, no mechanical means of transport, even of the most delicate kind, could be employed without serious danger to the preservation of the monument; and as the slightest accident might involve the irreparable loss of the mosaics, the best course would be to detach them from the actual wall and replace them on that of the new apse to be constructed. But there still remained the question: Could these mosaics be taken down and replaced elsewhere without injury? And it has been answered in the affirmative by the Cavalier Consoni, director of the Vatican Mosaic Works, and Signors Sarti and Fontana, of the architectural department of these works, to whom it was referred. In support of their opinion, they state that the great mosaic of the colossal head of the Savior, with the figures of the four and twenty Elders, of the time of Leo I, on the triumphal arch in the new Basilica of St. Paul outside the walls, was taken down from the arch of the old Basilica destroyed by fire in 1823, and safely replaced in its present position; and, further, that the remains of the mosaic front of that Basilica were also detached and replaced uninjured, partly on the upper part of the inner, or tribune, side of the triumphal arch, and partly on the walls extending from each side of the apse.

Considering, then, that these investigations have proved that neither the apse nor the upper part of the mosaic belongs to the time of Constantine or to any period anterior to the end of the thirteenth century; that the idea of moving the apse by mechanical appliances is impracticable; that the mosaic can be taken down and replaced without injury; and especially that the liturgical requirements of the Basilica demand the enlargement of the tribune; Leo XIII has decided that the works shall be continued—the old apse demolished, and the mosaic replaced on that of the new tribune to be constructed. The pamphlet concludes thus:—

"To judge, therefore, with full knowledge of cause, the character of the works being carried out at the Lateran, it is requisite to rise above the narrow rivalries of architects and the exclusive considerations of archaeologists. We must enter into the serene horizon of sacred liturgy, of Christian art, and of antiquity, in order to form a comprehensive judgment corresponding to their reciprocal requirements; and this was the conception which inspired Leo XIII, in prescribing the amplification of the Lateran apse. 'The claims of the monument,' he said, 'shall be cared for in the removal of the existing apse, if that be possible, but the mosaic shall be scrupulously preserved and placed in the new apse.' Art, therefore, will rejoice in seeing the Lateran Basilica crowned with a spacious tribune placing all its parts in symmetrical proportion. The Sixtine portico prolonged as far as the Baptistery of Constantine will embellish the exterior view of the Arch-Basilica, and the present Pontiff, on the completion of the work, will have the glory of repeating the bold words of Horace—*Exegi monumentum ære perennius*."

SHAM AT THE WASHINGTON CAPITOL.

WASHINGTON, D. C., August 10, 1880.

TO THE EDITOR OF THE AMERICAN ARCHITECT:

Sir,—I was very much shocked while visiting the Capitol a week ago, to see that the plinth on which the building rests had just been painted in "spatter-work," thought by some to imitate granite.

I think a strong protest should be made against the use of paltry shams in so dignified a building as our National Capitol, and I therefore call your attention to this.

These courses of stone are within easy reach; they are the only stones in the exterior of the building which visitors can inspect and touch without the aid of a ladder. If, then, they find these to be some material painted and grained, will they not be justified in thinking the whole structure is but a sham? It may have been necessary to clean these stones, — perhaps it was expedient to paint them, — but I don't believe there is any reason why they should be spattered all over with black, white, and red specks.

Very respectfully yours,

E.

NOTES AND CLIPPINGS.

THE GERMAN STANDARD FOR PORTLAND CEMENT. — From a paper read by Mr. John Grant, an English authority on cement, is taken the following brief summary of the requirements adopted in Germany for Portland cement: "In January, 1877, a committee, appointed the year before, of four associations of engineers, architects, and manufacturers of cement, etc., had, at their meeting in Berlin, agreed upon a series of rules to be observed in the production and supply of cement. By these, the weight to be supplied in casks and sacks was determined, and certain tests established for the quality of cement, particularly as to its fineness and tensile strength. The latter was to be tested by briquettes of uniform shape and dimensions — five square centimetres breaking area — made of cement and sand, in the proportion of one part of cement to three parts of sand. The apparatus for this purpose was agreed upon. The age of the briquettes when tested was to be twenty-eight days. The cement was to be ground so fine that the residue on a sieve of 900 square centimetres, equal to 72.2 per lineal inch, should not exceed 25 per cent. This was afterwards reduced to 20 per cent. The sand for testing was to pass through a sieve of 60 meshes per square centimetre, and to be retained on one of 120 meshes per square centimetre, equal to about 20 and 28 meshes per lineal inch. The tensile strength after twenty-eight days was at first eight kilogrammes per square centimetre, equal to about 114 pounds per square inch, but was afterwards increased to ten kilogrammes per square centimetre, or about 142 pounds per square inch. There could be no doubt that the standards thus established for fine grinding, and for testing the cementitious value of cement when mixed with a large portion of sand, had exercised a beneficial influence on the quality of the Portland cement manufactured and used in Germany. This result has been arrived at by a combination of the knowledge and ability of those who produced, and those who had to use this important article. The same standard rules, with slight modifications, were afterwards adopted in Austria. To these standards all cement manufactured in or imported into these countries must conform. In England engineers and cement manufacturers had not been idle, and the subject was now much better known than it was twenty years ago."

A JAPANESE PHOSPHORESCENT PAINT. — The trite aphorism, "There is nothing new under the sun," seems again exemplified by a statement to the effect that the Japanese were practically acquainted with the art of luminous painting nine centuries ago, thus anticipating the inventor of the supposedly new phosphorescent paint. A Japanese cyclopaedia cites an account of a wonderful picture of an ox which left the frame to graze during the day and returned at night. This picture came into the possession of an emperor of the Sung dynasty (A. D. 676-690), who sought an explanation, which none of his courtiers could give. At length a Buddhist priest showed that a certain nauseous substance obtained from oysters, when ground into color material, rendered the pictures painted with the latter luminous at night and invisible through the day. The figure of the ox was painted with this phosphorescent pigment, and, becoming invisible by day, the superstition arose that the animal had gone out to graze. — *Iron Age*.

A RUSSIAN SHIP-CANAL. — It is officially announced that the Russian Government has commenced the construction of a ship-canal between Cronstadt and St. Petersburg, so that vessels arriving at the former place can proceed directly to St. Petersburg, thus avoiding the transshipment of freight by lighters. The canal will be about 300 feet in length, and will be deep enough for vessels drawing 20 feet of water. It is expected that the work will be completed in 1883, but next year it will be available for vessels drawing 16 feet of water. The principal branch of the canal will divide the island of Cannoniers and rejoin the River Neva within sight of the Island of Gontoniën.

DRY DOCK FOR HALIFAX. — Advice from England state that plans and specifications are nearly completed for a dry dock in Halifax harbor, to be larger than any now in America, which is to be built by an English company, at a cost of \$1,000,000.

OBELISKS AS LIGHTNING RODS. — M. Le Page Renouf suggests that the ancient obelisks of Egypt may have been intended to serve as lightning conductors. The evidence is found in an inscription from the temple at Edfu, published by Brugsch-Bey in September, 1875. In the thirty-fourth line of this text "two large obelisks" are expressly said to have been constructed "for the purpose of cleaving asunder the storm-cloud of heaven."

A LARGE HOISTING ENGINE. — The new hoisting engine, which is now being built for the Calumet and Hecla mines, will be of 3,800 horsepower, one of the largest ever constructed in the United States, and capable of doing efficient work to a depth of over 4,000 feet.

AN ACT OF INTERNATIONAL COURTESY. — The Institution of Civil Engineers of London, England, has awarded a Telford Premium to Joseph M. Wilson of Wilson Brothers & Co., Philadelphia, for an exhaustive paper on his bridge over the Monongahela River at Fort Perry, Pennsylvania, erected by the Pittsburgh, Virginia & Charleston Railway, a branch connecting with the Pennsylvania Railroad near Bunton's Station. The bridge, which is of iron, consists of eight spans of 140 feet, one of 260 feet, three of 70 feet and one of 42 feet.

LIGHTING ROOMS. — M. Javal, in a paper on public and private lighting, considered from the aspect of ocular hygiene (*Revue Scientifique*, Oct. 18, 1879, p. 331), treats of artificial lighting. He says that a chandelier carrying a million of wax lights would not give an amount of light equal to sunlight. Even in a room lit up in an unusually brilliant manner the pupils are much more dilated than in full daylight; and this dilatation explains the fatigue to the eyes produced by artificial light. Therefore, there is never too much, in fact never enough, artificial light, and prejudices without any just foundation are prevalent on this point. M. Javal recommends to persons suffering from certain optic defects, and who cannot work in the evening, two large lamps, which would obviate the fatigue of reading. Artificial light, also, excepting the electric and magnesium lights, contains much fewer chemical rays than daylight. All artificial spectra are very dull on the most refracted side; the chemical rays, the violets and the blues, there show a very low intensity. M. Bouchardat (*Revue Scientifique*, August 16, 1879, p. 148) has shown the dangers of violet and deep violet rays, on the authority of M. Regnaud's important work on the fluorescence of the media of the eye. The conclusion to be derived is that the flame light being poorer in chemical rays than sunlight, should be preferred by workers. In fact, M. Javal quotes the instance of a member of the Institute, whose fatigued vision would scarcely tolerate daylight, and who shut his shutters, and lighted his lamp, in order to work. M. Javal recommended him rather to work in daylight, with yellow spectacles, to destroy the chemical rays. Artificial light, on the other hand, considerably dilates the pupil, and renders the chromatism of the eye more sensitive, which is the reason that the light of day is to be preferred. The electric light is injurious, in a certain point of view; it contains a large quantity of chemical rays, which it would be easy to neutralize by giving a yellow tint to the globes. Nevertheless, neither the public, nor the experts, have complained, up to the present time, of the electric light; inconveniences only arise when the eyes are fixed for too long a time on a too powerful electric light. It is therefore advisable not to look too long at electric lights, and when this becomes a habit, the opacity of the globes now in use can be diminished. In fine, all our systems of artificial light are insufficient; there is, then, no necessity to fear excess of light, since, on the contrary, artificial light is less penetrating than daylight. Gas, therefore, does not destroy the eyesight, it is the wavering and flickering of the flame, when there is neither globe nor chimney, which fatigues the sight; gaslight, with a burner protected by a globe, is excellent for it. M. Javal may well, then, say, with dying Goethe — "Light, more Light!" — *Sanitary Record*.

EUCALYPTUS TREE AND FEVER. — In a late number of *Nature* some very positive statements are made as to the value of the eucalyptus or blue-gum tree of Tasmania in destroying fevers in marshy districts. The testimony in support of this power, it says, is most convincing. In marshy districts near eucalyptus forests, fever seems to be unknown, and in parts of Corsica and Algeria, where the tree has been planted for the sake of its reputed virtues, endemic fevers have been stamped out. M. Gimbert, in a report to the French Academy, instanced the case of a farm situated in a pestilential district about twenty miles from Algiers, where by planting a number of trees the character of the atmosphere was entirely changed. Similar testimony comes from Holland, the south of France, Italy, California and many other parts of the world as to the febrifugal attributes of this tree. In no case is the evidence more convincing than in that of Algeria, as related by Dr. Santra, and, quite recently, by Consul Playfair. Large tracts of land have been transformed by the agency of the "fever-destroying tree," as it has come to be called, and wherever it is cultivated fevers are found to decrease in frequency and intensity. Fewer districts in Europe have a more evil reputation than the Campagna as a veritable hot-bed of pestilential fever, and people who know the country around Rome may remember the monastery at Tre Fontane, on the spot, as tradition tells, that St. Paul met his death. Life in this monastery meant death to the monks, but since the eucalyptus has been planted in the cloisters, fever has disappeared and the place has become habitable.

NEW MUNICIPAL BUILDINGS FOR GLASGOW. — The Glasgow Town Council have resolved to ask Mr. Charles Barry, Late President of the Institute of British Architects, to adjudicate on the plans which have been sent in by architects from various parts of the country for the municipal buildings for Glasgow. It is stated that no fewer than ninety-eight boxes and parcels have been sent in to the Glasgow town-clerk in connection with the competitive designs for the buildings. The designs have been numbered consecutively from 1 to 98, and insured by a floating policy to the extent of 5,000l. A number of architects sent in copies of reports on their plans for distribution among members of the Town Council, but the committee have declined to distribute them, leaving the matter entirely in the hands of the adjudicator.

THE VALUE OF BRIC-A-BRAC. — A *bonheur du jour* table, 2 feet wide, 18 inches deep, and 2 feet 9 inches high, beautifully and elaborately decorated, one of the Welbeck "properties" inherited by the Duke of Portland, has been valued for probate at 10,000 guineas. There is nothing very astonishing in this, for when, during the bankruptcy of the late Duke of Newcastle, there was a dispute as to the ownership of a cup, whether it belonged to the Duke or to Mrs. Hope, some one suggested that such a trifle was not worth so much discussion, whereupon it came out that at the death of Mr. Henry Hope the said cup had been valued at £10,000.

BUILDING IN NEW YORK. — It is officially reported that more money has been expended this year for new buildings and substantial repairs and improvements in New York city than at any time since 1873. The returns of the Department of Buildings for the six months ending July 1, show that 1,100 new buildings have been commenced, at a total estimated cost of \$14,800,000, or nearly \$13,500 for each. This is \$3,000,000 more than was expended for these objects in the same period of last year, and double as much as in 1877.

BUILDING INTELLIGENCE.

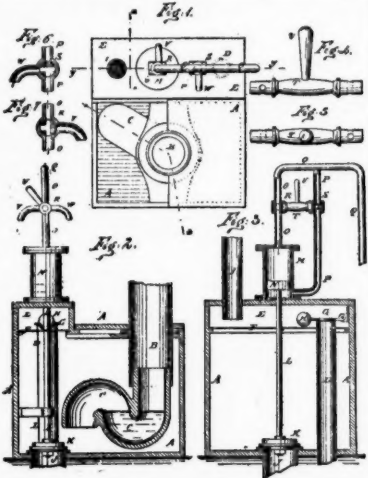
[Reported for The American Architect and Building News.]

[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.]

228,674. SEWER-GAS TRAP.—Albert F. Pfinghaupt, Jr., Brooklyn, N. Y. Figure 1 is a plan view of the improvement. Fig. 2 is a sectional elevation taken through



the line *xxxx*. Fig. 1. Fig. 3 is a sectional elevation taken through the line *yy*. Fig. 1. Figs. 4 and 5 are plan views of the connected plugs of the two three-way cocks. Figs. 6 and 7 are sectional elevations of the two three-way cocks. The object of this invention is to furnish devices for connecting the waste-pipes of houses with sewers, which shall be so constructed as to prevent sewer-gas from passing from sewers into houses through the waste pipes. A represents an iron tank, of a capacity depending upon the amount of sewage to be discharged from the house. B is the waste pipe from the house, which extends nearly to the bottom of the tank A, and is trapped at C. D is a pipe passing through the bottom of the tank A into the sewer; the upper end entering a compartment, E, which is separated from the main compartment of the tank by a perforated partition, F. The upper end of D rises a little above the perforated partition F, and is closed by a valve, G, which is provided with a float, H. With this construction, when the liquid contents of the tank A rise into the compartment E the float H rises and opens the valve G, allowing the contents to flow into the sewer, the valve G closing as the float H is lowered. With the compartment E is connected a ventilating-pipe, I. With the bottom of the tank A is connected a pipe, J, leading into the sewer. The upper end of the pipe J is closed with a valve K, to which is attached the lower end of a stem, L, which passes up through the top of the compartment E, enters the lower end of a cylinder, M, attached to the said top, and has a piston, N, attached to its upper end. With the upper and lower parts of the cylinder M are connected the ends of two pipes, O P, the other ends of which are connected with the water-pipe Q. In the pipes O P are placed two three-way cocks, R S, the plugs of which are moved at the same time by a handle, U. The cocks R S are provided with discharge-nozzles V W, and are so arranged that when one allows water from the pipe Q to flow into one end of the cylinder M the other allows the water from the other end of the cylinder M to flow out of its nozzle, so that water will always be discharged from one end of the cylinder M, as it is admitted into the other end, and the piston N will be worked up and down to open and close the valve K by water-pressure. The waste-water from the nozzles V W is conducted into the waste-pipe in the usual way. With this construction the contents of the waste-pipe B will be discharged through the trap C into the lower part of the tank A beneath the body of water that may be in the said tank, the solid matter remaining in the lower part of the tank A, and the liquid matter, as the tank A fills, being discharged automatically through the valve G and pipe D into the sewer. Once a day, or as often as required, the three-way cocks R S are adjusted to admit the water into the lower end of the cylinder M, to raise the piston N, open the valve K, and discharge the solid contents of the tank A into the sewer. If desired, the three-way cock R may be connected with a cock in the water-pipe, and the piston N provided with a balancing-weight, so that the valve K will be opened and the solid contents of the tank A discharged every time the cock in the water-pipe is opened to draw water.

220,861. LATCH.—S. Buschlen and L. Sees. Port Egin, Ontario, Can.

220,863. ROCK-DRILL.—James A. Cowles, Chicago, Ill.

220,865. HYDRAULIC CEMENT.—Anthony T. East-erly, Napa, Cal.

230,876. CALIPERS AND DIVIDERS.—Israel Kinney, Windsor, Ontario, Can.

230,912. ROOFING COMPOUND.—Philemon Wright, Brooklyn, N. Y.

230,919. WATER-PROOFING COMPOUND.—R. M. Caffall, St. Louis, Mo.

230,931. JOINT FOR ILLUMINATING TILE.—William J. Fryer, Jr., New York, N. Y.

230,932. FASTENING FOR IRON SHUTTERS.—William J. Fryer, Jr., New York, N. Y.

230,933. ARCH-GIDER.—William J. Fryer, Jr., New York, N. Y.

230,944. WINDOW-BLIND.—David L. Jaques, Cleveland, O.

230,945. ASBESTOS ROOFING-SHEET.—H. W. Johns, Brooklyn, N. Y.

230,946. The same.

230,949. SPRING-HINGE.—George M. Lane, Asbury Park, N. J.

230,952. VENTILATOR.—John W. Mark, New York, N. Y.

230,963. FAUCET.—John Robertson, Montreal, Can.

230,964. METHOD OF RIVETING.—James R. Robinson, Cambridge, Mass.

230,975. SQUARE AND BEVEL.—Charles D. Walters, Harrisburg, Pa.

231,015. DEVICE FOR CLEANING SEWER-PIPES.—Thomas Dark, Buffalo, N. Y.

231,021. HOPE-ELEVATOR.—Ephraim B. Demarest, New York, N. Y.

231,023. PIPE-WRENCH.—John Everding, Philadelphia, Pa.

231,053. SPRING-HINGE.—George Keene, Chicago, Ill.

231,114. REED-CEILING.—Carl W. Stauss, Colbus, Prussia, Germany.

231,118. ELEVATOR.—A. K. Suddoth and W. L. Canfield, Friar's Point, Miss.

SUMMARY OF THE WEEK.

Baltimore.

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

A. C. Linville's Estate, three-sty brick building, on Lexington St., between Fulton Ave. and Mount St.

C. Gautner, three-sty brick building, on Monument St., near Caroline St.

Christina Stumpf, three-sty brick building, northwest cor. Holland and Eden Sts.

Geo. Bauenschmidt, 2 three-sty brick buildings, on Belair Ave., near Oliver St.

Peter Ringsdorf, three-sty brick building, 493 Gay St., between Caroline and Dallas St.

Wilson & Perry, four-sty brick building in rear of 101 Lexington St.

A. Mahone, 6 three-sty brick buildings, northeast cor. Mount and Baker Sts.

A. Mahone, 2 three-sty brick buildings, on Mount St., near Baker St.

John Reginer, three-sty brick building on Patterson Ave., between Alice Ann and Canton Aves.

Davis & Watts, two-sty factory, on Monument St., near Falls St.

STORE.—Mr. William W. McClellan is about to build, on Holliday St., near Second St., a three-sty brick building 22' x 60', to have press-brick front, with marble finish; Mr. John J. Purcell is the builder.

ADDITION.—Mr. F. Denmead, owner of the City Malt House, at the intersection of West Falls Ave. and Block St., is building a large six-sty addition to said building. The new building, with machinery, will cost \$50,000 or \$60,000.

HALL.—At a recent meeting of the stockholders of the proposed new St. Vincent's Catholic Hall, it was decided to go to work immediately and give out the contract for the structure, which will cost \$10,000. The dimensions will be 46' x 90'.

HOUSE.—Messrs. J. A. & W. T. Wilson are preparing drawings for a country house near Baltimore, for Mr. G. W. Lürman. It will measure 41' x 73' on plan, and be of stone, with finish of moulded red brick and terra-cotta, tiled roof, and open-timbered hall.

WAREHOUSE.—The new tobacco warehouse being constructed by the Baltimore & Ohio R. R. is rapidly approaching completion, and is expected to be completed by the 1st of September.

Boston.

BUILDING PERMITS.—*Brick*.—Wareham St., rear of Albany, for McLaughlin & Scanlan, 1 dry-house, 39' x 71', Wm. McGrath, builder.

Boston & Albany R. R., near Brookline Bridge, 1 tank-house for B. & A. R. R.; Albert H. Glover, builder.

Wood.—Vernon St., near Cabot St., for German Baptist Church Society, 1 church, 32' x 50'; Valentine Cooke, builder.

Maverick St., near Orleans St., for Mrs. Asa Critchett, 1 stable, 30' x 62'; Chas. V. Erskine, builder.

Adams St., near Butler St., for Geo. Dexter, 2 dwells., 21' x 30'; Fred. M. Severance, builder.

Bailey St., near Washington St., for Henry Richardson, 1 dwell., 24' x 24'; Daniel Simpson, builder.

Dudley St., for Robert W. Williams, 1 dwell., 26' x 28'; Merritt & Vallie, builders.

East Sixth St., for Edmund C. Coleman, 2 dwells., 16' x 36'; Wm. T. Eaton, builder.

Everett St., for Munroe & Arnold, 1 stable, 26' x 100'; Chas. V. Erskine, builder.

STORE.—Messrs. Jordan, Marsh & Co. are extending their retail premises, covering about 5,000 additional feet of ground. The new fronts will be constructed of Belleville stone. The octagonal end, at the corner of Washington and Avon Sts., will be seven stories high. The work is now in progress, and will cost about \$100,000. Mr. S. J. F. Thayer, of Boston, is the architect.

BANKING-HOUSE.—It is said that Kidder, Peabody & Co. have purchased a lot of land on Sewall Place, upon which they propose to build a large and costly banking-house for their own use.

CORRECTION.—In the "Summary of the Week," ending August 14, are noticed four houses in block, on Commonwealth Ave., Chas. K. Kirby, architect. This is an error; Chas. K. Kirby is in California, and has been for two years; and the houses, though not in block, are designed by Kirby & Lewis.

Brooklyn.

BUILDING PERMITS.—*Walton St.*, 1 one-sty brick foundry, 50' x 100'; owner, North American Iron Works; architect, Wm. H. Doughty.

Myrtle Ave., 5 three-sty brick stores and dwells., 20' x 54'; cost, \$6,000 each; owner, H. F. Burroughs; architect, W. H. Gaylor; builders, Thomas Gibbons and Samuel Feden, Jr.

Hooper St., 2 two-sty brown-stone dwells., 10' 6" x 45'; cost, \$4,000 each; owner, T. B. Saddington, 263 Hewes St.; architect, A. W. Dichie; builder, Jas. E. Wittingham.

Eighteenth St., 1 three-sty brick tenement, 20' x 44'; cost, \$3,000; owner, Mrs. Lucy Rin; builders, W. Hughes and J. Powers.

North Third St., 1 three-sty building for machinery, 19' 8" x 48'; cost, \$2,000; owners, Decastor & Donner; architect, J. V. V. Booram.

Pulaski St., cor. Tompkins Ave., 4 two-sty brick, one store and dwell., and three dwells., 20' x 42', tin roof, wood cornice; cost, \$3,500 each; owner and mason, M. J. McLaughlin, 284 Nostrand Ave.; architect, S. Osmur.

Bergen St., 2 four-sty brown-stone tenements, 30' x 65'; cost, \$7,000 each; owner and builder, G. B. Dearing; architects, Parfitt Bros.

Hopkins St., 1 two-sty frame store and dwell., 25' x 45', tin roof; cost, \$2,400; owner, John Zangli, 120 Hopkins St.; builder, George Loeffler.

Scholes St., 1 two-sty frame ice-house, 40' x 87'; owners, Weber & Amthor; architect, John Platte; builders, Henry Grassman and John Rueger.

Scholes St., 1 two-sty brick brewery, 30' x 46', gravel roof, brick cornice; owners, Weber & Amthor; architect, John Platte; builders, Henry Grassman and John Rueger.

Bushwick Ave., cor. Palmetto St., 3 two-sty brick dwells., 16' 8" x 36' x 38'; cost, \$2,500 each; owner, A. Miller, 72 Stanhope St.; architect and builder, Thos. Miller.

ALTERATIONS.—*Prince St.*, raised one story; cost, \$4,000; owner, Mr. Hibbler; architect, M. J. Morrill; builder, John Lambert.

Smith St., No. 123, three-sty brick extension, 20' x 34', interior alterations; cost, \$4,000; owner, Casper Schwelinfest, on premises; architect, Chas. Werner; builders, John Thatcher and William Lang.

Chicago.

BUILDING PERMITS.—Thomas Moore, two-sty brick dwell., 50' x 45', Thirty-Seventh St., cor. Wallace; cost, \$6,300.

Aug. Zoellner, three-sty brick store and dwell., 24' x 77', 652 Blue Island Ave.; cost, \$5,500.

John Goesche, 3 two-sty brick stores and dwells., 70' x 60', 121 Van Buren St.; cost, \$9,000.

P. H. Rice, brick grain warehouse, 52' x 60', Seymour St., cor. Kinzie; cost, \$5,000.

H. S. Childs, 2 one-sty brick dwells., 20' x 50', Idaho St., near Polk; cost, \$3,500.

John H. Jenson, three-sty brick dwell., 25' x 72', 271 North La Salle St.

Wahl Bros., three-sty brick addition to factory, 30' x 60', Benson St., near Board; cost, \$3,500.

John Magee, two-sty brick store and dwell., 26' x 23', 601 Twelfth St.; cost, \$2,500.

Wineman & Manheimer, 2 three-sty brick dwells., 56' 8" x 85', Third Ave.; cost, \$2,000.

Joseph Downey, three-sty brick dwell., 22' x 58', 557 Wells St.; cost, \$4,000.

John Merker, two-sty brick dwell., 24' x 50', Alexander St., near Portland Ave.; cost, \$2,500.

Jacob Lauer, three-sty brick store and dwell., 25' x 70', North Ave. and Sedgwick St.; cost, \$6,000.

J. N. Hare, three-sty brick store and dwell., 24' x 80', 991 Milwaukee Ave.; cost, \$2,000.

John Mauzer, three-sty brick store and dwell., 22' x 65', 228 Taylor St.; cost, \$2,400.

C. J. Hall, two-sty brick dwell., 24' x 60', 572 West Ohio St.; cost, \$2,500.

C. Catlin, two-sty brick dwell., 25' x 54', Belden Ave., near Halsted St.; cost, \$5,000.

P. Appel, two-sty brick dwell., 23' x 56', Sophia St., cor. Hurlbut; cost, \$4,000.

H. J. Howland, two-sty brick dwell., 24' x 68', 510 Webster Ave.; cost, \$5,000.

J. Rohn, one-sty brick dwell., 22' x 48', Leavitt St., near Oakley Ave.; cost, \$2,000.

W. Hahne, three-sty brick store and dwell., 27' x 56', 268 Sedgwick St.; cost, \$4,000.

J. P. Smith, three-sty stone and brick dwell., 32' x 76', 1503 Michigan Ave.; cost, \$15,000.

J. H. Rhode, two-sty brick dwell., 22' x 57', 130 Fremont St.; cost, \$3,500.

Gustav Girsch, three-sty brick dwell., 24' x 54', Pearson St., cor. Pine; cost, \$5,000.

H. Wetterer, three-sty brick dwell., 22' x 60', 517 North Clark St.; cost, \$5,000.

Cincinnati.

BUILDING PERMITS.—Fisher & Bros., three-sty brick house, Cutter St.; cost, \$6,000.

John C. Lyons, two-sty brick house, cor. Knowlton and Springdale Sts.; cost, \$3,700.

William Miller, two-sty brick, Findlay St.; cost, \$5,000.

Adam Stock, three-sty brick house, McMicken Ave., No. 7; cost, \$3,000.

Gambrius Stock Company, two-sty brick ice-house, Sycamore St.; cost, \$5,000.

New York.

BUILDING PERMITS.—*William St.*, No. 193, 1 five-sty brick store, 23' 10" x 88'; cost, \$22,000; owners, Wm. Zinsner & Co., 197 William St.; architect, Wm. Kuhles.

Pier foot of Sixty-Fifth St., North River, 1 two-sty frame freight-shed, 98' x 420'; cost, \$30,000; owner, N. Y. C. & H. R. R. Co.; architect, F. S. Curtis; builder, E. G. Brown.

One Hundred and Eighteenth St., 3 three-sty brick (brown-stone front) dwells, 16' 8" x 45'; cost, each, \$6,300; owner, James Gaulet, 210 West Fifty-Third St.; architect, Emil Schultze.

West Forty-Seventh St., No. 548, 1 five-sty brick tenement, 25' x 70'; cost, \$10,000; owner, Thomas Murray, 548 West Forty-Seventh St.; architects, Cauvet & Rosenstock.

Fifty-Sixth St., 1 one-sty brick ice-house, with lager beer cellars under, 56' x 100' 5"; cost, \$25,000; owner, Conrad Stein, 524 to 548 West Fifty-Seventh St.; architect, Wm. José.

One Hundred and Sixty-Eighth St., cor. Third Ave., 1 one-sty brick boiler-house, 41' x 22' 4"; cost, \$3,000; owners, J. & L. F. Kurtz, One Hundred and Sixty-Eighth St. and Third Ave.; architects, Adams & Burns; builders, C. L. Fee and John Eisele.

Norfolk St., Nos. 21, 23, 25, and 27, 1 four-sty brick public school, 50' x 87'; cost, about \$80,000; owner, City of New York; architect, D. J. Stagg.

Little Twelfth St., 3 two-sty brick stores, 17' 4" x 65' 6"; cost, about \$2,500 each; owner and builder, P. Gallagher; architect, James Stroud.

One Hundred and Twenty-First St., 2 four-sty brick stores and tenements, 26' 6" x 50'; cost, \$8,000 each; owner, James Wood, 347 East One Hundred and Sixteenth St.

Twelfth Ave., 2 five and six sty brick warehouses, 100' x 200'; cost, \$90,000 each; owner, New York Central & H. R. R. Co., Grand Central Depot; architect, F. S. Curtis; builders, Smith, Rodgers & Co. and Meeker & Headen.

ALTERATIONS. — Washington Pl., No. 25, one-sty brick extension, 17' 4" x 27'; cost, \$3,500; owner, J. F. Navarro; architect, E. H. Kendall; mason, Richard Deeves.

Bank St., cor. West St., damage by fire to be repaired; cost, \$2,200; owners, A. C. Kingsland & Son; mason, Edward Sorenson.

Fifth Ave., three-sty brick extension, 18' x 34'; cost, \$5,000; owner, George D. Pitman; builder, Henry Ellis.

Sullivan St., No. 106, dwell. to be made four stories; cost, \$2,000; owners, Franciscan Fathers; architect and mason, John O'Connor; carpenter, Wm. H. Walker.

West Thirty-Eighth St., No. 256, raised one-sty; also four-sty brick extension, 25' x 20'; cost, \$5,000; owner, Mrs. Sumner; architect, Bernard McGurk.

Chatham St., Nos. 13 and 15, new brick wall; cost, about \$2,500; owner, Mr. Stevenson, Morse building; builders, F. Hamel & Son.

Tenth Ave., between Fifty-Ninth and Sixtieth Sts., 2 five and six-sty brick stores, each 100' x 200'; estimated cost of each, \$90,000; owners, New York Central & Hudson River R. R. Company; contractors, Smith, Rodgers & Co.

Seventy-Seventh St., near Fifth Ave., 3 four-sty brown-stone front dwells, 16' 3" x 58'; estimated cost of each, \$18,000; Hiram Sigler, owner; John J. Prague, architect.

Sedgwick Ave., near Macomb's Dam Bridge, an iron and brick locomotive-house, 66 feet square; cost, \$9,000; owners, W. S. & Youkers Railroad Company; architect, A. P. Boller. Same location, a frame car-house, 40' x 405'; same owners, etc.; cost, \$8,000.

Eighty-Ninth St., near Fourth Ave., a brick four-sty French flat, 25' 6" x 60'; estimated cost, \$12,000; C. S. Saunders, owner; A. D. Seaman, architect.

One Hundred and Fourth St., near Fourth Ave., 2 four-sty brown-stone front French flats, one 20' x 65', and one 30' x 56'; estimated cost, \$13,000 and \$16,000; Christie & Walker, owners and architects.

BUREAU OF BUILDINGS. — The Fire Commissioners give notice that the office of the Bureau of Inspection of Buildings will be removed to the headquarters of this department on September 1, prox., and men will be put to work at once to have the room on the third floor of the building prepared for the use of the Inspector of Buildings and his various assistants, and in a few days the machinery of this bureau will be in regular working order, and the whole will be under the supervision of the Board of Fire Commissioners.

CHURCH. — Early this week the corner-stone of the new St. Leo Catholic Church, in Twenty-Eighth St., between Fifth and Madison Aves., was laid. The new building will cost about \$95,000. It will measure 50' x 120'. A tower will be built on the east side of the church, 105 feet high. The facing of the church will be of Belleville and Dorchester stone.

FACTORY. — A six-sty factory, 60' x 125', and 5 five-sty tenement-houses, three 30' x 75', two 25' x 85', are to be built on Thirty-Eighth St. and Second Ave., for Mr. Louis Ettlinger. The building will be of Philadelphia brick, with Nova Scotia stone trimmings, and will cost about \$125,000; Messrs. H. J. Schwarzmann & Co. are the architects.

West Fifty-Sixth St., No. 17, the residence of Mr. Louis Ranger, is having an extension added, and alterations are to be made, at a cost of \$15,000; Messrs. H. J. Schwarzmann & Co. are the architects.

St. Louis.

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

OWNERS NAME.	USE.	STY.	FRONT.	DEPT.
J. Eddy,	Dwell.	2	12	\$4,500
J. Gugerty,	Dwell.	2	10	4,000
R. E. Lewis,	Dwell.	2	8	3,000
R. E. Lewis,	Dwell.	2	8	3,000
R. E. Lewis,	Dwell.	2	8	3,000
R. E. Lewis,	Dwell.	2	8	3,000
Charles Holls,	Dwell.	2	10	3,000
W. Leaser,	Dwell.	2	14	3,000
E. C. Moore,	Dwell.	2	8	4,000
J. J. Lindley,	Dwell.	2	8	3,000
J. J. Lindley,	Dwell.	2	8	3,000
J. Bentley,	Dwell.	2	6	3,000
M. Kretschmar,	Dwell.	3	10	7,000
John Whittaker,	Dwell.	2	18	25,000

Philadelphia.

RESTAURANT. — Messrs. H. J. Schwarzmann & Co., of New York, have prepared plans for a two-sty restaurant, 30' x 70', to be built on the corner of Broad St. and Columbia Ave., for Philip Lauber, at a cost of about \$8,000.

General Notes.

BUFFALO, N. Y. — Mr. F. A. Caulkins, architect, has the following work in hand: Seven-story office-building, for Jas. P. White, cost, \$175,000; alterations and additions to old Unitarian church, cost, \$36,000; new Prospect Ave. Baptist church, cost, \$30,000; Marine Bank, cost, \$25,000; malt-house, for Wm. W. Sloan, cost, \$19,000.

CAPE HENLOPEN, MD. — A signal station is to be built for the Maritime Exchange, from designs of Messrs. Wilson Bros. & Co., of Philadelphia.

CATONSVILLE, MD. — Mr. Charles L. Carson, architect, of Baltimore, is preparing drawings for a new Presbyterian church, to be built at Catonsville, Baltimore County, Md., 35' x 60'; cost, \$4,000.

DURHAM, IOWA. — E. M. Woodworth, Esq., is preparing to build a house, cor. Locust and Thirteenth Sts., to cost about \$8,000. F. D. Hyde is the architect.

EDINBOROUGH, PA. — Mr. D. K. Dean, of Erie, Pa., is the architect of the new school-house, which is to cost \$15,000.

ERIE, PA. — Mr. D. K. Dean, architect, has the following work in this city on hand:

Public school-house, cor. Tenth and Ash Sts., cost, \$18,000; house for Thos. Brown, on Eighth St., cost, \$5,000; store for G. W. Hughes, on State St., cost, \$5,000.

FALL RIVER, MASS. — The corner-stone of St. Joseph's Church was laid August 15.

FRANKLIN, PA. — Mr. D. K. Dean, of Erie, Pa., is the architect of the new town-hall; cost, \$12,000.

HANOVER, MASS. — The Catholic chapel soon to be built will be of wood, 28' x 57'. Mr. J. Wm. Beal, of Boston, is the architect; cost, about \$3,500.

HYDE PARK, MASS. — Mr. J. Wm. Beal, of Boston, is the architect of a house and stable for Mr. C. F. Allen, costing about \$15,000. James McNeil, of Boston, is the builder.

LANCASTER, PA. — Mr. Frank E. Davis, architect, of Baltimore, is preparing drawings for a new school-house, to cost \$10,000.

LA PORTE, IND. — Messrs. Edbrooke & Burnham, of Chicago, are the architects of the new house for A. J. Rogers; cost, \$3,500.

LEADVILLE, COL. — A house is being built by W. W. Goodrich, Denver, Col.; cost, \$5,000.

LONG BRANCH, N. J. — Mr. W. W. Lewis, of Boston, is the architect of a house for Amos Cotting, Esq., of New York; cost, \$16,000.

MABEL, MINN. — F. Adams, Esq., of Dubuque, Io., is building four frame cottages and a bank building at this place; F. D. Hyde, of Dubuque, Io., is the architect.

MASSILLON, O. — Russell & Co. have begun excavating for a large brick warehouse, which is to be 243' x 66', and four stories high.

MAPLETON, IOWA. — Wm. Foster, architect, has furnished this district with plans for a two-story frame school-house, to be built this summer; cost, \$3,500.

MARQUETTE, WIS. — The laying of the corner-stone of Marquette College, the new Catholic High School, took place Sunday, August 15. The building is to be erected on State, near Tenth St.

MARYSVILLE, O. — Mr. D. W. Gibbs, of Toledo, is preparing drawings for the new court-house, which is to cost \$90,000.

MCKEAN, PA. — The architect of the new school-house, which is to cost \$2,000, is Mr. D. K. Dean, of Erie.

MERIDEN, CONN. — A house is being built for Mr. F. R. Seidensticker, from plans of Mr. H. W. Hartwell, architect, of Boston; cost, \$6,500.

MONUMENT, COL. — Mr. W. W. Goodrich, of Denver, is the architect of the new Presbyterian Chapel, which will cost \$5,000.

MOOREHEAD, MINN. — The Board of Education of this town is to build one large and five small school-houses here.

PITTSBURGH, PA. — The Presbyterian church of the Eleventh Ward (Rev. Mr. Burchard's) has at last decided to build a new church on the site of the old one.

QUEBEC, CAN. — A hotel is to be built on the spot where Montgomery fell when leading the charge on the citadel, in 1775.

SUNNEY, O. — Bids for building the new Presbyterian church were received August 12, by T. E. Hoover.

SPRINGFIELD, O. — The corner-stone of the new St. Paul's M. E. Church, at the West End, was laid recently.

STATEN ISLAND, N. Y. — Messrs. Wilson Bros. & Co., of New York, have drawn plans for a gate lodge for the residence of Mr. A. Hegewisch.

WAXWATER, WIS. — On August 7, proposals for building a county hospital were received by the Committee on Public Buildings for Milwaukee County.

WATERTOWN, MASS. — A house is being built for Mr. A. O. Davidson, from designs of Mr. H. W. Hartwell, architect, of Boston; cost, \$10,000.

WORCESTER, MASS. — Mr. H. W. Eddy is building two cottages for the Misses Williams, costing about \$9,000. Mr. S. C. Earle, of Boston, is the architect.

Industrial.

BOSTON, MASS. — A site has been selected for the erection of ten new buildings, for manufacturing purposes, on Albany St. The ground measures 640' x 75'. The estimated cost is about \$175,000.

BUFFALO, N. Y. — Two establishments for the manufacture of acids are to be built by L. Crocker, at Babcock St., which will represent an investment of about \$80,000.

CHICAGO, ILL. — The Marsh Harvester Company have broken ground at Chicago for their works. Their purchase includes twenty-five acres, and will be occupied by their works and the cottages they will build for their workmen.

DANIELSONVILLE, CONN. — The Lockwood Manufacturing Company, of Danielsonville, have contracted for building forty tenements in five brick houses, 162' 6" x 27'.

HOLYOKE, MASS. — The Springfield Blanket Company is to build a stock-house, 175' x 45', four stories high.

HYDE PARK, MASS. — A two-story brick building, 20' x 70', is being built on the south side of the mill of Robert Bleakie & Co., at the Washington Woolen Mill, on Central Park Ave., Hyde Park.

ITHACA, N. Y. — A glucose factory, for which \$500,000 have been subscribed, will be built here.

NEW HAVEN, CONN. — A brick addition to the New Haven Clock Factory is to be built, 100' x 34', at a cost of \$10,000.

PHILADELPHIA, PA. — Hagstoz & Thorpe, manufacturers of watch-cases, have begun to build a new five-story factory on Nineteenth St., above Brown. SPENCERPORT, N. Y. — The Fowler Company, vinegar manufacturers, of Waterloo, Iowa, are about to build a mill here, with a capacity for 150 barrels per day and storage room for from 6,000 to 10,000 barrels.

TURNERS' FALLS, MASS. — The Turners' Falls Paper Company will soon begin to build an addition, 50 feet long, to the new mill.

WESTFORD, MASS. — The Abbott Worsted Company is to build a mill at Forge Village, Westford. The main building will be 62' x 42'.

Bids and Contracts.

BALTIMORE, MD. — Mr. James S. Forbes has been awarded the contract for a new warehouse, to be built on Sharp St., near German St., for Mr. Henry S. King, at \$28,000.

The contract for the new building for the Baltimore Stock Exchange, J. A. & W. T. Wilson, architects, was awarded to Henry Smith & Son, builders; Sullivan & Peat, stone-work.

BOSTON, MASS. — Steward & Stevens, No. 130 North Sixth St., Philadelphia, have secured the award for furnishing the iron-work of the fifth floor of the new post-office building.

The Committee on Paving has awarded a contract for the pier abutment and wing walls for a new bridge at the Beacon St. entrance of the Back Bay park, and a wooden dam in connection with the same, to Ross & Lord, for \$36,898.

FALL RIVER, MASS. — Contracts for the completion of the new custom-house in this city have been awarded as follows: The joiner-work and finishing wood-work, to George A. Mills, of Baltimore, Md.; the furring and iron lathing, to the Cooper Manufacturing Company of Mt. Vernon, O.; the hard pine flooring to Robert Davidson & Co., Washington, D. C.; the wire-cloth lathing, to the Clinton Wire-cloth Company, of Clinton.

The contract for rebuilding Border City Mill No. 1 has been awarded to C. F. & J. M. Hull, of Providence, R. I.

NEW YORK, N. Y. — George L. Damon, of the U. S. Shutter, Safe & Building Co., Boston, have secured the contract for the safety deposit vault in the basement of the new building of the First National and the National Bank of the Republic, corner of Broadway and Wall Sts.

PHILADELPHIA, PA. — The contract for the new ten-million gallon engine for the use of the Fairmount Water Works has been given to Henry R. Worthington, of New York. The contract price is \$37,500.

PROPOSALS.

SCHOOL-HOUSE. [At New York, N. Y.] Sealed proposals will be received by the School Trustees of the Tenth Ward, at the Hall of the Board of Education, corner of Grand and Elm Sts., until Monday, the 30th day of August, 1880, and until 4 o'clock, P. M., on said day, for the erection of a new school-house on the west side of Norfolk St., between Hester and Grand Sts., on lots Nos. 21, 23, 25, and 27.

Plans and specifications may be seen, and blanks for proposals obtained at the office of the Superintendent of School Buildings, No. 146 Grand St., third floor.

Proposals will be received only for the entire work and materials required for the erection of the building, and must be endorsed "Proposals for the Erection of a School-house on Norfolk St., in the Tenth Ward." All the work is to be performed under one contract.

The work is to be completed by the first day of July, 1881, under a forfeiture of seventy-five dollars per day for each and every day that the work remains unfinished after the said day of July, 1881.

The Trustees reserve the right to reject any or all of the proposals submitted.

The party submitting a proposal, and the parties proposing to become sureties, must each write his name and place of residence on said proposal.

Two responsible and approved sureties, residents of this city, are required in all cases.

No proposal will be considered from persons whose character and antecedent dealings with the Board of Education render their responsibility doubtful.

No substitution by the accepted contractor will be permitted without first obtaining, in writing, permission from the Committee on Buildings of the Board of Education.

HENRY R. ROOME,
GEORGE W. ROSS,
PETER DENNERLEIN,
EDMUND ANDERSON,
JOHN C. CLEGG.

Board of School Trustees, Tenth Ward.

Dated NEW YORK, August 16, 1880. 244

SCHOOL-HOUSE. [At Somerville, Mass.] COMMITTEE ROOM, CITY HALL, August 17, 1880.

Sealed proposals will be received at this room until 12 o'clock, noon, of Monday, August 30, 1880, to erect an eight-room brick school-house at the corner of Highland Ave. and Grove St., Somerville, according to plans and specifications which may be seen at the office of Mr. Samuel D. Kelly, architect, No. 82 Devonshire St., Boston.

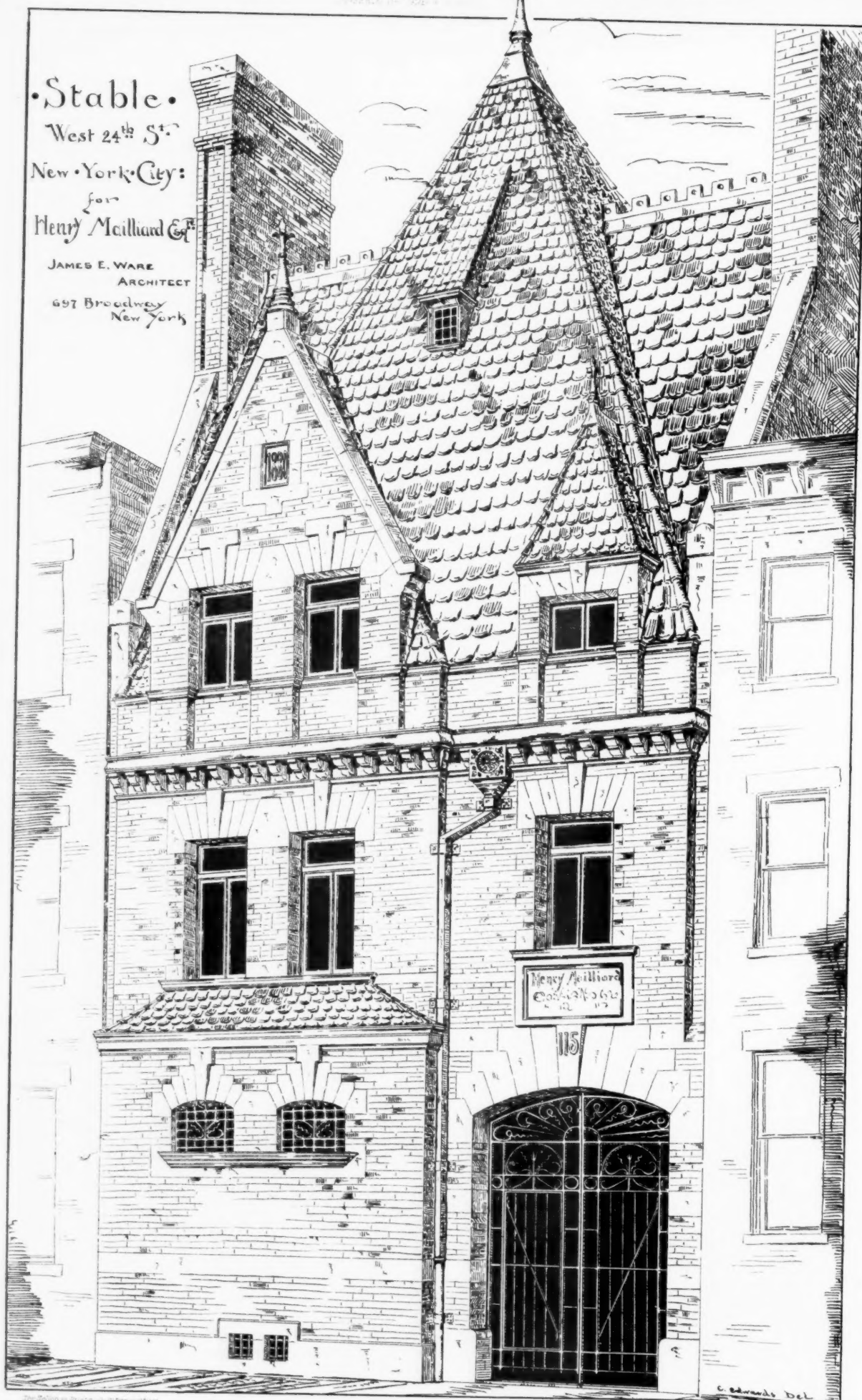
Proposals should be addressed to "Alderman Seward Dodge, Chairman of Committee on Public Property, City Hall, Somerville, Mass.," and should be marked "Proposal to erect school-house on Highland Ave."

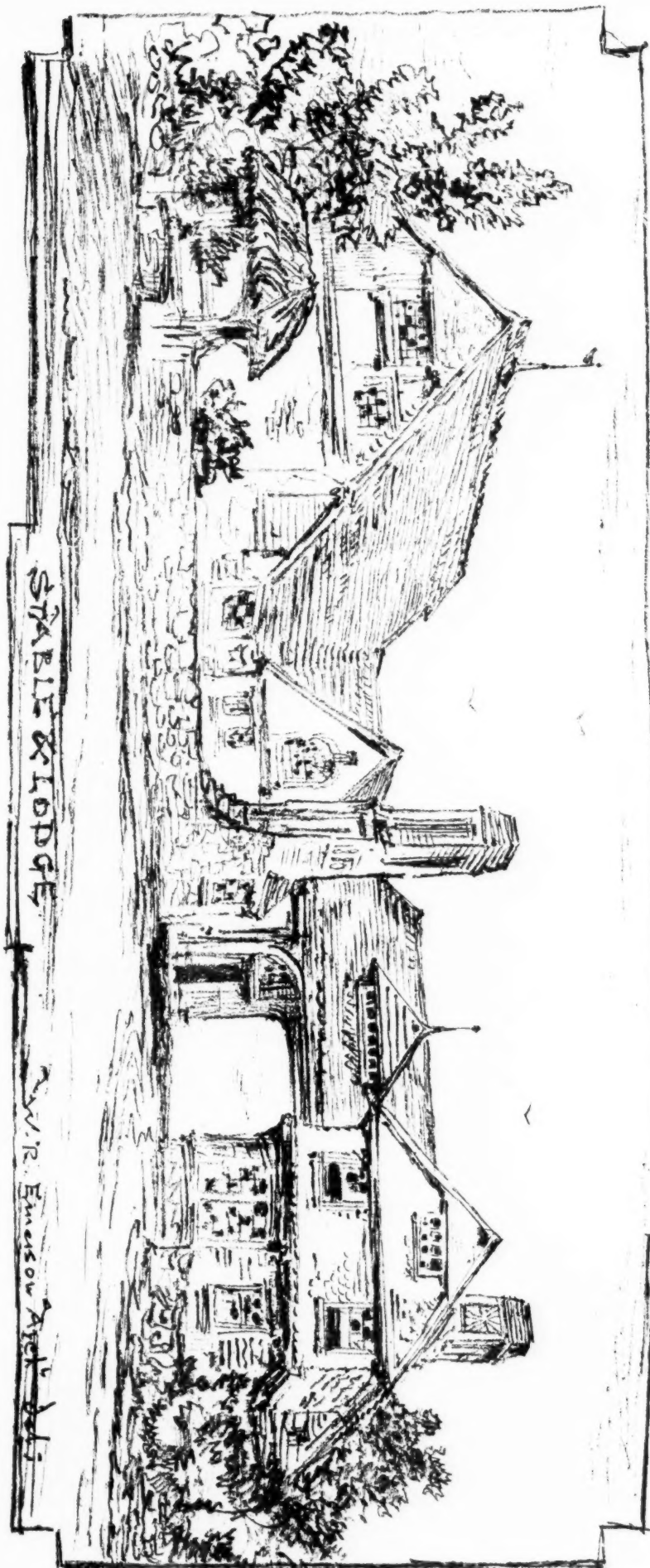
The right is reserved to reject any or all proposals.

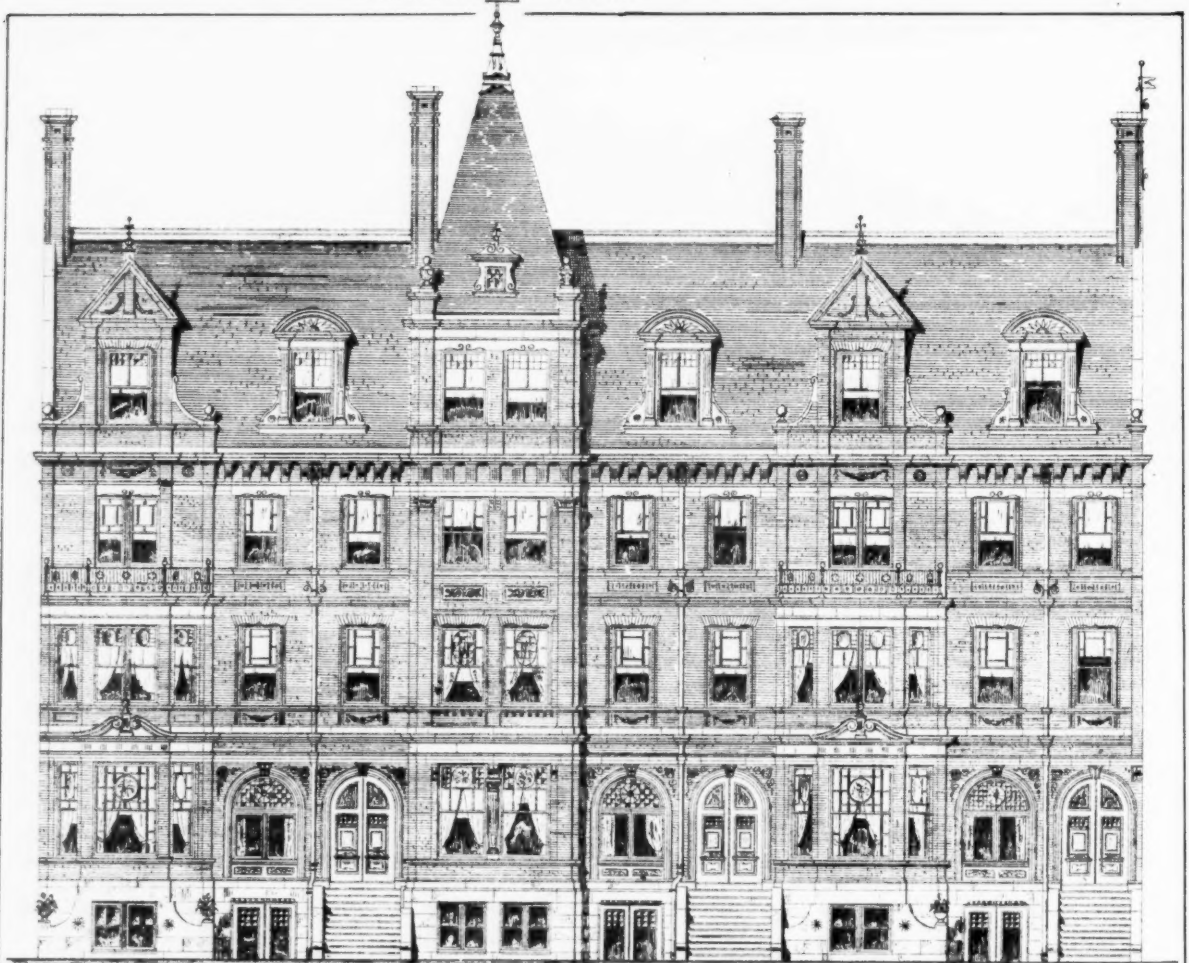
Per order GEO. I. VINCENT.

244 Clerk of Committee on Public Property.

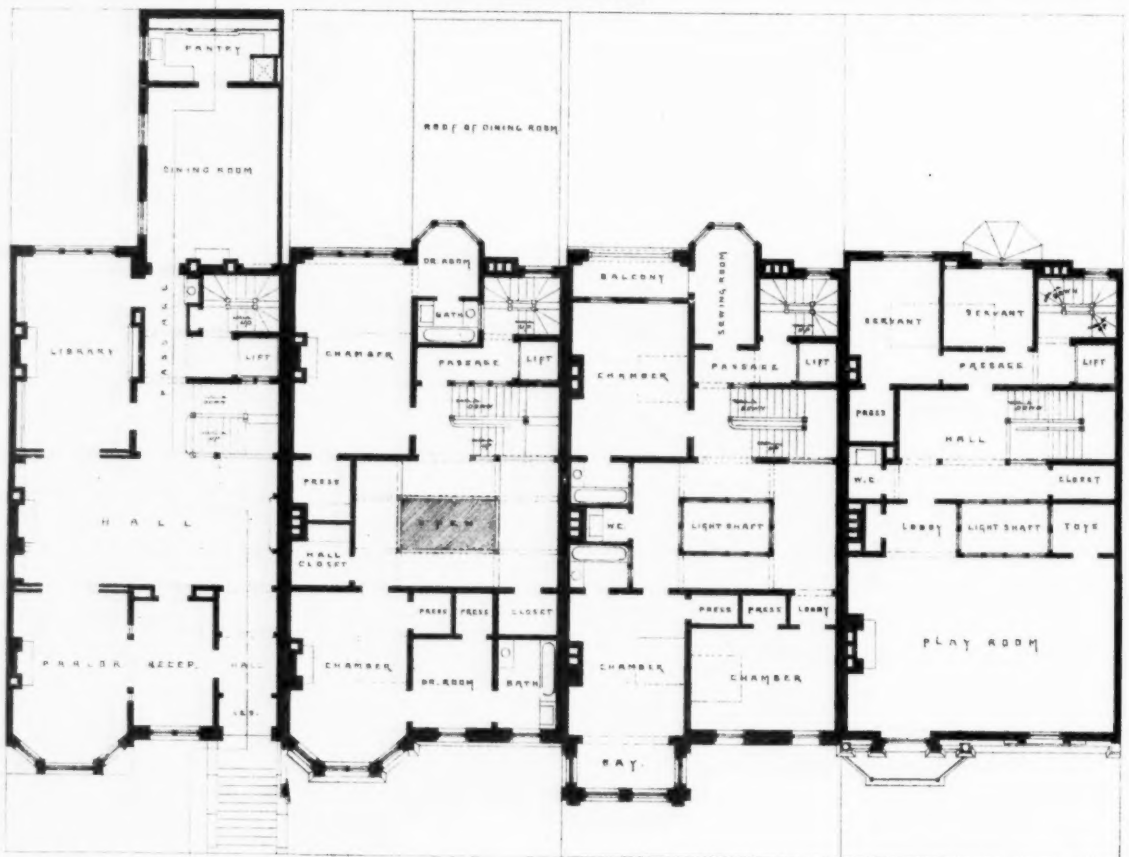








ELEVATION



"Back Bay"

SECOND FLOOR

THIRD FLOOR

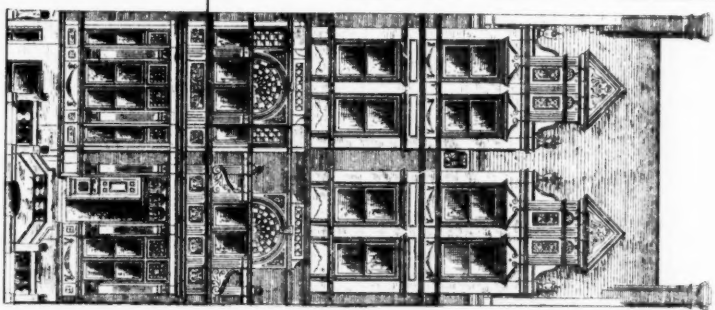
FOURTH FLOOR

T.J. Gould Archt

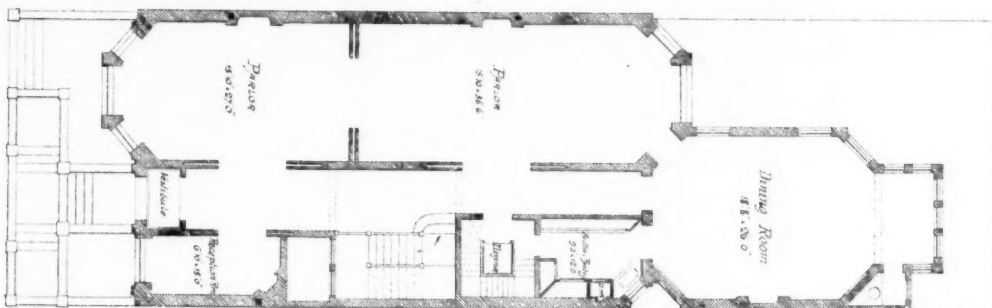
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"Domestic Styles"
 - by H. Rogers -
 - Architect -
 - 200 E. 4th St. -
 - New York -

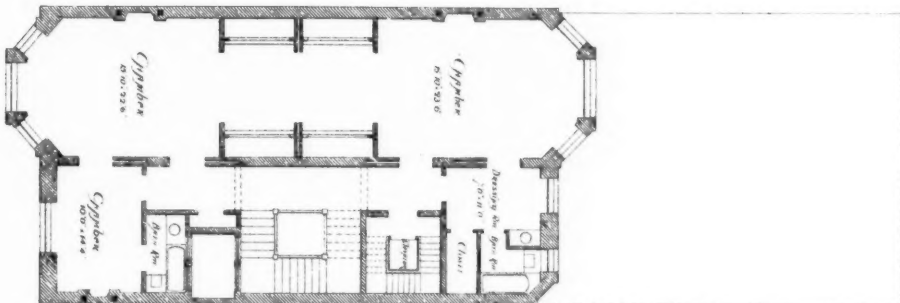
ELEVATION.



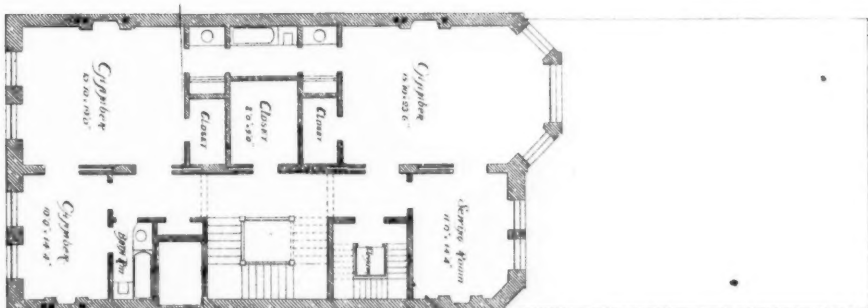
FIRST STORY.



SECOND STORY.



THIRD STORY.



BASEMENT.

