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A CORRESPONDENT, whose communication is in another column, criticises the report of the experts in the Patent Office competition, and apparently inclines to make it an issue with them that they practically limited themselves to considering which of the competitors most exactly carried out the instructions of the circulars, instead of deciding what was on its own merits the best project proposed; he intimates that they might in this last way have done the government better service. The text of the Report (*American Architect*, August 31st) shows that the course which our correspondent ascribes to them was what the experts deliberately accepted as their duty; and this was apparently what was expected of them; it does not indicate that they saw no reasons, on other grounds, for a different selection. Whether they might have chosen, among the submitted designs, one which was architecturally better, or preferable for its general merit, we have no means of judging; but we believe that the experts were right in taking the view they did of their duty. The position of referees in a competition is a very exposed one, and the only means of fortifying it against recrimination from competitors or interference from the authorities is a very scrupulous adherence to the appointed conditions. The government was bound, on its part, to the closest adherence to its stipulations, and must exact the same from its referees. The competition was an experiment, and might almost be considered a novel one, being contrary to the policy of the government for a score of years past. The standing reproach of competitions is a want of good faith in their managers. It was the more important, therefore, that the good faith of the department should be unassailable. This was what it owed to the profession as well as to its own position, and this maintained, it was left for the government to decide whether the experiment turned out to its own advantage, and encouraged repetition. Accordingly the department, having issued its final circular, abode by it; the experts held to the letter of their instructions, and decided, so far as we know, without suspicion of partiality; the Secretary kept his faith to them, and to the competitors, by adopting their decision. If, after this effort at fair dealing, the government makes an injudicious choice, this is to its own injury, and is one of the chances which the competitors are bound to accept. They cannot gracefully complain of it, though the right of criticism remains to them. The department has done its duty by the profession when it has shown them courtesy, fairness, and good faith, and there has been no complaint, we believe, that it has failed in these.

This brings up a question which is forever recurring in competitions: How far shall competitors be held to the exact carrying out of a programme, and how far shall they be allowed the liberty of modifying it? It is the very A B C of good faith that whatever condition is laid down shall be rigorously adhered to; therefore it is very desirable to lay down none that may turn out a mere impediment. The habit of careful business men is to fix beforehand as exactly as possible the details of every transaction; and this leads building committees to look with distrust upon an indefinite programme as something unbusinesslike, and to try to decide and declare pretty definitely from the beginning what they will have. But it is impossible for such committees to forecast the ideas that may be

offered, and any unnecessary restriction may rule out some idea that would be valuable to them. In fact, they continually find themselves in the dilemma of being obliged either to disregard restrictions which they have imposed, or to give up the designs which please them most. The safe and reasonable way is to impose only such conditions as are essential to the success and fairness of the competition: as, for instance, the number and kind of drawings, uniformity of scale and rendering, and concealment of names; or such as are inevitable from the circumstances of the case — from the size of lot, perhaps, or the necessary accommodation, — and to give the rest of their instructions, the more fully the better, in the form, not of conditions, but of recommendations, by which they may afterwards be governed or not as experience may teach them. Our correspondent was doubtless right in arguing that the best result is to be got in competitions by following the spirit rather than the letter of the instructions; but this requires that the instructions be drawn accordingly. The circulars in the case of the Patent Office were worded with an evident desire to leave architects with as much freedom as was possible, while the needs of the government were duly indicated; though perhaps the instructions to the experts might with advantage have allowed a wider scope to their judgment. Architects are apt, indeed, to make the mistake of insisting that as a matter of justice to themselves the programmes should be very rigidly drawn and strictly adhered to, especially in regard to limit of cost. It is safe, however, to remind them that neither justice nor opportunity to themselves call for any more definite instructions to competitors than are directly needed to prevent any one from getting undue advantage over others, and save them from wasting labor by working in a wrong direction; and to say to those who offer competitions that anything more than this is less likely to turn out a useful restraint on competitors than a vexatious impediment to themselves. Among the great vices of well-meant competitions are too great rigidity of conditions, and, in consequence, too great laxity in enforcing them when they are found to be in the way.

THE Spinola scheme for laying pipes under the streets of New York for the general distribution of steam, according to the Holly system, which we have several times mentioned, makes its way slowly through the New York Board of Aldermen. The original resolution in its favor gave a pretty general and indefinite franchise to lay the pipes and make connections, as should be necessary for any purposes for which the steam distributed could be used, with the condition — which, considering the magnitude of the scheme, can hardly pass for anything more than a decent pretence — that bonds should be given in the sum of five thousand dollars to restore to good condition the pavements under which the pipes should be laid. A resolution of amendment was proposed in the Board of Aldermen increasing the bonds to fifty thousand dollars, and requiring an additional surety of one hundred thousand dollars to guarantee the city against injury to itself or to private persons from explosions or other misbehavior of the steam. It was also provided that the laying of pipes should be under supervision of the Department of Public Works, and, what sounds less reasonable, that the cost at which the steam should be furnished should be determined by the commissioners of the sinking fund. The committee on public works, however, to which both resolutions were referred, has reported in favor of the original resolution, and there the matter rests at our time of writing. It does not conciliate the confidence of people without the city to be told that the question was decided in committee by a strict party vote. Another company has offered to pay the city twenty per cent of its profits for the privilege of laying its pipes under direction of the Commissioner of Public Works, to allow the city to appoint a director, and to supply it with steam at forty per cent less than its present cost. In view of this competition an astute alderman proposes to sell the right to lay the pipes at public auction, with a lowest limit of half a million dollars for the franchise.

WE know nothing of the good intent or responsibility of the projectors, but the proposition to require substantial security against damage to sewers, gas-pipes, water-pipes, pavements, and the like, is certainly reasonable. There is no lack of opposition, on the ground that the streets are already sufficiently crowded with the other pipes, and as things are, this is certainly a serious objec-

tion. The cost of the constant tearing up of pavements in great thoroughfares, and the interruptions of traffic due to it, have become great annoyances. The network of pipes and sewers is already quite as complicated as it ought to be, so long as they are so difficult to get at; and the addition of a new system would make it a good deal worse. Nevertheless, if the Holly system is really as useful as its advocates maintain, these things ought in some way to be adjusted for it. All this only points the conclusion that it is time to give up our old fashion of burying the underground circulation of our cities in solid earth; and that sub-ways must soon be accepted as imperative under their chief thoroughfares. The cost of repeated excavating and re-excavating, filling and refilling, pulling up and relaying pavements, must have already outrun, in a single generation, the cost of adequate tunnelling; but the gross expense, being divided among different corporations and different times, has never been taken into account, to say nothing of the interruption to business, which cannot be computed. Such sub-ways must necessarily be built by cities at their own expense, but the companies whose pipes were carried in them might reasonably be taxed for their use, and new companies which were saved the necessity of excavation could afford a liberal impost. In case steam pipes were carried through them, they could be availed of, with a trifling expenditure of heat, by boxing or otherwise, to secure the water pipes against danger of freezing, which in northern cities would be in itself an important service.

THE opposition to the New York elevated railways grows. The property owners on Sixth Avenue are combining to pour complaints against the Metropolitan road upon the grand jury. Those of Fifty-third Street, between Sixth Avenue and Ninth Avenue, through which it is now proposed to carry that road, have united to oppose it, and have shown their earnestness by submitting to an assessment of two and a half per cent on the valuation of their properties to carry on suits. An application for an injunction has been entered in the name of one of them, as a test case. It is claimed in their behalf that property on that street has depreciated one half since it was decided to carry the road through it. One owner declared that houses which had before rented for sixteen hundred dollars now went begging at half that rent; another, that within a week he had lost a thousand dollars on the rent of one house because of the road. This is the first serious attempt to stop the progress of the road, and will be pressed vigorously. If the injunction fails, there will remain suits for damages, of which there are probably enough in waiting to bankrupt the company if they succeed. It is quite clear that the roads involve a sacrifice of the streets through which they are run. The cost of this sacrifice is a part of the expense of the roads which was not counted when they were planned. At present it is borne by the owners along the route, but ultimately it must come upon the roads themselves, unless they are strong enough to stave it off and remand it to the abutters — an oppression which it is to be hoped cannot be enforced — or to the city. Thus far the popularity of the roads seems to indicate that they are a success. But their tariffs have, doubtless, been fixed without a view to the cost of compensating the injury they do, to which cost that of constructing and maintaining them may be a trifle. When this is added, whether it takes effect on the rates of fare, or in sinking the money of the original stockholders, or remains the burden of the unlucky abutters, we may discover whether or no the device is, on the whole, a profitable one. Brooklyn and other cities may learn from the experience of New York that an air-railway will monopolize the thoroughfare which it occupies or makes, and stop to consider whether it is on the whole a cheap means of "rapid transit."

THE managers of the roads are trying their best to abate the noise, which is the first nuisance complained of, by finding some way of securing the rails so firmly that they will not rattle, and of cushioning them with elastic material, so as to check the transmission of vibrations. We have as yet seen no account made of what we suspect to be the greatest cause of the noise, — the use of sonorous iron for the trestle-work of the tracks. This was the most natural material to choose, because it was the lightest, cheapest, and least obstructing. But it would perhaps be found that for durability, as well as for noiselessness, the best construction would be a viaduct of brick piers and arches, properly ballasted with gravel, on which wooden sills with cushioned rails might be laid, the upper part of the brick-work perhaps

being laid in asphalt, to further check vibration. Such a viaduct would be best adapted for wide thoroughfares, and under it the heavy traffic of the street might pass quietly on stone tramways, without mixing with the lighter vehicles outside. It would be somewhat expensive, and would add seriously to the obstruction of narrow streets; but we may remember that narrow streets are unfit for elevated roads, and are pretty well destroyed by them, at all events; there would be a choice to make in any given case between the better structure and the lesser obstruction. When the question of noise is met, the question of smoke and dust will still remain. The dust and cinders are a great annoyance, if nothing more. Any one who remembers the permanent condition of the air in the tunnels of the London underground railway will easily believe that even under open sky the constant discharge of carbonic oxide from trains which are always passing, into near windows on the lee side of the track, must be actually injurious to health.

PROBABLY few people are aware from how far back the importance of the city of London dates, and what a considerable town it had become even before the Roman invasion of Britain. History has next to nothing to say about the town in the Roman times, although it is made clear that it was then, as ever since, a city of merchants, by the chance mentions of historians, and by the fact that the mint of the province was fixed there, as is shown by many Roman coins. It is only by what is now and then found in excavating for foundations that indications of the actual extent of the Roman town are got at. The classic remains are buried so deep that ordinary excavations do not reach them, but by recording and comparing the discoveries which have been made at intervals the compass of the old city has been tolerably well made out. It extended along the river from the site of the tower to Ludgate, including, even then, a quarter on the south side, and must have corresponded approximately with the city comprised within the old Saxon or Norman walls, of which remains were left in the sixteenth century, and marked the limits of what is still called the city. That the town was wealthy as well as busy is shown by the things that have been dug up, — pottery, bronzes, mosaic pavements, sculptures, and even fragments of wall-painting. A late number of the *Architect* gives a print of a relief just found, which is the most important piece of Roman sculpture that has yet been discovered there. It was dug out in excavating for foundations on Camomile Street, on the eastern verge of the Roman town, among a mass of fragments of old buildings, consoles, columns, cornices, etc., with some inscriptions and bits of sculpture. It is imagined that the building was a mausoleum, and the fact that the figure, which is in high relief, was engaged in the masonry, as well as the quality of the sculpture, indicate that it was carved on the spot. The workmanship is inferior, but the proportions and poise of the figure, the broad effective treatment of the drapery, show distinctly the classic tradition, while the dress and the character of the head are Roman. The figure wears a tunic, covered by a heavy mantle, or *pænula*, and carries a sword on its right hip. Authorities are not agreed as to what personage it represents. The right arm is gone; the left hand carries writing tablets, and something else which is not made out. The treatment of the eyes is somewhat peculiar, the irises being apparently cut in marked relief, and the pupils sunk. On its left are the remains of a Corinthian pilaster, from which and from the position of the figure it is inferred that it may have been engaged in a niche.

SIMULTANEOUSLY we read of the discovery, in the pool that has been dammed off from the Tiber below the Ponte Sisto, to expose its bed, of a colossal equestrian statue of a Roman emperor. It is apparently that of one who died in odium and has evidently been thrown down with indignity, for it is not only broken in pieces, but shows indentations which must be the marks of a heavy sword, and the wrist has been severed as if with an axe. Unfortunately, not enough of it has been found to fully restore it, so that the statue of Aurelius still remains the only complete classical equestrian statue. It is said to belong to the best period of Græco-Roman art, and is nine feet high, of the finest bronze, and heavily overlaid with gold. From the style of the work it is ascribed to the first century, and it has been christened, conjecturally, the Emperor Domitian. The uncovering of the bed of the Tiber has displayed a great accumulation of pieces of sculpture and architectural fragments; and the crowds that gather to look on are evidence that the popular interest is excited by it in Rome as it has not been before.

WE have received the first number of a paper published by the New York Society of Decorative Art. It is a trim quarto of eight pages, to be published every fortnight, in furtherance of the objects of the society, and to contain instruction, criticism, and gossip in matters of art for those who are interested in them. It promises the collaboration of Mr. Sturgis, Mr. Prince, Mr. Tiffany, and Gen. di Cesnola. The first number takes a pretty wide range, touching on embroidery, household decoration, dramatic criticism, personal information, and news about art, architecture, philately (if our readers know what that means), numismatics, — discussed in short articles which are distributed under the different headings of the Class-Room, the Drawing-Room, the Library, etc. To these are added editorial reflections on appropriate topics and suggestions to students of art; book notices, personal information, and news about art; and a certain amount of matter whose interest is rather literary than artistic. It does not assume to be a technical journal for professional artists; but is rather one which amateurs, and ladies especially, we dare say, will like to read for instruction and entertainment; and which will, as the editor in his salutatory hopes, "both promote the desire to engage in art-industries, and cultivate the taste by which their results are measured." It has ample scope for its attention; on how much of the wide field which it now touches it will ultimately bestow cultivation, its editor himself could probably not yet determine. The ideas and suggestions of the present number are good. Its literary quality is agreeable, a thing which, if secondary, is still important to the constituency to which it will appeal. (May we hope nevertheless, at the risk of being impertinent, that not even the pressure of a new undertaking will betray the editor into lending his encouragement to the popular confusion between "shall" and "will"?) We cordially wish success to the *Art Interchange*, and would remind those of our readers whom it interests, that the most valuable support to a new periodical is an early support.

MR. RUSKIN'S DRAWINGS. — DORÉ'S PICTURES.

LONDON, September 5, 1878.

My last letter was taken up by a review of Mr. Ruskin's notes on his Turner water-colors, but as the professor's collection of his own drawings excited quite as much attention here, I will devote part of this letter to his notes on them. These drawings — chiefly in line — serve the twofold purpose of showing to his pupils the various and persistent efforts by which he himself learned to draw, and of proving to the public what long and careful studies were required to form the foundation of his literary work. In the latter sense, this laborious preparation by a man of keen artistic feeling is a severe commentary on those litterateurs who assume that sufficient qualification for art criticism lies in a fluent pen. Yet, which of them can pretend to a style as beautiful as that which the author of "Modern Painters" showed in his very first writings, — a power, however, which was never permitted to seduce him from the tedious studies of a practical art knowledge?

The notes on his drawings are dated June, and therefore since his illness, from which he rises so much weakened, he says, that he can no longer undertake to teach or advise except through his works, but in them he hopes yet to make good use of the materials he has continued to accumulate for so many years. Ordered to avoid all over-strain and painful excitement he writes, "Unable therefore now to carry forward my political work, I yet pray my friends to understand that I do not quit it as doubting anything that I have said, or willingly ceasing from anything that I proposed."

The drawings themselves date from his earliest childish efforts, such as a colored copy of a map, — an exercise which he considers among the best for beginners, — down to his studies last year in Venice. The later pencil drawings show in their wiggling, uncertain touch a decided falling off from the sketches made just before he began "Modern Painters." These, principally architectural, are vigorous, and in the style of Prout at first, and then evidently influenced by David Roberts, whose Syrian sketches — done on gray paper, with high lights of lemon yellow — produced a sensation at the time, and have remained standard examples of architectural sketches. The most characteristic and best drawing is one of those made for his geological studies, "Gneiss, with its Weeds," which is a marvel of delicate finish in sepia.

But this preoccupation in minute detail he acknowledges injured his artistic sense, until, he says, "hard work under Veronese and Titian forced me to observe the two relations between line and color. But, to my amazement, the conclusive lessons on these matters were given me, not by Venetians, but by the three Florentines, Botticelli, Giotto, and — name despised of artists — Angelico." That the lessons which he needed in aerial perspective and its effects, after geological detail drawing, should have come from schools so conspicuously hard in outline, whatever their virtues, will seem even more amazing to others than it did to himself, and perhaps prepare them, should they not have read his last pamphlet on the subject, for

his present enthusiasm for Carpaccio. He exhibits a painstaking but mediocre copy of one of the latter's St. Ursula series, in Venice, which is perhaps discouraging for his pupils, as he says it, "will serve to show the final manner of work in which I am endeavoring to lead my Oxford pupils."

Close to where the exhibition just mentioned took place is the permanent "Doré Gallery," which, if it contains nothing new, has still the best picture Doré has painted: "Christ leaving the Prætorium." This, while showing his best characteristics of composition and movement, is also rather fine in color, — an accident he has not chanced upon in any other of his large canvases, which are so disagreeable and dirty in tone that it is commonly reported he paints them by gaslight. This, in fact, would be no excuse, for the brilliant water-colors of the Roman school, as many of Fortuny's were, are painted in the evening schools. Account for it as we may, Doré, while having a great variety of fine and not inharmonious tints at his command, ends by enveloping them in a sickly atmosphere which spoils the general tone. As he burst full fledged, or at least full sized, to judge from the large canvases he first appeared with, into the painting world, so he seems to remain; for there is little or no improvement in his technique, in spite of lavish criticism from friends and enemies. Perhaps, however, we should not expect him to learn from experience, as he seems to accomplish things without it. Yet, genius though he may be, his works cannot be satisfactory while he scorns the laborious processes by which alone work of high art can be produced, nor can he give his genius fair play while he coquettes with half a dozen arts at once. He does not submit to professional training, and therefore he is but an amateur in them all, and his indefatigable labor will win for him no higher place.

That labor is certainly prodigious. Glance at the works in which his hand is shown this year. At the Champs de Mars he exhibits two large figure subjects and two fine mountain scenes, — in the latter he is at his best, — and in sculpture his large group of "Fate and Love," in bronze, which was at the Salon a year or two ago in plaster. For the present year's work he has in the Salon two immense canvases, "Moses before Pharaoh" and an "Ecce Homo," either of which would alone have occupied any other French painter the whole year, — if not five. Yet he also exhibits a group in sculpture, "La Gloire," as well as in a third department two large water-colors. In the winter, he modelled a life-sized female figure supporting gas-jets, and at the Champs de Mars he has a colossal vase covered with climbing Cupids. And all this does not represent the whole of his year's work, for he is constantly dashing off illustrations besides. It is no wonder, then, that artists are irritated with this high-handed and swift-fingered audacity; the more so, that from his power of composition his works are too full of suggestion to be entirely condemned. The painters *en masse* deny that he can paint; the sculptors repudiate him as a brother; and the architects best explain, perhaps, the fault which runs through all he does, when they say of the architecture in his designs that it is merely suggestive, and to the professional eye shows technical and historical ignorance of what he would represent. His buildings are card-board back-grounds.

In the present Exhibition in Bond Street, a collection of his original designs of illustrations, done with sepia and white, is of great beauty and interest. There he is preëminent. After the "Christ leaving the Prætorium," painted between 1867 and 1872, his best pictures are the smaller ones of "Dream of Pilate's Wife," dated 1874; "Les Timbres," the night of the Crucifixion; and a sunrise on an army of Crusaders, done two years ago, — each less good than the preceding. His two pictures at the Salon were so bad, it is a question whether they would have been admitted had he not been *hors de concours*. In fact, most of the poor pictures were marked H. C., so true is it that one swallow does not mean warm weather, much less an eternal spring.

Referring to the Salon reminds me that the Exhibition crowded out of my letters any reference to it. Though it closed August 19th, a "paternal government" makes itself responsible for the works during a month following, so my notes on it may yet serve me for a *post-mortem* examination. Not only were there but few really bad pictures, but the reign of horrors seems over, and the revolting subjects common a few years ago have disappeared. There was, too, something very satisfactory in the award of a first-class medal to Etienne Gautier, for his single figure of Saint Cecilia. In view of the many pretentious pictures crowded with life-size figures always in the Salon, — it is a mystery what becomes of them all, — this is encouraging for painters of more modest and refined works. The saint is represented lying on her side beneath a stone niche, draped in a pale, yellowish-green robe; the exquisite features (so rare in modern French painting) are turned in profile. The whole is treated with a sculpturesque simplicity suggesting a bas-relief, and is pervaded by the purest and most graceful sentiment. Very different is another first medal, Ferrier's "Martyrdom of Saint Agnes," a powerful example of current French art, though painted as an *envoi* from Rome. It is noticeable that the works of the students at the Villa Medici are more distinctively French than are those painted by men who have never seen the Italian galleries. The saints seem to protect their own, for the other first medal was given to Ronot for his "Charity of St. Elizabeth of Hungary," an earnest realistic painting. Of the Americans, Bridgman has nothing so good as his "Funeral of a Mummy," of last year. Bacon gives with truth and

sentiment a scene on a parting steamer. Edgar M. Ward has a good Boston interior, and John S. Sargent has an extremely clever beach scene. A work painters were curious to see was Vibert's "Apotheosis of Thiers." His pictures are generally small, but full of distinction, and this one had that same fine quality, and if one adds that it was full of dignity it is praise enough. Patriotism aside, it is not a grateful subject, that of representing M. Thiers on his bier; at his head is just alighting a winged figure of Fame, and in the distance, and amid the clouds, are dimly shadowed scenes in his life,—a mode of illustration we associate with title-page wood-cuts.

The Prix du Salon fell this year to sculpture, and as it is to encourage a young artist, M. Lemaire's "Betrayal of Samson" did not need, perhaps, to be more than promising; but that no painter should have been found worthy of the regular medal of honor, and that it should have been taken from them to be given—in addition to the usual one—either to M. Barrias, for his group "The First Funeral," or to M. Delaplanche, for either his "Virgin of the Lily" or his "Music," a female playing on the violin, is not easily accounted for.

In architecture, the exhibition was curiously scanty and poor. The first medal went to L. C. Sauvageot, for a rather commonplace church built at Rouen; but the most interesting drawings were those of MM. Duclos and Suisse, prepared, I hope, for publication, as they give, among other details about Dijon, an interesting restoration of the Abbey Church of Ste. Bénigne, now the Cathedral of Dijon, showing an original tower and a huge domical baptistery, with two tiers of interior galleries, of which unusual features no vestige now remains, I think.

PLANTING TREES.

THE manner in which trees are planted and grouped around a house has much to do with the impression it makes on the mind, and we can hardly put too high a value on any natural growth that may be made available when selecting a site for a dwelling. While we cannot point to any style of house that would not be benefited by an accessory of this kind, there are those that realize our expectations only when embowered in living green. The beauty of a Gothic cottage, for example, is heightened when seen nestling down in a grove of round-top trees, for they give greater effect to the expressive lines of the roof; and the gables, now seen through the vistas, now lost to view, are the more attractive in that they are partially concealed. Then there are often hard angles that need softening, a sharp joining of parts that had better be screened, or an undue length of some extension to be broken up, and this can be done by judicious planting. Here we introduce some of the broad-leaved ornamental trees and shrubs, there some of the feathery variety: at one point we plant a hemlock, spruce, or one of the cypress tribe; at another the graceful larch and acacia, the tremulous birch and fern-leaf beech; while, towering high above all in their majesty, the oak, the Spanish chestnut, and the maples spread their broad arms to shelter us from the sun and the storm.

Effective groups may be made of hollies, magnolias, yews, and ivies, interspersed with laburnums, purple beeches, and the more common deciduous trees and evergreens. In this way the different qualities of green may be interwoven, and what an infinite variety of effects may be produced by contrast of leaf, size, and color; for even in spring, when the foliage is in all its freshness, when no clouds of dust have settled down upon it, and no armies of ravaging worms have despoiled the groves, the green of one tree is as unlike that of another tree as the boughs and twigs of one are unlike those of another.

A building standing naked and alone is like a man left on some barren spot, without friends or companions. It excites our sympathy, and we long to do something for it,—to relieve the ugliness of its position, to cover, as it were, its nakedness, to shelter it from the blast, and to develop and bring out whatever of beauty and comeliness there may be in its outline. We would plant the ivy and the wistaria where they would climb lovingly around column and balustrade, and so dispose the acacias that their snowy petals would fall in showers around the porch. No clipped yews should find a place there, no beeches tortured into the form of peacocks or caryatides should stare us in the face, but every tree and shrub, in all its fulness and freshness, should make part and parcel of a harmonious whole. With every breeze that swayed their graceful limbs they would tell in their own glad way of the love of art and nature that reigned there. The laburnum, no longer stunted by the cold wind of its native Alps, would mingle its long racemes with the catkins of the birch; the larch would lose the ragged look of its highland home, while the mountain ash displayed its clustered wealth, ripening on every bough.

But we must use judgment in planting. The surroundings of a tree have a great deal to do with its shape when it comes to maturity. A pine, for example, out on the lawn, with ample room on all sides to expand, will grow rapidly, preserving from the start a well-rounded and pyramidal form; but if a number of these trees are planted compactly, they will shoot up into long poles, very good for many purposes and quite the thing for masts and spars, but if they are thinned out after they have been allowed to grow in this way they will present a very unsightly appearance. All evergreens are impatient of close quarters, and if forced to remain in such a position the lower limbs will dry up and fall off. A deciduous tree, injured in this way, will throw out new limbs when an opening is made

for it, and in time it will recover somewhat from over-crowding, but an evergreen will never make good its losses.

Climbers add much to the beauty of a cottage. There are some climbers that might almost be denominated trees. In climbing they take a spiral winding round an object from its base up. One winds to the right, another to the left. Is this left to chance or is there some influence that governs the discretion of the spiral? Attention has been called to this before, and some day we may get at a solution. Whatever it may be, it is known that if we twist wire after the passage of a voltaic current through it, giving it the form of a right-hand screw, the point at which the current enters becomes a south pole; but if we reverse the operation, then the point of entrance becomes a north pole. Who can say there is not some magnetic influence that governs the action of plants, when opportunity is afforded them to "twist a twist"? CHAMPLIN.

THE ILLUSTRATIONS.

PROPOSED METHODIST EPISCOPAL CHURCH AT SEA CLIFF, L. I. MESSRS. H. EDWARDS FICKEN AND CHARLES H. SMITH, ARCHITECTS.

THE CHÂTEAU D'AMBOISE.

THIS clever drawing of a part of the court façade is from a sketch by M. Albert de Korsak, published in the *Croquis* of the Intime Club.

THE YORK CITY MARKET, YORK, PENN. MR. J. A. DÉMPWOLF, ARCHITECT.

This market, now building, is of common red brick laid in black mortar, with bands and sill courses of light drab-colored Amherst stone. The roofs are covered with Peach Bottom slate, variegated with red and green bands. A market-master's office and a directors' room have been arranged in the first and second stories of the tower. The two side gables are constructed with a view to be extended at some future period. The interior of the brick wall will be painted, and the roof, which is framed of Georgia pine, is to be oiled, with chamfers in Indian red. Cost, including fixtures, \$22,000.

HOUSE AT SCHENECTADY, N. Y. MESSRS. POTTER AND ROBERTSON, ARCHITECTS, NEW YORK.

These two elevations and first-story plan show the alterations now making in an old and somewhat dilapidated house at the corner of Church and Union streets, Schenectady, N. Y., the interior as well as the exterior being entirely remodelled. The conservatory on the south and the portion shown on the west, including the music-room, kitchen, etc., are entirely new. The roof also has been materially altered, the position of many of the windows changed,—to suit interior arrangements,—and the two bay-windows and entrance porch on the side are being constructed according to the design indicated on the elevations. Moulded brick have been freely used in the string courses, etc., and slightly projecting quoins of brick have been formed at the corners of the building and the window jambs.

The old house, out of repair and meagre in detail, had a certain character which might pass as "colonial," which character an effort has been made to retain in the various applied features and detail, so that the whole, if possible, might harmonize with its surroundings, which are splendid trees, quaint old houses, and a general air of respectability and refinement which characterizes this part of this good old-fashioned and beautiful town.

THE PATENT OFFICE COMPETITION.

A REVIEW OF THE REPORT AND THE RECOMMENDED PLANS.

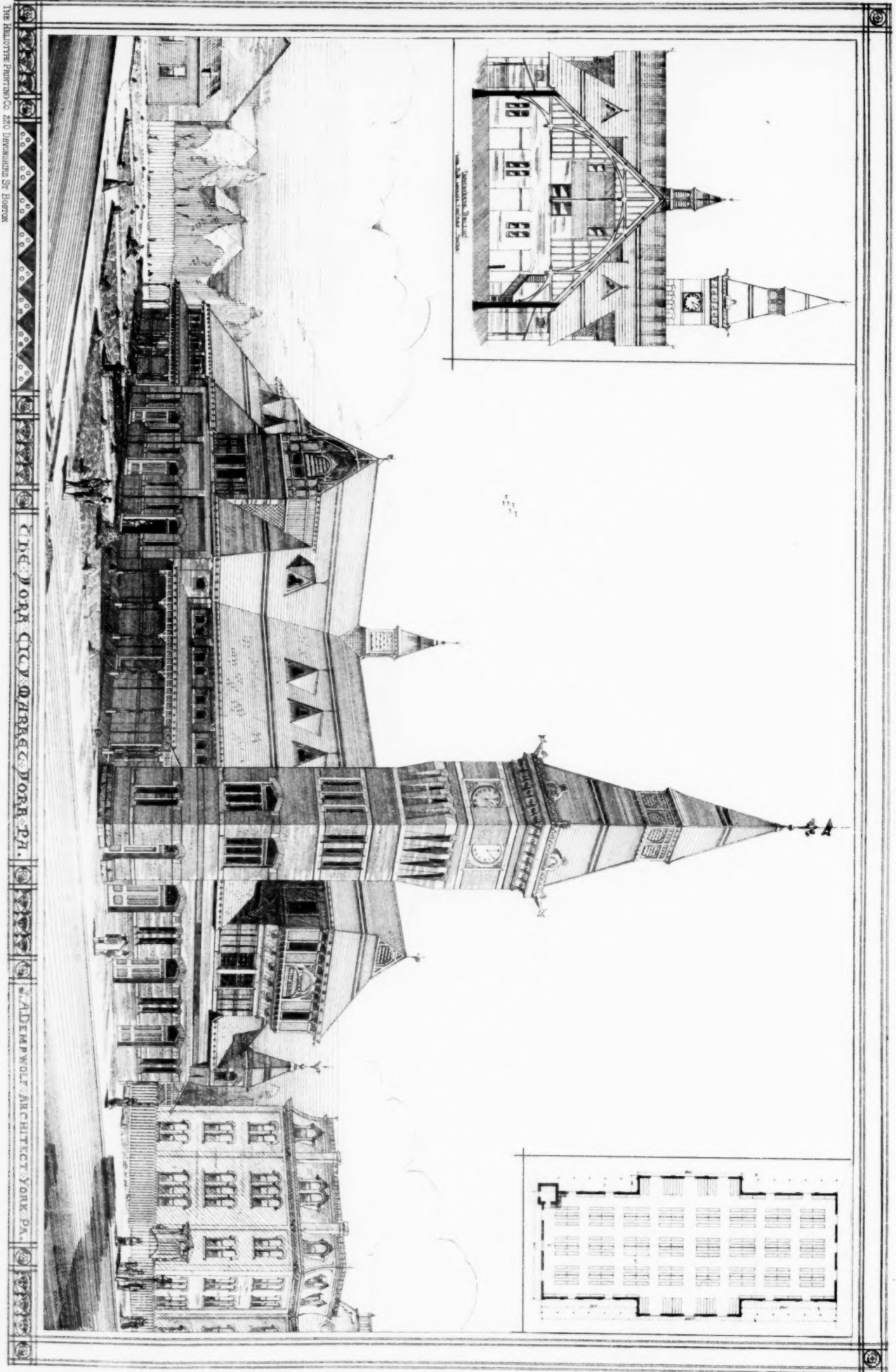
WASHINGTON, September 14, 1878.

THE sole reason for writing this review is that the full material, consisting of fifteen original sheets, is not accessible to persons at a distance from Washington, and the work and ideas incorporated in the plans can hardly be appreciated from the published illustrations.

The experts began by resolving to give preference to that design which should present, in a single scheme, the most intelligent embodiment of the requirements and suggestions of the circular of June 14th, and that in justice to all competitors they must be solely governed by said requirements. In the end they decided in favor of an additional story on the Patent Office, while the circular merely suggested a sketch showing the feasibility of such an addition, which is as yet not even authorized by law, so that a full set of drawings could not have been expected from all competitors under this aspect.

The short circular contained a mere outline of what the department specially required, presuming general acquaintance with the accommodations necessary in the Patent Office, with its 200,000 models of various sizes, and leaving free scope to the resources of the architects for exhausting the subject. Instead of the application of a technical rule, to exclude everything not specially mentioned in the circular, it would have been in the interest of the government and of the profession not to rule out anything of merit which was to the purpose, and not in conflict with the circular. As it stands, the experts virtually decided that the plans they recommended suited the wording of the circular "most intelligently," but by no means that they covered the whole ground. This would be proper in an academical tilt, where the programme is worked up by experts, but may defeat the purposes of a complicated problem of practical architecture. In the present case numerous public

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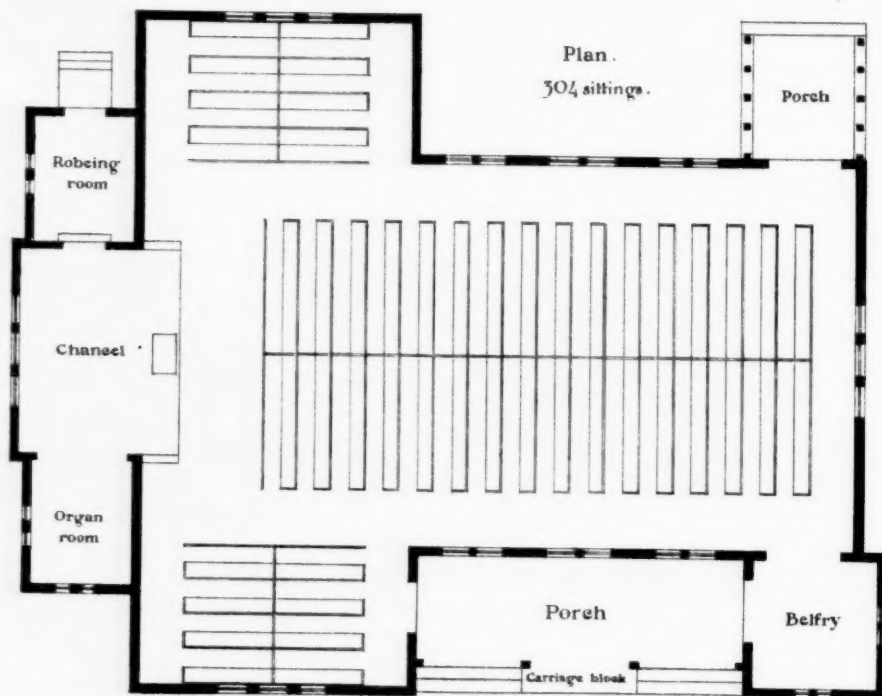
Proposed Methodist Episcopal Chvreh,
to be erected at Sea Cliff, L.I.

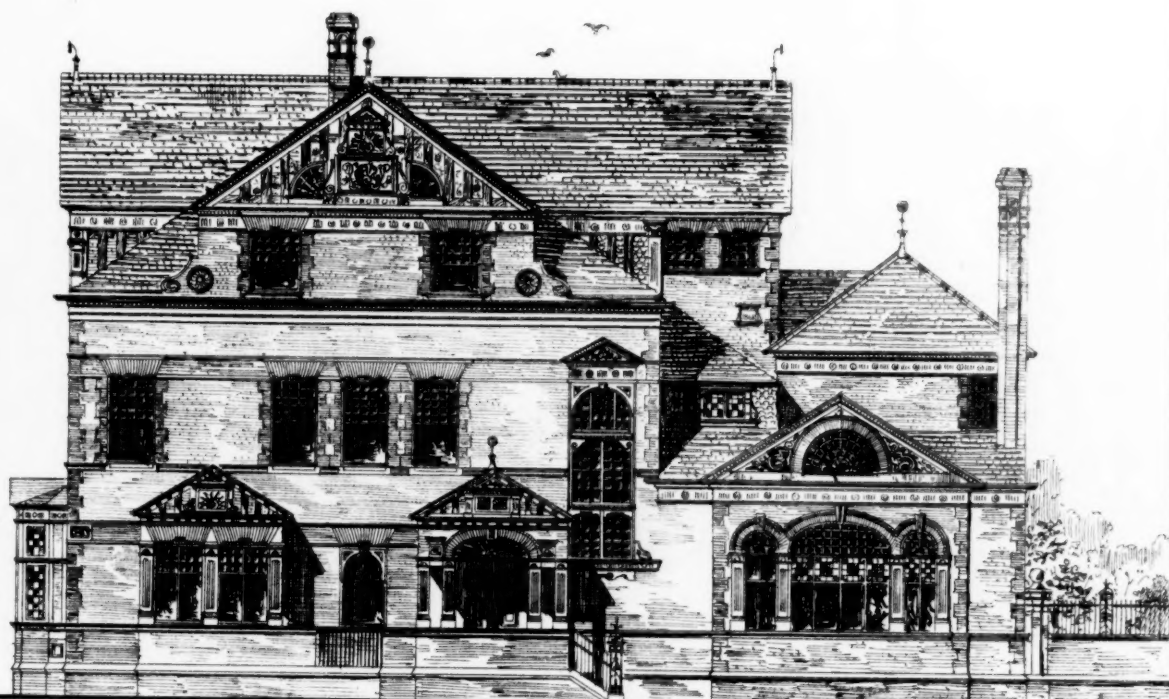
H. Edwards Ficken & Charles H. Smith, Architects,
Nº 37 Broadway, New York.



H. EDWARDS FICKEN, INV. ET DEL.

PROPOSED Methodist Episcopal Chvreh,
Sea Cliff, L.I.

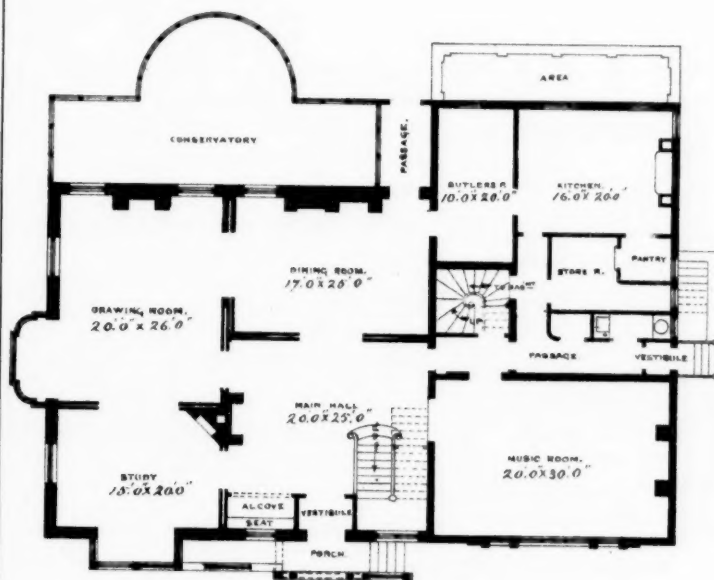




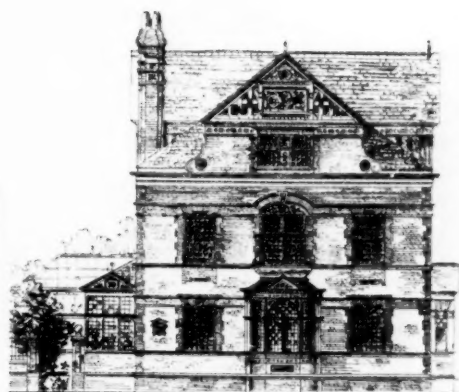
House at Schenectady, N.Y.

Union St. Elevation.

Pattee & Robertson Architects 52 W. 4th St. N.Y.



First Story Plan.



Church St. Elevation.



Albert de Gorsak del. et autog.

THE HEARTY PRINTING CO. 220 DEVONSHIRE ST. BOSTON

1873. H. B. B. Paris.

CHÂTEAU D'AMBOISE, FRANCE.

documents, distributed over the land from official sources, bear upon the details of the problem, and are within easy reach of any citizen. The building to be reconstructed was open to all interested parties for inspection. The documents in the case leave no doubt that there is a pressing need for an adequate increase of the voluminous glass cases in the model-rooms, which, if not satisfied, would seriously impair the usefulness of the building.

"The new model-rooms, as proposed, will be of uniform height and style over the whole area of the present building, well arranged for light and air, and capable of architectural treatment in harmony with the present structure,"—with this sentence the model-rooms are described in the report. The present mode of fitting up these rooms has been gradually reached by the experience of experts who have spent their lives in and with this skilled branch of the public service. It consists, substantially, of glass cases, about four feet wide, eighteen feet long, and eight feet high, the contents of which are accessible from all sides, under lock and key, within reach of the eyes of the visitor and of the hands of the officials. The proposition is to change this whole system, and to substitute wide and shallow alcoves all around the rooms, fitted up with wall shelving about fifteen inches wide and eighteen inches apart. These inadequate, narrow shelves are piled up thirteen feet high on one floor; those above a certain height are of no use, and the exhibits are accessible and seen from but one side. We read in a marginal note of the architect, on sheet No. 12, that by this arrangement it is expected to "reach a more imposing effect." Such hasty changes can never be seriously entertained. The model-room of the east wing contains at present nearly 1,000 lineal feet of the wide glass cases on the main floor; these would, according to measurement by the plans, hereafter be reduced to about 800 lineal feet of the narrow wall-shelving. The old galleries are twenty-two feet wide, overcrowded with models, and have convenient approaches; those of the recommended plan are only ten feet wide, and reached by diminutive circular stairs.

The ceiling of the model-room it is proposed to support by two rows of piers two and a half feet square. The iron roof is independent of this ceiling, and trussed over it in the usual manner for such a span. The old roof was of the same class; its constituent parts were found, pell-mell, in a distorted shape, on the floor, after the fire. Copper and glass were molten into irregular lumps during the fire, and cast-iron began to fuse in many places; hence the temperature was about 2,000° Fahrenheit. The trusses started, by expansion, the heavy marble block-courses above the cornice, and when their resistance could not be overcome the iron-work twisted before it finally gave way. There is no difficulty now in resorting to the more rational methods developed after the heavy conflagrations of this decade. With hollow blocks containing ventilated air-spaces within their body, "uniting strength and resistance to fire and water, . . . which do not conduct heat, cold, or sound," and other improved systems of construction at disposal, experienced engineers have made it an object in fire-proof constructions to avoid false ceilings, since the hollow spaces formed above them serve as ducts for transmitting the flames of a conflagration whenever joints are opened in the masonry enclosing smoke flues, in consequence of settlements or from other causes. Ventilating air-spaces, left within the comparatively thin side-walls of our dwellings, shield us against the inclemencies of the weather. The constructor's skill may easily adapt similar methods to the sloping surface of the roofs with the same results. With the new methods of construction, single skylights come in as corollaries. By better construction and by judicious ventilation, all former objections to their use have been overcome, and by the insertion of two panes of glass, with intermediate air-space, in one thick sash, the cold is effectually kept out in the winter.

The experts treat the application of the new and simple methods offhand, as oversights "open to serious objection," and keep to the beaten track "on the ground of comfort." After all, they evidently felt the insufficiency of the proposed accommodations and construction, for after having counted up the merits of the model-room they "would recommend that the principal gallery be made of somewhat greater width;" and after a pause they conclude that the supporting columns of the gallery "may be made to stand over the intersections of the corridor and cross-walls, in which case the piers may become parts of the construction . . . of the roof." This means in plain English that the galleries would better remain twenty-two feet wide instead of being reduced to ten feet, and that the roof would better have intermediate supports underneath instead of being suspended over tie-rods sixty-four feet in length. Such radical mending is strange, but still stranger it is that in the scheme of another competitor, who had placed columns for the support of galleries and roof exactly "over the intersections of corridor and cross-walls," as above recommended, this feature was objected to in the words, "but this arrangement would require modification by a widening of the central longitudinal passage."

This passage is sixteen feet wide in a room of sixty-two feet clear width; the piers defining it are located in the interest of substantial construction in an old edifice built largely of light brick walls between heavy granite piers.

In a circuit through the north wing of the Patent Office there is no staircase for a distance of about 430 feet; probably for that reason the circular called for elevators in the north and south wings. In the plans these are located in the centre of the intersections of the

main corridors. The experts propose to transfer them to the well-holes of the old stairs in the east wing. These stairs having no side-light, the improvement would obstruct the light and circulation of air, which are drawn solely from these well-holes. This change of the experts, if proposed by a competitor, would have been ruled out as in conflict with the programme. Four different plans for a building in the court-yard are among the recommended designs. The experts reject them all, and propose an essentially different one in their place.

With the adoption of the amendments of the experts the distinctive features of the recommended plan in point of arrangement and construction disappear. The amendments provide for lowering the height and doubling the width of the gallery, for adding a new gallery, for changing the roof in some undefined manner, for shifting the location of the elevators, and eventually for substituting a new centre building. The new story of offices is merely a duplicate of those in the second story, which are in the *Architect* erroneously published as part of the new designs. The designs for restoration of the building as it stood before the fire are reported as inferior to those of another competitor. Under these circumstances we hardly find what actually has been premiated.

The design of a so-called "light passage" between the north and south wings has been left intact. This passage is erected upon an enormous stone-bridge construction, reaching through two stories, one of which is not at command, being underneath the foundations of the south wing and the level of the present court-yard, as shown by the official information furnished to the competitors! With these addenda to the exceptions of the experts, nothing in fact is left except the change of the external architecture.

The problem is solved by the raising of an attic story on top of the old block-course; it is about 13 feet in height, without any variation all around the building. This treatment results in giving to the building the appearance of a box, which was ever carefully avoided by architects whose designs in the Greek style are credited as classic. The porticoes were undoubtedly crowned by pediments in order to relieve the monotonous sky-lines of the building more effectually than could have been done by mere wall projections. The centres of the façades might have been rearranged in different ways: for instance, by raising them to a more prominent height, and treating them differently from the rest of the attic; or else by doing away with the present pediments, and arranging a similar feature in the attic. Tiers of attic windows in the front walls are to a varying height blocked up by the body of the pediments. Neither windows nor pilasters should be introduced in the angular space back of the pediments, which is not fitted for anything more than for a base of a higher structure. At such places skylights must be relied upon. The whole attic in all its features is clumsily conceived, a paltry addition to the "blank, mechanical repetitions of a misused order" (*American Architect*). The unfavorable proportion of the attic to the whole façade did not, of course, admit of a very lofty construction, but to make the proportions of the attic in itself clumsy because those of the massive building underneath are heavy is bad logic. The pilasters are nearly as broad as the main pilasters of the building; their proportions have not the slightest relation to those underlying Greek art; they are placed without any bases on the block-course, probably because the heavy columns and pilasters of the old building have no individually defined bases. But in all monuments worthy of imitation an order placed on top of another is treated more lightly and ornately as a whole and in detail, than the lower one. The change of the old pediments by a superadded block-course, with acroteria on the east and west elevations, with big coats of arms on the north and south elevations, and, on all, with the structures which receive the immense groups of statuary, as drawn on the original elevations on file, is anything but Greek, and it would be hard to find the link which connects them with pure classic architecture.

To make the point emphatic a marginal note of the architect by the front wall on sheet No. 9 states: "Blocks between triglyphs to be changed into windows." Hardly any architect having a due appreciation of classic art would venture to cut out the repose of the fronts by such a change, and whoever prepared the modified perspective view for your worthy journal, which was never submitted in the competition, seems to have been stopped by a sense of piety from indicating the new-fangled windows in the places of the metopes of the main cornice.

The report of the experts is silent on the merits of the architecture attempted upon the Patent Office. It touches the tender point but distantly, as follows: "The arrangement of the pilasters of the south portico is such—the outer one which must govern the projection of an attic standing considerably forward of the intermediate ones." A reference to the published ground-plan of the attic and section of the building shows that the author of the plans sets his attic on the inner pilasters of the south portico, and not (supported as they would have to be by hidden iron girders) upon the hollow space of eighty-two feet span between the two outer pilasters. This would be offensive to the eye of any one who was susceptible to the nice balance of the static forces, of action and reaction, visibly expressed in all forms of classic Greek architecture. S.

BRICK-MAKING BY STEAM.—There has been established lately in Baltimore the second factory in the country for making bricks by steam,—the other establishment being in Washington,—and it is said to be able to make 200,000 bricks per day.

CORRESPONDENCE.

WOOD PAVEMENTS.

CHICAGO.

SOMETHING about street pavements may interest your readers at the present time. Chicago may be called the home—I might say the original stamping-ground—of wood pavements, and she still clings to them, or they to her, just as you may choose to regard it. I remember when the wood pavement, the original Nicholson, was laid first here, or anywhere, just twenty years ago. It was in Wells Street, between Lake Street and South Water Street. First the street was levelled off with gravel. Then two-inch planks were laid across the roadway, forming the proper curve for the cross profile, for it was not difficult to spring the long planks. Then the planks were mopped with coal-tar. The blocks, eight inches high and three inches thick, were dipped in tar and nailed to the foundation. Strips, one by four inches, were nailed between them. The grooves thus left were filled with gravel, rammed in; more coal-tar was poured over the surface, and then coarse gravel was spread over all. As conducted it made a great smoke and smell for blocks around. Instead of the blocks being brought upon the ground in large box wagons, as is now done, portable steam-engines and saw-mills were brought upon the street, and there the timber was sawed.

The only wood used for the Nicholson pavement was Michigan white pine. But within the last two years other woods have been used.

On busy streets these pavements remained good for six years, and passable for eight years. They did better service than any others that have since been experimented with. The city bought the Nicholson patent, and soon many miles of streets were laid. Before its use two streets only had been paved with stone: State Street had a cobble-stone pavement, and one block on La Salle Street was paved with limestone cubes, similar to those used in the so-called Belgian pavement. These last still exist, though the street is so rough as to be almost impassable, and drivers avoid it whenever they can.

It is true that the Nicholson pavements resisted the great fire, which calcined the curb-stones so that they were literally blown away as dust. But I have noticed that where they were little worn and not covered with dust, as on the sides of the roadways of residence streets, they were burned out in deep pits. It is where they are worn by vehicles that they show no signs of decay. On the streets least cleaned they last the longest, because of the protection afforded by the street dust. It is only on the streets that are well cleaned and little used that they have decayed in this city.

Up to the time of the great fire the wood pavements gave complete satisfaction. With the exception of the two streets I have mentioned, every street of importance in the city was paved with them, and they were all in good order. Chicago paid no attention to the dissatisfaction expressed in other places.

After the fire a new system came in vogue. It was necessary to repave some of the streets without delay, and there was a great demand for the extension of pavements on many of the outlying avenues, on account of the rapid growth of the city. Property-owners would combine to make private contracts for paving, getting only the consent of the city authorities, and avoiding the delays and extra expenses attendant upon the work being done by the city government. The result was that contractors were constantly working up jobs with property-owners, by pretending to reduce the price of the paving, while they were reducing the quality in a still greater proportion. These new pavements looked as well as any others when first completed, and thus other owners were induced to combine and repave their streets, so that at least ten miles of streets were thus paved in a few years. The quality of the work was reduced to such an extent that nothing but the three-inch blocks, the grading gravel, and the surface gravel remained of the original Nicholson pavement. The foundation was entirely discarded. Contractors went about saying that it was all nonsense, that it soon decayed, and was money wasted. They said that coal-tar did not preserve the blocks; that the idea was a fallacy long since exploded. Hence pine wood was used just as cobble-stones had been, even the parting strips being discarded and gravel thrown between the blocks. But soon these pavements began to grow uneven to a frightful extent. The property-owners began to think that they had been swindled, and the city government to awake to a realization of the danger we were in. The daily papers were full of complaints, and hinted that the day of wood pavements was at an end. All sorts of new substitutes were suggested; the so-called asphalt men began to put down their sample patches over the wood in places, and even the city authorities repaired these broken pavements with cobble-stones, as if pine blocks were not fit to repair pine pavement. But when it became evident that the city had been imposed on through its failure to compel private contractors to work up to its specifications, an investigation was instituted. About a year ago a committee of the common council gave the matter serious consideration. It consulted experts and took testimony. The result was a report in which a standard for street paving was recommended for adoption. It was that all street pavements of wood should be laid on a foundation of flagging-stones, whether laid by private contract or by the city authorities. I believe that the report was not adopted, but that it was determined to make a series of tests of foundations before deciding upon a definite plan. These tests are under the direction of the Department of Public Works, and no pavement can be laid ex-

cept by its permission and on good foundation. It is therefore settled that hereafter wood pavements shall be laid only on a proper foundation, and that the foundation shall be permanent, so that only the renewal of the surface blocks will be necessary in making repairs. An examination of all the streets in the city has been made to determine what are in need of paving or repaving, and a general ordinance has been adopted defining exactly what streets and parts of streets require it, and authorizing the work to be done from time to time by either private or public contract.

It is therefore pretty well settled that wood pavements in Chicago are not a failure, and that we are to continue to use them. So far I think that our city has not only been the first to use the wood pavements, but in the beginning used the best form then known. It is now the first to recognize that wood pavements are only surface dressings, and require permanent foundations, which will not need to be renewed.

I have omitted to mention that among the foundationless wood pavements a considerable number of streets have within a few years been paved with cedar blocks, cut from round logs, similar to pavements which have been in successful use in Detroit for some time. Another experiment, recently tried on Washington Street, has been to place pieces of inch boards on edge, set solid and dressed with tar and gravel, the courses taking a diagonal direction across the street.

The experiments that have been instituted under the new ordinance are on Dearborn and Monroe streets. Three blocks on Monroe Street have been paved with a foundation of three-inch oak plank well coated with tar and finished with pine blocks laid in the regular Nicholson fashion, the blocks being six inches high. The foundation planks are so thick that it has been necessary to lay them in a longitudinal direction, because they will not spring to the profile of the roadway. This seems to be objectionable, for the reason that if individual planks settle ruts may be formed, which is not possible if they are laid crossways. In the experiment on Dearborn Street between Madison and Monroe, the same foundation as that last described has been laid, and the surface is of round cedar blocks with coarse gravel rammed in the interstices. This is saturated with coal-tar and covered with a top dressing of coarse gravel. One piece on the same street, opposite the *Tribune* office, has a foundation of three-inch flag-stones, measuring two by four feet, laid in sand so as to break joints. The surface is of cedar blocks set in the usual way.

What seems to me the most practicable and serviceable foundation has neither been tried nor suggested in connection with wood pavements, and that is a foundation of four inches of concrete. Our native cements make excellent concrete for such purposes, and are reasonable in price. Our stone breaks up admirably for concrete, and can be had cheap. Here we anticipate but little trouble from the tearing up of pavements, because branches for sewer, gas, and water pipes are carried inside of the curb-lines on every street before it is paved. We do not let three gas companies lay pipes in one street, as they do in New York. All repairs to pavements must be made by the Department of Public Works.

It will naturally be asked what we consider to be the advantages of our wooden pavements. The main advantage is the avoidance of noise. This needs no comment. The next advantage is the saving of wear and tear on horses and vehicles. The visitor to Chicago will readily note the excellent condition of work horses. What he will not see unless it is pointed out to him is that through the general use of wood for pavements business wagons and omnibuses have come to be constructed in a lighter manner than those in use in cities where the pavements are of stone. This is especially the case with omnibuses. The horses last longer and wagons wear longer here than elsewhere. With the lightening of the wagons there is a corresponding lessening of the wear on the pavements. This is one reason why our good wood pavements last longer than elsewhere. Another advantage of wood pavements is that they are cheaper than any other, thanks to this being the cheapest lumber market in the world.

Another question that will be asked is why they wear better here than in other cities. One answer has been given. Another is that there are no grades here. Wooden pavements will not last more than half as long on a steep grade as on a level. The reason is that the caulks on horseshoes always pull them one way on grades. Another answer is that this is a dry climate. In the summer and fall we seldom have long-continued rains; only showers, which run off and dry before the blocks become soaked. In winter we seldom have rain. The snow does not thaw after every fall, but the streets are frozen most of the time. The spring is the only wet season we have. Last winter was an exception to the general rule. The streets were muddy, partly because of neglect to clean them, and partly because of the mild weather. The result was disastrous to the pavements without foundations, and caused considerable decay in better streets. The comparative dryness of our climate will serve to account for the difference in lasting qualities between our pavements and similar ones in our Eastern cities. It may be noted here, too, that artificial preservatives have never been used on woods in our pavements. Chicago contractors have distinguished themselves only in Washington and elsewhere by the use of such inventions.

I wish to say only one thing more. It is a mistake to let wooden pavements take care of themselves until they are used up. Every defective piece should be taken out as soon as it is discovered. Again, every wood pavement should, in dry weather, be periodically

dressed over with a coating of tar and coarse gravel, say every two years. Such a process will greatly prolong its life, serving to stop decay, and giving the blocks a hard surface. This is more important in a place where the streets are conscientiously swept.

Another improvement now contemplated is to pave the gutters with small cobble-stones laid on the same foundation as that used for the wood blocks. In such places the wear is small, and loss from decay is greater than in the centres of streets. The system is in successful use in Detroit. W.

ST. JOHN, N. B., September, 1878.

The citizens of St. John are a church-going people. Nowhere else in America, except perhaps in Brooklyn, is the custom of attending church so universal. The demand, therefore, for new buildings to supply the place of the churches destroyed by "the fire" was urgent; and the ruins of our city were scarcely cold before "delegations" were organized and sent abroad in various directions to profit by the sympathy which our misfortunes had excited.

The Roman Catholics of our city worship in one edifice, a fine stone cathedral, which happily did not stand in the track of the conflagration. Their only loss by the fire was a very old wooden church, which had been converted, some years ago, into a lecture-hall and school-house. The replacing this with a substantial brick structure is the only building operation in which they, as a church, have engaged.

Of the four places of worship in the city proper belonging to the Church of England, two were destroyed, namely, Trinity and St. James. On the former progress was reported in your issue of August 3d. Since that time the building committee have adopted the design (referred to in your paper as No. 2) sent in by Mr. Thomas, of Montreal. Working drawings and specifications have just been completed, and tenders will be asked for at once. The latter building is situated on Main Street, and is at present just being roofed in. It is intended to accommodate about 500 persons, and will cost about \$10,000. The walls are of limestone rubble, with finish of freestone. The architect is Mr. F. J. Camp, of the firm of Croff & Camp. His design was selected in an informal competition, and he describes the style of architecture adopted in "this modest, but charming, contribution to the beauties of the new St. John" as the "Geometrical Gothic or Early English." The curves of the window and door heads, however, are struck from four centres, and this, together with its exceedingly low-pitched roof, gives it some claim of very distant kinship with the Tudor family.

The Methodists are building three churches in the city proper and one in Portland. That known as the "Lower Cove Mission" is situated on the corner of St. James and Carmarthen streets. It has a frontage of 50 feet, and is 72 feet in depth. It is intended to seat about 500 persons, and its cost will be in the neighborhood of \$10,000. Mr. D. E. Dunham is the architect; and the material being wood, it will probably be a study in the style known as "Carpenter's Gothic." The limit set by law to the height of wooden structures in this part of the city has rendered the ordinary pitched roof impossible. A French roof, relieved with gables and truncated towers, has been used in its stead; but the work is not sufficiently advanced to enable one to form a very clear idea of its finished effect. Of the other three Methodist churches Mr. John Welsh, of New York, is the architect. All three bear a strong family likeness, the fronts being all built of rubble masonry, with window-finish, tracery, and dressings generally of artificial stone. The mouldings and tracery will be identical in each, the same moulds being used for casting them. The style of architecture claims to be the fourteenth-century English Gothic. Mr. James Thompson, of Portland, is the builder of all three. The artificial stone is being manufactured here by Mr. Wheeler, of New York. Its composition is mainly Portland cement and sand, and when finished it is of a dark bluish tint. In regard to its ability to stand the severities of our climate opinions are divided, and it meets with very little encouragement in private work. The Centenary Church, the largest of the three, is to be placed on the corner of Princess and Wentworth streets, and is to accommodate 1500 persons. The school-house, which will form in outward appearance the transepts of the church, is already roofed in. It is 40 by 90 feet, and costs about \$18,000. The Germain Street congregation is building its new church on Queen Square, and the walls are at present built to the height of about 20 feet. The building is 60 feet wide and 124 feet in depth. I have not had an opportunity of examining the plans, but a description published in a local paper says that "both church and school-room are to be under one roof, and the interior will be so designed that these can be thrown into one grand audience hall." This building will cost about \$60,000. The Portland church is similar to the above, but will have its school-room in the basement. It will cost about \$30,000.

The Baptists are already occupying one of their new churches. It is at the corner of Germain and Queen streets, and is 65 by 100 feet on plan. It will seat about 800 persons, and has cost about \$45,000. Messrs. Dumeresque & Dewar, of Halifax, are the architects. The material used is brick, with scanty stone dressings, and the spire is some 150 feet in height. School and class rooms are in the basement. The auditorium is seated with pews, or rather benches, arranged in circles, and this, with a steep horse-shoe gallery and very brilliant colorings in the ceiling, gives it quite

a theatrical aspect. A residence for the pastor is situated at the rear of the church, and an effort has been made to extend to it the general lines and style of the church, but owing to the unavoidable smallness of its parts the effect is not pleasing. The only other Baptist church of importance is situated on the corner of Sidney and Carmarthen streets, and is now ready to receive the roof timbers. In plan it is somewhat in the form of the letter T. Its greatest length is 114 feet. Width across the head of the T is 95 feet. And the auditorium or nave has a width of about 60 feet, and will accommodate about 700 persons. In the rear are provided vestry, classrooms, pastor's room, library, and kitchen, baptistery, and cooking range; in short, all the paraphernalia required in a church built to suit "the present age, and the habits, wants, and tastes of the people." The material of the walls is rubble-stone, with a facing of brick-work, and trimmings of "freestone" and galvanized iron. The cost of the building will be about \$30,000. Mr. John Stevens, of Boston, is the architect, and as the "outline and general features are after models of the Byzantine period" we may expect something similar to Mr. Stevens's previous works, which may be seen in almost every city from Calais to Lynn.

The principal church of the Presbyterians, the St. Andrew's Kirk, on Germain Street, is, after the new Trinity, the most important church in St. John, both in point of architectural display and in the wealth and number of its congregation. In general plan it resembles the church last described. It is 74 feet wide, and has a total depth of 166 feet. It is intended for 900 worshippers, and will cost over \$70,000. The architects are Messrs. Langley, Langley & Burke, of Toronto. The side walls are of brick, but the front, with the returns of the towers, is of red freestone ashlar, with olive-colored freestone dressings. The front gable is flanked by two square towers. From the tallest of these the spire will rise to the height of 175 feet from the ground.

The new St. David's (Presbyterian) is situated on Sidney Street. Its size on plan is 60 by 100 feet. The auditorium is to seat about 900 worshippers, and has a gallery on three sides. A hall for the Sunday-school is provided in the basement. The material employed is brick, with stone dressings. The architects were Messrs. Scammell & Smith, of Toronto. They furnished general drawings only. The details are by the intelligent contractor, and the double-action butts on the entrance doors were sold to the building committee by Mr. John Stevens, architect, and were put on under his superintendence. The cost of the building will be about \$35,000.

The interior arrangement of all the churches, except of those of the Church of England, which will, of course, have deep chancels, will be nearly identical. Galleries are provided at first, or provision is made for their future introduction when needed. The pews are arranged in circular lines, and a broad platform is raised at one end for the preacher, the choir and organ being in a shallow recess immediately behind him. Ventilation on the Leeds principle has been introduced in one building. In the others ventilation is to be procured by cold flues, openings in ceilings, and windows and doors. Two or three stone spires may be expected; should the finances hold out. Chimes of bells are unknown here, and none are contemplated. In the designs of the exteriors of our new churches there will be found little to delight the eye of the lover of the pure and truthful in architecture. The fortunate architects were generally chosen by means of informal competitions, and some, no doubt, owe their employment to the "reasonableness" of the terms on which they offered their services. VERAX.

AMERICAN INGENUITY.

It may almost certainly be predicated of any modern mechanical congress that the Americans will carry off the palm for novel and ingenious application of force to practical purposes, the substitution of mechanism for hand labor in new and curious contrivances, which, to the amateur in such matters, surprise as much by the new ways in which old problems are attacked as by the fine way in which the work is done. The mass of invention and practical result from it produced by the Americans within the century, and especially the last twenty or thirty years, is so great and so important in results that it presents an important problem in political economy, — one especially interesting to Englishmen, as American mechanism is an offshoot from English, but an offshoot so peculiar in its character that mere heredity will not quite explain it. A traveller in the New World once said that the most interesting thing in America was its Americanism, and so we may say that the most curious feature of American mechanics is its distinctively American feature. As mechanical science progresses, the greater and more important inventions become elaborated by, and the property of, the nation which pushes that science furthest in its experimental studies. The result is foreseen, studied, and developed with method and certainty, and great industrial revolutions are effected with a certain and almost calculable progress. In this process England has long led and still leads the world, owing to favorable conditions of capital and labor. Fulton built the first successful steamer on American waters; but all the latest and most important advances in steamship building are English, and the great mass of the steamers afloat are English. The first monitor was American; but the puny craft of that construction across the Atlantic would all go down before one of the last English build; and though Rodman and Dahlgren instituted the experiments to which we owe most of the

present knowledge of the power of artillery and gunpowder, English artillery has left the practical transatlantic results out of the chance of competition.

Yet in spite of this the activity and insight of the American inventive genius develops more that is new and practical in mechanism than all Europe combined. The New Englander invents normally; his brain has a bias that way. He mechanizes as an old Greek sculptured, as the Venetian painted, or the modern Italian sang. A school has grown up whose dominant quality, curiously intense, widespread, and daring, is mechanical imagination. It is not the professed mechanic or ironmaster who invents, any more than the schoolmaster or the farmer. As Tintoretto left his dyeing to become a great painter, the American, be he bank clerk, pedagogue, backwoodsman, or plowman, turns in his busy brain some problem of his own, suggested by his experience of ill or too slowly done work, and like Archimedes in his bath, he suddenly finds it and rushes away with his "Eureka!" to some place where he can make his model or get it made—more frequently the former, for want of funds to get it made. There was a want the man had felt, an ideal to be worked out, and in his meditation suddenly the thing flashed on him, and is complete in all its essential parts from that moment. The number of inventions, useful and useless, thrown off in this way in the course of a year, of which only a small proportion attain the realization of the Patent Office, can only be imagined by those who have lived among New Englanders at home.—*London Times*.

NOTES AND CLIPPINGS.

HEATING THE NEW YORK CAPITOL.—The contract for heating the capitol building at Albany, N. Y., has been given to F. Tudor & Co., ventilating engineers, of Boston, who have devised a very novel and very economical method. The space now being provided for is within one half the main building, 300 by 400, 100 feet high, and is to be completed at an outlay of about \$30,000. The leading feature is that the control of the atmosphere within the building is centered with the engineer in the basement, and he will be supplied with indicators that will show the temperature of every room in the edifice as well as that of the several parts of the two large assembly chambers. The system is an air-blast. By means of two 8-feet 3-ton exhaust fans the cold air is drawn in over the boilers, passes through two steam coils having a surface of 10,000 square feet each, and in a direct line of 250 feet from the entrance of the cold air to the end of the coils it shoots under a damper 12½ by 5 feet into a chamber, where from over the damper cold air rushes in and is mixed with the hot. Then it is caught into the blowers and sent through large zinc tubes to its several points for warming. By a movement of the damper the temperature of the air going through the blowers can be raised or lowered. Thus will be secured an even temperature; the highest proposed to be reached is 75°. There are to be six 54 horse-power steel boilers, with sixty 3-inch tubes each. They are built by Hodge, of East Boston. The fans will be worked by a 35 horse-power Buckeye condensing engine, having a 14-inch cylinder, 28-inch stroke, and running on 15 pounds of pressure. As an offset to the cooling surfaces of the many 5 by 15 windows, pipes are run behind the mopboard and will throw up from regular vents radiations from live steam.

PRESERVING TIMBER.—The improvements in saturating wood and timber invented by H. Sainsbury, of Paris, consist in employing a solution formed in the relative approximate proportions of water, one thousand litres; alum, sixteen kilos; sulphate of copper, sixteen kilos; bromide of sodium, one kilo; and iodide of sodium, one kilo. For the purpose of the invention he prefers placing the timber or wood to be treated in a close vessel, from which he draws off all the air, and into which he immediately injects the above-mentioned liquid with a pressure varying from fifteen pounds to one hundred and fifty pounds to the inch. It is stated that wood thus injected not only acquires thereby a considerable degree of hardness, whereby it is better fitted to resist wear and tear, friction, exposure to the atmosphere and deteriorating causes, but it is also rendered completely incombustible.—*Builder*.

HOUSES IN LONDON AND PARIS.—The total number of houses in London and Paris has been officially furnished to the statistical department. In Paris the total is 65,000; in London it is 460,000. There are more houses in the great English metropolis than in Paris, New York, Berlin, and Vienna.

KNOX MEMORIAL.—The corner stone of the Knox Memorial Institute was recently laid at Haddington, Scotland, the birthplace of the reformer. It will cost about \$45,000. The Earl of Haddington, who presided, is a descendant of John Knox.

IRON WINDOW SASHES.—Those interested in the practical details of architecture, particularly such as affect the comfort and convenience of every-day life, and this should include nearly everybody, will find the novel cast-iron window sashes which are being introduced into the new Trinity College buildings well worthy their notice and examination. In general plan much like the French casements, with which some of the readers of this may be familiar, they are much superior to them, being constructed after English models and the first ever made in this country. Solid and strong, but light and easily moved, they are hinged to the window frames, and when opened may readily be adjusted, by means of springs, to any desired angles on quadrantal arms. They are very durable, are so nicely fitted as to effectually exclude air, dust, and water, and present no "coigne of vantage" to the housebreaker.—*Trade Journal*.

SPINOZA'S HOUSE.—The house in which Spinoza lodged at the Hague from 1652 to his death in 1678 has just been purchased by three of his admirers, — Auerbach, the novelist, Professor Zimmermann, and Mr. Campbell of the Hague Royal Library, — who will take steps to preserve and mark it with an appropriate tablet.

THE EAST RIVER BRIDGE CABLES.—Each of the main cables of the East River Bridge is composed of nineteen strands of wire. There being four cables, seventy-six strands are required. The two lower or downstream cables were virtually completed last week. Yesterday the workmen on the bridge were engaged in running out the wire for the last two strands of the up-stream cables. It will require about two weeks longer to finish running the wire for these strands, by which time the cable work will practically be brought to an end. A number of the bridge mechanics were employed yesterday in the work of bringing together the nineteen strands of the two completed cables, so as to form a round, compact body. A few months ago seven strands of each cable were brought together and wrapped with wire at short intervals, so as to form a core. Around this core the men are now arranging twelve more strands. Large wooden clamps in two sections, with bolts at the top and bottom, are employed to bring the strands into place. When all the clamps are in position, they will be loosened enough to allow the men to nip off and draw out the wire wrappings of the core and surrounding strands. Then the nineteen strands will be pressed into the places they will permanently occupy, and the cable will be bound with No. 10 galvanized wire. After this has been done, the sheds, tool-house, and machinery on the anchorages and towers will be removed, in order that the final course of masonry may be laid.

PURE AIR.—San Francisco has a city ordinance making it a misdemeanor to sleep in a room containing less than 500 cubic feet of air to each person. No effort has ever been made to enforce it against any but Chinese, and, in fact, it was passed for their especial benefit. On Friday, August 30th, a large number of these poor people were arrested for violation of the ordinance, and were confined in the city prison. The *Alta* continues the story: "They were squeezed into three cells of the following dimensions, ascertained by careful measurement: One was 14 feet long, 9 feet 6 inches wide, and 7 feet high; the other two were each 16 feet long, 6 feet 6 inches wide, and 6 feet high. The total cubic capacity of these cells was 2,179 feet, or a trifle over 23 cubic feet of 'air' to each man. At 11 o'clock Monday morning 91 Chinese were found packed in those pens, on the charge of not occupying a space equal to 45,500 cubic feet."

FIXING THE CHINESE.—The inhabitants of Vancouver's Island have, it seems, determined to follow in the wake of Victoria some years ago, and Queensland recently, by imposing a tax of £8 a year on every Chinese emigrant who lands in the colony. Probably this will have the intended effect of shutting out Chinamen altogether. This question of the future of Chinese emigration and the English colonies is, as we have frequently said, one of considerable gravity. On three occasions it has now been decided by our free governed colonies that they have the right to impose what is in effect a prohibitive poll tax on these Asiatic emigrants. It is certainly difficult to justify this action upon any abstract principles. According to the view which we have enforced and are enforcing still upon China, men of any nationality have the right to trade and settle within the limits of all civilized countries. We urge that the Chinese practice of shutting themselves up from the "foreign devils" is barbarous and foolish, and so on. Yet we permit our colonists to adopt Chinese methods in order to protect themselves against that very free competition in one direction that England and the colonies, too, have been so anxious to obtain for themselves in another. In spite, nevertheless, of this apparent contradiction, he would be a bold man who in support of the free trade theory should contend that lands which have been acquired and are made valuable by the energy and enterprise of Englishmen should be turned over to the unrestricted occupation of an alien race, which does not even permanently settle in the country. Sooner or later, however, we may rely upon it, the Chinese will argue these points with us as well as with the Americans.—*Pall Mall Gazette*.

PROTECTION AT ALBANY.—The federal government is erecting a building in Albany for the use of the Collector of the Port and other government officers, the material being granite. The Treasury Department having advertised for proposals for the necessary granite, to be delivered cut and ready for setting, several prominent citizens of Albany, including State Senator Harris, George Dawson, and Thomas W. Olcott, recently addressed a letter to the Treasury Department directing attention to the fact that there are many unemployed laborers in Albany, and asking that the proposals be allowed to offer both cut and uncut granite, in order that some of the cutting may be done in that city. Secretary Sherman in his reply says that experience has shown that "materials and labor can be secured at much lower rates when obtained after ample advertisement and competition," and that only by adopting this course can the expenditures be kept within the appropriation. This reply is conclusive. The building in question is paid for, not by the city of Albany but by the whole United States, and in the expenditures only the interests of the whole country should be considered. Besides, if the workmen of Albany are favored at the expense of economy, the workmen of some other place will be deprived of employment.—*N. Y. Evening Post*.

THE ELEVATED ROAD.—A new plan for diminishing the noise made by the cars of the New York Elevated Railroad is suggested. Hard oak timbers are to be placed between the girders to the sleepers, in order to prevent the latter from vibrating. On the top of the oak timbers are placed three layers, one of rubber, one of zinc, and the last one of leather. The ordinary rails of the road, which are from thirty to thirty-one feet in length, are then taken up and new rails substituted. On top of the latter is placed a flat piece of iron, about three inches wide and a half-inch thick, and it is expected by these means to reduce the noise about one half.

TRINITY COLLEGE.—The new college building that contains the recitation rooms, the chapel, library, cabinet, and dining-rooms (the south building), has been named Seabury Hall, after the first bishop of the Episcopal church in Connecticut, as was the middle building that stood on the old college site. The new north building, that contains the dormitory rooms, has been named Jarvis Hall, in honor of the second Episcopal bishop of the State, as was the south building on the old site.