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CONTENTS.

WE are not yet, it seems, at the end of the quarrels over the Indiana State House competition. The latest phase of them is remarkable. Mr. E. E. Myers, one of the disappointed competitors, has entered a suit in the United States Circuit Court against the State House Commissioners for damages to the amount of forty-five thousand dollars, on account of their use of the plans submitted by him in the competitions. After alleging in his complaint that having been one of the four competitors in the original competition he submitted in the second a new design with complete and trustworthy plans, specifications, and estimates, the preparation of which cost him in actual expenses ten thousand dollars, and employed his own labor and professional skill to the value of thirty thousand dollars, and that they were returned to him so mutilated as to be worthless, Mr. Myers complains that the accepted plans, submitted by Mr. May, were imperfect and unsuitable, and that the building as designed by him would have been in danger of falling by its own weight, facts of which the commissioners were advised by the experts called in for the competition; that the specifications and estimates furnished with Mr. May's plans were imperfect, and insufficient to enable the experts to test the estimates, as required by the law; that the commissioners, knowing these plans, specifications, and estimates to be unsuitable, took advantage of their opportunities to have Mr. Myers' plans photographed, and to use them, with his specifications and estimates, to supply the deficiencies in Mr. May's in order that this plan might be adopted, and thereby converted them to their own use, for which reason he demands the amount of two and a half per cent on the estimated cost of the building, as usually allowed to architects for plans and specifications, or, as we have said, of forty-five thousand dollars.

IT is always a matter for regret that a losing competitor should feel called upon to publicly attack the plans of his successful rival, and in the present complaint the criticisms of Mr. May's plans are apposite only as they support the charge of the appropriation of Mr. Myers's plans by the Commission. We do not suppose that the choice of the Commissioners can at this day be overturned by any complaint that they have chosen a bad design. The charge, however, that they photographed Mr. Myers's plans and took advantage of suggestions in them to amend the accepted plans is a very serious one, and would, if it is proved, justify their dismissal. The mere photographing of unaccepted designs without permission is in itself an act of bad faith and a flagrant usurpation, which raises a presumption that it is done in order to make use of the plans without adopting them. It is a recognized rule, and has been confirmed by judicial decision, in Massachusetts at least, that whoever makes use of any feature or device borrowed from plans or designs submitted by an architect, is bound to pay him for the use of them, even though they be returned to him unaccepted. And we have no doubt that the court will in the present case decide that if the Commissioners have in this way used Mr. Myers's plans he is entitled to compensation either from them or from the State they represent. The photographing of his drawings, even if the photographs were not for architectural use but only, as the Commission is said to have unofficially declared, to be preserved as records for use in case of future dispute, also clearly entitles their author to a compensation, though it might be difficult to fix the amount of it by any established rule, no provision for such an infringement being provided in the usages of practice. Though this should be the only thing proved against the Commissioners, it is desirable that they should be brought to book, for the sake of future competitions and for the recognition of the principle that an architect's drawings are inviolable until he has distinctly assigned them for use. It is as much for the good of the public as of the profession, in the long run, that commissioners and committees should be taught not to take advantage of the architects whom they entice into competitions.

IT might be wished in the interest of the profession that the questions of drawings, and design or professional service, should be kept visibly distinct in such a case as this; for the public is too apt to regard the drawings as the whole measure of the service, if not actually to confound the two. If, for instance, the Commissioners took advantage of Mr. Myers's ideas, they are liable for the proper professional fee. If they simply spoiled his drawings, as he alleges they did also, this is a matter entirely distinct from the question of two and a half per cent, or whatever may be awarded him for appropriation of his design, and the payment should reasonably be the cost of reproducing them. It would be doing good missionary work to have the actual cost of a set of drawings for such a building made publicly known. A dozen years ago, when the competition for the new Law Courts in London was arranged, the English Government allowed to each of the twelve invited competitors about four thousand dollars (£800) as a return for his expenses, and it is said that they were all out of pocket. The drawings in this case were unusually elaborate, but no estimates were required, or at least none in detail. Mr. Myers claims that the actual cost to him of the plans, specifications, and estimates was ten thousand dollars. This looks very large, but we have no means of judging of its reasonableness. The amount of work demanded by the conditions of the competitions if thoroughly carried out was enormous, since they required the design to be practically ready for contract. The conditions were indeed so oppressive that, as we took occasion at the time to say, it was not creditable to an architect to enter the competition, a fact which diminishes the sympathy to be felt for those who entered and were disappointed. It did in truth demand, not the preliminary labor which is rated at one per cent of estimated cost, but the complete preparation for actual execution of work, for which the usual fee is two and a half per cent. It is not a bad thing to have the whole cost of such a competition proclaimed, and we could wish the public to take it home; but the architects who took part are shown to have had to face the alternative of rating their professional performances far below the accepted standard, or of risking many thousand dollars apiece in the most hazardous kind of lottery. We should not suppose that either horn of the dilemma would be an agreeable seat.

THE late disaster in the Colosseum Theatre at Liverpool gives point to the Chicago theatre ordinance, passed last summer, which we print in another column. Its provisions are an unquestionable improvement on the common habits in building and administering theatres. The requirements of a proscenium wall of brick, and the multiplication of exits, the arrangement of stairs, and the position of the auditorium are excellent, as far as they go. At the same time, to a proper regulation of theatres several more things are essential. No written description of requirements can make it sure that the exits of a theatre are what they ought to be; security in this respect will depend on the judgment and rigor with which the plans of the theatres are supervised by the inspectors of buildings. A brick proscenium-wall is a good and indeed indispensable thing; but it loses half its efficacy unless the arch and boxes of the proscenium and the adjoining ceiling of the auditorium are also made incombustible. The method proposed of "fire-proofing" floors invites a smile, though it is better than nothing: the covering of stud-partitions with iron lathing is only a palliative. The principal partitions, at least those that enclose the stairs and the corridors, ought to be of brick. We see no mention of a fire-proof curtain, a thing which has its value, although like other appliances kept only for extraordinary uses, it is too likely to be mishandled or out of order when it is needed. There is an impression, no doubt, that a large ventilator, or

vent, over the stage will make a fire-proof curtain unnecessary, but this impression we take to be more or less delusive, for, at least in cold weather, the draught in a theatre is constantly from the stage to the auditorium, and before it could be reversed irretrievable harm is likely to be done. The only assurance of value in the curtain, on the other hand, is in using it constantly whether it is needed or not, as is the habit in the French theatres. As for the limitation of the number of spectators, it would be an admirable provision, but it is not easy to believe it will be adequately enforced in an American city, any more than it is in American waters, where ferry-boats and excursion steamers are constantly loaded with four or five times as many passengers as their certificates allow them to carry, and where nobody is ever refused passage.

The vault of the Forty-second Street tunnel in New York, which killed two men in June last by falling in part, has given another warning. The vault, it may be remembered, was built in successive sections of seventy-five feet long, and it was directly after the centering of the second section was struck that this section fell. It was a vault of preposterous construction, being of very flat section, forty feet in span with but ten feet rise, — a brick shell of only six courses of headers, to be loaded at the crown with twenty-five or thirty feet of loose earth. Moreover, it was shown that the bricks were very carelessly laid, in mortar of no cohesion. Nevertheless an intelligent coroner's jury decided that the trouble was simply in loading the arch carelessly after it was built, and censured the contractor for this. The inquiry went no farther, and since the first section of the vault did not fall, the second was rebuilt and the work went on as before, the inspector only ordering that the shell should thenceforth be built in seven courses of headers instead of six. Lately the first section, which had survived the earlier disaster, has been seen to be sinking at the crown, and on Sunday a large patch of it, about thirty-five feet across, fell down. Luckily no one was beneath this time, it is believed, the public having been warned off. The stone retaining wall on the face of the tunnel, where it emerges on First Avenue, is reported to be also in a dangerous condition. It is intended to support a bank of earth one hundred feet long and sixty feet high, yet is said to be only four feet thick at the base and two at the top, the batter being on the inside, and is built without even drain-holes to let out the water which may accumulate behind it. We shall probably not hear anything this time about uneven loading by the contractor: it is not easy to see how the responsibility can be again diverted from where it belongs, — in the office of the Commissioner of Public Works, where the work was designed and superintended. The people of New York are to be congratulated on this second accident. If their city improvements are at the mercy of an ignorance of construction and workmanship which would discredit a boy at an engineering school, it is a good thing to find it out as early and at as little cost as possible.

The New York Board of Aldermen has passed the ordinance in favor of the Spinola scheme for applying the Holly system of steam-heating to the city, without the restrictions that the more cautious of the board tried to fasten upon it. The experience of Lockport seems to show that the system deserves trial on a large scale, and there is no reason to doubt that it may be as practicable and useful as the common system of gas-supply. At the same time it is too serious an innovation to be tried in a city like New York except by the most trustworthy hands, and under the most careful safeguards. These do not seem to be the conditions of the present scheme. For this reason it is thought that the Mayor is likely to veto the ordinance, and again it is threatened that the Aldermen will carry it over his veto. One proposition, which has been pressed with some persistence — that the Spinola Company should be made to pay for its privilege, or the franchise be sold to the highest bidder — seems to us peculiarly ill judged, for two or three reasons. First, the only possible proper reason why a city should grant such a privilege, which involves a considerable sacrifice of general convenience, is that it will be for the benefit of the mass of its citizens. For a city to fall to speculating in attempts of such a kind would be altogether out of place and demoralizing. Second, the idea looks like a foolish economical juggle, for whatever is paid to the city in this way is simply so much added to the cost of the undertaking, which must in the long run be provided for by the tolls of the company; that is, it must come out of the pockets of the consumers, the citizens for whose benefit the franchise is conferred, and for whose sake the original payment was exacted. Finally, the imposition of such a tax gives the greatest possible inducement to save money by doing the work as cheaply and slightly as possible; whereas it is a thing which if done at all needs to be done in the most thorough manner. We should be glad to see the whole thing held in reserve till the question of subways under the streets has been duly considered and decided, because subways must doubtless in time come to be considered as necessities, and the wholesale undermining of the streets for a new series of conduits gives the best possible occasion for introducing them.

Outside the great exhibition of the Champ de Mars at Paris is a subsidiary one, of which newspaper correspondents do not say much, and of which probably not a great many persons who have stayed on this side the water this summer have heard at all, but which nevertheless is one of the most significant things to be seen there, not so much because of what is in it, as because of what it aims to be, and of the men whose work it is. It is the French workmen's exhibition. A plain building near the Porte Rapp, the main entrance of the principal exposition, contains the exhibits, which the workmen of the different unions, unassisted by their masters and employers, have got together, and the contributions of enterprising individuals. It displays a good share of the handiwork of various traders, with ornamented work of various kinds, and, what is more interesting, a large collection of inventions made by the workmen. It may be supposed that the amount of money at their command was not great; there is something a little pathetic and very admirable in the quiet perseverance with which they have carried out their purpose in the face of many difficulties, and have built up their modest display beside the great one. Their first application was for space in the great exhibition, which the government at that time, under the traditional dread of combinations of workingmen, refused to give. Under later and more liberal ministers the government relented, and granted them a space apart. The city of Paris allowed them fifty thousand francs, and the Department of the Seine twenty thousand, toward the expenses of the exhibition, which was opened by the Minister of Agriculture and Commerce in person. There was difficulty at first in the reluctance of many of the inventors, — who had not been able to bear the cost of taking out patents, — to exhibit their contrivances, lest they should give opportunity for pirating them; but the government again came to the rescue by issuing an order which protected all the inventions exhibited from imitation during the time of the exhibition and for three months after. It has been the habit to commiserate the oppressions of the French workingman, who is forbidden to combine in organizations and hold general assemblies, though allowed to meet in his local trades-union. Yet one cannot wonder if French legislators remember, that when the workingmen of France did unite and assemble, it was under the guidance of reckless leaders, to conspire against the peace of society, and that their means were blood and petroleum. How much is cause and effect, it would be dangerous to say, but that these French working men do more to bring honor on their calling than those of other nations, whose attention is swallowed up in agitation for class privileges and the remodelling of society, appears from a good many signs, among the most significant of which are their embassy to our Centennial, and this summer's exhibition at Paris.

AMERICAN ARCHITECTURE — WITH PRECEDENT AND WITHOUT.

A fortnight ago we spoke of the independence of archæology which is one characteristic of American architecture, — not without regret that, while our countrymen are by this independence delivered from many restraints, they have no equivalent for the wholesome discipline which a regard for precedent, and especially for style, can give them. These things call to mind the question asked not long ago by a correspondent who criticized somewhat incisively the drawings submitted in our competitions: "Whither are we tending?" and the question is answered independently and not inaptly by the general criticism of another person: "The tendency of American architecture is to the fantastic."

We may confess that this last saying is not more severe than is just, if we take into account the whole body of our architecture, the vernacular, the cultivated, and all the intermediate grades

together. Eliminating from the architecture all its imported characteristics, we shall have to acknowledge that in the American residuum there is a prevailing element to which the disagreeable title we have quoted fairly belongs. It varies in degree, being on the whole most prominent in the most purely native work, the least sophisticated by any foreign or other tradition, but cropping out as a tendency even among our architects of steadiest training; occasionally we see it assert itself in the irrepressible *bizarreries* of Americans whose artistic nursing is wholly European. That it should be an American characteristic is, after all, not strange. It is the natural thing for a people restless, inventive, restrained by no artistic scruples or diffidence, fond of positive and even startling effects, and given to display. When there is put into the hands of such a people an unlimited supply of architectural forms from a great variety of unconnected sources, many of them originally striking, picturesque, or splendid, with no respect for authority, association, or original purpose to govern the use of them, the result can hardly be anything else than extravagant. If a company of simple persons, with no rules of dress to suit the occasion, were suddenly to break into the costume room of a theatre and fall to adorning themselves at their wills with all its finery, fantastic is probably the only word that would fit their attire. Something of this sort has befallen American architects. They have been let into the possession of a huge wardrobe of architectural properties, and while some of them have a fair knowledge of the traditions of the stage to guide their choice, and some a sense of natural fitness, a good many have nothing better than the whim of the moment, or the opportunity to take what they first lay hands on. The necessary result is all degrees of propriety and absurdity in attire, some being cleverly dressed, and others as grotesque as the savage who crowns his tattooed body with a stovepipe hat, or hangs a string of slippers about his neck. To make successful use of such unlimited opportunities is one of the most difficult things for an artist to do. For one person who can come out effectively attired from a miscellaneous wardrobe, there are a score who can dress with credit by a prevailing fashion. The power of putting into satisfactory combinations forms which belong together, and with which one is thoroughly familiar, is reasonably easy to acquire; the power to seize unfamiliar and unrelated forms and constrain them into an artistic union is one of the most unusual, and one of the latest that a man comes by. As a nation deliberately eclectic and without much training, we have set ourselves artistically a pretty hard task.

The American architect then, where he differs in his ways from his European brother, has attacked his work at the most difficult point. A generation or two ago he designed securely by the well-understood traditions of an old style, and produced work which was at least sober, comely, well-bred, and never offensive. Then the echoes of the English revival came to his ear; the loosing of the old bonds followed, with the stimulus of a great array of new examples, and without the restraining grace of archæological reverence; Mr. Downing sounded his trumpet call, and henceforth repose was impossible and discipline distasteful; then came the "French roof" and the jig-saw, and the vernacular architect was emancipated. The result was naturally a series of extraordinary experiments. For the average American is as sure of what he likes and as self-reliant in matters of art as in politics or business. He has before him no remains of a better period — at least none of a period which he will acknowledge as better — to convict his work of inferiority; no consecrated standard by which to estimate it; no respect for any authority which tells him it is not the best. He thinks to conquer art as he conquers material progress, forgetting that all the enterprise that ever drove railroads through a mountain or built up cities in a year will not in itself attain it. Such being the character of his constituency, reflected more or less in himself, and his opportunities so unlimited, it is not wonderful that the architect's performances should be too often fantastic. What wonder if he presses into his service whatever takes his fancy; if his works are a combination of odds and ends picked up here and there because of their conspicuousness, his buildings bristling all over with turrets and dormers and gables and pediments and buttresses; if artistic quiet is impossible to him, and his most modest cottage contains architecture enough for a castle?

For all this it has been a habit, and people still continue it, to call upon us for originality, and to clamor for a new invention, a distinctively American kind of architecture. People of abstract tendency have demanded the expression of American ideas and characteristics in it; more positive people have offered samples of decorative material out of which it should be made, — eagles and striped shields, stars, stalks and ears of Indian corn; and a few architects have, with patriotic fervor, addressed themselves to carry out these recommendations. But here occurs the question, what kind of originality and what kind of expressiveness are required in American architecture? If originality means simply that American buildings shall be recognizably unlike other buildings, we have enough of it and to spare. There is nothing anywhere else in the world that is much like the vernacular French-roofed villa, or our ordinary builder's country house; if we consider our more pretentious city architecture or our public buildings, though they contain ideas gathered from all sources, there is not a city in Europe where the most of them would not look conspicuously foreign. As for expression of character, if we consider the qualities which persons who do not love us are apt to dwell upon, — vainglory, ostentation, restlessness, irreverence, haste, commercial unsoundness, and a general want of substance, — are they not written on the fronts of a million of our buildings? and the qualities which friendlier critics ascribe to us, — enterprise, invention, energy, independence, progressiveness, — are they not also everywhere displayed in our work? If, on the other hand, we look for the artistic qualities of a good style in building, harmony of parts, and the predominance of leading architectural ideas, for a distinct body of forms, individual and thoroughly adjusted to each other and to these leading ideas, assigned each to its definite place in a harmonious system; this is demanding what is not to be invented in a day or in a generation, and what really never has been reached by a predetermined effort.

What is needed is not patriotic inspiration, not eagles or maize, not originality, but agreement and skill. If we were given to-morrow a thousand new elements of form and decoration we should be no better off; we have already a thousand more than we know what to do with. How we are to be made to confine ourselves to a number of forms small enough to be worked into a coherent style no man knows. If this ever occurs it will be by natural selection, not by force of preaching or of votes. As for skill, the most rapid way of securing it is to work as we have seen others work, until we acquire it. Skill comes by discipline, and discipline is maintained by precedent. Originality and the development of style, in architecture at least, have never sprung from anything but adaptation to new wants; the condition of their success is skill. When a people has new and well defined wants to dictate the form of its buildings and new materials to encourage the development of a peculiar treatment, it has all the outward circumstances which any people ever had to incite it to create an architecture. So far as there is anything of real interest in the novelties of American architecture it has come by mere provision for practical needs or mechanical convenience, and this has been the way of all worthy architectural progress. The wooden architecture of our houses, slight as they are; their plans, which have developed distinct types both for city and country unknown elsewhere; our manner of using iron in architectural construction, — these are examples.

It is safe to say that as a rule the men who have been most successful in originality have been those who have been most studious of precedent and most rigorously trained, because thus they have gained the sureness of hand which has saved them both from timidity and from disaster when they were at their own guidance. This is true in a greater degree of nations. The architects who in this century have shown the most original power are unquestionably the most systematic, the most academic in training, — the French. It is because they have acquired their power by the best means of discipline the world now affords architects, and the discipline is of the most formal, being based entirely on study of the antique. It is particularly noticeable that they have been bolder, more characteristic and straightforward, less conventional, and more successful artistically than any others in the handling of the untried material, — iron. The unconventional American has thus far found nothing better to do with his iron than to work it into clumsy and shamefaced imitations of stone and wood. The Frenchman, slave of his schools and his precedents, develops it into forms unseen before and clearly expressive of its exceptional qualities. In like manner, it is not the engineer or the mechanic, when he undertakes to add decoration to his work, untrammelled as he is by artistic prejudice, who shows most originality or straightforwardness in ornamental treatment, to say nothing of other excellences. It is the well trained designer; and this because he

only has acquired by discipline the artistic sense of fitness which can show him the incongruity of old forms in new materials and teach him to modify or replace them for new conditions. We can see no reason, then, why Americans should feel concern about originality. It is one of the qualities which always disappoint a direct pursuit. From a disciplined hand it comes without direct effort, if it comes at all: from the undisciplined it is too likely to mean only the fantastic.

MODERN PLUMBING. IX.

SLOP SINKS — KITCHEN SINKS — WASH-TRAYS.

Slop sinks are simply small and deep iron or porcelain sinks, with a cold-water supply only. They save the water-closets from a great deal of rough usage and unnecessary foulness, and their water supply is of service for filling pitchers. The best shape is that which allows the waste to run off most quickly and exposes least moistened surface, but the sink should be large enough to allow water to be drawn for filling pails and pitchers without danger of the drippings falling on the floor. A very good, though rather expensive pattern is the Jennings Housemaid's Sink, which consists of a slate sink with a porcelain hopper and trap set in at the lower end. Over this hopper is a grooved cover, which can be turned up to allow a pail to be emptied directly into the hopper, and when let down serves as a draining shelf for setting things waiting to be washed at the other end of the sink.

Sometimes a porcelain hopper alone is used, like that of a water-closet, and supplied in a similar manner through a side arm. A strainer is formed in the porcelain at the bottom, and the hopper is set into a three-inch waste-pipe with trap. Some of the iron slop sinks, as Merry's patent, made by the J. L. Mott Iron Works, New York, and several similar forms, have an open hopper in the middle, with a four-inch outlet. These carry off a large quantity of water with great rapidity, and are very useful where a considerable amount of liquid is to be disposed of.

The slop sink waste soon becomes very offensive, and the trap should be placed close under the sink, to reduce as far as possible the exposed pipe surface between it and the sink. A ventilated S-trap is the cleanest, but the ventilating pipe must be as large as possible, even to the whole calibre of the trap, and the waste-pipe beyond the trap must not run more than two or three feet before entering the larger vertical soil-pipe, or siphonage will constantly take place, from the large quantity of liquid thrown down at once, and the rapidity of the discharge. Where there must be a considerable length of nearly horizontal pipe beyond the trap, even a ventilating pipe cannot be relied upon to prevent siphonage, and a reservoir trap must be used. This should be selected so as to be proof against siphonage under any circumstances, and to contain as small a quantity of liquid as is compatible with this requirement, and there should be no sharp edges or reëntering angles to collect deposit. Perhaps the Bower patent comes the nearest to fulfilling these conditions.

Of kitchen sinks there are many varieties: wood, either plain or lined with lead or copper, iron — plain, galvanized or enamelled — soapstone and slate are used.

Plain wood, if well made, constantly used, and kept clean, makes a tolerable sink. Two-inch pine planks should be used, either tongued and grooved, or with both edges grooved and a hard wood tongue inserted, and the joint should be painted with white lead and oil, and rubbed together. A bell trap with brass strainer is generally screwed in over the waste pipe. Unless kept constantly moist, however, the woodwork shrinks away from the joints, and a good iron sink is quite as cheap and much to be preferred.

The principal difference between the various makes of iron sinks is in the arrangement of the strainer and trap. The old-fashioned sinks, and many new ones, have a bell-trap attached to them. This is not the best arrangement, but as it is cheap and very common, it may be well to notice some of the different kinds. The worst is that which has the inverted cup attached to the under side of the strainer, and the strainer either altogether removable, which is the usual way, hinged at one side, so that on raising it to remove the obstructions which rapidly accumulate under the edges of the bell, or for the purpose of putting down solid refuse, the mouth of the waste pipe is exposed, and the air of the room is quickly contaminated with gas from the cesspool or sewer. The majority of kitchens are never free from the smell of the drains, principally for this reason.

The Magee Furnace Company, of Boston, make a sink which has a bell immovably fixed over the waste-pipe mouth, and a separate strainer, hinged, so that it can be turned back and the edges of the bell cleared without breaking the water seal. This is an improvement on the common form, and it has the additional advantage that apple cores and such rubbish cannot possibly be put down the pipe.

Another good feature is found in the sinks made by the Miller Iron Company, Providence, R. I., which have the bell attached to the strainer, but this is screwed down, and the bell, which has small projections cast on it, can be turned round by a thumb-piece above the strainer, and the projections scrape up the deposit around the edges of the bell, so that it can be washed down the pipe.

A more elaborate affair is Carson's Kitchen Sink, made by J. M. Carson, Louisville, Kentucky. This has a removable strainer and bell-trap of considerable size in the middle of the sink, but the bell-trap, instead of connecting directly with the waste-pipe, opens into an iron cistern, holding some ten or twelve gallons, the only outlet from which is through a pipe entering near the top, and turned down nearly to the bottom of the cistern, thus forming a very deep water-sealed trap. Unless sufficient water should suddenly be thrown down to fill the bore of the discharge pipe and convert it into a siphon, the water in the cistern will stand always at the level of the top of the pipe, and the grease which passes through the strainer will collect at the surface, and can be readily removed from time to time by lifting out the strainer and bell trap which serve as a cover. This device has good points: the waste grease is prevented from getting into and choking the drains, and is of some value for soap-making, and the deep-water trap in the cistern shuts off gas from the sewer; but the cistern itself forms a small cesspool which in hot weather, or when not much used, may get very offensive, and will make itself an unpleasant occupant of the kitchen, in spite of the bell-trap in the cover; and the clearing out of the grease, especially after long neglect, is a most unsavory operation.

The grease-collecting reservoir is, however, a very useful appendage to a kitchen sink, and can be used without offence by placing it out of doors, as near the sink as possible, so that the grease will not congeal on the sides of the waste-pipe, burying it in the ground below frost, with a removable cover for cleaning out. Field's flush tank answers this purpose very well, independently of its other special merits. The common form consists of a small tight cesspool, just outside the house wall, of brick laid in cement, and with a stone cover. The outlet pipe turns down inside the reservoir nearly to the bottom, so that the surface of the water is always above the mouth of the outlet pipe, and the floating grease can solidify without obstructing the pipe.

Instead of the sink with bell-trap, the best plumbers prefer a plain iron or soapstone sink with only a strainer screwed in, and a coupling for the waste-pipe, and with a separate trap at a little distance below the sink. An S-trap will keep itself clean, though very liable to siphonage even when ventilated, but the grease which passes through it in a melted state congeals in the drain beyond and soon closes it. A grease trap outside the wall will prevent this, and should always be used in hotels or with large families, but with small establishments and careful housekeeping it is sufficient to use a large round-trap in place of an S-trap, furnished with a trap-screw of sufficient size to admit the hand for occasional cleaning out. A six-inch round-trap with a four-inch brass trap-screw will answer in most cases. The round-trap should have a ventilating pipe, for the accumulation of grease may reduce the waterway so much as to cause it to siphon out like an S-trap.

Iron sinks without bell-traps may be had plain, galvanized, or enamelled. The enamelling looks much the best, but it is liable to crack off in time from the sudden expansion caused by hot water, assisted by blows from hard substances dropped into the sink, and it trebles the cost of the sink. Galvanizing is less expensive, but not durable. The plain iron costs about half as much as the galvanized, and a little black paint outside and soap and sand inside will keep it in pretty good condition until the iron wears out.

Soapstone, which is frequently used in the best houses, makes a strong and durable sink. It soon becomes black with the soap and grease, but the discoloration is superficial, and can be easily removed by rubbing with a flat stone and a little sharp sand.

When it is desirable to set a sink for occasional light use, wood lined with lead or copper serves a good purpose. Lead is now much less used than formerly, tinned copper having superseded it for this and similar purposes.

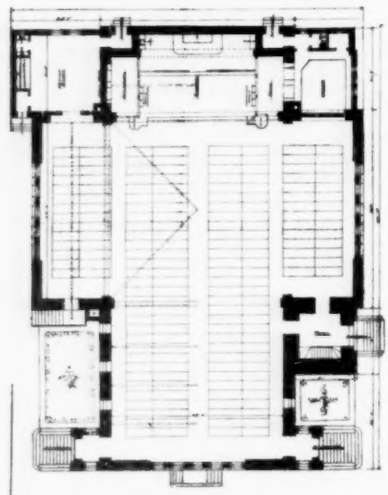
The supply to sinks is generally through ½ inch or ¾ inch cocks, according to the pressure. Either compression cocks or the Fuller patent are much more durable than ground faucets, under the rough usage to which they are exposed.

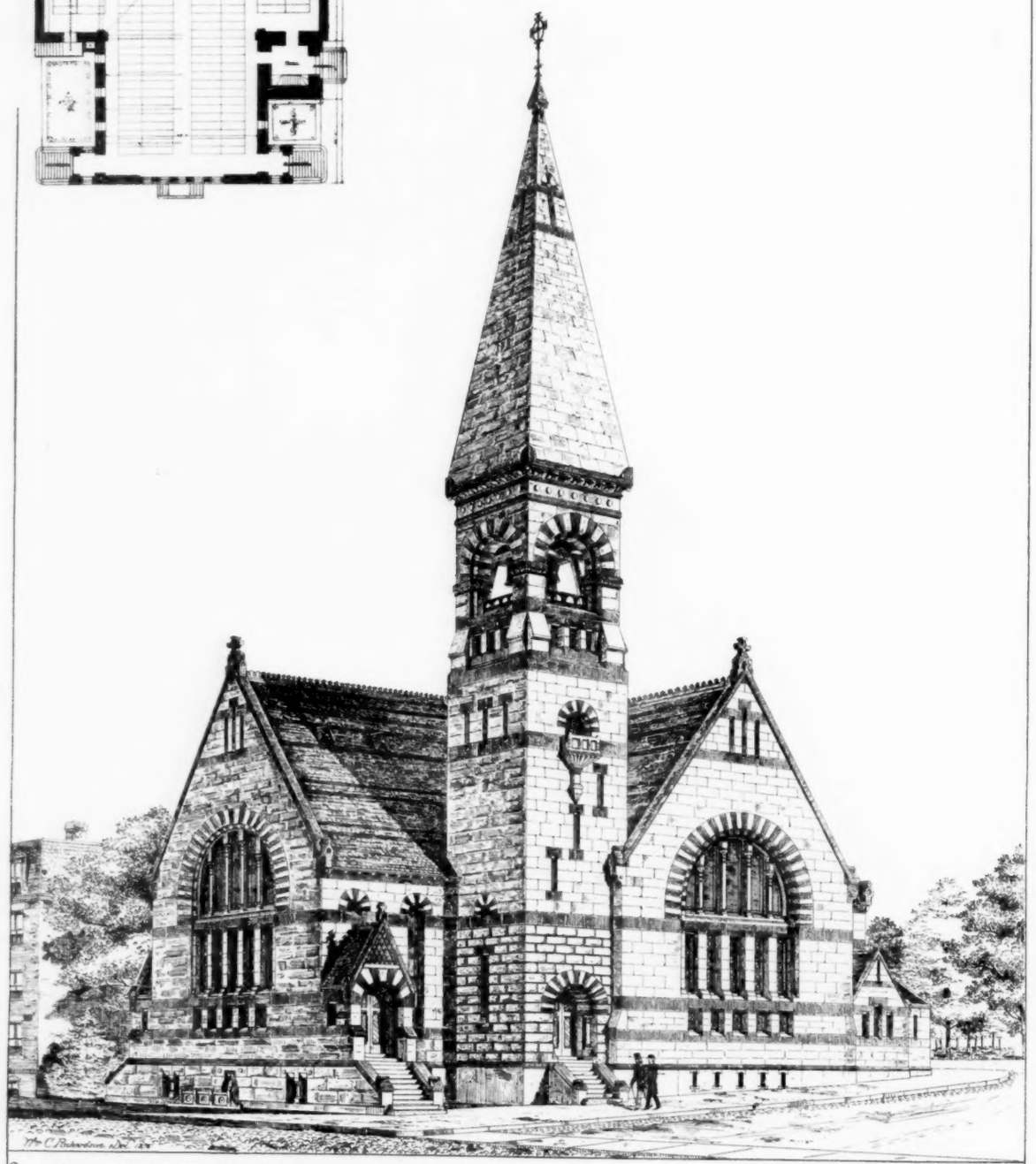
It is a common but unwholesome practice to enclose the space below kitchen sinks with boards to form a cupboard. The air of such a place is constantly saturated with moisture from the wet cloths and brushes which are thrown in, and the dampness rusts the metal of iron sinks, and condensing on the cold water-pipes runs down and keeps the floor wet, while the warmth of the hot water and waste-pipes adds to the general steam, and attracts swarms of water-bugs and cockroaches. The cupboard, if one is needed, should be placed where it can be kept well aired and dry, and the sink should stand free, supported either on a wooden frame with four legs, or on brackets, or it may be held at the back by a cleat fastened to the wall, and in front by two iron legs which fit into places cast for them on the sink. The round trap may stand on the floor under the sink.

Some patterns, as the McKenzie and the Demarest, have the legs hollow, one of them serving as a waste pipe, but this, although neat in appearance, makes it necessary to put the trap below the floor, or to use a bell-trap in the sink, either of which is objectionable.

In general, all plumbing work in kitchens should be entirely exposed, so that the fetid moisture which collects upon the pipes cannot run down behind plastering or sheathing and soak the woodwork into rottenness.

Wash-trays are usually made of soapstone. Wood will not long resist the alternate soaking and drying to which they are subject. The common arrangement is to make them in sets of three, two for the washing, and the third for the final rinsing, or sometimes one for

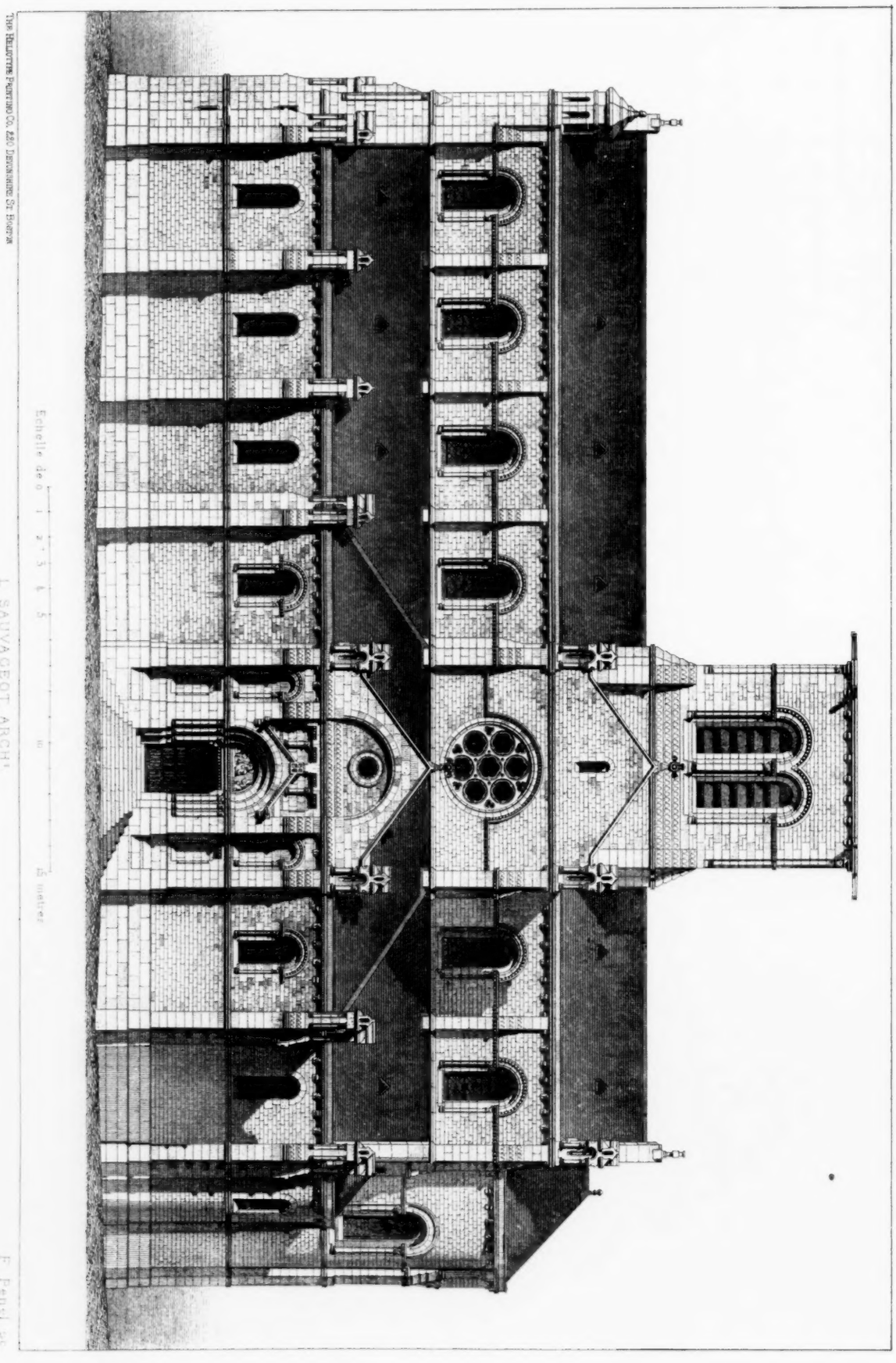




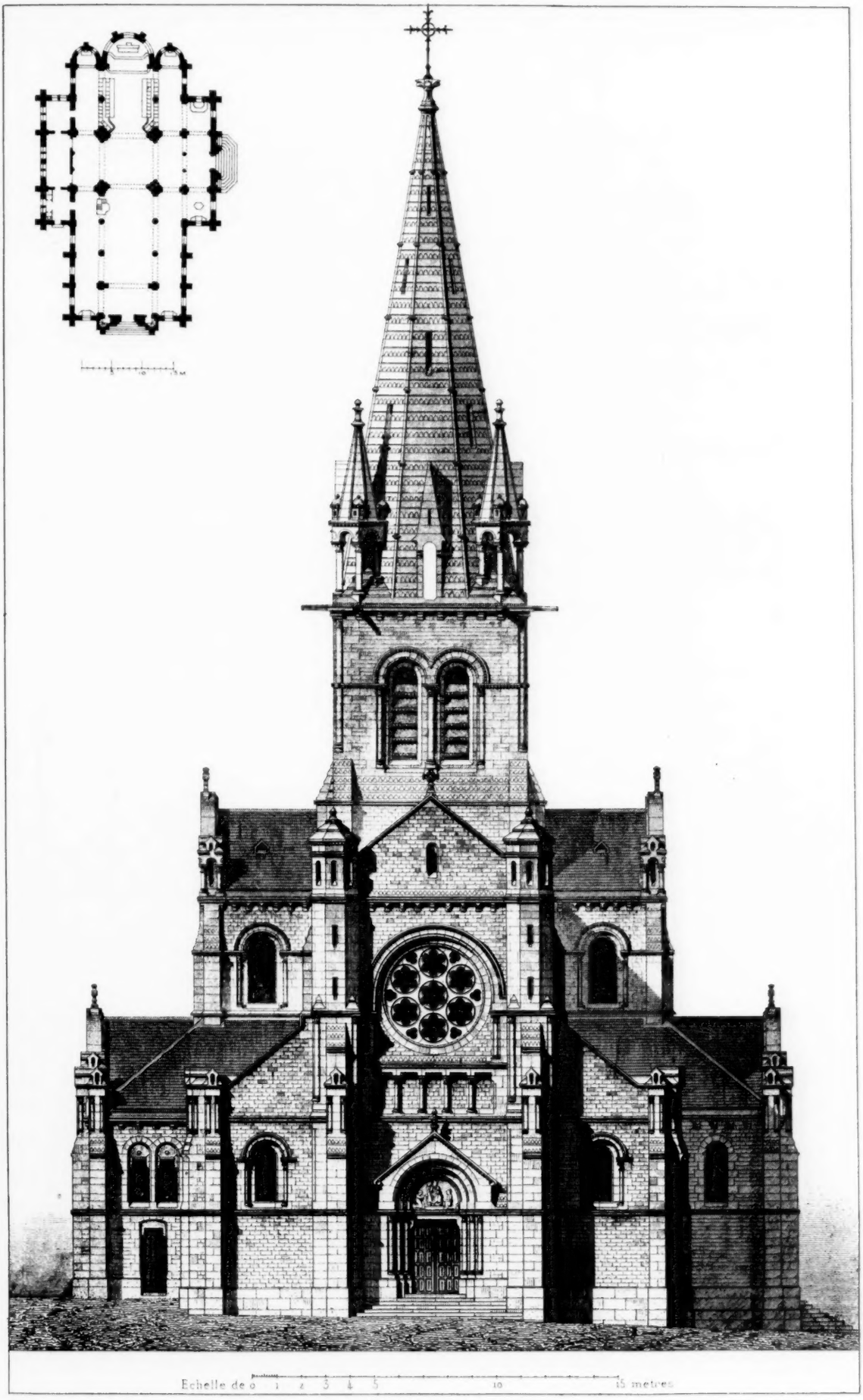
CHURCH OF ST MICHAEL AND ALL ANGELS — BALTIMORE MARYLAND

WYATT AND SPERRY ARCHTS
BALTIMORE

THE HELIOTYPE PRINTING CO 220 DEVONSHIRE ST BOSTON



CHURCH OF ST. HILAIRE AT ROUEN



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CHURCH OF SAINT-HILAIRE, AT ROUEN

THE HELIOTYPE PRINTING CO. 220 DEVONSHIRE ST. BOSTON

the coarse washing, the second for finer articles, and the third for rinsing; but sets of two can be had. Exacting housekeepers, however, demand four. They are supported on a wooden frame, which should be open beneath.

Iron wash-trays can be had, either galvanized or enamelled, for about the same price as the soapstone, but are not much used.

The plumbing required is very simple, consisting of a line of hot and of cold water pipe, each with a cock over each tray. Compression or Fuller cocks are best adapted to the rough usage they are likely to receive. A strainer and plug, with coupling for waste pipe, is fixed in the bottom of each tray, and one trap serves for the whole set.

An S-trap, even if ventilated, can hardly be depended on to retain its seal against the strong siphon action caused by the large quantity of water discharged, and a reservoir trap is better. A six-inch round trap, with a four-inch trap-screw, is as good as any, and has the advantage that all the three waste-pipes, and even a fourth, can be entered beneath the water level.

The plug is generally put in loose, without any chain, which would be in the way of the washing. If a chain is thought necessary, it should be silver-plated, as either brass or nickel will stain white clothes.

It is very common and convenient to supply the wash-boiler, or caldron of tinned copper in which the clothes are boiled, with cold water only, and to carry a waste-pipe to the trap of the wash-trays or some other connection. This waste-pipe should have a cock outside the boiler, as a plug inside would be very inconvenient in use.

THE ILLUSTRATIONS.

CHURCH OF ST. MICHAEL AND ALL ANGELS, BALTIMORE, MD. MESSRS. WYATT AND SPERRY, ARCHITECTS.

THE transepts and tower of this church are now being built, on the northeast corner of St. Paul and Denmead streets, Baltimore. The exterior walls will be of Falls blue stone with finish of a reddish brown stone from Longmeadow. The interior will be finished with open timber roof, the walls will be decorated with painting. The arches and band courses will be of colored brick and terra-cotta, with corbels, etc., of Amherst stone.

COTTAGES FOR R. W. POINDEXTER, ESQ., AND C. K. CLARK, ESQ., BERKELEY, CAL. MESSRS. MEEKER AND BANKS, ARCHITECTS, SAN FRANCISCO, CAL.

CHURCH OF ST. HILAIRE AT ROUEN, FRANCE. M. L. SAUVAGEOT, ARCHITECT.

This church, of which we copy the two elevations from the *Encyclopédie d'Architecture*, received the first prize at the great exhibition of this year.

THE MURAL PAINTINGS AT ASSISI.

[*From The Academy.*]

THE unhappy alterations made in the Upper Church of St. Francis at Assisi are calculated to confirm the views of those who are conscientiously opposed to the new regulations, which place ecclesiastical edifices and the mural paintings and other works of art which they contain under the supervision of the civil power. It is manifest that a change in their custody was necessary, and that no government worthy of the name could stand by and witness the dilapidation which has been the rule without an effort to arrest it. The undertaking is surrounded with difficulties. There is the opposition of the clergy, weakened, however, by the fact that they have long been more destructive than conservative. Under such guardianship the frescoes of the Sixtine have been ruined, as well as the mural paintings in the Upper Church of St. Francis, and in numerous churches and chapels. Many wall paintings by masters of eminence have been whitewashed over; innumerable painted windows have been broken to fragments; pictures, illuminated MSS., and other precious objects have been secretly sold. The laity have been as much to blame as the clergy, with the exception of a few devoted friends of art; but the majority are indifferent, or fond of the tawdry church frippery and illuminations, which have inflicted irreparable injury on the finest frescoes. These vulgar trappings are now preferred to the noble and decorous ornaments and instructive illustrations of the great masters of art. Popular religious sentiment is gratified by attaching coronets, ear-rings, necklaces, and other jewels to pictures and statues, and would affix these to the "Madonna di San Sisto" or "di Foligno" if there was a chance of doing so. Customs older than Christianity itself, which have survived all changes, and which have been long encouraged, are not easily eradicated.

The Italian Government has removed valuable altar pieces from churches, and has replaced them with good copies, which are regarded with just as much reverence, and do quite as well as backgrounds for candles and artificial flowers. Some may think such removals irreverent, but government has not acted without precedent of the highest order—not only that of its predecessors, who could be accused neither of liberalism nor of irreligion, yet who did not hesitate to save precious pictures in churches from the sacristan and the populace by transferring them to places of safety, where the only worship would be that of the lover of art; but also that of the Vatican itself, which gathered into its famous gallery and so saved the "Transfiguration," by Raffael; the "Madonna di Foligno," by the same immortal artist; the "Communion of St. Jerome," by Domenichino, as well as other invaluable altar paintings. Frescoes, unhappily, it has been impossible to rescue except by an interference, which till now has apparently been thought out of the question; but with more courage the present government has resolved to preserve the fragments of interesting works, which but for ignorance and neglect might have been transmitted to the present time in good condition. An attempt is now in progress at Assisi to prevent the final disappearance of the greatest works of painting produced in the thirteenth century, which are not only invaluable in their connection with the history of art, but which possess merits of a high order. To know how really great an artist Giovanni Cimabue was, it is necessary to study the remains of his work at Assisi. Some have questioned his presence there. If they were right, then there was another great artist, his equal in all respects, whose name and history are forgotten. Since my late examination of the Church of St. Francis it occurs to me forcibly that the architect built it without reference to the painted decorations. These, I am persuaded, were an afterthought, with the exception of those on the vaults. He finished the wall internally with regularly-coursed fine masonry, which he would not have done had he known that it was to be plastered for painting; and the projections of the mouldings and string courses are fixed without reference to subsequent plastering. The mural painters were, therefore, under the necessity of limiting the *intonaco* to be painted upon to little more than one-eighth of an inch, that they might not bury the mouldings or injure the proportions of the piers.

The church exhibits peculiarities of construction of great interest. It has been made an objection to mediæval architecture that above the stone or brick vaulted coverings of nave and aisles there are wooden roofs. This building suggests in its structure that this fault, if it be one, might be got rid of, for above the groined vaults rise roof principals of brick, which support purlins and rafters of wood, but so mighty are they in strength that the thought occurs, might not the entire roof have been of the same material? The thrust, not only of the vaults, but of these prodigious arches, is such that it could be met by no ordinary abutments; and, instead of buttresses of the usual form, circular towers flank the walls, which answer their purpose but are deficient in architectural beauty. The roof was tiled in the usual manner; but the monks in charge allowed it to get into complete disrepair, so that the heavy rain passed through it freely, and, the conduits below being in a state of ruin, the water must have lain in pools in the hollows between the groined vaults, soaking the painted walls and detaching the *intonaco*, while a growth of black fungi on the humid surfaces of the pictures added to the general destruction. In the walls thus recklessly exposed for ages to the action of damp the lime has been reduced to powder; the sand with which it was mixed, therefore, presumably contained earthy matter. Lime and sand of quartz is insoluble, and it may be remarked that such a mixture is the only safe one for fresco painting. At Assisi the *intonaco* is of two qualities — of lime mixed with sand, and of lime mixed with marble dust. The beautiful whiteness and smoothness of this latter, and the fact that it was preferred by so many renowned artists — such as Michelangelo, Raffael, Correggio, and others — must naturally influence the practice of modern fresco painters; but it is very soluble, and is especially subject to the formation of salnitre on the surface, which eats out the colors, as may be seen in the works of Giotto and his followers at Assisi. Another source of injury to these venerable paintings, entirely new in my experience, was pointed out to me. Lightning has entered the church and rippled over the surfaces of the paintings on the vaults, leaving its traces in the blackened colors, and then escaping without doing further damage.

Apart from all these causes of decay there were others connected with the technical processes, not only of the early mural paintings, but also of artists of later times. Having lately finished a history in detail of the methods of execution common in wall painting from the thirteenth to the sixteenth century, I will merely state at this time that the paintings at Assisi were commenced in fresco, but were invariably finished in tempera; that this last process contained in itself the elements of deterioration; and that these, in combination with the action of damp, the result of ruinous carelessness and gross ignorance in the custodians of the church, have produced the effects which we now see.

Where the *intonaco* had fallen I saw in various places the vestiges of the outlines of the subjects which Giunta Pisano and Cimabue had drawn with free, bold hand upon the ashlar wall. They have a weird, dreamy look. This ancient method of preparing the outline of mural paintings has been noticed and speculated upon by the late Sir Charles Eastlake; but he was only acquainted with the example of it which remains at Pisa in a work of Pietro d'Orvieto. The process is minutely described by Cennino Cennini as that followed by Giotto and his school. I have no doubt that it was common to all fresco painters from the time of Giunta Pisano to the last quarter of the fifteenth century. On careful examination I have traced it in various works down to those of Benozzo Gozzoli, who died about 1485, and who was heir of the method of wall painting of Fra Beato Angelico. Happily, I have seen no outline of his, for that would imply the fall

of the *intonaco*. I have no doubt, however, but that he drew his works in the same way, for he was especially conservative of the methods of the ancient masters. Thus, then, it may be inferred that the famous cartoons by Lionardo da Vinci and Michelangelo, prepared with such care and high finish at Florence, and which excited such wonder and admiration, were the first of their kind. I do not mean to say that full-size working drawings were unknown, — they are mentioned by the monk Theophilus in connection with glass painting, and in the archives of the cathedral of Florence there is a statement of a payment made to Lorenzo Ghiberti for a drawing for a window on *carta di bambagia* (which probably means a cartoon), — but these were of a very different size and character from the magnificent works described with such emphasis by Vasari. It is reasonable to suppose that they were a novelty, and a great stride in the nature of the preparations for mural painting. In the traces which I have been able to follow of outlines upon the wall or rough plaster, from the beginning of the thirteenth to at least the middle of the fifteenth centuries, or about two hundred and fifty years, the drawing is free but rough. Delicacy of manipulation, minute attention to form were, of course, impossible, and clearly never were thought of. It was very different when cartoons were prepared, and genius could express its inspirations on a surface which admitted freely both of the perfect representation of every detail of form, and also of a thorough treatment of *chiaroscuro*. In important respects no greater improvement was made in the fifteenth century than that from sketching on the rough plaster to drawing on the cartoon, and to this day it is observable that in schools of artists where the habit of designing upon cartoons is still recognized, the most masterly draughtsmen are found.

Having a favorable opportunity of climbing to the level of the mural paintings, on some of them, now black as ink, I traced the presence of a mordent, which showed that the lights were hatched with gold, and that the ornaments, embroideries, and outlines of the folds of drapery were gilt, as well as the aureoles, in imitation of the usages of the mosaicists. Always taking into consideration the prevalent ideas of art in the thirteenth century, and its conventionality, which, however, was combined with much dignity and even grandeur, we can imagine how great must have been the splendor of the interior of this noble church. I have already remarked upon the perfect harmony which existed between the colors and the ornaments of the interior and the painted glass. We are taught that the windows ought not to be blank where all around them is decorated; but we also learn that the style of the windows must be in perfect harmony with that of the frescoes, and that nothing can be in worse taste than to combine mural paintings in one style with painted windows in some other.

The piers in the apse and transepts are grained, in imitation apparently of granite; thus could our fathers in art of the thirteenth century offend against principles of taste which we, so much their inferiors, advocate. This love of such imitations is very old. In one of the tombs at Beni Hassan the limestone rock is dabbed in mockery of red granite. Roman art was full of such imitations, which suggest that even the Greeks had their grainers. Raffael lent his great name to the practice; but in spite of this array of authorities, and of the fact that we excel all who have gone before us in this imitation of woods and marbles, it would be well abandoned.

The processes now in operation at Assisi for the preservation of the remains of the mural paintings are eminently judicious. A new roof of admirable construction will in future prevent the walls from being soaked with rain water; where the *intonaco* is loose, it is carefully refixed, and made as solid as when it was first spread by the excellent thirteenth-century plasterers; where it has disappeared, the wall is cleaned, covered with a waterproof mixture, and then replastered to the level of the old paintings. Nowhere is any retouching allowed, and the famous but sadly-injured wall-pictures will be transmitted to posterity in the state in which they will be left by the able and conscientious operator who is now zealously occupied in a task of great difficulty under the supervision of Signor Cavalcaselle. The sorrow with which we regard the condition of these frescoes, to give them their familiar name, is intensified by our present knowledge of the durability of the art. Long ago Vitruvius said that fresco painting, which he so clearly describes as painting on wet plaster, "would last forever;" and the expression is hardly overstrained. The works of Cimabue, Michelangelo, and other great mural painters might, with ordinary reverence and care, have been transmitted to the present time in excellent order, the only decay being that arising from the use of tempera, which is so universally adhered to, and is so susceptible of change from the action both of damp and of impure air.

A spirit is now awakened which will save the remains of great works of art wherever the power of the Italian Government extends, and it is but fair to state that among the clergy also may be found zealous conservatives and intelligent illustrators.

Let us hope that a judicious Minister of Public Works will listen to the representations of his cultivated countrymen, and restore the choir of St. Francis to its former condition,[1] and that this will be the last instance of a spirit which, since the seventeenth century, has worked such mischief in the greatest monuments of Italian art.

Charles Heath Wilson.

[1] See *Academy*, July 20, 1878.

CORRESPONDENCE.

THE MASSACHUSETTS CHARITABLE MECHANIC ASSOCIATION'S EXHIBITION. II.

Boston.

Whatever I may have said in my last letter of any lack of interest in the exhibition, or of any clumsiness or lack of taste in the arrangement of the various exhibits, must not be held to apply to the department of fine arts. The building devoted to this department contains unquestionably the most interesting collections which have been brought together at any fair in this city, and they are arranged for the most part in a way which calls for nothing but praise. In the plan of the building Mr. Preston has, I think, used the irregular space at his disposal with great skill. The great picture gallery on the principal floor is spacious and well lighted, and the small rooms opening from it afford a great amount of wall space also, in the main very well lighted, and enable one to keep the pictures well in hand, so to speak, and to know where he is, and, what is more to the purpose, where the pictures are which he wishes to see or to avoid. The same may be said of the corresponding series of small rooms below, in which are arranged the water-color drawings, engravings, and china.

The committee have brought together an unusually large and fine collection of paintings. I hope it will not fail of doing the work for which it is so well calculated, — of showing the community the best features of a school of contemporary art which stands confessedly at the head of modern effort in this direction. This collection is a very curious and striking example of the completeness with which the French school of art has established itself, not only in the mind of this community as the only school whose pictures are worth buying, but also in the minds of the artists as the only school whose principles and methods are worth following. With the picture-buyers it is doubtless chiefly a matter of fashion. Nothing else would account for the fact that of the large numbers of wealthy gentlemen who come home every season from the grand tour, bringing their trophies in the way of fine art, we never hear of one who has by any chance purchased an English picture; or for the other fact that while the picture-dealers are making their little or large ventures in bringing over for sale the latest products of the French studios, we are never beckoned mysteriously into the innermost recesses of their establishments to see any masterpiece of an English artist. One hears occasionally of this or that fortunate connoisseur who has been permitted to purchase, at an extravagant figure, the last Daubigny or Corot or Dupré. But if it were not for the English newspapers we should scarcely once in a year be reminded of the existence of an English school of landscape, which, if it is not marked by characteristics as definite and striking as the French, is at least its worthy rival in tradition and achievement. In the present large collection there is, I believe, not a single picture by an English artist.

The unanimity with which American painters adhere to the principles and methods of the French school, and copy it, not only in their rendering but also in their choice of subjects, is not less remarkable than the exclusive recognition of that school by the buyers; and the most unfortunate but most natural result of such following is that they pass by, either unseeing or neglecting, some of the most characteristic and interesting features of American landscape. So much said, it must be admitted that the display of French art on the walls of the large gallery at the fair is imposing, and the managers are to be congratulated on having got together in the heats of summer so many masterpieces from the shut-up houses of their owners.

The most prominent picture in the room, as well by position as force of rendering, is "The First Step," by Bonnat, a prodigy of execution, like his picture exhibited at the Art Club two years ago, but less interesting than that, as it seemed to me, in the faces, — the child being particularly stolid and unattractive. Bonnat's pictures, however, astonish rather than charm, in spite of the domesticity of their subjects. Compare Frère's treatment of peasant life. The corresponding place of honor, on the opposite wall, is occupied by Landelle's "Salmacis," a conscious nymph who naturally draws the gaze of the visitor, but will hardly hold it long. Grouped around these are a noble company of pictures by Daubigny, Tryon, Rousseau, Dupré, Corot, Lambinet, Jacque, Diaz, and others equally eminent. The Daubigny, No. 227, a view on the banks of the Oise, seems to be one of his most agreeable pictures. The small Rousseau, close by, is a singularly simple and strong painting, so rude as to seem scarcely more than a sketch, of a bit of brown, rich woodland, under a white sky. Jacque is more known here by his etchings than his paintings, but here is a fine landscape, with sheep, somewhat cold in color, but very interesting. The Schreyer, No. 228, is admirable. Two Algerian scouts, alarmed, have dismounted, one gazing with anxious intentness in the direction of the enemy, holding meanwhile with difficulty his startled horse; the other, of different stuff, cowering behind his tired beast. The action is fine, the color very rich and strong, the costume of the scouts and the trappings of the horses giving ample opportunity for brilliancy and variety of color.

No. 216 is a beautiful picture by Chaigneau, a name to me hitherto unknown, marked as having taken the Salon medal the present year: an autumn landscape, the warm, hazy mellowness of the season remarkably presented, yet without the aid of any striking brilliancy of color. No. 214, a picture by Diaz, of a group of children playing blind-man's-buff, is a delightful piece of color, but the faces

of the children are as if modelled in wax, with an indescribable hollowness about the eyes, which gives them a queer, artificial look. There is no fun in the children either.

No. 154 is a superb Ziem, — the old harbor of Marseilles, — the city lying in a hot sunset glow, a confused mass of houses on a hillside, enclosed on the one hand by a low, square tower, and on the other by the sweep of a round bastion; the golden waters of the harbor filling the foreground, bearing a pleasure boat with two figures under a crimson awning, rowing tranquilly over the still tide, and a single tall ship with furled sails, whose copper bottom, just seen in part above the water, reflects the light like an emerald. Its intenseness of color makes the placid Lambinet alongside look very cool and gray, but does not destroy its charm. There are three Corots, the one numbered 145 seeming to me the most agreeable picture, with less than the usual flimsiness of color, but with all the characteristic cool freshness which makes the chief beauty of Corot's landscapes.

[To be continued.]

ARCHÆOLOGY AND THE VERNACULAR ARCHITECTURE.[1]

Boston, October 14, 1878.

To the Editor of the American Architect:

Sir, — In a paragraph of your summary for August 10, after referring to the subservience of modern English architecture to the influence of antiquarianism, it was remarked: "We are not permitted to forget that we are Americans and not Englishmen, and that our comparative freedom from the tyranny of archæology is a national privilege. We may master it, but it cannot master us. It is too far off." Your leading article of week before last (October 5) drew attention to the fact that your English contemporary, the *Architect*, of August 1, recognized the importance and interest of the question thus raised, and made this remark the text for an article, in which it is claimed that, notwithstanding our distance from the Old World, we cannot be emancipated from its influences, and that in art and letters, though free from parental control, we are still the daughter of England, and still retain a strong family likeness to the mother country. The article acknowledges that when classical antiquarianism passed into mediæval archæology in England in the first half of the century, the national instinct seized upon the national relics with an avidity never before witnessed, and the famous Gothic revival which followed upon this eagerness of appreciation was a phenomenon unparalleled in the history of architecture. In like manner in these more modern days, if the almost comical efforts of the Queen Anne style to trip up the old Gothic altogether on it sown ground of picturesqueness, and to substitute Low Dutch, seem to the American mind, which is less beset by traditions and monuments of the past, absurd and unreasonable, these successive revivals are indicative of a powerful national conservatism which, in the absence of an academical art like that of the French schools, or of a rigid scientific system of instruction in the styles such as prevails in Germany, is content to gather architectural inspiration from its own abundant historical past.

The *Architect* proceeds to express its belief that, in the absence of a venerable and suggestive past of our own, our natural affection for the mother country leads us unconsciously to follow in the tracks of the English architects, and to yield to the influence of old English traditions and relics; that, with all our undoubted freedom from the "tyranny" of archæology, every attempt to dispense with the influence of old art must, whenever made, inevitably lead to disappointment.

In like manner, it may be remembered, the *Architect* of December 15, 1877, in referring to this question of originality in modern art, endeavored to prove that in this country, where such originality is to be discovered if anywhere, there had not been the slightest evidence of our ability to strike out a new path in architecture; that accordingly our State Houses were, for the most part, showy and feeble renderings of bastard Italian, our country homes questionable reproductions of the suburban villas of London, our churches vain efforts to imitate English Gothic monuments; and that every effort after originality in this country had been frantic and undisciplined, and the artistic qualities of such work had been always in an inverse proportion to its novelty.

In your paper of January 5, 1878, you explained in reply the danger of making general statements regarding the arts of a country so widely spread as this, and subject to such various degrees of culture and discipline in its various parts, and maintained that though it was difficult to tell in what exact direction our art was tending, it was very far from being a mere reproduction of what was done abroad, and that our best work was by no means frantic in its deviations. On further reflection I see no reason to modify what you then stated regarding originality in American art: that the only sort of originality worthy of any consideration is that which results from the cumulative efforts of successive generations of artists; we have only just begun this career of progress according to our opportunities, but our advance within the last few years especially and in our larger cities has been marked, decisive, and characteristic. Doubtless the long-sought-for original art is even now in process of growth; it is not yet forthcoming, of course; indeed, there is no need to be in haste about it. Out of our necessities and intelligence new expressions of art have already been developed here and there, more or less successfully. You have often had occasion to show that there is already a certain crude and imperfect but unmistakable vernacular style existing among us, varying in various localities according to local differences of climate, materials, habits, and traditions, — healthy but rude developments of the historical forms of the Old World, subjected to all the errors of haste, ignorance, and ostentation, but nevertheless fundamentally genuine and true.

In the progress of American architecture our freedom from the *tyranny* of archæology — to use once more the expression which is the text of this brief homily — is of course only comparative. We are the heirs of all the treasures of the Old World. If England claims our first natural affections and interest, the other countries, with all their wealth of art and inspiration, are hardly less our own. We are not so overshadowed by any particular national series of traditions and monuments that, like our English relatives, we cannot escape from their influence, and we are consequently not confined in our invention, as they are, to a certain range of forms connected by association with our national history. Our boundless heritage has its dangers, no doubt; we have not learned how to classify and how to use it with discretion and due respect, how to adjust it to our new materials and new conditions of life. We are yet sowing our wild oats with a fruitless expenditure of resources. The civil architecture of our streets reflects the characteristics of all known styles. But discipline, reserve, refinement, self-denial, and the other costly results of education and experience will come in time; moreover, we shall presently see that out of the natural influences which, notwithstanding this large appropriation of all the architectural forms, still manage to give to New York, Chicago, Cincinnati, Philadelphia, Boston, Baltimore, and St. Louis, to each a distinctive architectural character of its own, and in a larger sense have already conferred upon the architecture of the whole republic certain characteristics of nationality, — that out of these active influences will grow a style expressive of our civilization and commensurate with our resources. Our educated architects will of course continue to follow, with more or less of exactness, the styles and fashions of designing which are conveyed to us from the Old World in the illustrations of your contemporary journals; but these essays will continue to be mere phenomena; whatever in them is applicable to our needs will be adopted and absorbed into our vernacular. There are indisputable signs that the vernacular architecture, even in the new cities of the far West, has begun to exhibit the results of the sound training which may be obtained in some of our higher technical schools. There is something in our nature which makes us unjust judges of contemporary architecture; but the eagerness of our young men to learn, and their peculiar facility in imbibing the best results of education in art, certainly seem to give good promise for the future. V. B.

[1] We regret that an error in the make-up of our last week's issue has caused a delay in the publication of this letter. — Eds. Am. Architect.

THE CHICAGO THEATRE ORDINANCE.

[The following is the text of the ordinance to control the building and management of theatres, lately passed by the city council of the city of Chicago, and mentioned by our Chicago correspondent in our last issue.]

Be it ordained by the City Council of the City of Chicago, as follows:

Section 1. Every theatre, opera house, hall, church, or other building intended to be used for public assemblages shall be deemed a public hall, within the meaning of this ordinance.

Sec. 2. Any person desiring a permit to erect any public hall shall make application to the Superintendent of Buildings, in compliance with Section 58 of the building ordinance.

Sec. 3. No stairway to any public hall or part thereof shall rise more than ten feet without a platform; no winders, wheeling or circular steps shall be used. Each stairway and passageway shall have a strong hand-rail on each side thereof, through its entire length.

Sec 4. Every public hall, with accommodations for five hundred or more people, shall have at least two separate and distinct exits, to be as far apart as may be found practicable. Public halls accommodating seven hundred or more persons shall have at least three separate and distinct exits. The exits from all galleries to be independent and separate from the exits of the main floor.

Sec. 5. Every public hall not used as a theatre, with accommodations for five hundred persons, shall have no portion of the main floor elevated to a greater height than thirty five feet above the street grade. Public halls with accommodations for one thousand persons or more shall have the main floor not over twenty-five feet above the street grade; no portion of the main floor of any theatre with accommodations for five hundred or more persons shall be more than ten feet above the street grade.

In all such theatres, the proscenium wall shall be of brick-work, not less than sixteen inches thick, extending from the ground through and four feet above the roof; this brick wall to extend entirely across the building, from the floor of the stage to the ground. All openings required in any part of the wall (except principal opening) shall have proper iron doors.

Sec. 6. All auditorium floors in theatres shall be fire-proofed, either by deafening the same with at least one inch of mortar, or have the under side of joist lathed with iron, and plastered with at least one heavy coat of mortar.

All partitions for rooms or passages in theatres, if not made bodily fire-proof, shall be plastered on both sides on iron or wire lathing.

The preceding Sections shall apply only to theatres or public halls that may hereafter be erected. The following sections shall apply to theatres or public halls that are now or may hereafter be erected or constructed.

Sec. 7. All egress openings in public halls shall have the word "exit" conspicuously placed over them, and shall otherwise conform to the requirements of Section 39 of the building ordinance. The aisles or passages in

such halls shall at all times be kept unobstructed. Camp-stools, chairs, or other seats shall in no case be placed in such aisles or passages.

Sec. 8. The term "theatre" shall, for all purposes of this ordinance, include all public halls containing movable scenery or fixed scenery, which is not made of metal, plaster, or other incombustible material.

All material used for scenery shall be coated with such paint, washes, etc., as will make it, as far as possible, incombustible.

Sec. 9. All theatres or other places of public amusement having a seating capacity of over five hundred persons, having a platform or stage, and which use drop curtains or shifting scenery, shall have a suitable ventilator placed upon the roof, and opening to the space above the stage. Such ventilator to be arranged with valves or shutters that can be readily opened in case of fire, so that a current of air will pass over the stage and outward through such ventilator. Any other contrivance having the same effect, and approved by the Superintendent of Buildings, may be used instead of the ventilator above described. All such buildings to have a water stand-pipe and water plug to be placed in or on the stage or platform, or in its immediate vicinity, which shall be connected with the water-pipes of street mains of the city, and shall be put in under the direction of the Fire Marshal or Superintendent of Buildings, and to their satisfaction. Hose shall be attached to such stand-pipe, of such size as may be directed by said Marshal, to have nozzle and stop-cock attached thereto; such hose shall be of sufficient length to extend to the farthest limits of such building or place of amusement, and shall at all times be kept in good order and repair, filled with water under pressure, and ready for immediate use.

Sec. 10. All public halls with accommodations for one thousand or more persons shall have at least one stand-pipe in the street or alley on the outside of the building, from ground to roof, with hose attachments close to a window or door at each floor or gallery. Such hall shall also be provided with a fire-alarm telegraph apparatus, connected by the necessary wires with the headquarters of the city fire-alarm telegraph, or such other place or places as the Fire Marshal shall direct. It shall be the duty of all owners, agents, lessees, and occupants of such public hall, to provide such fire-extinguishing apparatus at such points about the building as the Fire Marshal shall direct.

Sec. 11. It shall be the duty of the owner, agent, lessee, or occupant of any theatre with accommodations for one thousand or more persons to employ one or more competent, experienced firemen, approved by the Fire Marshal, to be on duty at such theatre during the whole time it is open to the public; such fireman shall report to and be subject to the orders of the Fire Marshal, shall be in uniform, and shall see that all fire apparatus required is in its proper place, and in efficient and ready working order.

Sec. 12. The license for each public hall shall state the number of persons it has accommodations for, and no more than that number shall be allowed to enter such hall at any one time.

This number shall be governed by the number of feet of exit of the doors and passages, and shall be approved by the Superintendent of Buildings.

Sec. 13. The Superintendent of Buildings, or the Fire Marshal, shall have the right to enter any public hall and all parts thereof at all reasonable times, especially when occupied by the public, in order to properly judge of and discharge their duties.

Sec. 14. Any person failing to comply with, or guilty of a violation of any provision of this ordinance shall be subject to a fine of not less than twenty-five nor more than two hundred dollars. Every such person who so fails to comply with, or is guilty of a violation of any provision of this ordinance shall be deemed to have been guilty of a separate offense for each day the same continues, and shall be subject to the penalty imposed by this section.

NOTES AND CLIPPINGS.

American Awards at Paris. — It is now officially known that the awards to American exhibitors at the French Exposition number 750: namely, 10 grand prizes, 20 diplomas of honor, 134 gold medals, 200 silver medals, 220 bronze medals, and 156 honorable mentions. The aggregate is larger than the whole number of American exhibitors at the Paris Exposition of 1873, and a larger proportional award than to any other nation represented at this Exhibition.

The Holly Heating System in Detroit. — The Detroit Steam Supply Company has secured a building wherein to place its first battery of boilers, fifteen in number, and intends to lay about two miles of pipe at once. The right to introduce the system was purchased for thirty thousand dollars.

Panics. — On the 16th instant a panic took place in the colored Baptists' church at Lynchburg, Va., which was in many of its incidents a repetition of the Brooklyn Theatre disaster. During a marriage ceremony a piece of plastering fell from the ceiling, and instantly caused a stampede among the congregation. The service was performing in the second story, and the frightened throng in its attempts to escape overthrew and trampled on those who first reached the stairs, and who had not time to descend before the crowd behind was upon them. Nine women were killed outright, and the seriously injured number thirty or more. — On the following day, the pupils in the grammar school on East Houston Street, New York, were overcome with panic at a false alarm of fire, raised within the building, and rushed from the school-house in spite of the efforts of the teachers to control them. Strangely enough, out of nearly two thousand children who were in the school-house only one, a child of eight years, was seriously hurt.

A Terrestrial Balance. — At Ortali, a small township containing a few houses, near Quarata in the province of Arezza, the earth has gradually fallen until it is now twelve or fifteen feet below the original level. The houses of the village have lost their equilibrium, and threaten to fall asunder. The authorities have ordered the inhabitants to remove to huts which have been set up in the fields, and thither they have fled with their families. On the other hand about 200 yards from Ortali the earth has risen, so that the rising of the ground has been visible at times.

Mr. Millais is about to paint a portrait of Lord Beaconsfield. — *The Keystone.*

The Contract for the St. Gothard Tunnel. — Two years from this time the great St. Gothard Tunnel through the Alps, uniting Switzerland and Italy, must be completed, or the contractor, M. Favre, will have a heavy penalty to pay. Under the terms he must pay $1,000 for every day later than October 1, 1880, on which it remains unfinished. If six months afterward it is still uncompleted, he loses $2,000 per day, and if twelve months go past without its being turned over, he forfeits everything, including his bond of $1,600,000. The undertaking is a gigantic one, and some engineers doubt if Favre is not badly beaten at last. The main tunnel is over twenty-nine thousand feet long, and the work on it is only prosecuted under tremendous difficulties. All the power used in drilling is furnished by compressed air, which is prepared outside by powerful pumps and stored up in vast tanks. The locomotives which draw from the tunnel the blasted rocks are also run by compressed air, as the use of steam in such a hole would be impossible. As it is, the men at work often suffer excessively from the foul vapors, partly natural and partly produced by the explosions of dynamite, which are so constant that an observer compares them to cannon firing in a battle. These gases would collect and be fatal, except that the exhaust air from the drills is employed to drive them towards the mouth of the excavation. Favre is laboring with splendid energy, and the working force is as large as can be put on. It is vastly to his interest to hurry, for he will receive a bonus of $1,000 for each day previous to October 1, 1880, on which he has his task finished. The tunnel will cost about $55,000,000, although when it was first undertaken the estimates were some twenty millions less than the above figures. The discrepancy was occasioned by engineers' mistakes, and when it was found that the enterprise would be much more expensive than originally announced, the discovery nearly discouraged all concerned. But the Swiss, Italian, and German governments increased their subventions, private subscriptions were stimulated, and financial success was assured. The laborers employed are Italians, about the only workingmen who could be employed at the small wages paid, averaging from 60 cents to $1.25 per day. A writer speaks of them as the Chinese of Europe, but we doubt if even John would not demur at being asked to do such laborious, exhausting, and dangerous work for the same amount of pay. — *Hardware Reporter.*

Dr. Schliemann's Recent Discoveries. — Dr. Schliemann has telegraphed from Ithaca to Athens: "We have made a great discovery. On the plateau which extends toward the western shore of the southeast part of the island we have found in digging ninety houses of cyclopean construction, belonging to the Homeric city of Ithaca. Impossible to express here the methodical result of our excavations. The winter rains have washed into the sea all the ancient treasures. Nevertheless, the discovery of these ruins constitutes a valuable treasure for the island. All the lovers of antique souvenirs will hasten to visit the city of Homer."

The Bells of St. Paul's. — The cost of the twelve new bells which have been placed in the northwestern tower of St. Paul's Cathedral, London, together with the work of mounting them, has been about $100,000. The largest bell weighs 6,500 pounds and the smallest 500, while the weight of all is nearly 40,000 pounds. No. 12, the largest, was given by the corporation. London has waited more than 200 years to hear a chime of bells from its cathedral belfry.

Under-Ground Telegraph Wires. — The city council of Philadelphia have ordered the removal of telegraph poles from the streets of that city, and experiments have been making to produce a wire that could be laid under ground and worked satisfactorily. The McKeesport *Times* gives an account of some interesting experiments made at the tube works, in manufacturing "insulated wire." The wire is now being made in sections of ten feet, but can be made as long as thirteen feet. To make the wire a copper telegraph wire is inserted in a glass tube of the same length, and sufficiently large to admit the wire easily. The glass tube is then inserted in an iron tube just large enough to admit it. They are all then placed in the furnace and heated to a red heat, and then run through the rolls, which compress copper wire, glass and iron tubes, all into one mass, but without crushing them. The ends are then ground to a convex surface, and the ten-feet sections coupled together like gas-pipe, the convex ends allowing the centres to strike first, thus establishing the electrical connection. The pipe will be enamelled before being laid.

Prevention for Lead Poisoning. — A remarkable case is given in the *Journal de Médecine* of the effect of the habitual use of milk in white-lead works. In some French lead mills it was observed that in a large working population two men who drank much milk daily were not affected by lead. On the general use of milk throughout the works, the colic vanished entirely. Each operative was given enough extra pay to buy a quart of milk a day. From 1868 to 1871, no cases of colic had occurred.

Spiegel Iron. — A company for the manufacture of spiegel iron has lately been incorporated at Chester, N. J., with a capital of $100,000. The manganiferous ore from which this spiegel iron is to be manufactured is found in New Jersey, though the company will not rely altogether upon that resource, but will draw a portion of the supply of ore from Spain, where it can be obtained at a trifling cost. Already a number of vessels which would otherwise have returned from the Mediterranean and Spanish ports in ballast have been chartered to bring this ore from Santander to Perth Amboy at the low rate of five shillings per ton. It is not the intention to attempt the manufacture of anything of a higher grade than twenty per cent spiegeleisen until such a time as trustworthy data shall have been obtained that will warrant venturing further. France to-day stands at the head of this manufacture. She imports all her ore from Spain and Italy, and makes high grade spiegeleisen so successfully and cheaply that the English makers say they can buy cheaper than they can make. England stands next in the list, and also imports all her own ore from Spain and Italy. Germany, which is the largest maker of low grade spiegeleisen, which she makes from her own spathic ores, is dependent upon Spain for rich ores in the manufacture of high spiegeleisen. The duty on spiegeleisen is only seven dollars per ton, exactly the same as ordinary pig iron, it coming in fact under that head, and not being classified in the tariff as a separate article of manufacture.