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IT was a happy inspiration of the same growing desire to make the best of our artistic resources which put the decoration of Trinity Church, Boston, and St. Thomas's, New York, into the hands of Mr. LaFarge, that has called Mr. W. M. Hunt to paint the walls of the assembly-chamber in the New York State Capitol. The chamber is a large room with stone walls, and covered by two broad pointed vaults intersecting at right angles, also in stone. It is, we believe, the only important room in the country which is entirely walled and vaulted in stone. Above the windows in the north and south walls, in the tympana under the vaults, Mr. Hunt has placed two great compositions, covering spaces forty feet wide. He has taken advantage, in choosing his two principal subjects, of the coincidence of the revival of letters and the discovery of America. On the north wall he is painting the "Flight of Night" before the advance of modern civilization; the pendant on the south wall is "The Discoverer," Columbus sailing forth to discover a new world. These two leading compositions are already well advanced, and under somewhat novel conditions, the painting being done directly on the stone walls with no preparation of plaster.

The pictures are at once assimilated and contrasted by a fortunate treatment. In the first, we have a single female figure seated, semi-nude, on rolling clouds which bear her forward through the open sky, while three fleeing horses dash violently away before her, unrestrained by the hand of a groom who seizes one of them by the head. This is a conception which Mr. Hunt has long had in mind, and visitors to his studio, if they were not fortunate enough to see the original cartoon, destroyed in the Boston fire, will remember at least a photograph of it, and will recall the superb rush of these horses, which seem ready to run down the spectator. The second picture shows Columbus, as a single male figure standing in his vessel on the open sea, and attended by allegorical figures, which represent Hope, Faith, Science, and Fortune. A very ingenious device was used for adjusting the designs to their positions. The cartoons, once drawn, were photographed on glass slides and then thrown on the walls from a camera. By changing the position of the camera the image on the wall could be enlarged or diminished, and moved about, till the figures were duly adjusted both in scale and position; and then the outlines were traced at once directly upon the wall. Perhaps we shall find that Mr. La Farge's work and Mr. Hunt's will open a new chapter in our treatment of important buildings. The one which we have before tried to decorate with mural paintings — the Capitol at Washington — had always been tacitly accepted as the only one of its class; and its painting, it must be confessed, like its other artistic treasures, had not been widely enough or warmly enough admired to command imitation. Yet it is very desirable that such treatment should prevail. Perhaps nothing has in times past so much encouraged the development of a general feeling for art, as the habit of seeing and studying the work of the best painters and sculptors in commanding positions and on a generous scale; certainly nothing is a greater stimulus to artists themselves. A few years ago not many Americans would have dared ask an artist of reputation to paint a wall. To-day, we fancy, few artists would refuse.

WE received the text of the Supervising Architect's Report, to which we made some allusion last week, too late for notice at that time. It contains, as usual, an account of the condition and progress of the buildings now in hand; a statement of the appropriations made and amounts expended for each up to the date of the report (September 30, 1878), and of the unexpended balances; a schedule of existing contracts; and the customary list of all the buildings, finished and unfinished, which are under the care of the Treasury Department, with their cost to the present time. Twenty-eight buildings are actually in progress, for which, and for buildings not yet begun, the unexpended appropriations amount to about three million four hundred thousand dollars. The custom houses at Charleston and Port Huron, and post offices at Jersey City (remodelled), Parkersburg, and Trenton, are reported finished, as well as the alterations in the custom house at Pensacola. The post offices at Dover (Del.) and Covington, and Assay Office at Helena (Mont.), were to be finished before the winter, and, finally, the New York Post Office, which has been in hand since 1878, is reported entirely completed, the last appropriation of $10,000 having been so nicely apportioned that the balance sheet is clean, without a cent of surplus or deficit. The principal balances in hand are, in round numbers, for the post office at Austin (just begun), $116,000; for the Boston Post Office Extension, $339,000; the Cincinnati Custom House and Post Office, $300,000; the Chicago Custom House, $440,000; the Kansas City Post Office (not begun), $100,000; Memphis Custom House, $90,000; New York Barge Office (not begun), $210,000; Philadelphia Post Office, $200,000; the San Francisco Appraisers' Stores, $108,000; the St. Louis Custom House, $286,000; and the Bureau of Engraving and Printing at Washington (just begun), $290,000.

CONSIDERING the tendency of public buildings to outrun their estimates, to which we have been used, especially during the years of high prices, it is gratifying to find that several buildings have been finished at a cost well inside their appropriations and to be told that others are to be finished immediately with the same agreeable result, and that the executing of contracts at prices below the estimates has made it possible to use a fire-proof construction in several others where wood was intended. On the other hand, the old difficulty recurs of appropriations insufficient to carry on the buildings in progress without interruption. We are reminded that the backward condition of the Boston and Cincinnati post offices is due to stoppage last year for want of appropriations, and are told that the Cincinnati building must presently be stopped again for the same reason; that the custom houses at Fall River and Hartford have been dealt with in the same way; and that the Nashville custom house must go without a roof because the appropriation was not large enough to furnish it. To refuse money for new undertakings is an intelligible kind of economy, but to provide it in such driblets that work to which the Government is fully committed cannot be carried on without constant stoppages, is an economy which it is not easy to understand. Another kind of legislative economy was shown, after contracts had been made for the stone-work of the Memphis custom house, when Congress interfered to order that Tennessee marble should be used, making it necessary to interrupt the work and increase its estimates. A curious incident of the work in San Francisco is told. The cost of water furnished the Government was so enormous — "exhorbitant," the report not unnaturally calls it, — being eighteen hundred dollars per year for the supply of one building, and four thousand for water used during the construction of another, that the Government thought it wise to sink an artesian well. This it did at a cost of $775, and got water enough for all its needs. Recent experience, apparently, has led Mr. Hill to call the attention of the Secretary to the difficulty of maintaining an efficient superintendence over buildings at a distance from the central office, although he does not recommend any remedy.

THE thirty-fifth report of the New York Association for Improving the Condition of the Poor contains an earnest protest against the evils of tenement houses in cities and an appeal for their reform. The physical deterioration and contagion, the moral degradation, that are bred and spread among the people who swarm in these foul hives, are vaguely known, but not realized, by those who do not see them. The character of the evils

may be succinctly stated in a few sentences from a quoted portion of a report by Dr. Stephen Smith: "The poor themselves," he says, "have a very expressive term for the slow process of decay which they suffer, namely, 'tenant house rot.' The great majority are indeed undergoing a slow decomposition, a true eremacausis, as the chemists term it. . . . . Vice, crime, drunkenness, lust, disease, and death here hold sway, in spite of the most powerful moral and religious influences. . . . . Their intellects are so blunted, and their perceptions so perverted, by the noxious atmosphere which they breathe, and the all-pervading filth in which they live and move and have their being, that they are not susceptible to moral and religious influences." The prevalence of these evils in New York may be guessed from some of the statistics given in the report, which we may assume to be fairly correct. The crowding of population in some parts of the city is said to exceed anything recorded in any civilized country. It is computed that in a large district on the east side, including the fourth and sixth wards and parts of the eleventh and seventeenth, the population is not less than 192,000 to the square mile and in the fourth ward alone it reaches 290,000, while in the densest parts of London it is not more than 175,000 to the mile. Half a million persons are said to live in tenement houses, — say half the population, an astounding estimate which could hardly be paralleled in another city: one house is quoted which has contained no less than fifteen hundred inhabitants. In all of them a great part of the tenants live in rooms from which they never see sun or sky, and sleep in inner chambers that are absolutely shut away from the outer air. That most of the disease, crime, and violence of the city is nursed in them is known; in fact, hardly anything but disease and vice can live and grow there. Three quarters of the disease of the city is found in them, and the death-rate is double that of the richer quarters. Ninety per cent of the children born in them are said to die in childhood.

The trouble is hard to reach, not for want of legislation but for want of control. The laws which regulate tenement and lodging houses are strict enough and definite enough to restrain the worst of their evils, if they could be adequately enforced, but the number of these houses is so enormous as to defy efficient inspection. Their owners shield themselves behind irresponsible agents, or are out of sight entirely, or plead poverty, and in various ways evade the law. Many are men of wealth, and of political influence of a kind against which it is difficult to contend in New York. The Superintendent of Buildings, too, so the report complains, has been backward in coöperation with the health officers, and the Building Department has granted permits for buildings which violated the law. One necessary restriction, — that no building shall be built in the rear of another without leaving an open space between of from ten to twenty-five feet, according to the height of the buildings, — has been evaded with curious ingenuity, by building the rear building first, and then putting up the other in front of it. The case becomes more difficult because the pressure of hard times has driven people more and more into tenement houses, and these have been put up when all other building has been at a stand still, eight hundred of them having been built, all up and down the city, within the last eighteen months.

People are apt to take it for granted that the evils of tenement houses are incurable, and that the utmost that can be done is to provide some of a better class into which those may go who will. But the case is not so hopeless. Foreign cities have taken it in hand with success. Glasgow, Edinburgh, and Liverpool have opened streets, demolished and rebuilt,— at great cost, to be sure; yet there is clear evidence of improved health, and great reduction of crime in consequence. The tendency to revert to the old ills remains, but it can be resisted. But there are less heroic means by which much can be done. Tenement houses do not last forever, and it is quite practicable by good building laws to exclude from the new ones that are built the worst faults of the old. Experience abroad has shown for a good while that well-built and wholesomely arranged tenement houses can be made profitable; the example of Mr. Alfred T. White, of Brooklyn, whose Home Buildings we have before noticed (*Am. Archt.*, Jan. 19, 1878), shows what may be done with profit in this country. His experiment has succeeded so well, says our report, that he is now putting up a third building, which is to be an improvement on the others in its provision for the comfort and health of the occupants. And while the old tenement houses remain, which it will take a good many years to replace, much may still be done to modify their evils whenever the energy of those whose duty it is, or the pressure of public opinion, are sufficient to enforce a thorough system of inspection. Among the other remedies suggested is the Philadelphia system of separate small houses, but this demands either a different allotment of city lands from that which is used in New York, and imitated more or less closely in our other cities, or the banishment of the poor to the suburbs. Separate houses are unquestionably to be preferred for the comfort and well-being of the poor, more even than of the rich, but they are so much less economical than tenements, when land is very dear, that they cannot be expected to supplant them. As for living in the suburbs, it is wholesome, but the experience of Paris shows that to live at a great distance from his work is a real hardship to the poor man, and is felt to be so Moreover, unless they are compelled to, the poor will not go away from the centres. They cling as persistently to the crowded regions of a town as does its business, and will rather live in wretched squalor in a compact quarter than in comparative comfort in a roomy suburb. There is very little hope of doing without tenement houses, and it remains a public duty to attend zealously to their improvement.

The most encouraging movement that we have seen noted for some time among mechanics' societies is the proposition of the plumbers and gas-fitters of Baltimore, that their city shall appoint an inspector of plumbing. Plumbers may be said, even more than architects, to be on probation nowadays, and a readiness to take the initiative in providing proper oversight and restrictions on their work is a far healthier symptom than we find in most of the efforts of mechanics' associations or trades-unions. Whether a city, which like Baltimore, contumaciously refuses to provide itself with a building-law, will rise to the occasion when plumbing is concerned, we cannot guess. Perhaps the proposal to make the inspectorship self-supporting, by making its payment depend on fees, may prepossess a municipality in its favor in these economic days; but an inspector is an officer who, more than others, needs to be resolute, independent, and impartial, and officers are not often made so by having to subsist on fees.

MODERN PLUMBING. X.

PLANNING THE ARRANGEMENT OF PLUMBING. — BOILERS AND WATER-FRONTS.

No part of house-planning is more important than the intelligent arrangement of the plumbing work with regard to the course of the various pipes, both for supply and waste, upon the proper regulation of which depends in great part the efficiency of all the apparatus. One of the most important points is to avoid long stretches of nearly horizontal pipe of any kind. Waste-pipes so placed are continually liable to siphon out the traps connecting with them, and they accumulate deposit rapidly; while supply-pipes sag and become air-bound, are difficult to drain when the water is shut off from the house, and when used for hot water lose heat rapidly on account of the slowness of the circulation in them.

It is also desirable to manage the pipes so that if any part of their course must be between the floor and the ceiling below, which is generally inevitable with waste-pipes, that course shall be parallel with and between the beams, not across either them, or any header, or trimmer-beam, or girder. It is evident that for a pipe running parallel with the beams their entire depth is available for securing the necessary pitch; where it crosses them, on the contrary, the pitch must be obtained by cutting more and more deeply into them, or boring through them; but as this last makes a little more trouble, plumbers generally prefer the saw, which they use in the most ruthless manner, cutting a tier of beams half through if it suits their purpose. The greatest watchfulness will not always prevent this, and even careful boring seriously weakens the beams, so that the part of prudence is to avoid crossing them altogether.

In general, the more compact the arrangement the better. A cluster of vertical pipes with the various appliances closely grouped around it in the different stories, gives the most economical and efficient disposition, and the more nearly this can be realized the better; but where deviations are necessary, as will generally be the case, they can be much more satisfactorily arranged if the course of all the pipes is kept clearly in mind. It will often happen that a wash-bowl or sink is better placed at some distance from the central stack of pipes than close by, if a girder or a trimmer-beam should intervene, and a door between two faucets on the same line of supply, forcing the pipe either to dip under it or to jump over it and descend on the other side, will affect the flow more injuriously than a long circuit at a uniform level.

To provide for all cases the architect should know not only where his waste-pipes will be most advantageously placed, considering all

the circumstances, but the number and position of the hot and cold supply, circulation and expansion pipes in every part of their course, the vent-pipes from the traps, the outlets from the safes, the tell-tale from the tank, and the ventilation pipes, if any, from closets or bath-rooms. With this knowledge it is a simple problem, but one too often neglected, to manage the disposition of closets and pantries, adding a cupboard in a convenient corner, building a permanent wardrobe in one room, or finishing another with a wainscot with some of the panels removable, so that in the completed house all the work is found to be accessible, yet inconspicuous: the shut-off cocks within easy reach, instead of being buried in coal-bins or hidden under floors; the supply-pipes secure against frost; and the colored ceilings safe from the danger which always attends the passage of water-pipes over them. The architect should have confidence enough in his knowledge to describe with precision in his specification the course of each pipe, indicating the levels in the different portions, so that the steady ascent and descent shall be everywhere maintained, describing minutely the deviations from the direct line which may be necessary in order to carry up the pipes in some convenient corner, and fixing the position of cocks and traps. Without such evidence of understanding of the subject as shall command the respect of the plumber, he is likely to find his plain intentions disregarded on one pretext or another: the pipes carried across the beams by the shortest cut, or ascending in the studding of the parlor walls, so that he is compelled to spoil the wall with a board casing; or perhaps the soil-pipe bulging out of the plastering in awkward places. Not even the best plumbers have much consideration for the woodwork and fresco which are to come after them, so long as their work is properly done from their point of view; so that without a clear and exact specification some such annoyances are to be expected. But with one who is incompetent as well as careless worse evils may follow: boilers collapsed for want of expansion pipes; traps omitted; tank overflows led into soil-pipes; closets supplied from the same cistern as the drinking water, or by a valve on the direct supply; and other annoying and dangerous faults, for which it is impossible to bring the plumber to account, because he can successfully plead that these ignorant and shiftless modes of work are those commonly followed, and that his specification was so unpractical or so indefinite that he had not clearly understood from it that anything out of the common course was expected of him.

Taking the simplest case of supply by a service pipe brought into the cellar from the street main, we have the choice of two modes of distributing the water over the house: either the pipe can be carried up through the house, throwing off branches on the way to all the cold-water cocks, and terminating at the highest faucet; or from the street supply a single pipe may ascend to the highest part of the house and empty into a tank, with a ball-cock to shut off the supply when full, and from this tank will descend the pipes, one or more in number, which, ramifying downward, supply the different faucets.

Where the water is obtained from a water-ram, or a force-pump drawing from a well or cistern, or by rain-water received directly from the roof, the second method, employing the tank in the attic with downward supply, is necessarily adopted. When it can be used, however, the first method is the cheapest, as it saves one pipe the height of the house, and the cost of the tank, besides certain pipes hereafter described; but it has certain disadvantages. Besides the obvious risk of having the house left without water in case the supply is shut off while repairs are making, the street pressure is often very heavy, reaching in some localities one hundred or even one hundred and fifty pounds per square inch, and the consequent strain upon pipes and fittings is very severe. Moreover, the head in the mains is sometimes variable, and this irregularity interferes with the working of valves and faucets.

With the tank system the pressure in all but the rising main is constant, and can never exceed the head due to the height of the tank above any given faucet, not over twenty-five pounds in the highest house; all the apparatus is therefore under the most favorable conditions for perfect working and long service. It should not be forgotten that in a pipe under heavy pressure the shock caused by suddenly shutting a faucet is equal to the blow of a hammer of weight equivalent to the pressure, say one hundred pounds, striking with a velocity equal to that of the stream of water at the moment when it is arrested; and this blow is applied just as much on every square inch of surface in the pipe as at the faucet. The weakest part of the pipe, usually at a bend or near some joint, soon yields a little, and the effect of the blows increasing as the resistance diminishes an opening is finally made. Even brass pipe, whose elasticity enables it to recover from repeated strains, often gives way at last.

But the worst deficiencies of the direct pressure system are to be found in the hot-water service. To understand this clearly requires a little consideration of the construction and working of the bath boiler and water-front.

The water-front is a closed box of cast-iron, which occupies one side or corner of the range, next to the fire. In the outer side are two brass couplings, one near the top and the other near the bottom, extending through to the outside of the range. Sometimes the place of the water-front is supplied by a copper tube, which starts from one coupling, and after traversing the fire two or three times ends at the other coupling; but these tubes are apt to boil the water in them with violence, and if the water is shut out of them they get red-hot and burn out, so that the iron front is to be preferred.

The boiler, which usually stands beside the range, is simply a cylinder of stout sheet copper, tinned inside, with a flat or slightly convex bottom, and in all but the poorest specimens a dome-shaped top. One or more galvanized iron bands are often fixed in the interior to strengthen it, and two, three, or four couplings are attached to the head, one in the side about eighteen inches from the bottom, and one either in the bottom or very low down in the side. The two lower couplings are connected by brass tubes with those of the water-front, and either on the lower tube or with a separate connection is a "sediment cock," for emptying the boiler and water front. From one of the couplings in the head of the boiler a copper tube extends down to within six inches or so of the bottom, with open mouth, and near the top of this tube a small hole is bored. To this coupling is attached the pipe for cold-water supply. The cold water from the pipe descends through the tube, and accumulating naturally in the lower part of the boiler, passes through the lower coupling and the connecting brass pipe into the water-front of the range. Here it is heated, and becoming lighter as its temperature rises it ascends and passes through the upper coupling of the water-front, up the second pipe, which, to facilitate the movement, is laid with a gentle ascent toward the boiler, and entering through the side coupling takes its place in the upper portion of the boiler. This circulation constantly goes on between the water-front and boiler, and the water passing repeatedly through the range becomes warmed in proportion to the ratio which the heating surface of the water-front bears to the cooling capacity of the boiler. The difference in temperature between the upper and lower portions of the boiler and the upper and lower connecting pipes to the water-front may be plainly felt with the hand.

The other couplings in the head of the boiler simply communicate with the inside, and to them are attached the pipes which supply hot water to the house. Several couplings are used where the number of sinks and wash-bowls to be supplied is considerable, to obtain a freer flow than could be obtained from a single pipe compelled to supply several faucets; but one pipe is sufficient for a small house.

When a cock anywhere on this pipe is opened, the warm water issues under the same pressure as that of the cold water; for the whole system of pipes and boiler being constantly full of water, the pressure is the same throughout at the same level, the boiler being practically nothing but an enlargement of the supply-pipe, while the water-front with its tubes represents a loop through which portions of water are continually drawn from the boiler to the fire, heated and returned.

The drawing of hot water in any part of the house subtracts from that in the top of the boiler, causing an equivalent amount of fresh water to enter through the cold pipe, from which it is led without mixing with the warm upper stratum through the copper tube to the lower or cool part of the boiler, there to begin its journeys through the water-front, by which it is qualified in its turn to take its place in the warm, upper region. This is the principle of the modern hot-water supply in its simplest application.

Under this system it is evident that the only circulation is between the water-front and the boiler, and that in the hot supply-pipe, each branch of which terminates at some faucet, the water remains stagnant except when a cock is opened, and loses its heat by radiation, so that on drawing from any faucet this stagnant, lukewarm portion must first run off before obtaining the hot water from the boiler itself. To remedy this it is customary not to terminate the warm-water pipes anywhere, but to make them constantly ascend through perhaps devious courses from one faucet to another, until they reach the highest faucet, from which a pipe descends again and returns into the boiler, sometimes by entering the cold supply just above the coupling, sometimes through the lower tube to the water-front, or by a coupling of its own near the bottom of the boiler. In this way a secondary though extensive circulation is set up through the pipes themselves, hot water ascending on one side and descending on the other by virtue of the increase of its specific gravity on cooling; and at any point on the line water may be drawn of the same temperature as that in the upper part of the boiler, minus the comparatively small loss which it suffers in its rapid course from the boiler to the point at which it is drawn. To obtain this regular circulation in the hot pipes is essential to their satisfactory working; but it cannot always be managed unless the architect has kept well in mind the course of the pipes in arranging his wash-bowls and sinks.

So far the system is the same, whether the boiler is supplied under the street pressure by a pipe connected with the main, or from a tank. But certain circumstances may interfere with the working of the apparatus. It often happens that the water-front is too large for the work it has to do, or the copper tubes which serve as a substitute are too much heated by a brisk fire, and the circulation not being rapid enough to keep down the temperature the water begins to boil, and bubbles of steam run through the upper tube toward the boiler. The mass of water in the boiler being still below ebullition point, the steam is condensed on reaching it, and the sudden reduction of a pipeful of steam to a drop of water leaves a vacuum which is instantaneously filled with water. The next bubble of steam meets with the same fate, and the successive shocks caused by the sudden rush of water into the vacuum cause a snapping and rumbling in the pipes and boiler which often alarm housekeepers.

If the heat should be so great as to bring the water in the boiler

itself by degrees to 212°, the same phenomenon is in danger of being repeated on a larger scale. If all the faucets or other outlets are closed, the steam accumulates in the pipes and the top of the boiler, and acquiring a tension superior to the pressure of the cold water forces it back into the main. The water in the main serves as an elastic safety-valve, so that the steam pressure will never much exceed that of the water, so long as the connection between the boiler and the cold supply is unobstructed, and if the boiler is strong enough to resist the water pressure, there is little or no danger of its being burst outward by the steam; but there is a very serious risk that when the boiler is very hot and partly full of steam some one, by opening a hot-water faucet anywhere in the house, may allow a little steam to escape, and the tension being thereby reduced for an instant cold water presses in from the supply. The admixture of the smallest quantity of fresh water lowers the temperature of the contents of the boiler and condenses the steam with increasing rapidity as more cold water rushes in to fill the void so made. This process goes on with extreme rapidity, so that in a fraction of a second after the cock is opened the steam has vanished, and the condensation being much more rapid than the entrance of the fresh water, a vacuum is caused in the upper part of the boiler, and the atmospheric pressure thus suddenly brought upon it crushes the cylinder like a leaf. This "collapse," as the plumbers call it, is a very common occurrence, and with a boiler supplied from the street pressure there is no sure way of preventing it. One or more vacuum valves are often inserted in the head of the boiler, to open by the pressure of air from without; but these get so firmly pushed into their seats by the ordinary water pressure in the boiler that they are very apt to stick when most needed, and are then useless. Sometimes a stop-valve is put on the supply, intended to prevent the steam from pushing back the water; but this simply gives a closed boiler, sure to blow up if the steam pressure should exceed a certain limit. The only palliative, where the supply is direct from the main, is to be careful when there is a hot fire in the range to open the warm-water cocks cautiously, and if steam should come out to shut off instantly all but a small opening, which may relieve the pressure so gradually as to prevent harm. Compression cocks, which open by a screw, are for this reason safest in use; but it is essential also that the heating surface should be properly proportioned, and the pipes between boiler and range, as well as the circulation pipes, should be large and smoothly graded, and the flow therefore easy and rapid, to obtain even a moderate degree of security.

Where the boiler is supplied from a tank the danger of collapse is almost entirely removed by the simple expedient of carrying up from the highest part of the hot-water system a one-half or three fourths inch pipe above the water-level of the tank, leaving the end open, so that any steam which may be generated escapes quietly, without ever accumulating tension enough to force water out of the boiler. Unless this pipe should be so long and tortuous as to get choked it is a sure protection. The end of the expansion pipe is turned over the tank, or, better, over the mouth of the standing waste, so that the foaming mixture of water and steam which sometimes comes up may run off without doing mischief. Of course, no such protecting pipe is possible under the pressure system.

The hot-water supply is sometimes arranged without a boiler, by employing two tanks, one for cold and the other for hot water, both placed at the same level in the attic. The supply-pipe descends from the cold tank to the water-front, and from the upper coupling of this a pipe ascends to the hot tank, from which a descending main branches to the different faucets. Both cisterns are open to the air, so vacuum or bursting pressure are there impossible; but an expansion pipe must be carried up from near the water-front to obtain complete security. This system is more expensive than that which employs the copper boiler, and the steam from the hot tank is disagreeable and injurious in the rooms, so that it is rapidly becoming obsolete.

Boilers supplied from the street pressure sometimes give way under the strain of the water alone, especially if they have been previously weakened by an incipient collapse, and where the head is considerable they must be of galvanized iron, riveted like a steam boiler.

Accidents also sometimes occur from attempting to empty the boiler by the sediment cock without opening a faucet above to admit air, or in occasional instances, where the supply from the street has been connected at the bottom of the boiler, by the retreat of the water in the mains, which, drawing with it the contents of the boiler, leaves a vacuum behind by which the cylinder is collapsed as effectually as by the sudden condensation of steam. The tank supply with the expansion pipe provides against this danger as well as the other.

THE SANITARY "SCARE."

Before going to Europe in June, I wrote a paper for *The Plumber and Sanitary Engineer* (published in the September number) referring to the "scare" outcry. I stated it as my purpose to "scare the plumber himself, and cause him to realize the fact that he is playing with fire whenever he undertakes the drainage of a house."

Further observation and reflection have not affected my opinion save to strengthen it, and I am satisfied that the most efficient service that any writer could render the plumbers would be to devote his energies unremittingly to emphasizing the evidence leading to this opinion, until they become convinced that the future prospects of their trade are really to be good or bad, according as they accept the present condition of public sentiment and accommodate themselves to it. The public is not a fool; and about some things it makes up its mind in a very resolute way, and is not to be driven from its position, especially when the arguments advanced for the purpose may be construed as being in the interest of those who advance them. The public is fast making up its mind that there is no safety in American house-plumbing; and American house-plumbing must become radically different from what it has been thus far, or the public will act upon its conviction, and get on with as little plumbing as possible.

It will not do to talk about good workmanship or bad workmanship as lying at the bottom of the difficulty, for the bottom is much broader and deeper than any question of workmanship. Of course, we want good workmanship so far as we have any at all. The question which is uppermost now in the minds of the more intelligent classes is whether we really need any plumbing work at all, beyond the merest necessaries of domestic economy. Numbers of persons are cutting off the pipes from their wash-basins, bath-tubs, etc., and are going back to the old wash-bowl and pitcher and the sponge-bath. Their reasons will be accepted as good, and their example will be followed by others; so that unless some strenuous and rational effort is made to restore their confidence in house-plumbing, the amount of work to be done during the next generation will be less than that which the present generation has demanded.

I have used the expression "the American system of plumbing" for the reason that plumbing, as we know it, is essentially and almost exclusively an American institution. In our desire to save labor so far as possible, to procure in our houses the luxury of abundant water without the task of carrying it in and out by hand, and to provide, even for those classes of society which are little given to luxuries, the untold convenience of a free tap of water at every point, we have carried the possibilities of the industry to its utmost limit; we have done this, too, in a country whose climate compels us to adopt precautions against frost which are unknown elsewhere; and we have done it absolutely without the knowledge necessary to ensure our doing it properly. The utmost profusion of plumbing has become so much a matter of course in the organization of our houses that until recently any man who seriously criticised the system was set down as an alarmist. Now that the alarmists are found to have right on their side, we are confronted by a dilemma, one of whose horns we must accept in spite of ourselves: we must either be content to see our people, under the influence of the instinct of self-preservation, throw their plumber's work out of doors and make up their minds to do more manual labor for the sake of better health and longer life, or we must frankly accept the fact that their fears have a valid foundation. We must not only accommodate our work to their demands, but we must show them that we have come to a realization of, and have learned how to avert, dangers which ten years ago neither they nor we knew or thought of.

The only other country which can be said to have any plumbing work at all is England, and the plumbing work of England is a very different affair from ours. It is rare to see in an English gentleman's house, in London or in the country, stationary wash-basins or stationary bath-tubs, fixed butler's sinks, or laundry trays, or taps for drawing water, except in the scullery or area, or some other place quite removed from the centre of habitation. Every bedroom is provided with a movable wash-stand with a movable apparatus; generally also with a tin sponge-bath, to which the water is brought by hand. Water-closets are in almost universal use, but they are generally in outside extensions, or at least against the outer wall; as a rule their communication with the outer air is much more free than their communication with the interior of the house. The whole somewhat rude system of plumbing is of a character and in a situation which, with our winter temperature, would be impossible. Of course, there are countless exceptions to this rule, and the people have suffered seriously from the fact that their workmanship is so often inferior to ours. Considering the amount of plumbing in average houses in England and here, they suffer from diseases originating in the drainage of the house far more than we do.

The question as to whether the American people will continue to be the liberal and extensive patrons of plumbers that they have been hitherto, or will go back to the systems of their ancestors, is one which is to be decided entirely by our ability to persuade them that we realize as well as they do the dangers which they fear, and that we have succeeded, as we certainly have, in devising efficient and reliable means for securing ourselves against them.

George E. Waring, Jr.

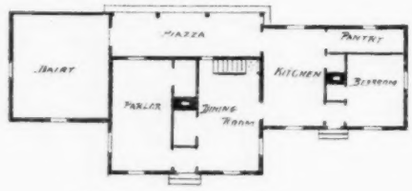
THE ILLUSTRATIONS.

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

We reproduce this week from *L'Encyclopédie d'Architecture* a perspective view of the Church of St. Hilaire, the plan and elevations of which we published in our issue for October 26.

FURNITURE DESIGNED BY MR. EDWARD DEWSON, BOSTON.

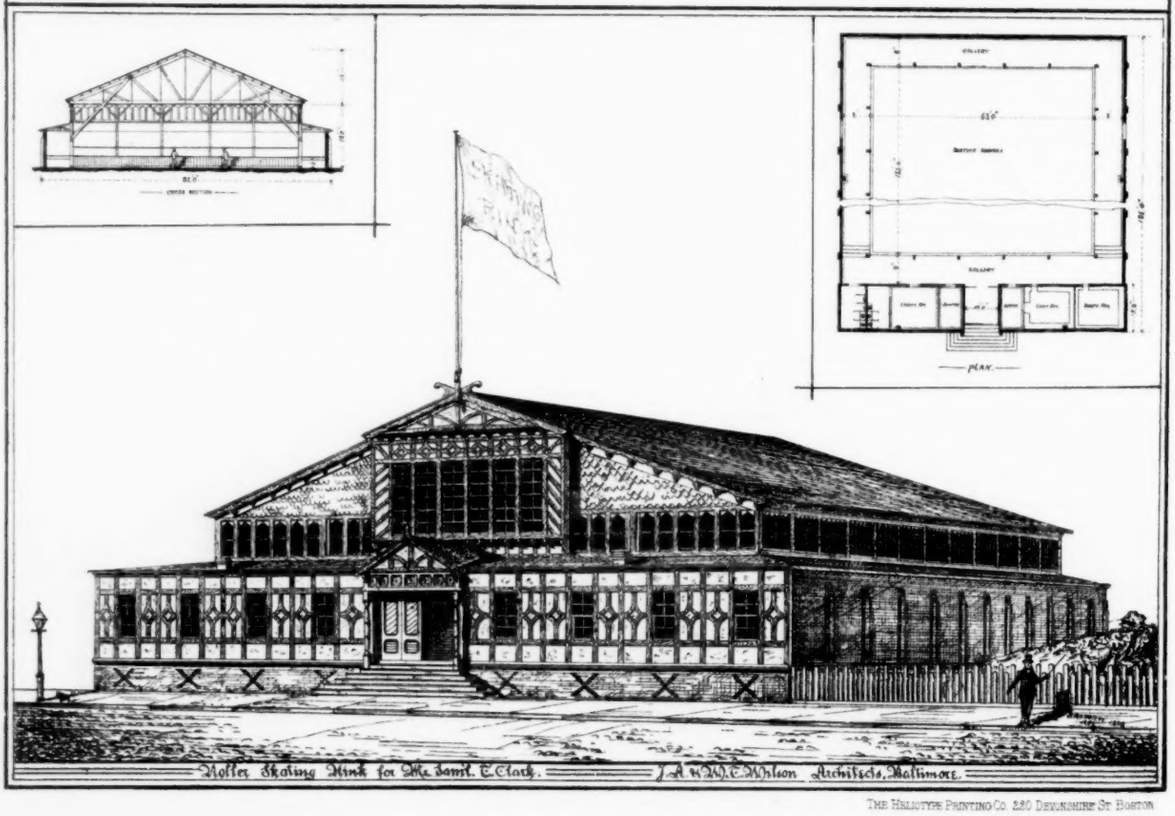
DAIRY AT BLUE HILL
for
HENRY AUSTIN WHITNEY ESQ.



PLAN OF PRINCIPAL STORY

STURGIS & BRIGHAM
ARCHITECTS
18 EXCHANGE PLACE BOSTON

HOUSE BEFORE ALTERATIONS



Roller Skating Rink for Mr. Samt. E. Clark. J. A. & W. E. Wilson Architects, Baltimore.

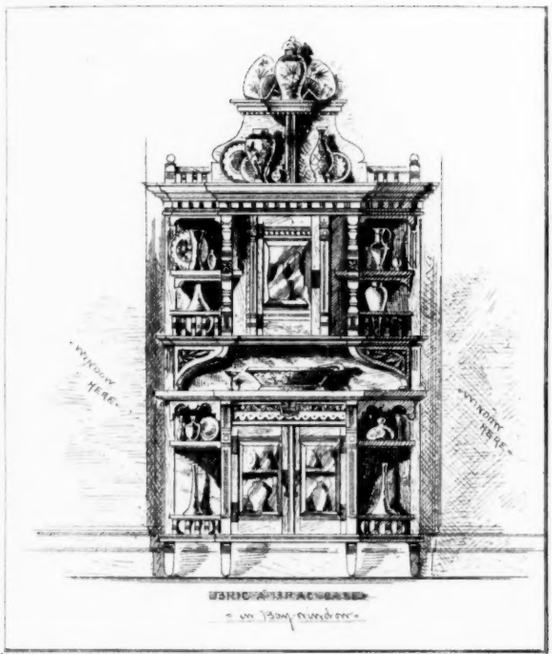
THE HELIOTYPE PRINTING CO. 330 DEVONSHIRE ST. BOSTON

THE HELIOTYPE PRINTING CO. 330 DEVONSHIRE ST. BOSTON

J. Pesel sc.

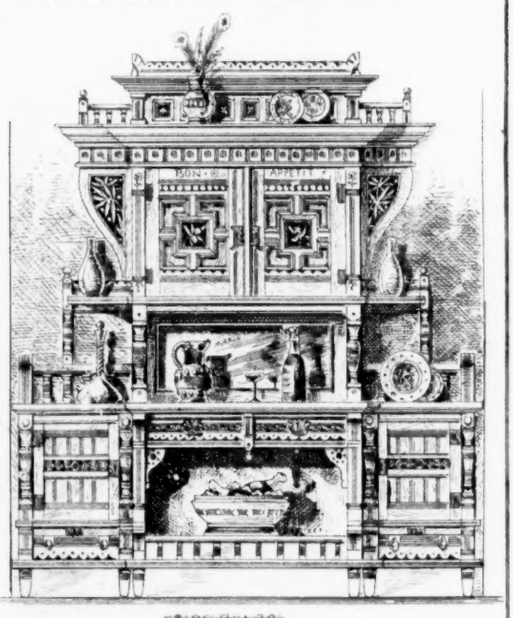
— CHURCH OF ST HILAIRE AT ROUEN —

— M. SAUVAGEOT ARCHT —

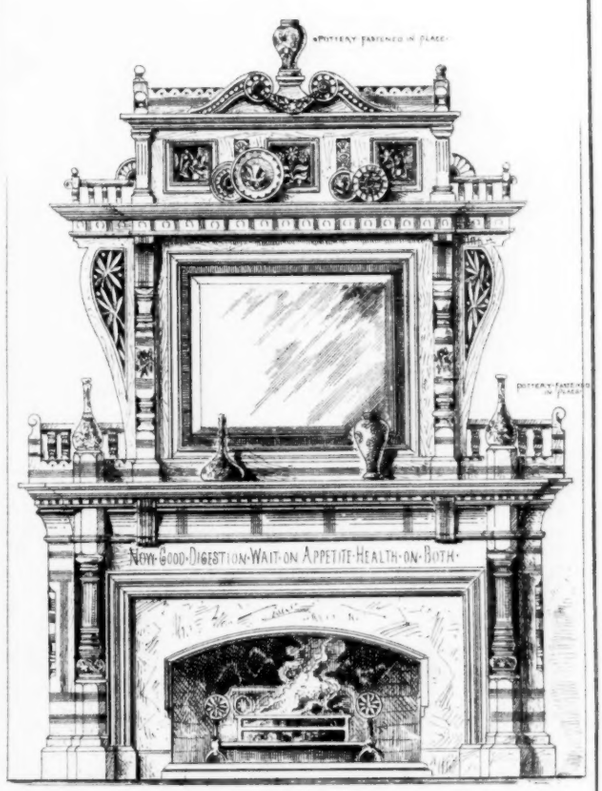


FIRE PLACE CASED
with Bay window

DINING · ROOM · FURNITURE
· IN · CHERRY ·
Edwards · Bunnett · Designer.
Boston.
Scale of Feet.

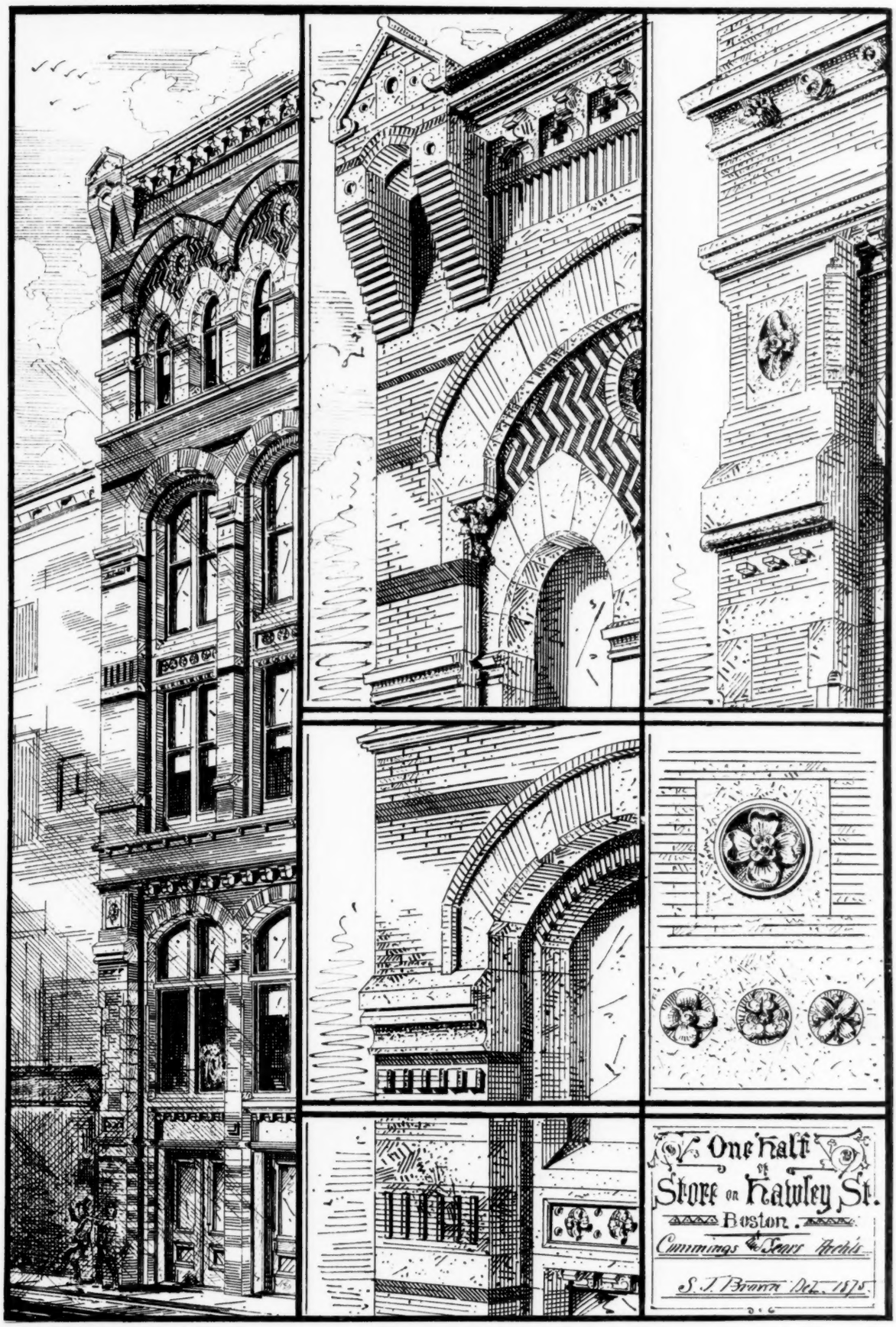


SIDE BOARD
Trestle on Stone Walls



MANTEL PIECE
Breakfast Room
Metric on black letters

THE HELIOTYPE PRINTING CO. 330 DEVONSHIRE ST. BOSTON



THE HELIOTYPE PRINTING CO. 220 DEVONSHIRE ST BOSTON

ALTERATIONS MADE ON THE DAIRY OF MR. HENRY A. WHITNEY, MILTON, MASS., MESSRS. STURGIS AND BRIGHAM, ARCHITECTS, BOSTON.

SKATING RINK, BALTIMORE, MD. MESSRS. J. A. AND W. T. WILSON, ARCHITECTS, BALTIMORE.

This rink, to be used for roller-skating, is building for Mr. S. T. Clark.

STORE ON HAWLEY STREET, BOSTON, MASS. MESSRS CUMMINGS AND SEARS, ARCHITECTS, BOSTON.

This drawing is one of the series made by the Portfolio Club.

SECOND LOAN EXHIBITION IN AID OF THE NEW YORK SOCIETY OF DECORATIVE ART.

THE "Loan Exhibition" noticed in these columns somewhat less than a year ago, proved in many ways a most successful venture. A repetition was accordingly planned, and the exhibition now open at the Academy of Design is a more than worthy successor of the first. One marvels anew at the richness of the sources drawn upon, for all the rooms are full, and all articles previously shown have been rigorously excluded. The pictures are less showy and more excellent than last year, the pottery collections far fuller and more valuable. The Oriental tapestries are fewer and less magnificent, but amateur work is not introduced among them. Bric-á-brac is less plenty, and the same may be said of silver, jewelry, furniture, and fans, while lace seems quite unrepresented. Upon the pictures and the pottery depends the interest of this year's show, and its value depends upon the excellent arrangement of the whole. The picturesque disarray and bewildering profusion of last year are replaced by systematic disposition and more careful cataloguing. What is lost in the brilliancy of the general *coup-d'œil* is many times refunded in the advantages of system and sequence.

The large South Room is filled with paintings, the East Room with European pottery and porcelain, the North with Oriental art products, and the West with bric-à-brac of every kind. The Northwest Cabinet is devoted to specimens from the Decorative Art Society."

The greater number of the pictures are from foreign hands. Such American canvasses as there are, show in one or two cases a similarity of subject with their trans-atlantic neighbors that affords opportunity for interesting comparisons. Swain Gifford's *Lazy Day in Egypt*, and *The Merchants of El Lagonet crossing the Algerian Desert*, hang near enough together to catch the eye at almost the same moment. Preferring the latter, one is still dissatisfied with either, still convinced that the facts of African sun and shade and tint and atmosphere are not given. The question as to how they might be given, which always seems doubtful unless visible interpretation is forthcoming is set at rest if one turns to another wall where hangs Gérome's *Egyptian Conscripts crossing the Desert*. The flatness and coldness of the other pictures is here replaced by a blinding luminousness which seems almost misty by excess of light, by sharp, dark shadows, by a pervading yellow tint, and by the general feeling — peculiarly characteristic of North African landscape — that the atmosphere is more palpable and important than the solid earth itself.

Three great canvasses of Bouguereau exhibit the insipidity, the want of life and force, the cold-cream complexion and sentimentality which should long ago have become distasteful to the American public. The *Spring-time* of his pupil Cot, — the picture which suddenly gave him a circle of admirers almost as wide as his master's — is also exhibited. It is as correct in drawing as Bouguereau's, with more of life, but equally trivial, and the flesh painting equally far from being true to nature or masterly in touch. A large landscape of Andreas Achenbach, who vibrates through a larger arc of varying excellence than is possible to many painters, shows him almost at his worst. The cloud-painting is what his countrymen would call *unerhört*. It is a pity, for there are many good paintings of his in the city.

Leloir's *The Slave* is a clever picture of a repulsive subject, so repulsive that it seems out of place in such a collection, would seem out of place in any lady's apartment. For there is not enough artistic beauty to overshadow the moral and physical unpleasantness, and the artist's cleverness does not rise to tragic power. Hector Leroux's *Vestal Duccia* is exquisitely imagined and drawn, but the coloring is almost conventional in its reserve, and there is no attempt at texture, whether of water, sky, flesh, or garments.

Several pictures by different hands show the fashionable metallic style, glaring tints without shade, repose, or harmony, a travesty of natural color with no memory whatever of chiaroscuro. The best of them is decidedly the *Morning with the Dressmaker* of Alvarez. The worst unquestionably is G. Richter's *Veil Dance*, in which it is hard to discover a redeeming trait. It lacks even the clear outlines and careful touch one expects in this style of work. Commonplace in conception, faulty in drawing, and poor in technique, it is Eastern only in costume, for the types are without exception European and utterly vulgar. Such a picture would not be worth condemning were it not to notice the indulgence so often carelessly given to pictures whose counterparts in literature, for instance, would not be publicly approved. Madrazo, who has sometimes painted well, shows *At Breakfast*, which looks like a badly painted portrait of a very unladylike person.

Willems, Ziem, De Menville, Vibert, Meyer von Bremen, Kraus, and Salentin, show average work. More admirable are two fine cattle-pieces of Van Marcke and a landscape by Jules Dupré — not, perhaps, of his best. Alma Tadema, whose work is not very often seen in this country, is but poorly represented by a small scene from the 6th century. It is doubtless archæologically correct, but the composition, figures, and color are far inferior to his average — much more his cleverest — work. Jules Breton's *Brittany Penitent* is also below his average. In Boughton's *New Year's Day in New Amsterdam*, we see intensified the faults which have grown into mannerisms. It is well composed and grouped, doubtless, but the tints are pale, flat, and unnatural, laid on with no attempt at blending. There is no sign of modelling or relief.

Crowded out into the corridor, and "skied" as well, are two clever studies by Mr. Wm. Chase and a capital portrait by Defregger, worthy a most honorable place. It ought to be carefully studied, and it cannot be seen. On the line, but still in the bad light of the corridor, where, furthermore, it is impossible to get as far away as his touch demands, are two Makarts — poor for Makarts, truly, but very clever pictures and valuable as one sees here so little of his work. The *Ancient Egyptian Girl* is well posed and expressive, but harder in effect than is usual with Makart, and absolutely blurred in parts from pure haste or heedlessness. The *Turkey-seller of Cairo* is better painted, though the subject is less satisfactory, the face being veiled all but the eyes. The color is beautifully harmonious, the pose full of life and grace. Both pictures are but "pot-boilers" as compared with Makart's careful work, but even the pot-boilers of genius are interesting and, to a certain extent, valuable.

Among American pictures I shall also notice a good study of a *Boy's Head* by Mr. Hunt, and a poor one, of the same subject, by Mr. Chase. Eastman Johnson is at his best in the careful and characteristic *Card Players*. Mr. B. C. Porter at his worst in the *Portrait* of a girl reading. Mr. LaFarge's *Study* of a woman in a green gown shows, as usual, greater mastery of drapery than can be claimed for any of his countrymen, but the flesh is poor. Mr. Whittredge's *Old Hunting Grounds* may fairly be taken as representative of the average American landscape, hard, careful, inartistic, unindividual, unideal, and yet not natural. Mr. Powell's *Venetian Doge* is impossible, and Mr. F. E. Church's *Mt. Desert* almost as unsatisfactory in another line.

If I have left to the last the finest picture in the room, it is because I fear to touch upon it, — doubt whether in doing it justice I shall not, to those who have not seen it, appear to exaggerate its merits. It is a life-size portrait by Fortuny, said, I know not how correctly, to be the only one he ever painted, and comes from the famous collection of Mr. Stebbins in Paris. It requires faith to take it for Fortuny's work, for his genius usually showed in a very different way. There is a tiny picture of his, also, in the exhibition, which gives a fair idea of the contrast. His figures, everyone knows, were usually small, his canvasses glowing with a brilliancy of varied and contrasted tints that his imitators can but travesty. His touch was rapid, dashing, uneven, and in his most carefully completed works one rarely sees a polished and finished surface. In this portrait — of a Spanish lady — the beauty of the result gets nothing from the accessories, for it was painted in 1865 when "The fashions" were not artistic. Black satin, crinoline, coral, and frizzed black hair do not sound and do not look picturesque; but one does not care for the things that usually go to make up a satisfactory modern portrait in view of the superb humanity, the perfect art of this picture. The pose, the drawing of head and hands, the expressiveness, as of nature seen face to face, above all, the flesh painting, are beyond praise. Most unlike Fortuny's usual brush is the ivory finish, the smoothness as of an actual, pure skin itself, and in noteworthy contrast the clever, rough impasto of the lace. In the over-reserve of color, in somewhat of Spanish stiffness, and in the general tone and character of the work it is unlike a Titian or any sunny Italian canvass, much like Velasquez, to whom it has been, not too presumptuously, compared. Is it too much to be believed of a contemporary painting that it might be hung in a gallery next either of these and not seem out of place?

In the "Antique Collection" in the West Room one notes many miniatures, the best, perhaps, one of an old lady, by Malbone (934), and one by Arland (942). Most beautiful and interesting, whether a genuine bit of Quentin Matsys's handiwork or not, is the little iron bas-relief No. 965. In furniture one marks little but a 14th century cabinet (1000), one in marqueterie (1294), and an arm-chair of the Louis Quatorze epoch (unnumbered). The silver is not remarkable. In the jewel-case the honors are borne off by some unrivalled contributions of Mr. Prime — a superb set (1123) of old Persian turquoises, engraved and gilded, which he dates frem the 15th to the 17th century, and a necklace (1128) of sixteen ancient Egyptian scarabæi. Some intaglios of varying beauty form a necklace numbered 1113, and a mixed collection of antique stones are classed under No. 1116. No. 1085 covers a collection of "Danish and Swedish Silver Ornaments," some of which, wherever obtained, are more probably Russian in their origin. One pendant shows in rudest workmanship, the survival of an unmistakable Byzantine pattern.

No. 1133 is a chatelaine with a motley profusion of pendants, one of which is worthy of notice. It is a small flat figure which, if not a genuine old Irish or other Celtic bit, is a clever imitation. One notices also a jewel which gives a definite Pompeiian pedigree, and a necklace from India, marvellously pretty in its combination of tigers' claws with native goldsmiths' work. Among the watches, No. 1160 has good record work, and No. 1144 is a most beautiful bit of red enamel done by Boilly under Louis Seize. The various ivories deserve an examination, as do stray bits of bronze and brass. The bell (1114) confidently attributed to Benvenuto Cellini and purporting to come from Strawberry Hill is little like the work of his time; and its claim is somewhat audacious when there are scarce three undoubted works of his in Europe, — perhaps only one that is quite unchallenged. Strawberry Hill hardly guaranteed the genuineness of its labels, and it is equally hard to believe the bell Benvenuto's or to admire it on its own merits. Some fine French tapestries claim more notice than can here be given, especially as there is little space left for the two rooms full of pottery.

The majority of objects in the Oriental Room come from the well-known Burlingame, Harper, Andrews, Pomeroy, and Williams collections. Their tasteful and orderly arrangement is due to Mr. Colman. Japanese art in its various branches is well represented, and one has the opportunity of comparing it with the work of Chinese artists, who have of late been neglected in favor of their island rivals. It is hard to distinguish among many works of so near and so high an average, but one must remark No. 614 as a splendid specimen of Japanese raised embroidery on a gold ground, some large Japanese pictures in water-color on silk and paper (631–636), exquisitely free and delicate, and a superb lacquer and painted screen (662). In ceramics are to be remarked a fine case of Rosedon specimens, an old Satsuma incense burner (754), and a curious Satsuma vase (753), and some magnificent Kishin pieces, whose turquoise and purple cannot be excelled for splendid contrast. Further, a Chinese enamelled porcelain tea-jar, most curious (771), a pair of Japanese enamelled vases (770), a vase with *soufflé* decoration (859), and a Satsuma vase with figures in relief (741). All of which are noticed not so much as being superior to their neighbors, but as samples and specimens. Mr. Hoe's collection of works in hard stone are most beautiful, especially the jades. Also noteworthy is a collection (739) of various small Japanese works in ivory, metal, etc.

The European pottery is most carefully arranged, and this year a tyro can gain a knowlege of sorts and styles. That any one sort is represented by especially good specimens it would be too much to say. In Sèvres we see a set in yellow and gold, the best one could have from the inartistic epoch of Charles X. A fine case of plates (437–447) well exhibits the varied styles of the factory. The Dresden pieces are numerous, but none of great value if we except some brown Böttcher ware shown by Mr. Prime, a saucer (272), and perhaps Nos. 131, 133, and 138. Some of the modern work is of the worst that is made. It is strange that the classification of Dresden porcelain in this country should be so arbitrary and should exclude all mention of Kändler, the finest artist without exception who ever modelled at Meissen. His work is lost to us in the general name of "King's period," assumed to extend from the "Augustus Rex period" to 1774.[1] His name, so familiar on his own ground, seems to be unknown to our collectors, who mark no difference between his exquisite rococo shapes, low relief, and delicate tints, and the very different styles which came before and after. Marcolini is the fashion. His painting is superb, truly, but his shapes far inferior, more commonplace, less characteristic, than Kändler's. The latter does not even get the credit with us of having originated his troops of tiny figurines.

A few good Vienna pieces call for mention, Nos. 270, 295, 296, etc., also a seventeenth century Rouen plate (550) and a Frankenthal vase (292).

There is much English ware, valuable to those who like fashionable curiosities independent of beauty. The best English work, such as the *Worcester Tea-Set* (393, 394), the *Worcester Stone Ware* (382, 383), and the *Derby Vases* (518, 519), *Salad Bowl* (522), and *Ewer* (269) are inferior to continental work, and the bulk of Spode, Bow, Chelsea, Lowestoft, and the rest is valuable for no artistic reason whatever. The smaller factories, whose short and unmarked existence was evidently due to the badness of their wares, have obtained celebrity to-day because they *were* short-lived and obscure. Every execrable bit of doubtful origin, which no one could wish to see duplicated, is more greedily seized upon than a pretty piece of Oriental work or of delicate Meissen modelling and color. The much discussed Lowestoft excites, by the specimens it shows, no feeling save the wish it had never existed; and it is hard to see what pleasure the most rabid collector can take in coarse figures like Nos. 330 or 320, or in printed ugliness like No. 328, or in No. 391, from Spode, or No 395 from Worcester, or such a monster as the Leeds cow, No. 415. And there is much in most English and American collections that is even worse than these.

It is pleasanter to look in the corridor at various fair specimens of *Grès-de-Flandre*, or at the cabinet from Tiffany's filled with examples of various modern factories. Especially good are the pieces from Colinot and Doulton, a graceful specimen from Nancy, and the ample Faience of Longwy. M. G. v. R.

[1] See *Metropolitan Museum Handbook* and labelling in present exhibition.

MR. LAFARGE'S PICTURES.[1]

We once had the pleasure of hearing an eminent landscape painter discourse upon a new method, which he had invented and perfected, of painting scenery "without reference to nature." This ingenious person could, according to his own account, enable any one, no matter how small his capacity so long as he had strength enough to wield a hog-tool, to produce, after a few weeks' instruction, irreproachable landscapes, each with its proper proportion of blue aerial perspective, its middle distance sunk in orthodox obscurity, and harmoniously distributed patches of Roman ochre and Vandyke brown in the foreground, which only needed a slight exercise of the imagination to suggest stones, sand, dry grass, or some other species of vegetation, so that the canvas at a proper distance presented a marketable imitation of nature.

Perhaps it may be possible for others to rediscover this invaluable secret. Indeed, some artists seem to have made considerable progress toward the acquisition of infallible art-recipes of their own. Why otherwise should each successive work of the celebrated X appear with a triangular expanse of Naples yellow in a particular corner, taking the form now of a wheat-field, now of a sandy slope, then of a dry patch in a grassy lawn, while a shady brook, cart-path, ditch, or what-not winds away, always in the same direction and about in the same colors, in the opposite angle? Or why should the periodical accounts in the newspapers of the life and services of the distinguished Y invariably portend the giving to the world of a large canvas covered with green paint, modified toward the top by a certain admixture of white or gray, and divided into irregular patches by streaks of brown, while in the middle blazes a spot of pinkish white, fashioned into a rude suggestion of a building of some kind?

Is it that nature presents herself to these artists always under the same aspect? Or can it be that, having once succeeded in representing her under a certain form to the admiration of the crowd, they devote themselves thenceforth to the mechanical repetition of the effects by which they have won applause?

Whatever may be the reason, the tendency of landscape painters to choose a succession of similar subjects, which they feel to be within easy reach of their powers, is very strong, and an ambition like Mr. LaFarge's, which disdains to repeat itself and loves to grapple with new difficulties, is as rare as it is noble.

This collection of pictures, gathered for sale out of the studies and sketches of twenty years, represents almost the whole range of the art, from the slight sketch of sky effect to the severe and conventional forms of decorative design.

To us, the most interesting part of the collection consists in the landscapes painted and finished on the spot, and we will devote a few words to them.

No one who has not tried to paint out of doors from nature can understand the immense difficulty of the work. We do not mean water-color sketching, in which a few happily chosen washes laid on with skill may convey with striking fidelity the superficial character of the scene; nor the scientific landscapes composed beforehand, with a framework of cobalt blue and gray for the upper part, a pronounced shadow across the middle, and a due allowance of "golden dirt" for the foreground, into which the intended view is forced, by dint of loppings and stretchings, to fit, leaving enough of the prominent features still visible to enable the caricature to be identified. Such art is not difficult of attainment. It is comparatively easy also to make studies of color out of doors, and afterwards, in the tempered light of the studio, work them up into a finished picture, which shall be better in tone than any of the sketches, and contain a certain amount of truth; but to block out, carry forward, and finish a picture under the perplexing out-door light, and in the face of nature herself, demands not only great technical knowledge and skill, but a degree of mental power for the intense and comprehensive grasp of the scene under a chosen aspect, and the persistent retention of this idea in the memory through the long processes of painting, in spite of the continual changing of the landscape itself, which those who have tried such a task can best appreciate.

It is a commonplace of the text-books to say that our whitest pigments are black in comparison with the sky, and that the colors of nature can be represented on canvas only in tones transposed to an octave very different from those for which they stand; but such transposition is not beyond ordinary skill; it is the mental process of analyzing and retaining the evanescent impression of a given scene, so as to hold that impression steadily through the minute and distracting details which crowd upon the eye in out-door work, which should command our admiration, and of this these paintings give abundant examples.

Our respect for the power of mind so displayed is, moreover, heightened by the variety of landscape effects with which we find it to sympathize; so that to say of LaFarge's pictures that one cannot tell which he enjoys most, smooth sea or rocky coast, summer or winter, sweet inland orchards or dark woods, is as true as it is his highest praise.

Nothing could be more free from artifice, from the vulgar *concenu*, than these paintings. Nowhere is the "brown tree" visible; the melancholy individual in black who should meditate in front of the principal high light is absent; no dog trots across the middle dis-

[1] The pictures which our contributor describes are those which were exhibited and sold in Boston last week. — Eds. American Architect.

tance, carrying the shadow through the picture. Everywhere we feel the unaffected simplicity, the sincerity, and, if we may so call it, the humbleness of nature.

It would hardly be possible to single out among the thirty small landscapes any of special superiority. If we have our favorites, we willingly attribute our choice to our own greater ignorance of certain kinds of scenery, or to some bias of association which we could not expect the artist to share.

It would, however, be wrong to pass over in silence the magnificent painting called the "Last Valley," in which is fully displayed that wonderful drawing of retreating perspective which, under a treatment even more subtle, formed perhaps the greatest glory of the great picture of "Paradise Meadows," now in Paris.

Of the flower studies no one who has ever heard of LaFarge will need a criticism. Let us pass on to the important figure subjects, which derive a special interest from their connection with the recent essays of the artist in decorative painting.

We must confess, after what we had heard of the picture, to a certain disappointment in the "St. Paul," which, however, after reflection we concluded to be due to the circumstances under which the painting was shown. The tall figure, standing vertically in the centre of the canvas, and cut almost in two by the sharp, white edge of the awning, whose rectangular shape occupied the upper half of the field, leaving the lower half dark, like an escutcheon divided in the middle, presented a stiff, archaic air in comparison with the easy attractiveness of some of the surrounding small pictures, which could hardly be otherwise than disagreeable in an easel painting. It was only by imagining it in its destined place, high above the eye, in the axis of a chapel, surrounded by the vertical and horizontal lines of the architecture, that it became manifest that the composition could hardly have been different. A posturing athlete would be revolting in such a frame, which could endure nothing short of almost perfect symmetry.

And, the picture once in place, this symmetry would, it was plain, add greatly to the majesty and impressiveness of the figure, while the violent contrasts of light and shade and line, which annoyed the eye in the small room, would be necessary to make it visible in the place for which it was intended.

Such was the well-understood principle of the noblest decorative painting, before the time of Raphael and Michael Angelo, and Mr. LaFarge deserves credit for having been faithful to the knowledge gained by profound study of his art, instead of catering to the preconceived notions of the multitude.

The same explanation applies to the "St. Mary," whose elongated proportions excite the surprise of spectators ignorant of the foreshortening effect which its intended position would have had upon it; and to the "St. John," the spiritual beauty of whose face, however, disarms the criticism of the most captious.

Let us finish our study, by way of *bonne bouche*, with the enjoyment of the delicious little picture of the "Centaur," painted for Mr. Richardson, and now the property of Mrs. Gurney. Here is no question of truth to nature, or of decorative proprieties; we are in presence of the soul of the artist, amusing itself with fancies of sweet color, delicate expression, and the beauty of harmonious line. The green grass flies from under the swift feet; we feel the cool breeze and smell the morning fragrance; we smile with the innocent child, and join in the affection which fills the movement of the ancient brute. It is poetry in color, the work of pure imagination, using, but transforming, the materials which it receives from the outward world.

C.

A CURIOUS COMPETITION.

The Special Committee of the City Council of Covington, Ky., invite plans from architects for building, in the city of Covington, a jail to cost not over $30,000.

No plan will be received after twenty days from date.

The successful plan will be paid for.

Plans to be sent to GEO. H. DAVIDSON, City Clerk, Covington, Ky.

OCTOBER, 18, 1878.

The above advertisement has appeared in all the Cincinnati papers, and speaks, in a measure, for itself. The advertisement has, however, such a vague, indefinite, and incomprehensible look upon it, that I instituted a sort of inquisition and discovered — nothing. No one seems to be able or willing to give any further information than the little that the notice contains. Cincinnati architects are not very busy now, and perhaps not a few will be found who rate their services so low as to be caught on any hook thrown out to them in the turbulent sea of competition, no matter how said hook may be baited.

C.

THE NEW YORK STATE REFORMATORY AT ELMIRA.

DETROIT, MICH., November 16, 1878.

TO THE EDITOR OF THE AMERICAN ARCHITECT:

SIR, — In your issue of the 9th inst., among the list of prisons now in course of erection, the one at Elmira, N. Y., is spoken of as being in the "Romanesque style." Allow me, as one somewhat acquainted with the antecedents and progress of this building and its design, to correct such mistaken opinion of its features as such a general term as "Romanesque" might give, and to more accurately describe it as being in the pure Galvanized Iron Style, in all that the term implies. By all means, please, make this correction through the columns of the *American Architect*, that those interested may know in what Style $1,300,000 has been spent.

Respectfully yours,

CHAS. H. MARSH.

BOOK NOTICES.

GREEK ORNAMENTS.

WHILE amateurs are amusing themselves with decorating pottery it is well that they should know where to look for models; and since they are apt to take whatever they find ready to their hand, it is worth somebody's while to see that really good models are put into their way. This we take to be the purpose of the little hand-book of Greek Decorative Forms,[1] published by Tilton & Co., and edited by Professor Ware. It contains a dozen plates, chiefly of Greek vase-ornaments, selected from the works of Racinet and Owen Jones, and so selected as to give in a small compass a great variety of motives. There are also given a plate of vases copied from Meser's admirable engravings of the Englefield Collection, and a sample vase, decorated and having a design by Flaxman. Finally three plates of Greek polychromic architecture are given on the authority of Hittorff, Boetticher, and others. The plates are neatly printed in colors, and with as much precision as is to be expected of block-printing. The least successful are the architectural plates, in which the colors of the inks used do not seem very happily toned, while the detail and even the modelling, being given in black ink, contrasts rather harshly with the colors, as is commonly the case in block-printing.

The cleverest thing in this little book is the ingenious compilation of the text, which, excepting the descriptions of the plates, is entirely composed of extracts from writers upon Greek art. The extracts are full of suggestion and are arranged in a fairly consistent essay of twenty 8vo pages. It would doubtless astonish Messrs. Ruskin, Taine, Semper, Owen Jones, Gladstone, Vitet, and Henry Van Brunt, if they should see the book, to find themselves sitting quietly together in this little "symposium," and most of all, perhaps, to see how well they can be made to agree in it.

FLAXMAN'S OUTLINES.

A collection of twenty of Flaxman's outlines[2] by the same publisher are intended to serve the same end. They are taken from the illustrations to the Iliad and the Odyssey and are fairly reproduced, apparently from some kind of photographic relief plates. Flaxman's works have gone somewhat out of fashion of late, not because anything so good has taken their place, but as one of the results of the rebound from classicism to naturalism. Studied, as they were, principally from Greek vases, they are, what Wedgewood found them, the best modern designs attainable for the decoration of pottery, and since so many people are at work trying to make designs without designing, and to draw pottery pictures without drawing, it will be doing good service if these outlines can be made to teach some of them to know the value of a line, and to feel that a handful of flowers dropped on a plate do not make a composition.

PUBLICATIONS RECEIVED.

THE AMATEUR'S HANDBOOK of Practical Information for the Workshop and the Laboratory, containing clear and full directions for Bronzing, Lacquering, Polishing Metal, Staining and Polishing Wood, Soldering, Brazing, Working Steel, Tempering Tools, Case-hardening, Cutting and Working Glass, Varnishing, Silvering, Gilding, Preparing Skins, Waterproofing, Making Alloys, Fusible Metals, Cements, Glues, &c. Price ten cents. New York: The Industrial Publication Co. 1878.

THE THIRTY-FIFTH ANNUAL REPORT of the New York Association for Improving the Condition of the Poor, for the year 1878, with the List of Members and Contributors; organized, 1843; incorporated, 1848. New York: 1878.

LAWS AFFECTING TENEMENT AND LODGING HOUSES in the City of New York, and Brooklyn. Compiled for the use of Visitors of the Association for Improving the Condition of the Poor.

THE TEREDO NAVALIS and the Means of Preserving Wood from its Ravages, by Dr. E. H. Baumhauer, Commissioner to the Centennial Exhibition from Holland. Reprinted from the *Popular Science Monthly*.

ANNUAL REPORT OF THE SUPERVISING ARCHITECT to the Secretary of the Treasury for the year 1878. Government Printing Office, Washington, 1878.

THE BIBLIOGRAPHY OF RUSKIN: a Biographical List, arranged in Chronological Order, of the Published Writings in Prose and Verse of John Ruskin, M. A., from 1834 to the Present Time (October, 1878). Compiled by Mr. R. H. Shepherd, and printed for private circulation.

ROYAL INSTITUTE OF BRITISH ARCHITECTS, List of Members, and Appendix; Additions to the Library, and Abstract of Proceedings during the Session 1877–78. Published at Royal Institute of British Architects. London. 1878.

[1] Tilton's Hand-Books of Decorative Forms, — No. 1, *Greek Ornaments*, illustrated with twelve plates printed in the original colors. Edited by William R. Ware, Professor of Architecture in the Massachusetts Institute of Technology. Boston: S. W. Tilton & Co.

[2] Flaxman's *Outlines*. First Series. Boston: S. W. Tilton & Co.

NOTES AND CLIPPINGS.

We wish to draw attention to the publishers' advertisement on page vi. of the advertising pages, where it is stated that the numbers of this journal for November and December, 1878, will be given, gratis, to new subscribers who pay their subscription for the ensuing year before December 15, 1878.

A Contumacious Owner. — J. B. Tallman, the owner of a proposed building at 37 W. Fifty-third Street, N. Y., has been arrested and taken before a police magistrate on a charge of violating the building law, in carrying up thin walls beyond the specified height. Civil proceedings and injunctions were of no avail, so the department was compelled to resort to the more severe criminal proceedings. To change a twelve foot wall to a sixteen foot one, Tallman carried up a four inch facing, but owing to some clerical flaw in the complaint Tallman was discharged and is to be arrested on a renewed complaint.

Accident. — On Saturday last the carpenter repair-shop of the Cleveland, Columbus, and Indianapolis Railroad at Cleveland was wrecked by the falling of the roof, causing serious injuries to four of the twenty men in the building. The details of the accident are not clearly given, but it appears that the shop was a brick building two hundred and fifty feet long, but no data as to the width of the building or thickness of the walls are given. The walls were twenty feet high, and carried the roof frame, from which were suspended two floors, which at the time of the accident were evidently overweighted with stacks of hard-wood lumber which were stored there.

Bridge over the Firth of Forth. — Mr. John Waddell, contractor for the foundations of the North British Railway bridge across the Forth, recently began operations with a large staff of workmen. Starting from abutments on the high ground overlooking the foreshores on either side of the Firth, the bridge is to be carried in the form of a light lattice girder structure upon cylindrical brick columns to the edge of the deep water. As far as this part of the work is concerned, it is not believed to present any feature of difficulty. But in the two great spans, each 1,600 feet long, which are to form the central portion of the structure, there has to be faced one of the most difficult engineering feats imaginable. Regarding this portion of the work, the *Scotsman* says that at the point on each side of the estuary where the bottom begins to shelve rapidly downward, there is to be placed an immense composite pier, consisting of four groups of iron columns — sixteen columns in all — firmly bedded on basements of masonry and securely braced together throughout their entire height. Over the tops of these piers will be carried immense chains, whose shoreward ends will be anchored to ponderous masses of masonry; and these, being continued over two similar piers, placed on the island of Inchgarvie in mid-channel, will afford, on the suspension principle, such assistance as is estimated to be required in supporting the spans, which, of course, will also rest at either end upon the framework of the piers. The height of the great 1,600 feet spans has been fixed at 150 feet, to reach which level the shoreward section will require, as in the case of the Tay bridge, to have a certain gradient, and when it is added that the piers will reach the height of from 500 to 600 feet, some idea may be formed of the imposing appearance which the completed structure will present.

Panics. — It is curious to note how these panics in public buildings seem to come in batches, like railway accidents and the like. Within a few days several similar panics have taken place in houses of worship. No less than two occurred in Jewish synagogues on the Day of Atonement — one at Pesth and the other at Strelno, in the province of Posen. In the former case it seems that there was a great crush, and some one being hurt cried out, "Fire!" This caused so much alarm, and such an increase of the pressure that the railing of the staircase leading to the gallery was broken down, and many of the women who were upon the stairs were forced over, falling one upon another. From forty to fifty were thrown down to the ground. It was a long time before the panic was allayed. Many women were carried in an unconscious state into neighboring houses. Six women received severe injuries, and a child had its jaw broken. At Strelno the panic was caused by a portion of the ceiling falling in. About thirty persons, chiefly women, were more or less seriously injured. One has since died, and it is feared several others will succumb to their injuries. — *Letter to the N. Y. Herald.*

Tests of Strength. — Before the recent royal marriage at Potsdam, in order to see whether the floors of the Hall of Shells would stand dancing, the authorities marched in as many soldiers as there were to be guests, and gave the order, "Dance!" The floors stood the test. A similarly ingenious experiment was tried some years ago by the people of a Swiss canton. A splendid suspension bridge had been thrown across a deep ravine, and to see if it was firm the authorities declared a holiday and collected everybody on the bridge. It stood, luckily.

Excavations at Rome. — The Roman excavations are proceeding rapidly. Since the beginning of those in the Valley of the Forum 80,000 cubic feet of earth have been carted away between the Temple of Antoninus and the Arch of Titus. The excavations of the Stadium of the Palatine, already almost finished, have led to the discovery of extensive works in marble.

Various Uses of Paper. — The *Western Paper Trade* says that among the articles manufactured of paper displayed at the recent Berlin Exhibition were window blinds, asphalt roofing, material for garden walks, window curtains, and a house made of pine, with not only roof, ceiling, cornice, and interior walls of paper, but all the furniture, blinds, curtains, chandeliers, carpeting, ornamented doors, numerous mantel and table ornaments, and finally a stove of asbestos paper, with a fire burning away cheerfully and not consuming the stove, as it evidently ought to do.

The Sewers at Brighton. — Brighton, in England, is a famous watering-place, and as such is very sensitive as to her reputation for good sewage disposal. The town is situated on a bluff on the coast, and is protected from the encroachment of the sea by a heavy wall sixty feet high. Formerly the sewage was mainly discharged through pipes into water from twenty-three to thirty-one feet deep at mean high tide, at distances from the shore of fifteen hundred to two thousand feet, and into a current of from two to three miles an hour. These outfalls were very efficient, and for ten years gave no trouble in maintenance; but though the sewage was delivered by the pipes, moment by moment, into a current, and almost always disposed of before it could reach the shore, the sensitive residents were dissatisfied because the sewage, from its less specific gravity than that of sea-water, rose to the surface and appeared in discolored patches, which were plainly visible from the shore, a third of a mile away, alarming the visitors when they knew what it was, and the effluvia near by was unpleasant. At times a southwest wind drove it to the shore, but so diluted as to be practically harmless. The opposition to this state of things grew to such proportions that the authorities finally built a sewer seven and one fourth miles long, largely through rock tunnelling, to discharge the sewage at Portobello, out of the neighborhood of the summer visitors. This outfall cost the town half a million dollars, and it cost the contractors much more. — *Providence Journal.*

The Porta Nigra at Treves. — Among the four important structures at Treves which are credited to the Romans: to wit, the Basilica of Constantine, the Baths, the Amphitheatre, and the Porta Nigra, the last is perhaps the most interesting, although a more modern structure than the others. It differs from the others in that it is built of immense blocks of dark stone dowelled together by iron bolts, while the others are built of Roman bricks. The date of its building is a matter of archæological controversy, but it is probable that it was built during the latter years of Roman supremacy. From 1047 until the early part of this century, when Napoleon I. began to restore it, the gate was appropriated to the uses of religion, for its archway was walled up, and its upper stories were used as two distinct churches. At present, thanks to the care of Napoleon and the later efforts of the Prussian Government, it is nearly in its pristine condition.

Trees of the Genus Eucalyptus. — So much has been said of late regarding the uses and probable extended application of the products of the *Eucalypti*, that a few notes on the products contained in the Industrial Museum at Melbourne will exemplify the value of this great genus. Of all the species the blue gum (*E. globulus*) is certainly the best known, on account of its reputation, whether justly so or not is still unproved, of purifying malarious districts. Few trees, perhaps, have ever attracted so much attention as this species. Trees have been planted in almost every country where it could possibly succeed, and even in small private gardens the blue gum is very often to be found. As a timber tree it will no doubt prove valuable, on account of the colossal size to which it grows, and its extremely rapid growth, together with the great strength and durability of the timber, which in the colony is largely used for beams, joists, etc., in buildings, and for railway sleepers, piers, and bridges. Besides the uses of the wood, the resin exudes from the tree in very large quantities. Essential oil and other extracts have also been prepared from the foliage. The most colossal species is, perhaps, *Eucalyptus amygdalina*, which is known locally under various names as stringy bark, messmate, peppermint, etc. It is said to be not uncommonly found up to a height of 420 feet, and sometimes to attain a still greater height. The wood is hard and close-grained, well adapted for house-building, planking of ships, shingles, rails, and other purposes. This species contains more oil in its foliage than any of its congeners; 1,000 pounds of fresh-gathered leaves, with their small branchlets, yield by distillation 500 ounces of oil. It is rubefacient, disinfectant, and employed externally in rheumatic affections, and in perfumery, scenting soaps, etc. The spotted gum of Victoria (*Eucalyptus goniocalyx*) is a species often found of a very large size, but mostly of moderate dimensions. The wood is hard, straight, and even-grained, and is employed in the colony chiefly for joists, beams, rafters, and heavy framing work, as well as by coopers for staves. The bark is described as being usually deciduous, but sometimes persistent. The species produces resin in very large quantities, and from 100 pounds of fresh leaves 16 ounces of essential oil have been obtained. For illuminating purposes this oil is admirably adapted; it produces a brilliant white flame, superior in intensity and color to that from the best American kerosene, and its use in kerosene lamps does not cause any smoke or smell, and is free from danger. The other most useful species valued for their timbers are *Eucalyptus rostrata*, the red gum tree, a tall growing tree, very abundant along the river flats and open valleys, the wood of which is of a brownish red color, and is used alike for furniture, carpentry, agricultural implements, and ship and house building; *E. leucoxylon*, the iron bark tree, often growing to a great height, and producing, perhaps, the strongest timber of the whole of the eucalypts; and *E. obliqua*, the Victorian stringy bark tree, a gigantic tree, not unfrequently attaining a height of from 300 feet to 400 feet, with a very thick, rugged, and fibrous bark, hence its local name. The wood of this tree is not so strong and durable as most of the other species. It is straight, and even-grained, and is readily split into fencings, palings, shingles, etc.; nevertheless, it is very liable to warp and twist. The thick fibrous bark is used for thatching houses. — *Journal of the Society of Arts.*

Steam as a Reflector and Radiator of Light. — It is said that Herr L. Brandau, of Berlin, has been granted a patent for an invention which is to utilize the absorptive and emissive properties which steam is said to possess in a high degree, of one of which properties we have ample evidence in the flash of lightness which accompanies the sudden discharge of a cloud of steam on a dark and cloudy day. The apparatus which Herr Brandau proposes to use, and which he hopes will be useful in dulling the brilliancy of the electric light without absorbing too much of its light, is, essentially, a glass chamber with proper inlet and outlet tubes into which the steam is admitted, and which receives rays either directly from the illuminating source or indirectly from reflecting mirrors.