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THE verdict of the coroner's jury in the case of the fatal accidents resulting from the burning of the Potter building in New York finds that the fire originated in an overtaxed and defective flue, and censures the owner of the building and his agent for not having made, when the flue was built, the usual application to the Building Bureau for permission to repair, which would have been followed by an inspection of the premises, and probably by the correction of the faults of the flue. In addition, the jury commend the conduct of the Fire Department on the occasion, but regret to find that about one-quarter of the men were absent from their posts, some of these having been detailed to serve notices and do similar work not properly connected with their duty. They express their opinion that the division of a large building into small rooms by wooden partitions is unsafe, and recommend that hereafter all elevators and stairways should be enclosed with fire-proof material, and planned as remote from each other as possible; the rapid spread of this fire having been due, they believe, to the proximity of the wooden elevator shaft to the point where the flames first broke out. The conduct of the carpenter, Wier, who first discovered the fire, and fled to the street without notifying the occupants of the building, is also condemned by the verdict, in accordance with which a summons was issued by the coroner for Mr. Potter and Mr. Weir to appear before him and give bonds to await the action of the Grand Jury, before whom the evidence will be placed.

THE execution of the New York law for the regulation of plumbing promises to be very successful, thanks to the character of the gentlemen composing the Board of Health. Our readers are familiar with the excellent rules drawn up by the Board, which are published in pamphlet form, and are sought by plumbers in all parts of the Union, while in New York they are rapidly assuming the character of a standard of work from which no deviation is to be permitted under any circumstances. With the best intentions, however, both architects and plumbers make many mistakes in carrying out their designs, and the inspection of plans and specifications has proved to be a very necessary precaution. Out of three hundred and sixteen plans for plumbing work submitted since October 1, when the law came in force, two hundred have been altered at the request of the Board, many of them on account of the most absurd blunders. In several plans the "foot ventilation," intended to supply air at the bottom of the soil-pipe, had been arranged to connect outside the house trap, where it would be quite cut off from the soil-pipe, but would ventilate the street sewer freely into the front area. In other instances the vent-pipes to the traps had been shown inside the water seal, where they would generally be much worse than useless. Notwithstanding some foolish opposition of a few of the meaner plumbers, the new law has worked well for the trade as well as the public, and although one cannot help looking forward to the time when the administration of such a statute in New York will become inefficient or corrupt, the present Board will at least have done much to educate the public, and establish a permanent criterion.

A PROPOSITION has been made for preventing in some degree the pollution of the water of the Passaic River, which is used in the cities of Newark and Jersey City, by constructing a dam across the stream, at Belleville, some three or four miles above Newark. The tests made by certain experts lead to the belief that a great part of the defilement of which Newark and Jersey City complain is derived from the sewage of those cities themselves, which is discharged into the river lower down, and is brought back by the tide to the point at which the water companies take their supply. It is said that the removal of a reef of rock from the river-bed below Newark has given a freer and more extended flow to the tides; but however that may be, there is no doubt that the drinking-water of Jersey City is now mixed with about three per cent of sea-water, and that of Newark with about one per cent; the presence of the salt water indicating also that of the foul suspended and dissolved matters which it contains. The proposed dam will effectually limit the course of the tide, keeping out with it the sewage from the two cities; but its construction would have serious incidental disadvantages. Although locks are proposed, which would in part remove the objection to the dam as an obstruction to navigation, the residents of Belleville and the country beyond, which is already somewhat malarious, are justly alarmed at the prospect of the construction of works which, according to the best evidence we have, would increase ten-fold the malaria of the lower Passaic valley; and many inhabitants of the towns for whose benefit the dam is intended maintain that little or nothing will be gained by shutting out the tidal waters, if this must be done by converting the stream into a stagnant pool where the refuse from the towns above will accumulate and corrupt. Rather than spend the public money on such a doubtful enterprise, they would prefer to increase the sum if necessary, and use it for extending their acqueduct, so as to take water either from the Passaic above the manufacturing towns which drain into it, or from Lake Hopatcong, a reservoir of pure water forty miles away; and this suggestion certainly seems founded in reason.

THE town of Aurora, Illinois, has been for some time lighted by electricity, in much the same way as the city of Akron, Ohio, but with simpler means, and to judge by the accounts, even more successfully. Instead of the sheet-iron towers employed at Akron, the electric lamps at Aurora are supported upon iron tripods a hundred and fifty feet high, made of wrought-iron gas-piping, from one and a half to two and a half inches in diameter, framed and braced together by similar pipes, connected by suitable unions and fittings, and forming a construction so light as to be unaffected by the wind, but of ample strength for the purpose. Steps, formed by short bars clamped to one of the uprights, give access to the lamps, which are of the Brush pattern, with double sets of carbons, and supply a light of two thousand candle-power each. Sixteen of these lights serve to illuminate the town, and even the suburbs, in a manner very satisfactory to the inhabitants, at an expense of six thousand dollars per annum. The town furnishes the towers, at a cost of two hundred and eighty dollars each, and the lamps are lighted only when there is no moon.

THE project of erecting a new building in Berlin for the German Reichstag, after being abandoned for ten years, has been revived; the land for a site has been purchased, and estimates made for the structure itself. The ground selected is in the newer part of the city, on the eastern side of the Königsplatz, which forms the northerly end of the Thiergarten, or great park of Berlin. The plot is considerably smaller than that allotted for the former building, so that the plans submitted in the famous competition of 1871–2 will be useless, and new ones must be made. Some of our readers will recollect that memorable struggle, in which Sir George Gilbert Scott, associated with his son, carried off one of the second prizes, the first having been awarded to Professor Bohnstedt of Berlin. Although brilliant, the competition can hardly be considered satisfactory, since the commission which awarded the prizes reported that none of the plans were suitable for execution; and the next attempt at obtaining a design will probably be carried out in a different manner, and a strong effort will be made to confine the competition, if one is invited, to German architects. The *Deutsche Bauzeitung*, in order to prevent

waste of time upon impracticable designs, suggests, as a wise preliminary, that experiments shall be made with rough wooden enclosures, to determine the exact proportions, form and mode of lighting most suitable for a legislative hall of the size proposed, as well as of other necessary apartments, and the results communicated to the public, so that all the competing plans will be sure of fulfilling the essential requirements, leaving the talent of each individual designer to display itself in the elevations and the minor details of arrangement. If this sensible idea should be adopted, as we hope it will be, a valuable precedent will be set for future competitions of the kind.

At a meeting of the stockholders of the Submarine Continental Railway Company, held a few weeks ago in London, the chairman, Sir Edward Watkin, and other gentlemen made addresses which contained various interesting details regarding the greatest of modern enterprises, the railway tunnel between England and France. The chairman began by saying that there were now in England, Scotland and Wales fifty-eight thousand miles of underground rail and roadway, much of it at a great depth in the earth, and some under the sea, and in view of what had been already accomplished, the addition of ten and one-half miles more, under the shallow channel did not seem so formidable an undertaking. According to his description, there is a certain deposit of "gray chalk," about three miles wide, extending from the French to the English shore, in which the excavation can be made without timbering to support the sides, and without danger of the water forcing its way through. This chalk bed also presents the advantage of being easily removed by machinery. One or two experimental machines are now in use, and give results which indicate that when the larger ones which are now in process of construction shall be put into use, the headings can, and probably will, be driven forward from each side at the rate of twenty-five yards per day, making a total progress of fifty yards in every twenty-four hours. As there are but seventeen hundred and sixty yards in a mile, at this rate of advance a mile would be made every thirty-five days, or a little more, and the headings should meet in the middle of the Channel in about thirteen months. This seems hardly credible, but we will hope that Sir Edward and his friends are right.

The contest between the various schemes for inter-oceanic transportation becomes, as the session of Congress advances, more and more bitter. The Eads ship-railway is demonstrated by one party to be a visionary and impracticable scheme, while its supporters assure the public that nothing but the patriotism of its beneficent projector induces him to offer once more to the United States government that privilege of furnishing the money for its construction, which English capitalists are eagerly manœuvering to obtain. The Nicaragua Company is less noisy in its appeals to public assistance, but its arguments, if good, will lose none of their force by being quietly presented. Meanwhile, the Panama Company continues to make its preparations for effective work, and a contract has been entered into with an American company for a large amount of excavation, at a very favorable price. The climate, however, continues to tell severely on the foreigners, and it is said the mortality among employés of the Company already amount to many hundred.

The Trustees of the Peabody Museum of American Archæology and Ethnology appeal for subscriptions to a fund which will enable the institution to renew its explorations, which have in previous years been fruitful of good results. The Peabody Museum, founded by the late George Peabody of London, already possesses a building at Cambridge, admirably suited to its needs, and containing the nucleus of a collection of the highest order, and those friends of knowledge who contribute money toward carrying out the purpose for which its founder did so much may be sure that their gifts will be well spent. It seems perhaps a little to be regretted that the efforts of American archæologists, especially in their own country, should not be made with a little more concert. There are now engaged in the study of aboriginal remains between the Isthmus of Panama and the thirty-eighth parallel of north latitude at least four expeditions sent out under the auspices of different learned bodies, including the Charnay party in Mexico; Dr. Le Plongeon and his wife in Yucatan; Mr. Bandelier, the agent of the Archæological Institute, for the present with Mr. Charnay's expedition; and Mr. Cushing, as agent of the Smithsonian Institution, in New Mexico, besides various private individuals engaged in explorations on their own account, such as Mr. Evans of Chicago, in Mexico, and Miss Fletcher of Boston, among the Omahas of Iowa. No doubt the labors of all these intelligent people will have their value, and perhaps the isolated facts which they gather may for the present form suitable material for scientific study, but the time will certainly soon come when more systematic inquiry will be needed in order to secure the best results.

Another example of the trials which afflict architects is furnished us by one of the profession. This gentleman, with his partner, was commissioned to build a small structure for a certain town, and the appointment was announced in the local journals. Soon after, one of the town-council which appointed the architects in question was approached by the city engineer of a neighboring community, who desired him to lay before the next meeting of the council a sketch-plan which he would furnish without charge, for the chance of having it preferred to those already accepted. The councillor reminded him that the architects of the building had been already appointed, to which he replied that he knew it, but thought he could design a building which would be cheaper than any that Messrs. A and B would draw, and his charges for his services would moreover be less than those of the actual appointees. Even this combination of merits failed to satisfy the councillor, who declined to act as the surveyor's messenger in the case. Our correspondent suggests that an engineer employed and paid at the public expense might be expected to occupy his leisure moments in perfecting himself in his own profession, for his own and his employers' good, rather than in attempts to thrust himself, uninvited, into business which belonged to other people.

To this we can only reply that the restrictions laid upon professional men acting under public employment differ greatly, so that there may be no reason why the city surveyor of X should be forcibly prevented from engaging in any employment which suits him during his spare hours, and if he feels an irresistible attraction toward the practice of architecture, that may be enough to justify him in neglecting his opportunities for advancement in his own profession. Moreover, tastes, as well as men, vary in the selection of modes for securing business as well as in other things, and such a method of solicitation as that said to have been adopted by the individual in question, while it would seem intolerably contemptible and humiliating to some delicately organized persons, is regarded by others as a praiseworthy manifestation of business talent and "push." Whatever may be the merits of this particular case, the rule that the better class of architects will occasionally have to struggle for their commissions with the cheap and hungry ones who hang about the flanks of building committees and public bodies is not likely to be soon changed. There will always be in architecture, as in all other professions, men who for one reason or another can afford to work at a lower price than their fellows, and it is likely that there will also always be clients who will consider it an economy to employ them, and it usually happens that the latter get about what they pay for, while the former have no reason to be dissatisfied.

Innovations continue in the administration of the École des Beaux-Arts. A notice has just been issued to the artists who gained travelling prizes at the last exhibition that the quarterly reports of their doings hitherto required of them will no longer be demanded, but in place of this the recipients of the prizes will be expected at the end of the year to take part in a special exhibition, where their sketches are all to be shown together. A new prize in architecture has been instituted at the School, under the name of the Prix Godebœuf, of the value of seven hundred francs per annum. The competition for this prize has just been held, and the award made to M. Quatesous, pupil of M. Pascal. The subject of the competition design was "a carriage porch for an ambassador's residence." Three first and three second medallists took part in the trial. The suppression of the official ateliers, now definitely determined upon, has called forth from the students a second protest, on behalf of those who have enjoyed gratuitous instruction in the school, and will find their expenses increased by about four hundred francs a year if they are compelled to resort to private masters.

SIR FREDERIC LEIGHTON ON MORALITY IN ART.

AN address delivered by its President, Sir Frederic Leighton, to the prize-takers and graduating students of the Royal Academy has recently been reported at length in the English daily journals. Unlike most compositions of its class, it has a more than momentary interest. It is a valuable essay on the fine arts, and is, moreover, so admirably written that it might claim attention for its literary merits only. Painters are popularly supposed to know little save how to paint; but here is one at least who knows also how to write, and who has ideas to express that are infinitely more valuable than the ideas usually propounded by the professional critics who in his country treat of art. It may be a question with some readers, indeed, whether, taking into account the place and circumstances of its delivery, this essay may not prove of more value than any of the pictures Sir Frederic has painted, beautiful and dainty and delightful though they be. It is in the strict sense of the word an essay, and not a mere occasional discourse. In addressing his newly fledged painters the speaker did not touch at all upon the actual practice of their art; nor did he give them mere vague generalities upon the dignity and sacredness of art, though into one of these two channels addresses of the sort are almost sure to flow. We may consider his remarks, perhaps, as directed to the ears of the English public in general, rather than to the especial needs of the particular body of listeners whose presence gave him the occasion of which he made so wide a use. His subject was the relation of art to morality — a question which has more agitated the English breast than any other. The chief of English critics — chief for extent of influence and for vehemence and volume and charm of speech, if not chief for wisdom — has expatiated upon it in ways that are impressive enough, though not always consistent with each other, and seldom in accordance with historical facts. It is impossible, of course, to say what may be the exact mental attitude of Sir Frederic toward Mr. Ruskin. But one may guess at it while perusing this address. It is difficult to believe that one is not reading correctly between the lines when imagining that the President sometimes had Mr. Ruskin in his mind's eye for contradiction when he spoke. We may hope, perhaps, to see his words reprinted in full in one of the English monthlies. But meanwhile a short abstract of their purport may not be uninteresting.

After a general introduction the speaker puts the question "What is the relation in which art stands to morals and religion?" and proceeds to characterize the two modes in which it has been answered. On one side we are told that "the function of art is absolutely unconnected with ethics" and that "its distinct and special province is to satisfy certain cravings and excite certain emotions in our nature to which it alone has access; and that without art not a few of our keenest and deepest capabilities would lie unaroused and barren within us. The corollary generally attached to this proposition is this: that as artistic production springs from æsthetic and not from ethic impulses within the artist, so the character of that production is independent of his moral attitude and unaffected by it."

The theory which stands arrayed against this is admirably presented by Sir Frederic. On this side, he says "it is asserted that the first duty of all artistic production is the inculcation of a moral lesson, if not of a Christian truth, and that the worth and dignity of a work of art are to be gauged by the degree in which it performs this duty. Unless it preach, as from a pulpit, the cardinal doctrines of the faith, or declare, whether by unambiguous symbolism or by definite embodied example, the loftiness of virtue and the deadliness of sin — unless a very gospel made more eloquent by form and color cry aloud to us from the canvas or from the marble — then, we are told, the artist has labored in vain, for his work fails in the fulfilment of the highest function of art. With this contention connects itself, naturally, if not necessarily, this other: that as a man is mirrored in his work, so the noblest work can and in fact has been produced only by the most pious and God-fearing men, of the moral level of whose nature it is indeed the test, and, as it were, the tide-mark. These views, of which, whatever their intrinsic and final value, the moral elevation is very attractive to certain natures, and which have been supported, if not substantiated, by impressive illustrations, have found many advocates and have been proclaimed with the passionate eloquence of an overmastering conviction. And they have been pushed to strange lengths: some men carried away by an unrelenting logic working on an ascetic temperament, have been impelled to assert that the application of art to any save a definite religious end is little less than an act of moral depravity. A further and the strangest development of this frame of mind, one with which I have myself come in contact in my youth in Germany, is that which sees in an excessive love of color an almost culpable indulgence of the senses."

These two theories, the President goes on to say, stand logically opposed to one another, and seem so all-embracing that "the student who sees them distinctly formulated is apt to be tempted to fling himself without further question into the arms of one or of the other, accepting it unreservedly in all its parts. My task to-night is to give you reason, so far as the limits of our time may allow it, to doubt the wisdom of such a course, and to ask you rather to believe that while art is indeed in its own nature wholly independent of morality, and while the loftiest moral purpose can add no jot or tittle to the merits of a work of art as such, there is nevertheless no error deeper or more deadly — and I use the words in no rhetorical sense, but in their plain and sober meaning — than to deny that the moral complexion, the *ethos*, of the artist does in truth tinge every work of his hand, and fashion, in silence but with the certainty of fate, the course and current of his whole career."

Hereupon follows a long and detailed examination of the influence religion has exerted upon the greatest developments of art the world has seen. The speaker reviews the position and the arguments of those who see in its influence the primary cause of the greatness of various art-epochs, and in its neglect the cause of the decline of art. Proceeding to rebut their teaching, he says that it may be argued in the first place that the array of facts produced by such advocates "do not comprise the whole body of evidence to which we must look if we would form an impartial conception and take a comprehensive view of the question; secondly, that the evidence adduced is not, even where it seems strongest, so accurately corroborative of the theory as may at the first glance seem; and thirdly, that through the whole contention lurks the fallacy of mistaking a co-efficient for a — nay, for the — primary cause."

Then follows a survey of the various European schools. Attention is called to the Spanish school, which produced good painters, it is true, while religious influences were paramount among the people as they have rarely been in any country, but the final bloom and magnificence of which were not developed until the seventeenth century, by "a Murillo whose religious works have with few exceptions so little of real religious inspiration," and by a "Velasquez, the most mundane of painters and Shakesperian almost in the width of his mental objectivity."

"Again," he continues, "we need not linger on the sweeping disparagement of the later Dutch and Flemish masters which is logically involved in the didactic theory, and which carries with it the exclusion from the highest places of that supreme painter who revealed to the world the poetry of twilight and all the magic mystery of gloom, Rembrandt of the Rhine. Let us consider rather for a few moments the more specious argument drawn from the growth of painting in Italy."

Premising that the acceptance of the "didactic theory" fills a critic's mind with preconceived decisions which he substitutes for free and unbiassed judgments, and insisting that we must not accept the decisions of such critics as to the relative value of given works of art without making final appeal to "the general verdict of enlightened opinion ripened and confirmed by time," he proceeds as follows: —

"Now, if on a review of Italian art from its rise to its zenith, we ask ourselves which works have, by the consent of a vast majority of the intelligent, been pronounced the most mature and perfect, we shall not find that verdict harmonizing with the one which should be built upon the axioms of the didactic theory; we shall, on the contrary, find that the evolution of art in Italy, an evolution singularly organic and continuous, bears no ratio, unless it be an inverse ratio, to the religious life and development in the midst of which it ran its course."

There follows upon this a wonderfully clear and accurate as well as brilliant sketch of the conditions of life and the progress of art in Italy, from the revival of letters down to the expiring moments of Italian productiveness, — a sketch too long to quote here in full, and too homogeneous and interdependent to dissect and cite in fragments. Then comes a similar consideration of the rise and development of art in Greece, the same decision being arrived at in both cases. This is formulated as follows: —

"In sum, then, we may, I think, say that as far as we have seen, a cursory glance at a few of the points adduced in evidence for the didactic theory does not seem to justify the use made of them, and rather shows us art, not, in truth, uninfluenced by the moral characteristics of those who practise it, but withal growing its own growth as a distinct organism, with its own principles of life, and fed by conditions in which intellectual, moral, and physical causes all play their appointed parts. But if the illustrations by which it is sought to buttress this theory do not in fact uphold it, let us see how it stands with the doctrine itself viewed on its own intrinsic merits."

Then follows a fine argument for the independent position of art and its independent influence upon human nature, the strongest illustration being drawn from a consideration of the art of music, which has never received a more beautiful tribute than here at the hands of this professor of a sister cult. The influence of music, he argues, it is utterly impossible to connect with ethical ideas.

"What ethical proposition can it convey? What teaching or exhortation is in its voice? None; absolutely none. Meanwhile we may safely affirm that a doctrine which should lead in its logical application to the exclusion of this art from the first rank among the intellectual agents which raise mankind, is tainted with grave fallacies. What, then, are these fallacies? They are, I think, the following: first, the assumption that the pursuit of moral edification

can alone confer a claim to the respect of men; secondly, the assumption that moral edification can attach only to direct moral teaching; and thirdly, the assumption that any mode of expression by which appeal is made to the emotional faculties and the imagination can be exercising its highest office except in the application and development of its own distinctive resources — in seeking to convey those emotions of which it is the proper and especial vehicle. And this last fallacy lies at the root of the matter. The language of art is not the appointed vehicle of ethic truths. Of these as of all knowledge — as distinct from emotion though not necessarily separated from it — the obvious and only fitting vehicle for it is speech, written or spoken words, the symbols of ideas. The simplest spoken homily, if sincere in spirit and lofty in tone, will have more direct didactic efficacy than all the works of all the most pious painters and sculptors from Giotto to Michael Angelo, more than the Passion music of Bach, more than a requiem by Cherubini, more than an oratorio of Handel. On the other hand there is a field in which art has no rival. We have within us the faculty for a range of emotions of vast compass, of exquisite subtlety, and of irresistible force, to which art, and art alone among human forms of expression, has the key. Her duty is therefore to awaken those sensations, directly emotional and indirectly intellectual, which can be communicated only through the sense of sight, to the delight of which she is primarily the minister. And the dignity of these sensations lies in this, that they are inseparably connected by association of ideas with a range of perceptions and feelings of infinite variety and scope."

Then follows a passage in which the indirect influence of art for good upon the mind is traced — a passage the purport of which I may perhaps sum up in a phrase which Sir Frederic elsewhere quotes from Beethoven: "He to whom my music reveals its whole significance is lifted up above all the sorrows of the world." Passing towards his conclusion, the speaker then says:

"At the beginning of this address I drew your attention to the fact that of those who claim for art a separate and independent sphere, a claim which we have just seen to be founded and unassailable, many tend further to assert that, therefore, artistic production receives no color from the moral temper of the producer. This I called a dangerous error, and affirmed, on the contrary, that the man is stamped on his work, and his moral growth or lessening faithfully reflected in the sum of his labors."

In applying this dictum, the speaker, while evidently desirous to impress upon his hearers the general fact that good is better than evil, does not refer to what is usually in such a discussion regarded as the chief point at issue. He does not at all refer to the choice of the subject-matter for art. This omission speaks eloquently for itself, though the general tendency of the address should, of course, be taken into consideration in limiting its emphasis. It will perhaps be held by some to be a strong endorsement of the "art for art's sake" theory; but it should be remembered that Sir Frederic does not say exactly "art for art" in the rest of his address. He says "art for the improvement of the human race, but in the way of artistic, not of dogmatic or directly ethic influence." The fact remains, however, that in speaking of an artist's attitude toward his work he mentions merely the influence which faults of character must have upon his life and its results — such faults, in the first place, as the greed for gain.

"Another such deadening taint is the vulgar thirst for noisy success, the hankering of vanity for immediate satisfaction; of this the outcome is a deliberate sacrifice of the abiding appreciation of the intelligent for the transitory and noisy clamor of the unintelligent and shallow, with a fatally sure result of a paralysis of the sense of self-respect, a lowering of standard, and, in the end, an impotent disinclination for every sustained and serious effort."

And the speaker touches, moreover, with vigor and distinctness upon the dangers of artistic jealousy and of the cultivation of narrow and exclusive instead of catholic and generous sympathies. The general argument is then clearly summed up and stated once more in a fine passage of which I may here only quote the most important paragraph, ending thus my brief review of this valuable essay.

"Art, on the other hand, being the proper and only channel for impressions of another order — namely, æsthetic impressions — cannot have for its highest duty the conveying of ethical truths. We saw further that though the impressions which it is the exclusive privilege, and therefore the proper function, of art to convey are primarily æsthetic, they are very complex in their nature and receive an incalculable accession of strength through the association of ideas: and again, we saw that these complex impressions, in which intellectual and ethical elements are thus added to the fundamental æsthetic sensation, having, like those stirred in us by music, the power to raise us to the highest regions of poetic emotion, deserve to rank among the noblest delights of men. And lastly, we have seen that while the inculcation of moral and religious truths must be admitted not to be the object of art as such, nor moral edification its appointed task, it is not therefore true, as some would have us believe, that the artist's work is uninfluenced by his moral tone, but rather that the influence of that tone is, in fact, upon it and controls it from the first touch of the brush or chisel to the last."

These words, it seems to me, may well be remembered as a formula to express the true bearings of the subject treated by the President. The spirit of this paragraph shows in what we should believe the morality or the lack of morality of a work of art to consist — not, as is so often stated, in the subject which it actually presents to our eyes, but in the frame of mind it inspires in us through the key-board upon which it plays — through those notes of emotion and of ocular delight which it alone can touch, and by which all the other springs of our mental being are more or less put in motion.

If I may further pursue the train of thought suggested by this essay, it must be to say that the influence a work of art will have depends not only upon the nature of the painter, but also upon the nature of the spectator, upon whom falls a great part of the responsibility in the matter. A high artistic culture, a deep and even technical acquaintance with art, is valuable for this if for no other reason — valuable in that, causing us involuntarily to concentrate our attention upon the *art* as such, we can appreciate its beauty and profit by the emotions it excites in us for good, while remaining unaffected by whatever extraneous elements in the making of the work may be less than pure or noble. Fine art consecrates in its own way whatever it may touch; but if the observer does not understand its voice, the baptism is not for him. A subject may be pure and profitable to the eyes of the true art-lover which to the blind Philistine will be a stone of mortal stumbling.

M. G. van Rensselaer.

A TRIP ABROAD — FINAL HINTS TO FUTURE TOURISTS. — V.

From the *British Architect.*

AFTER a boisterous night crossing the English Channel, on a not over-comfortable steamer, we arrived at Southampton in a pouring rain at 6 A.M., on the morning of August 25; but spite of this damper, after a good warming breakfast, we determined on going to Salisbury. On arriving there at half-past eleven, we wended our way at once to the cathedral, where we found a Missionary Service in full blast, and which, with the utter disregard of "weather" that the English people, especially the female portion, possess, was remarkably well attended. After this was over we strolled leisurely about, examining the symmetry of arch and pillar, which being all of one style, Early English, have a beauty of unity unknown elsewhere. If the interior is plain and bare, it is yet chaste and beautiful, and the stalls, furniture and tile flooring of the choir, designed not long ago by Sir Gilbert Scott, although much richer, are yet well in accord with all around them. When we made our exit the rain was descending in such torrents that we were glad to rush back at once to the station, without more than a passing glance at the unsurpassed exterior and the exquisite and marvellously constructed spire, some of the stones composing which being, I understand, not over five inches thick.

August 26 found us making a tour, partly pedestrian, of the Isle of Wight. To give an idea of what can be accomplished in one day with the aid of guide-books (not Bradshaw's, which is enough to put one in Bedlam in a week, and is only useful for its map) and previous planning, I will state what we accomplished on this expedition. Leaving Southampton on a small steamer at 8.30 A.M., we arrived at Cowes about 9.15, and our train not starting until 10 o'clock, we took a stroll up and down the principal street and a peep into some of the neat little stores. After a few minutes ride we reached Newport, from whence a walk of about a mile and a quarter brought us to Carisbrooke Castle, at which place there is literally nothing to be seen but moss-grown and tumbling walls, a portcullis or so, and a curious sort of treadmill wheel, in which a donkey demurely walks, drawing up deliciously cool water from a dark and deep well. At 1 P.M., the train left Newport for Sandown, and arriving at the station some twenty minutes before that hour we lunched. From Sandown where we landed at 1.30, we walked through the five miles of beautiful country that separates it from Ryde, arriving at the latter place about 3 o'clock. This, the largest town on the island is much the most interesting to the architectural tourist, on account of its many pretty stone villas and well-designed stores. At 5.30 we were again on the water, reaching Southampton at about half-past seven, after a good view of Osbourne House, sitting on its bush-embowered hill. Thus we had seen the greater part of the island except the wild west coast and the beautiful Ventnor.

And now, bright and early on the morning of the 27th we are again on our way "up" to the metropolis, passing through the lovely south of England landscape, rendered still more green and beautiful by the recent rains. During this second visit to London, I had an opportunity of viewing All Saints' Church, Margaret St., Regent St., the only English building, I believe, that Mr. Ruskin ever really praised. The small, though sturdy mass, including the schools, as well as the church proper, with its well-designed interior decoration

in many and subdued colors, beautiful glass and pictures, certainly does not give the lie to his words. While still lingering in London, we also visited the National Gallery, and walked through the parks, past St. James's and Buckingham palaces to the Kensington Museum. Nor did we forget to spend an hour or so among Doré's pictures at the gallery on New Bond St.

The morning of August 31 found us again at Liverpool, and late in the evening we reached Glasgow, spending part of the next day in a walk to the new University, an admirable production of Sir Gilbert Scott's genius.

We sailed on the 2d of September, and having run aground were delayed all night in the Clyde. The following day we stopped at Larne, in Ireland, the port of Belfast, for a few hours, and such of us among the passengers who still preserved some energy for sight-seeing went ashore, and wandered about among the thatched cabins, which were the principal specimens of street architecture. After several days of storm, and a glorious Sunday off the banks of Newfoundland we reached New York on the 15th, having been absent exactly ten weeks.

I have now given a succinct account of what we did and saw, and it becomes me to keep the promise made in my first paper, and to state the costs, and give limits for the benefit of those who may think it wise to avail themselves of such information.

And primarily as to luggage. Take no more than will contain what you cannot possibly do without. I took a small tourist satchel, slung over the shoulder by a strap, and a hand-portmanteau not too large to be easily carried. Besides these, an umbrella, mackintosh, and a suit of old *heavy* clothes for the sea, the latter being done up in a bundle to await my return in Glasgow, completed my outfit. Should I go again, I should take exactly the same, only adding an overcoat, or heavy shawl for ocean use, and a couple of flannel outer shirts for the same purpose. No "dusters" are needed in Europe, and one can travel continuously for a long time in the same suit, premising that it be originally a good one, without its being any the worse for wear. The satchel that I speak of was of the utmost use: we frequently on walks, or when spending only a night in a town, would leave our heavier bags at the railway stations, and take with us the small one containing only such things as we needed for the short time, not omitting candles and soap. We thus, besides saving ourselves the care of trunks, were not looked upon as travelling *en grand seigneur*, and accordingly no attempt was made to impose upon us.

A second preparation that saved us both time and money was a smattering of the languages of the countries through which we travelled. Although at most of the hotels there is some one who speaks English, after a fashion, yet at the stations and other places one must talk the native tongue if only to a limited extent, otherwise bewilderment and trouble are too often the outcome. And again, travellers frequently lose money by not being familiar with the currencies of the different countries, and not being aware that all coins except those of gold are valueless across the border. By means of our letter of credit, we supplied ourselves in the places where we halted with just sufficient cash, by calculation, to carry us through that country; if we had anything over we spent it in little trinkets as remembrances. We thus not unfrequently arrived at a place with pockets bare of cash; but with the all-powerful letter of credit we were never delayed or annoyed a single hour, and besides only lost *ten cents*.

As to the sea passage something may be said. Of the many lines at the present day crossing the ocean, we selected the "State," not only on account of its being very reasonable in price, but also because it landed us in Scotland, and took us by the North coast of Ireland, and up the Clyde, perhaps the most beautiful approach to the old world. Besides which, we obtained our Scotch trip practically free, the Steamship Company (for the purpose I suppose of competing with the Liverpool lines) furnishing us with passes both ways between Liverpool and Glasgow or Edinburgh as one pleased. The whole cost of the round trip, including outside stateroom, for *two* only in both cases, excellent living, and the aforesaid railroad ticket was but $110 apiece.

In selecting hotels we were generally guided by the information given by the "Satchel Guide," a most valuable little book published yearly, taking the hotels marked *second*. Many of this description I have mentioned in the preceding papers. In these the prices varied: sometimes as much as 5*s*. 3*d*. apiece, for bed and breakfast, at others, as the Oxford, Southampton, as little as 2*s*. 9*d*. for the same. The breakfasts and teas at most of these hotels, especially those denominated "Temperance," of which I have spoken previously, are regulated by a scale of prices: so much for a plain meal, bread, butter and tea; so much with the addition of eggs; so much with meat. On the Continent the same idea obtains. On going to a hotel we found it best always to inquire in advance the price of rooms, meals, etc., including *attendance*; thus we had never even the suspicion of an overcharge. As to lights, we took our own candles with us, and kept a vigilant eye on the over-officious servants, who would frequently try to steal a march on us, and light the candles the rooms always contained before we reached them. In several such cases we recalled these domestics and made them remove the tapers. This may seem a small matter, but as the charge for each *bougie*, be it ever so little burned is a franc, the amount is not a small one in the end.

In travelling by rail, we found the third-class carriages in England, and the second on the Continent, all that could be desired. We were seldom overcrowded, and invariably treated politely. In long journeys, and especially the one by night from Switzerland to Paris, we deemed it best to take first-class, the softly cushioned seats making excellent lounges. In steamboat travel on a clear day, the second-class passage is invariably to be preferred. The fore part of the boat is appropriated to this class, and there is generally much less crowding than at the stern. I do not speak from experience here, but judge from what I saw.

We always hired cabs when we thought it best, making always our bargains in advance. On arrival at London we purchased a "Cook's coupon ticket" for the Continental journey, without, however, the hotel additions. Some few of the Swiss tickets we did not use. I do not think I should do the same again, believing I could travel more cheaply on my own unaided resources.

Lunching in England is quite a business, and at all the railway restaurants, those of Speirs & Pond being the best, excellent eatables can be obtained at reasonable prices. We had wine every day on the Continent, either that of the Rhine, or such claret as Medoc or Macon, never the *vin ordinaire*.

I kept a record of every item of expense, and the total cost of the trip from the time we left the steamer until our return was but $156 apiece, considering exchange at $4.86 on the pound. We were on land in all 47 days, thus making the average cost per day, about $3.33.

This added to the ocean trip made the total cost $266 from New York to New York for 70 days; the total average was $3.80.

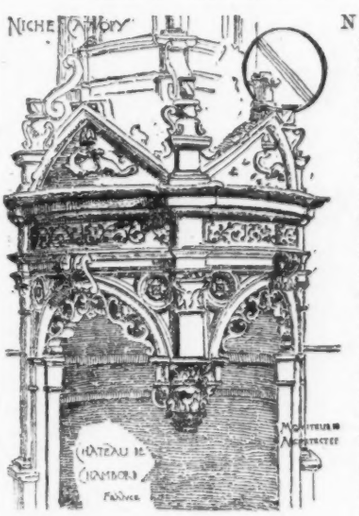
The above amount included stewards' fees, all entrance fees to buildings, etc., and fees to porters and others at the hotels.

These being the absolute facts will show with what economy such a journey can be made, and how ridiculous it is to talk about the great expense. It is true it requires careful management, but no superfluous counting of small change, and I believe, that with what experience I now possess I could do it even cheaper.

A few words may be said in conclusion about tact. If one goes abroad with the idea that American notions and ways of living must be abided by, and scoffs at anything but these, always going by the rule "as it is done in America," he must expect to pay and suffer for it. If, however, he has the philosophy to do in each country as the inhabitants thereof do, guiding his own actions by what he sees around him, he need never have one moment's disgust, rarely any inconvenience, and will accomplish everything with great ease and success.

T. BUCKLER GHEQUIER.

BUILDING ACCIDENT AT CINCINNATI



ON the night of February 6, two walls of the building now being erected by Thomas Emery's Sons, for mercantile and hotel purposes, corner of Sixth and Vine Streets, Cincinnati, fell. One of the walls that fell was a nine-inch wall, seven stories, or eighty-three feet high, and rested on two twelve-inch I-beams of twenty feet span, and had no tie or brace of any kind, did not support any joists, nor was it anchored to the joists that ran parallel with it. The lintel that supported this wall must have been amply strong for the purpose, as it was found in the débris not broken. The real cause of the accident will perhaps remain a mystery, but it is reasonable to suppose that it was caused by the vibration of this wall, and perhaps it really slipped off of its support as it certainly had no particular reason to stay on. It is conjectured also that perhaps the templates upon which the above girder should rest on the brick pier built out to receive it were omitted in this instance, and hence that the pilasters were crushed by the load. This however, has not been ascertained to a certainty. This nine-inch wall it should be stated started from the line of the second-floor joists.

The other wall that fell was thirty-four feet long, running north and south with the building, and supported joists all the way up for seven stories and the roof. The wall was seventeen inches thick for its entire height, and was sixteen feet higher than the nine-inch wall. This second wall had flues built in its thickness, the number of the flues increasing with each story. This wall also had openings on each floor four feet wide and nine feet high, which by the way were not called for by the original drawings. Of course these flues and

openings weakened the wall and prepared it for exactly the position which it afterwards assumed — in the cellar. The foregoing is a brief statement of the facts in the case, and had the accident happened in the daytime, it would have resulted in the loss of several lives: as it is the loss is confined to dollars and cents.

Public opinion at once assumed that the entire building was an architectural and constructional fraud, and no inconsiderable number were for tearing down the entire structure. The Board of Insecure Buildings took hold of the matter, and appointed a committee of experts composed of Messrs. M. Clements, iron contractor, James Griffith, carpenter, and J. G. McGarvey, brick-mason, all men of first-class ability in their several callings. These gentlemen made a report to the Board, wherein they set forth the above facts, and they recommended several changes in the construction, all but one of a minor character. This one change is to take out all the iron columns in the office and dining-room. This change will certainly be a very serious one if made,—as the walls are up to the roof, seven stories,—and the entire building will have to be shored up. Carefully estimated, there is, or will be not exceeding 140 tons on these columns, and this weight is only on one of the columns, as the estimate is based on the greatest span for weight. The column supporting this load is fifteen feet high, ten-inch diameter at the top, twelve-inch at bottom, one and one-fourth inch thickness of metal. This column according to several formula will break under a load of about 800 tons, thus leaving a margin of safety of nearly six, which is certainly sufficient, unless it be, as the experts claim, that the heavy base (which ought to have been cast as a shell) cast on to the column and about four feet above the bottom tends to greatly weaken the column by the uneven cooling of the metal.

Mr. Samuel Hannaford is the architect for the Messrs. Emery, and we understand proposes to fight the Board upon this point.

The Emerys do a great deal of building in Cincinnati, having put up 115 houses last year, and it is a wonder that they have not met with accidents before, when we consider the way in which they do their work. They only employ partial architectural services; that is they have drawings prepared for the fronts and details for the same. The architect does not write the specifications, nor does he superintend the building in any way; a Mr. J. B. Stienkamp acts as superintendent. Of course this is done with the full knowledge and approval of the owners. C.

THE ILLUSTRATIONS.

HOUSE FOR GILBERT R. PAYSON, ESQ., WATERTOWN, MASS., MESSRS. VAN BRUNT & HOWE, ARCHITECTS, BOSTON, MASS.

HOUSE FOR JOHN E. BELL, ESQ., WALNUT HILLS, CINCINNATI, O. MR. SAMUEL HANNAFORD, ARCHITECT, CINCINNATI, O.

This house is built of blue limestone with Ohio River sandstone for the finish.

CENTRAL INSTITUTION FOR THE CITY AND GUILDS OF LONDON INSTITUTE FOR THE ADVANCEMENT OF TECHNICAL EDUCATION, SOUTH KENSINGTON. MR. ALFRED WATERHOUSE, A. R. A., ARCHITECT.

[From the *Building News.*]

The "foundation-stone" or memorial column of this building was laid in July last, in Exhibition-road, South Kensington. The building will consist of a front of 300 feet in length, of five stories in height, averaging 15 feet 9 inches from floor to floor so far as regards all but the topmost, which will be of varying heights, the central room and the two rooms at the extremities of the building being much higher than the rest. The northwest corner at the back is only four stories in height, consequent on the greater height of the lecture-rooms penetrating the first floor. A corridor 10 feet wide runs through the building from north to south, and there is a cross corridor 7 feet wide in the return portion of the building on the north. All the space at the back behind the main corridor (with the exception of the lecture-room wing on the north) is left for the present unoccupied, save by workshops under glass roofs at the basement floor level extending over a portion of the space. The main staircase, which rises by a double flight immediately opposite the principal entrance lights by its numerous windows the centre of the building. The entrance is in the centre of the main front, the ground-floor level being approached by about ten steps from Exhibition-road through a large and handsome hall, 37 feet by 33 feet 6 inches, the groined ceiling of which is supported by four piers, the inner ones being of granite. It was one of these which formed the memorial-stone before alluded to. In order to facilitate communication between the different floors, two subsidiary staircases are placed on the west side of the main corridor towards its extremities, and have lifts in their immediate proximity. The requirements which were originally decided upon, though they were, doubtless, not exhaustive, involved a superficial area of 41,000 square feet of floor-space, not including corridors, etc. The plans contain accommodation under the following heads: — Mechanics — Nine workshops or class-rooms; three sheds with glass roofs; mathematical class-room. Physics — Thirteen class-rooms, etc. Art — Seven class-rooms, etc. Chemistry — Seventeen laboratories, class-rooms, special laboratories, and private rooms. Metallurgy — One workshop. Council chamber and six other rooms for the administrations; two unappropriated rooms; two lecture theatres, each holding upwards of 200 students, with preparation rooms adjoining. Students' rooms — Reading-room and library, refreshment-room and lockers; housekeeper and porter; engine-room and heating apparatus; coals and wood; lavatories, water-closets, etc. Behind the centre of the building are three glass-roofed sheds, which can be divided at pleasure, and will be adapted for processes which might give rise to annoyance if within the walls of the main building. On the first floor, in the centre, is the council chamber, a handsome room, 37 feet by 33 feet. To the right are five rooms devoted to the administration, with two rooms on the opposite side of the corridor unappropriated, the students' library and reading-room being at the northeast corner of the building. To the left are four rooms devoted to physics. The upper part of the lecture-rooms occupy the rest of the first floor, and the corridor between them will be of use in gaining access to the upper seats. On the second floor are placed seven rooms devoted to Art in its various branches, whilst the whole of the north end of the building on this floor is given to chemistry, there being two large chemical class-rooms, with a photographic room in the centre, two private rooms behind them, and four rooms to the front. The front and returns up to the north and south areas are proposed to be faced with red brick and terra-cotta. The chief merely ornamental features of the front will be the arms of the City of London, and of the various Guilds the benefactors of the building, which are up to the present time as follows: (1) Mercers, (4) Goldsmiths, (18) Plasterers, (17) Ironmongers, (15) Carpenters, (9) Clothworkers, (6) Salters, (2) Drapers, (7) Coopers, (13) Armorers and Braziers, (19) Needlemakers, (10) Dyers, (3) Fishmongers, (12) Pewterers, (21) Wheelwrights, (16) Cordwainers, (11) Leathersellers, (5) Skinners, (8) Vintners, (14) Bakers, (20) Plumbers.

RAMBLING SKETCHES BY MR. T. RAFFLES DAVISON.

[From the *British Architect.*]

The talented author of these sketches states that they have been made at various intervals whilst on journeys (generally hurried) and chiefly finished in ink on the spot.

PORCH AT PENRITH.

[From the *Architect.*]

GATEWAY, ST. JOSEPH'S CHURCH, ROEHAMPTON, ENGLAND, MR. F. A WALTERS, ARCHITECT, LONDON.

[From the *Architect.*]

This gateway which forms the entrance to the church-yard from the main road is built of English oak, with a roof of red tiles.

DESIGN FOR A JACOBEAN SIDE-BOARD BY B. J. TALBERT.

[From the *Cabinet Maker and Art Finisher.*]

THE RECREATION HALL OF THE HOLLOWAY SANATORIUM, NEAR VIRGINIA WATER, ENGLAND. MR. W. H. CROSSLAND, ARCHITECT.

[From the *Builder.*]

THEATRE DE LA COMEDIE PARISIENNE. M. DESLIGNIERES, ARCHITECT.

[From *La Semaine des Constructeurs.*]

The façade of this new theatre is chiefly interesting from the effort of the architect to make use of such polychromatic materials as modern processes have placed within his reach. Thus the two pilasters that define the central *motif*, as well as the balustrade across the whole front of the building, are of painted faience; the arched window-heads are of blue enamelled brick; the frieze separating the first and second stories is mosaic work on a gold background; the pediment, the mask and panel which bears the name of the theatre, the two escutcheons in the panels of the second story and the capitals of the two faience pilasters are all of red terra-cotta; and finally the nine windows of the *foyer* are filled with brilliant stained glass. In this way the stone-work of the building has been reduced to a minimum. The front of the building on either side of the main entrance is devoted to two cafés.

LEGAL NOTES AND CASES.

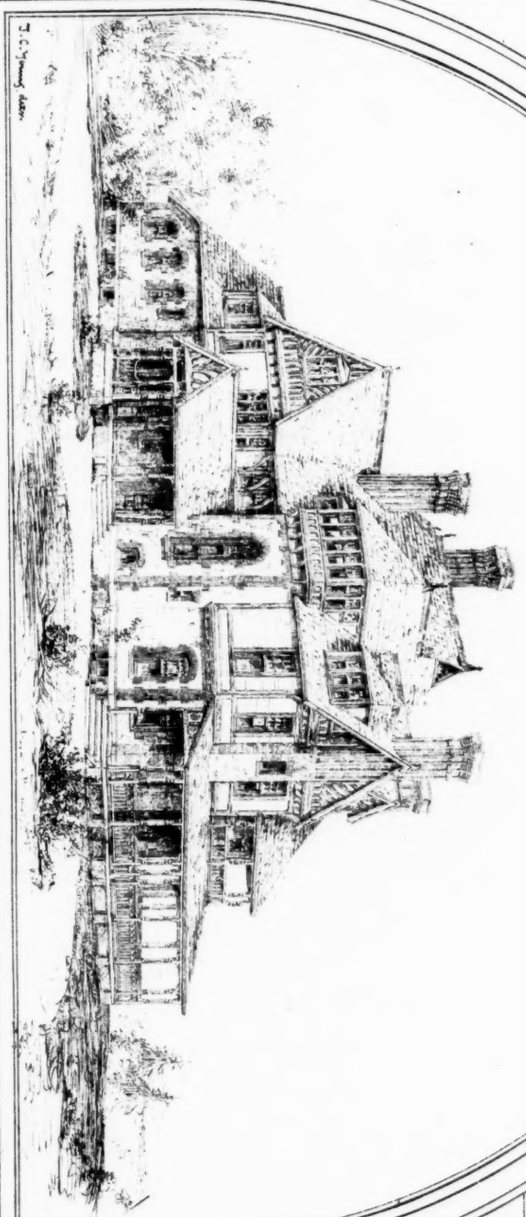
Negligence.—Nuisance.—Municipal Corporations. — Excavation for Vault.—Explosion of Gas.

[From the *British Architect.*]

THE Supreme Court of Pennsylvania on January 16, 1882, in *Strawbridge vs. The City of Philadelphia*, considered and determined a question of negligence arising out of the explosion of gas escaping from the city mains into an excavation made by a merchant under the sidewalk to construct a vault.

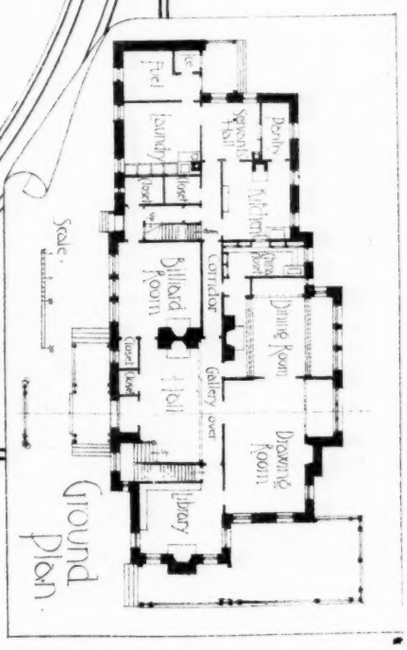
When the case was called for trial the counsel agreed to its reference. The referee found the facts as follows: The plaintiffs were owners of certain premises at the corner of Eighth and Market Streets, used as a dry-goods store. For purposes of their business

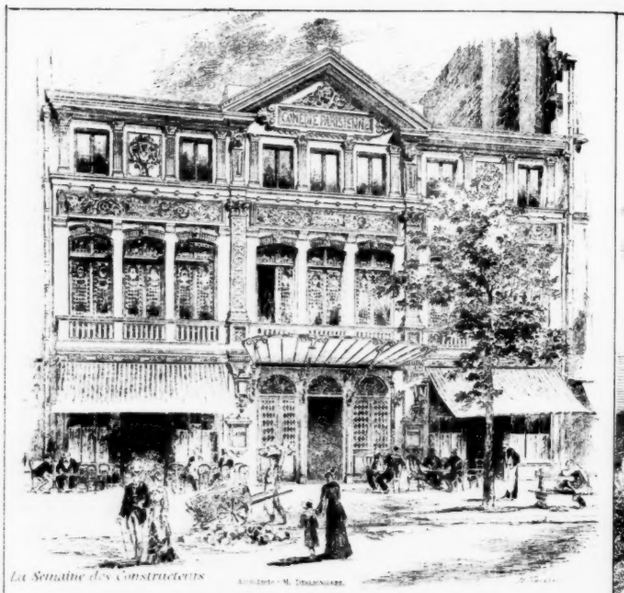
House for
Gilbert R. Payson Esq.
Watertown
Mass.



Van Brunt & Howe.
Architects
Boston

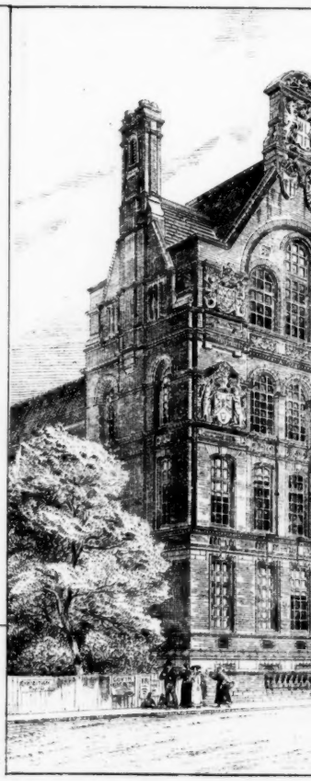
Ground Plan





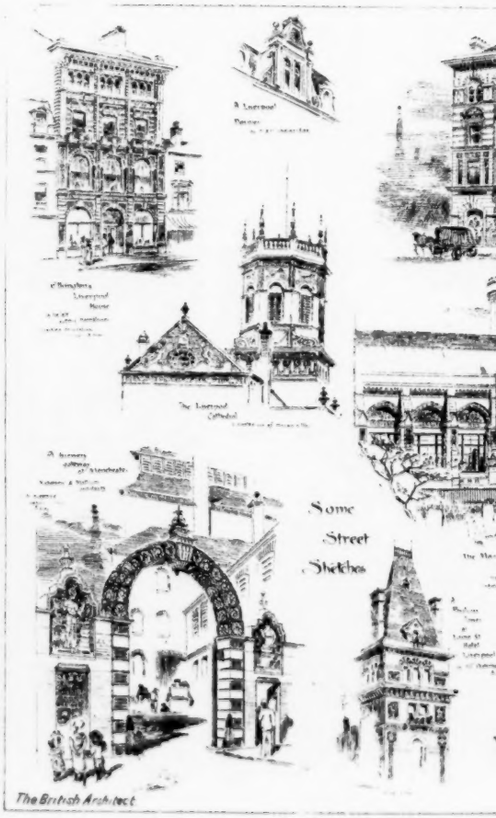
La Semaine des Constructeurs

NOUVEAU THEATRE DE LA COMÉDIE PARISIENNE

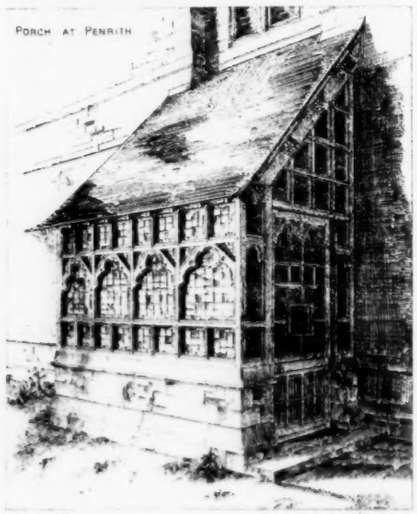


The Building News

Ovr Foreign Exchanges II



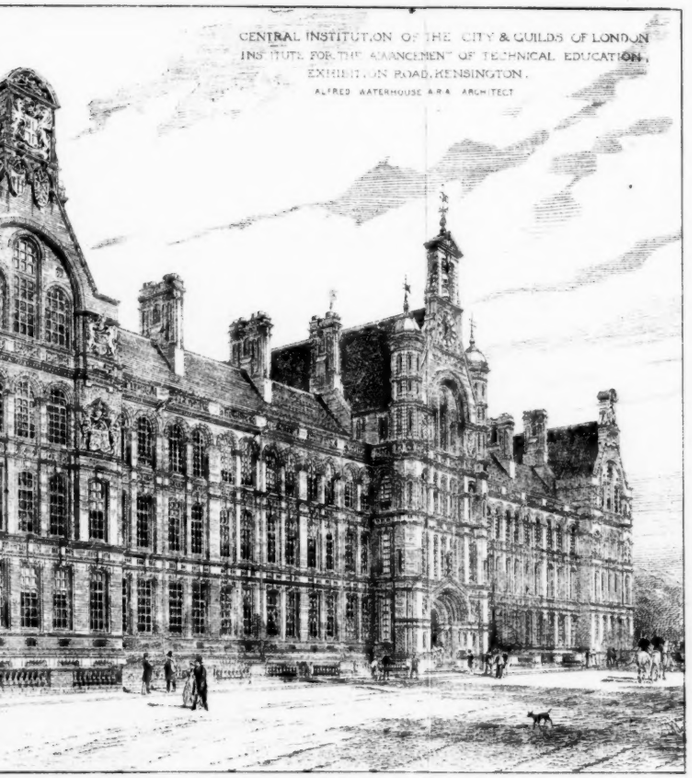
The British Architect

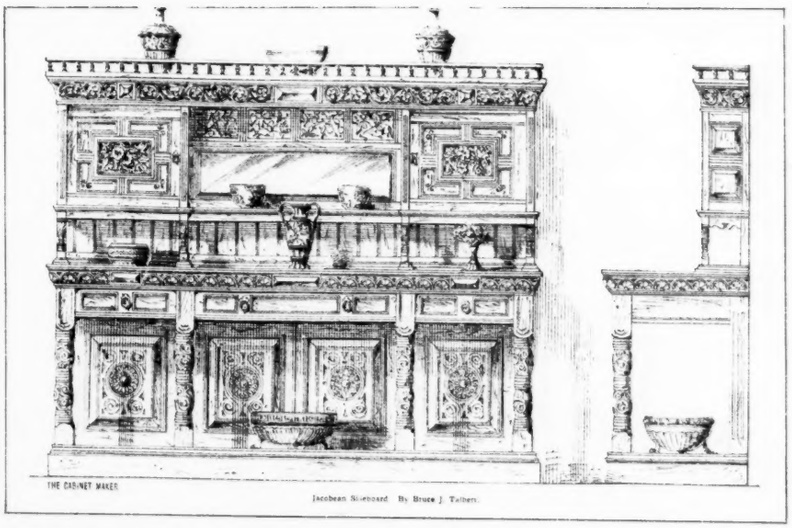


The Architect

CENTRAL INSTITUTION OF THE CITY & GUILDS OF LONDON INSTITUTE FOR THE ADVANCEMENT OF TECHNICAL EDUCATION, EXHIBITION ROAD, KENSINGTON.

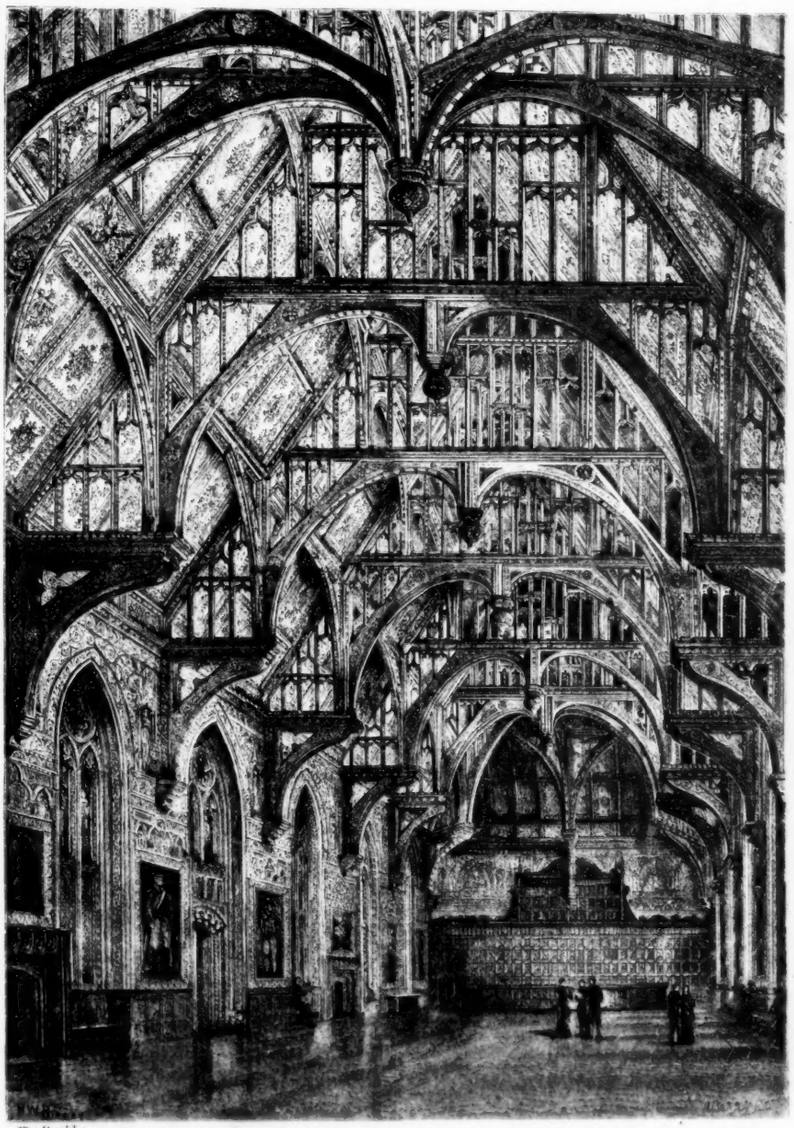
ALFRED WATERHOUSE A.R.A. ARCHITECT.





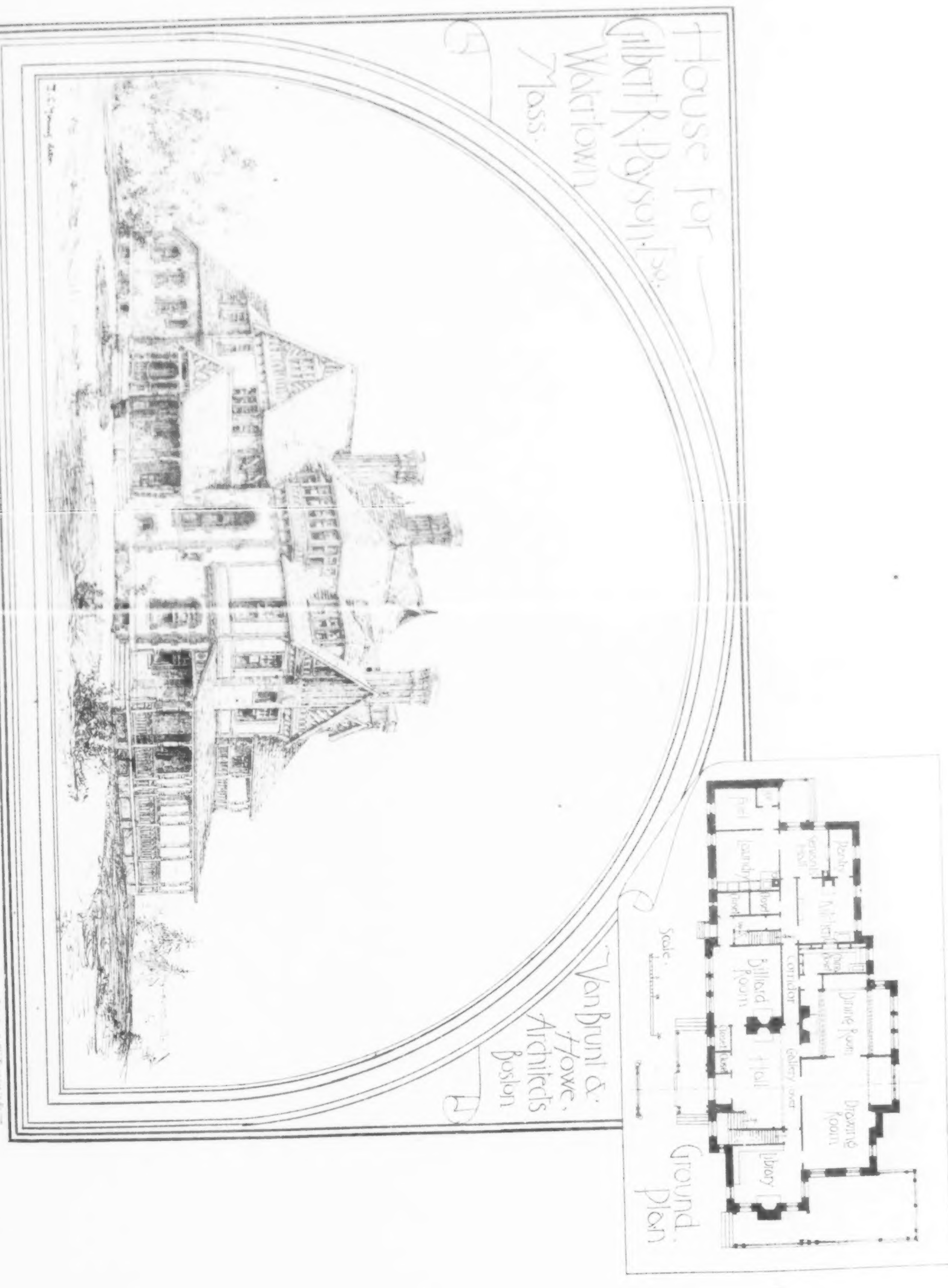
THE CABINET MAKER

Jacobean Sideboard. By Bruce J. Talbert.



The Builder

THE HOLLOWAY SANATORIUM, NEAR VIRGINIA WATER: THE RECREATION HALL.—MR. W. H. CROSSLAND, ARCHITECT.


House for
Gilbert R. Payson Esq.
Watertown
Mass.
Van Brunt &
Howe,
Architects
Boston
Ground
Plan
Billiard Room
Hall
Drawing Room
Dining Room
Library
Laundry
Corridor
Gallery over
Scale

they had made an excavation under the pavement on Eighth Street, and covered it with glass and large paving stones, supported by iron girders. They had also made a further excavation, extending into Eighth Street, two feet six inches beyond the curb line, and had built therein a fire-proof vault. On August 10, 1874, one Tomson, a contractor, was engaged in building for the city a sewer on Eighth Street, past the premises of the plaintiff. Shafts were sunk, and in the prosecution of the work the gas-main belonging to the city of Philadelphia, and laid by its authority, was occasionally exposed. In the course of the work the main was carefully shored up. When the workmen reached the fire-proof vault the earth along-side of its outer wall and part of that under it naturally fell away, and the gas-main was exposed. Between six and ten P. M., on August 10, 1874, the gas-main was broken, by some cause unknown, and the gas penetrated into the plaintiff's vault, and an employee of the plaintiff entering with a lighted candle an explosion took place, damaging goods of the plaintiff to the extent of $6,266.25.

Upon the above facts the referee delivered an opinion: The plaintiffs claim that the city is liable under the third count of the declaration "that the defendants ought to have hindered and prevented the escape and flow of gas out of said pipe and into the said premises of the plaintiffs;" but that they "permitted large quantities of gas to escape from said pipes into the premises of the said plaintiffs, so that the same became ignited and thereby" damaged the plaintiffs. They contend that the city had no authority from the commonwealth to place the gas-pipes in the street; that it was only carrying on a private commercial venture, and that the injury resulting therefrom must be compensated irrespective of negligence. A careful examination of the authorities has satisfied the referee that no recovery could be sustained in this case without proof of negligence. If the injury to the plaintiffs had resulted from the negligence of the contractor, their action would not be against the city but against him. *Painter vs. City*, 10 Wr. 213; *Reed vs. Allegheny*, 29 P. F. S. 300; *Wray vs. Evans*, 30 Ib. 103; *Elliot vs. Philadelphia*, 25 Ib. 347; *Erie vs. Caulkins*, 5 W. N. C. 129. But in this case it is admitted that no negligence has been shown on the part of the contractor or of the city. This is not a case of nuisance. A business which is lawful, and is carried on reasonably, and which does not necessarily affect health, comfort, or the ordinary uses and enjoyment of property in the neighborhood cannot be a nuisance. *Rhodes vs. Dunbar*, 7 P. F. S. 290. It was certainly lawful for the city to manufacture gas for the purpose of public and private illumination. The transmission of the gas through pipes of good quality, laid under the streets, was not carrying on such business in an unreasonable way, and did not necessarily affect the health or comforts of the plaintiffs, or their ordinary use and enjoyment of their property. This case is, therefore, readily distinguished from *Gas Co. vs. Murphy*, 3 Wr. 257; *Shuter vs. Philadelphia*, 3 Phila. 228; *Smith vs. Phillips*, 8 Ib. 10; *Gas Co. vs. Broadhead*, 7 H. of L. 600; *Banford vs. Lumley*, 113, E. C. L. 62; *Smelting Co. vs. Tipping*, 11 H. of L. 642; *Phinizy vs. Councils*, 47 Ga. 260; *Cahill vs. Eastman*, 18 Minn. 324; *Wilson vs. City*, 108 Mass. 261, and many similar cases. All of these cases were cases into which the question of negligence or no negligence did not enter because the defendant's acts amounted to nuisances: the injury inflicted upon the plaintiffs being the direct and necessary consequence of the defendant's operations.

If the escape of gas into the plaintiff's premises had been shown to have been the result of the use by the city of imperfect and insufficient pipes, the city would be responsible on the ground of negligence. If its escape into the plaintiff's basement had been shown to have been the direct and necessary or unavoidable consequence of gas-pipes under the street and near the plaintiff's premises, the city would be responsible, because it thereby created a nuisance. Negligence need not have been shown where the nuisance is established; and no amount of care or diligence exempts him who sets up a nuisance, whereby I am injured, from the legal necessity to compensate me for the loss or injury he has caused me. But the injury here was not the result of the city's negligence in using imperfect and insufficient pipe; nor was it the direct and necessary consequence of the city's placing gas-pipes along and under Eighth Street. The pipes were of good quality, and during the several years which had passed from the time when they were first laid no one in the neighborhood had suffered any inconvenience therefrom. It will not be contended that the city was maintaining a nuisance, whereby the plaintiffs were injured.

But the plaintiffs do contend that injury resulting from the conduct of private business must be compensated irrespective of negligence, under the maxim *sic utere tuo ut alienum non lædas*, and under the principle in *Fletcher vs. Rylands*, L. R. 3 H. of L. 330, that any one, who for his own advantage, brings upon his premises any dangerous thing, likely to escape and do mischief, must pay for all damages which result, if it does escape, irrespective of negligence. While the doctrine in that case has been affirmed by some of the courts of this country in cases of nuisance, or where the damage was the direct and necessary consequence of the defendant's acts, the New York court of appeals, in an opinion reviewing all the American authorities, and the reasoning of which seems to be unanswerable (*Lassel vs. Buchanan*, 57 N. Y. 476), decided that such had never been the law in this country, and that no man, without fault or negligence on his part, could be held liable for damages accidentally resulting from the conduct of a lawful business on his own premises, where such business, or the mode of conducting it, does not amount to a nuisance. In *Sanderson vs Pennsylvania Coal Co.*, W. N. C., October 3, 1878, the principle *Fletcher vs. Rylands* was approved as applying to the case under consideration, which was in every essential a case of nuisance. The court said: "But except where it is qualified by the existence of peculiar conditions the duty of the owner of property is defined by the maxim *sic utere tuo ut alienum non lædas.*" A recent English case, in principle, closely analogous to this action against the city, and in which *Fletcher vs. Rylands* was thoroughly discussed and distinguished, is the *Madras R. R. Co. vs. The Zemindon of Cawatenagarum*, L. R. 1 Ind. App. 464. It must be evident from the cases cited that there is not, in this country, at least, any such unbending rule as that contended for by plaintiff's counsel, by which every accidental injury caused to another by the lawful use of one's property, or by the lawful conduct of his business, must be compensated irrespective of negligence; or which compels the city to make compensation for injury done by the accidental escape of gas from its pipes, without fault or negligence on its part.

Even if the doctrine of *Fletcher vs. Rylands* were accepted as the rule of law in Pennsylvania, there are such differences between the facts of that case and of the one under consideration as to render it extremely doubtful as to whether it is applicable to a case like the present one. In that case the defendants built a large reservoir for the convenience of a mill which they were operating. For their sole advantage they collected in it an unusually large quantity of water, which would probably, if not necessarily, do harm to their neighbor's property in the event of its escaping, and which naturally and certainly would escape unless restrained by the precautionary measures taken by the defendants. It was, therefore, an essentially and highly dangerous thing which they had brought upon their premises, and there was consequently imposed upon them the duty of restraining it, for they brought it there at their peril. If they selected an unsafe site and built insecure and insufficient walls they fell short of their duty and cannot be said to be without fault. Yet this is just what they did do. The engineers placed the reservoir over two old shafts of abandoned mines, of the existence of which they were ignorant; the engineers failed to make suitable and necessary provision for the support of the water they brought upon the premises, and this was the undoubted cause of the accident. How can it be said that the defendants were without fault? Here the city is carrying on a business which, while for certain purposes it must be treated as a private business, cannot but be considered as a great public improvement of inestimable benefit to all its citizens. In all the benefits the plaintiffs shared, and may they not as citizens sharing in the benefits, and especially in view of the fact that the pipes were laid by virtue of an ordinance of the councils of the city, be presumed to have consented to such a use of the streets for their individual as well as for the general good? And to have waived their right to compensation for injury accidentally resulting therefrom, where neither fault nor negligence on the part of the city could be established?

Again, there was nothing in the business which the city was carrying on essentially dangerous.

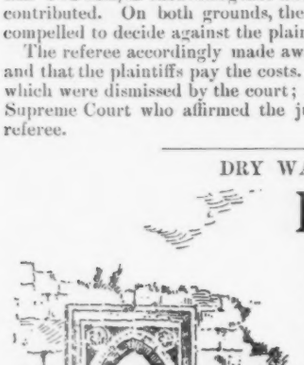
Lastly, unlike the case of *Fletcher vs. Rylands*, where the cause of the accident was manifestly the failure to select a safe site for the reservoir and to provide a secure support for the dangerous mass of water, the cause of the breaking of this pipe and the consequent escape of gas is, and must remain, unknown. Would it not be straining the principle of *Fletcher vs. Rylands* beyond reason to apply it to a case so essentially different? This would seem to be one of those exceptional cases referred to in *Sanderson vs. Coal Co., supra*, when by reason of the "existence of peculiar conditions" the maxim *sic utere*, etc., does not apply, and where "from necessity the principles are sometimes relaxed" because "they do not apply where it is impossible to gather safe facts to become bases of safe rules."

But it is urged by the plaintiffs' counsel that the city is liable because it had no authority from the commonwealth to lay gas-pipes in the streets. The question of liability has been thus far considered on the assumption that no such authority had been conferred upon it by statute. It seems that in Great Britain express legislative sanction is necessary to warrant the laying down of gas-pipes in the public highways. 2 Dillon on Mun. Corp. § 546. See, also, *Boston vs. Richardson*, 13 Allen, 146. In this state in *Fisher vs. Harrisburg*, 2 Grant, 291, it was held that a municipal corporation has power to make sewers without any special authority given with that view. No substantial reason is to be found why a municipal corporation which has the inherent power to construct sewers may not lay gas-pipes under the highway for the benefit of the citizens; but from an examination of the acts of incorporation, it does not appear that the city has such legislative sanction, but by implication. She is given the right to legislate fully in regard to lighting the streets. Law by Ord. Phila., 1701–1812, p. 1; Act April 2, 1790; Ord. March 21, 1853. The conclusion, therefore, seems to be that the city of Philadelphia, having the right by statute to legislate fully in regard to lighting the streets, had by implication the power to direct by ordinance that gas-pipes should be laid in the streets for the purpose of lighting them, and that as the gas-pipe which passed the plaintiff's premises was laid under the ordinance of March 21, 1853, the city would not be responsible for damages resulting to the plaintiff therefrom without proof of negligence. 2 Dillon on Mun. Corp. § 551; *State vs. Gas Co.*, 18 Ohio St. 295; Wood on Nuis. § 746; *Blyth vs. Water Works Co.*, 25 L. J. Ex. 212; *Vaughan vs. R. R. Co.*, 5. H. & N. 679.

But there is another ground on which it seems that the plaintiffs cannot possibly hold the city responsible. They themselves provided the means for the gas which escaped to get into their premises. In violation of ordinance they made an excavation into the street; they removed the natural barrier of earth between the pipe and their premises. "If it had been a case of nuisance it would have been a coming to the nuisance." No other property in the neighborhood seems to have suffered, and it would be unjust to make the city reimburse the plaintiffs for the loss sustained by an accident which happened, so far as the facts in evidence show, without any fault or negligence on the part of the city, and to bring about which the plaintiffs' own acts, in excavating into and building in the street, so largely contributed. On both grounds, therefore, the referee finds himself compelled to decide against the plaintiffs' right to recover.

The referee accordingly made awards in favor of the defendant, and that the plaintiffs pay the costs. The plaintiffs filed exceptions, which were dismissed by the court; and they carried the case to the Supreme Court who affirmed the judgment on the opinion of the referee. H. E.

DRY WALLS.



Dr. Max von Pettenkofer, in a lecture delivered on March 23, 1872, before the Albertverein at Dresden, on the examination of the dryness of walls, said: — "Hitherto the decision of experts, without regard to the age of the building, has been dependent for the greater part upon the so-called 'practical eye,' consequently upon subjective judgment, there being no sharp distinctions. It is well known what is the value of the optical demonstration of the dampness of wet spots; everything may appear dry and be still very damp. Feeling walls with the hand, whether the touch conveys a sense of cold or warmth, is also only a very arbitrary estimate, as much as knocking walls with a key or a small hammer. . . . . The only safe means would be to ascertain what quantities of water are communicated within a stated period in various rooms to air not yet saturated with vapor."

This is the theme upon which Herr Carlo Boog proceeds to base a very able and thoroughly practical paper which appears in the *Wochenschrift* of the Association of Austrian Engineers and Architects. Herr Boog says that, although, since that lecture was delivered by Pettenkofer, only a decade has passed, hygiene as an independent science has taken deep root, and the axioms above quoted have become the common property of all bodies to whom the care of the public health has been confided, it might have been thought that at present the examination of the inhabitableness of new houses would proceed exclusively on scientific grounds, and that "arbitrary subjective judgment" would by this time have become a stage which we had fortunately surmounted. But this is not so. Notwithstanding that we write 1881, at Vienna and throughout the provinces of the Austrian Empire, the grant of the official certificate for new houses and the examination of freshly-built walls with regard to their dryness still proceed upon the principle of the "practical eye" of sanitary authorities. In the most favorable case, any key at hand forms the only "scientific," but at once harmless and useless, instrument for tapping at the walls on the occasion of the official inspection. The present mode of giving certificates for new houses, without any criterion that will bear the test, must be described as absolutely unpardonable, and is to be severely blamed, because new buildings are annually passed as fit for habitation the use of which is highly injurious to health, on account of the latent dampness which they contain. Of course, in no statistics of sickness will be found such cases of illness, for although the inhabitants of a new house are subsequently stricken down by disease, the causes of which must doubtlessly be sought in the insufficient dryness of new walls, the dampness of the dwelling *must not be* the cause of sickness, and, apparently, for a very good reason, because the house in question was pronounced by official experts as dry and fit for habitation. No one will suppose those experts to be possessed of so much self-denial as to expect a spontaneous disavowal of a certificate once given.

We will not stay to examine how much of the censure pronounced above deserves to be applied beyond the frontiers of the Austrian empire, and much nearer home, but will proceed at once to the consideration of what might be done in the direction by scientific means. We cannot believe that, in our days, there could be a want of suitable expedients for establishing the degree of dryness of a new wall with scientific exactness, any more than that we should like to be responsible for the sufficient reliability of any "practical eye," however trained. But let us come to the point: let us turn away from matters as they are now, and try to demonstrate how they might be under a better safeguarding of the public interest. We do not propose, by any means, to advance novelties, for in that case the continuance of the practice of the present day would be as good as confirmed. We confine ourselves to point out how, elsewhere, for many years, this examination of the hygrometric state of new walls, a matter of no small importance to sanitation, has been practised with punctilious care and by the aid of highly reliable instruments.

As Pettenkofer remarked, a safe estimate of the inhabitableness of newly-erected dwellings can only be formed by accurately measuring the quantities of water which are given off within a prescribed time in different rooms to an atmosphere not yet saturated with vapor. Various practical methods of investigation have actually been defined, with due regard to the above proposition. We desire to draw special attention to such an experimental method, which is practised at the present time by the sanitary authorities of most Italian cities, and which has been successfully followed by the municipality of Rome for about fifteen years. This investigation was proposed at the time by Professor Ratti, of that city, its principle consisting in shutting off the air in the room to be examined for twenty-four hours, in order afterwards to determine its hygrometric state.[1] For this purpose, if the house to be examined is finished so far as to be ready for occupation, fine dry days are chosen, and, if possible, those on which northerly winds prevail. The several dwellings are shut off room by room, and as perfectly as possible from the outside air. After twenty-four (or, better still, forty-eight) hours, the air is examined, care being taken to close the several doors as quickly as possible after entrance in a room, in order to hinder a change of the state of the shut-off atmosphere by the outer air.

The examination of each separate room by itself takes place with a steady regard of the fact that in each its own shut-off air should be preserved unchanged. After obtaining the hygrometric state, or determining the proportional number of saturation of the air of the several rooms, there remains to ascertain what is the proportional number which prohibits occupation of a room. The determination of this proportional number was the principal difficulty which opposed itself to the practical adoption of the method of examination proposed by Professor Ratti, and very numerous experiments were required to fix it. By continually and repeatedly comparing air shut off in very old and undoubtedly dry rooms with such as had been examined in obviously damp spaces, Ratti came to the conclusion that, if the quantity 0.75 resulted as the hygrometric proportional number of an atmosphere, the space giving such an aggregate must be declared uninhabitable, and the certificate of occupation refused, because the walls have not yet been sufficiently dried. It will not appear quite superfluous, before continuing our investigations, to remind our readers of the meaning of the hygrometic proportional number. A volume of air may contain, at a certain temperature, various quantities by weight of vapor, but which do not exceed a certain limit; if the air contains the maximum of vapor which it is possible to absorb at a given temperature, it is said to be saturated, this maximum weight of vapor varying according to the temperature of the air.[2]

From the above it will be seen that by the hygrometric proportional number is understood the proportion of that quantity of vapor which is actually contained in a given volume of air at a given temperature to that maximum quantity of vapor which would saturate the same volume of air at the same temperature. As now, at an equality of temperature and volume respectively, the quantity of vapor shut off in a space is exactly proportional to the tension of the vapor, the expression of quantity or of weight in the above hygrometric proportion is replaced by that of tension. If s is the tension of the vapor contained in a space, and S the tension of the vapor which would saturate the same air-space at the same temperature, the hygrometrical number represents itself by $\frac{s}{S}$ *i.e.*, as quotients of the tension s of the vapor really present in the air, by the maximum tension S corresponding to the saturation of the same quantity of air.[3] For the determination of the hygrometric propor-

[1] The data which follow are taken from a paper by Marco Caselli, published in the "Proceedings" of the Association of Engineers and Architects of Rome, June 3, 1880.

[2] A cubic metre of atmospheric air contains, in a state of saturation at various temperatures, the following quantities, by weight, of vapor: —

Temperature. Degrees.	Vapor. Grammes.	Temperature. Degrees.	Vapor. Grammes.	Temperature Degrees.	Vapor. Grammes.
0	5.66	10	10 57	21	19.82
1	6.00	11	11.18	22	20.91
2	6.42	12	11.83	23	22.09
3	6.84	13	12.57	24	23.36
4	7.32	14	13.33	25	24.61
5	7.77	15	14.17	26	25 96
6	8.25	16	14	27	27.34
7	8.79	17	15,84	28	28.81
8	9.30	18	16,76	29	30.35
9	9.86	19	17,75	30	31.93
		20	18,17		

[3] According to Regnault, the maximum tension S of vapor in mercurial millimetres are at the various temperatures T (in degrees Centigrade) as follows: —

T	S	T	S	T	S	T	S
0	4.600	9	8.594	18	15.36	27	26.50
1	4.940	10	9.175	19	17.37	28	28.10
2	5.302	11	9.792	20	17.39	29	29.78
3	5.678	12	10.47	21	18.49	30	31.55
4	6.097	13	11.16	22	19.66	31	33.41
5	6.534	14	11 91	23	20,89	32	35.36
6	6.998	15	12.70	24	22.18	33	37.41
7	7.492	17	13.54	25	23.55	34	39.56
8	8.017	17	14.42	26	24.99	35	41.83

tional quantity $\frac{s}{S}$ hygrometers are used, which, as is well known, may be distinguished as chemically acting, absorption, and condensation hygrometers. Here, however, only the condensation hygrometer is to be referred to, which has proved itself in practice the most suitable instrument for these purposes, and more especially that of Regnault, which has been simplified to a very convenient handiness, — which may, in fact, be called a pocket instrument, — and which gives the desired result in a few minutes.

A given constant quantity of vapor which does not saturate a volume of air at a certain temperature would effect saturation only at a lowering of the temperature; and if the temperature were to be lowered still more, water would be precipitated in the form of extremely fine drops (dew). This may be observed, for example, in summer, in cellars, in which warm air entering from without is at once cooled, and gives off its water on the walls. The condensation hygrometer is based on this principle. If we take a vessel of brightly polished silver filled with water, to which small pieces of ice are slowly added, a point will finally be attained at which the outer surface will be covered with a film, a sign that the air surrounding the vessel has been cooled so far as to become saturated with moisture. If we plunge a thermometer into the vessel, and observe the degree at which the moist film begins to form on the surface of the metal, it will be found to be the temperature at which the air of the space in question would be saturated from the amount of vapor contained in it. Regnault's table, in which the tension of vapor at each degree of temperature is given which will saturate the air, enables us also to determine the tension of vapor present in the air to be examined, as that tension appears to be indicated by the temperature at which vapor is precipitated, *i.e.*, forms a film on the surface of the metal. If the air at the moment of examination had the temperature T, determined by means of a thermometer, which corresponds to the tension S, and if s is the tension of the vapor actually present in the air, which is indirectly determined by the formation of dew on the polished surface of the metal vessel mentioned, the hygrometric proportional number $\frac{s}{S}$ is actually determined.

The simplified hygrometer of Regnault consists of a cylindrical thimble-shaped vessel of very thin silver, the outer surface of which is brightly polished. It measures about eight centimetres in length, three centimetres in diameter, and is closed by a cork provided with three openings. The central hole serves for the reception of a thermometer, while the two outside openings are provided with right-angled knee-pipes of glass, one of which reaches with its vertical shank just below the cork, and has the horizontal shank open. The other glass pipe reaches with one shank to the bottom of the vessel, the other being provided with a caoutchouc pipe, about a metre long, and ending in a mouthpiece. This simple instrument is mounted on a light stand. If the hygrometric state of a room is to be examined, the instrument is placed in the centre of it, filled two parts with sulphuric ether, and then closed with the cork. Sulphuric ether is used instead of ice in cooling the vessel, slower or quicker volatilization of the ether being produced by blowing into the caoutchouc pipe, its evaporation being accompanied, as is well known, by a lowering of the temperature, which is continued until dew forms on the outside surface of the vessel. The mouthpiece is kept at some distance from the instrument by the caoutchouc pipe in order to prevent a possible formation of film on the polished surface by the breath of the operator. The vertical glass shank of this pipe reaches to the bottom of the vessel, so as to impart a uniform temperature to the liquid by the air blown in in all directions. The other knee-pipe, open at its upper end, serves for the escape of the ether gas forming.

The temperature at which the formation of dew takes place is a trifle lower than that (t) of saturation. If at the moment of formation of dew the blowing in of air is stopped, the mercury in the thermometer will gradually rise and the dew disappear on a certain degree of temperature being reached, the surface of the vessel assuming its former brightness. The temperature at which the dew disappears is a trifle higher than that (t) of saturation. The exact saturation temperature (t) must consequently be sought in the average between the two temperatures at which dew forms and at which it disappears. If we find, for instance, in a room to be examined, and in which the air has been shut off for twenty-four hours, that the saturation temperature is 22°, while on another thermometer we read the temperature of the whole room as 25°, we have, according to Regnault's table, for those temperatures (t and T) the tensions 19.66 and 23.55 respectively, and from them the hygrometric proportional number of $19.66 : 23.55 = 0.847$, consequently much higher than the limit (0.75) above indicated, and thus in this case the room would have to be declared absolutely uninhabitable.

Signor Ceselli, who took an active part in the many preliminary experiments of Professor Ratti, communicates some remarkable facts respecting the sensitiveness and reliability of this experimental method. In a dwelling the several rooms of which had been found perfectly dry, one room, which, on account of its southern aspect and of being situate in a free corner of the building, ought to have been drier than all the others, showed a relatively greater humidity than the remaining rooms. For some time no explanation could be supplied for this contradiction; but it was at last ascertained that a few days prior to the hygrometric examination a moulding ten to fifteen centimetres wide had been painted in by a decorator. In another similar case the cause of a like contradiction was found to be the painting of a walled-up door-opening which had been done a few days previously. In a third house, not new, but in which alterations had been made, the hygrometric proportional number of a room in which all the parts were old was, on examination, proved to be higher than elsewhere. This greater dampness was caused by the closing up of a window not long before, when a wall a brick thick and two metres square had been put in the opening.

Another, more superficial, method of examining a house as to its state of dryness, but which is far more exact than the "practical eye," is recommended by Dr. Paolo Mantegazza, in his hygienic People's Almanac, a procedure which may be well applied where a hygrometer cannot readily be obtained. This method is based on the property of certain bodies of absorbing water contained in the air, and is as follows: Five hundred grammes of freshly burnt unslacked lime are pulverized, and placed in a plate in the room to be examined for twenty-four hours, doors and windows being closed. After the lapse of that time the lime is weighed again, and if the increase in weight should be less rather than more than a gramme, the room may be pronounced inhabitable. Should, however, the increase of weight amount to five grammes or more, the room cannot be inhabited without danger. The greater or inferior salubrity of the room vacillates between the above limits. Ceselli remarks, very correctly, that mathematical exactness cannot be expected of this method, all the less as the weight ought to vary with the cubic contents of the room; but with rooms of ordinary size it may be very useful in a good many cases.

We are perfectly convinced that to but few there is anything new in what we have stated; those technical and sanitary authorities more especially to whom is confided the examination of the inhabitableness of new or restored houses may think secretly that, as a matter of fact, nothing that they did not know before has been related above. Why, therefore, so much noise? Now, we thought it advisable to draw attention to the methods pursued elsewhere, because formerly we had to suppose that our sanitary authorities were unaware of the existence of more reliable hygrometric methods than those preferred by them. Or could they with a clear conscience take upon themselves to ignore a method of examination known to them as better, in favor of a mere inspection and tapping of mute walls?

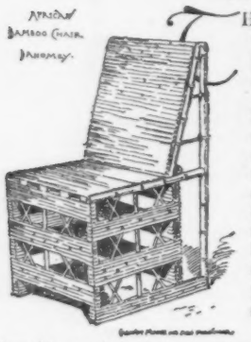
Considering the haste prevailing in building operations at the present day, and the granting of the certificates for new houses immediately upon their completion, — a certificate, by the bye, rarely refused, and even then in a most ineffectual manner — we may fearlessly express it as our opinion that, if a proper examination of the degree of dryness of walls, and the rooms which they enclose, were made, nearly every new dwelling, as it is now handed over to the public for habitation, is injurious to health. Why, houses are begun in the spring, and receive their tenants in August! And this is not only the case with private dwellings: even in the case of municipal buildings — schools, for instance, where the greatest care ought to be exercised, — the same practice very frequently prevails. No one will affirm that such buildings could be sufficiently dry under such circumstances, unless it is his intention to deceive himself.

Signor Caselli, whom we have already quoted, made the following experiments in 1875. He prepared a cube, 0.5 metres each way, of bricks and sand-mortar, and a second, of the same dimensions, of bricks and Pozzolana cement, and tested both under pretty favorable conditions as to their dryness. The first cube, which weighed 236.20 kilogrammes, and contained 41.25 litres or kilogrammes of water, required for its perfect desiccation 213 days, or seven months. The second cube, for which Pozzolana cement was used, weighed originally 243 kilogrammes, and contained 33.34 litres or kilogrammes of water; its perfect drying took up 438 days, or 14½ months. The cubes were placed, isolated, in a basement, and the above figures must, therefore, be considerably enlarged with regard to extensive and complicated walls, which besides, in many places, prevent the direct giving-off of their water into the atmosphere. We do not think that the above particulars require further comment.

Of course, desiccation may be accelerated, artificially, by gas and firing; but in most cases this is continued only as long as wet spots show themselves on the walls, when the "practical eye" permits his dictum of "habitable" to be produced. Meanwhile, shortly after, all the wooden parts of the building begin to swell, and there is not a carpenter or joiner who has not, in new houses, had to use plane and chisel very freely in order to "fit" doors, window-frames, etc., impregnated with water. And this is not done because the rooms have been perfectly dried by means of the much praised practice of "firing." But the artificial drying of new walls is another subject, with which we do not desire to deal. — *The Builder.*

SANTA MARIA DEL FIORE.—The subscription for the building of the façade of the Cathedral of Florence was headed by the Grand Duke Leopold with 19,000 lire. The Grand Duke Ferdinand undertakes as his share the erection of the Chapel of the Virgin, which is to be placed over the main portal in the Apostles' Gallery. Its estimated cost is 42,000 lire. It is thought that the work can be pushed so that at the beginning of next year the whole can be displayed to public view, the places of the mosaics over the portals and the statuary being occupied temporarily by cartoons and plaster models.—*New York Evening Post.*

METHODS OF CHEMICALLY REPRODUCING DRAWINGS.



THE following excellent account of the various processes in use for copying plans by the agency of light we translate from the pages of *Le Génie Civil:*

For reproducing a drawing at a different scale from the original, or for copying plans on very thick paper, the assistance of a camera, sensitive plates, reagents of various kinds, and an operator skilled in the difficult manipulations of the photographic art will be needed, but anything which is or can be drawn in line on thin paper or tracing cloth may be copied with simple materials and without skilled assistance.

The simplest method of accomplishing this consists in the employment of the so-called ferro-prussiate or "Marion" paper, which is prepared by covering one side of the sheet with a mixture of red prussiate of potash (ferrocyanide of potassium) and a salt of peroxide of iron; under the influence of light, that is under the white portions of the drawing to be copied, the ferric compound is reduced to the state of a ferrous salt, which gives with the red prussiate of potash an intense blue coloration, analogous to Prussian blue. This coloration is not produced in the portions of the sensitive paper protected from the light by the black lines of the drawing to be copied, and on washing the print the design appears in white lines on a blue ground.

The formula for preparing the sensitive paper is as follows:

Dissolve 8 parts of red prussiate of potash in 70 parts of water; dissolve separately 10 parts of ammoniacal citrate of iron in 70 parts of water; filter the two solutions through ordinary filtering paper, and mix them. Filter again into a large flat dish, and float each sheet of paper to be sensitized for two minutes on the surface of the liquid, without allowing any of this to run over the back of the paper. Hang up the sheets in a dark place to dry, and keep them from light and dampness until used. They will retain their sensitiveness for a long time.

The paper being ready, the copy is easily made. Procure either a heavy sheet of plate-glass, or better, a photographer's printing-frame, and lay the drawing to be copied with the face against the glass; on the back of the drawing lay the prepared side of the sensitive paper, place upon it a piece of thick felt, and replace the cover of the printing-frame, or in some other way press the felt and papers firmly against the glass. Expose, glass side up, to sunshine or diffused daylight, for a time varying with the intensity of the light and the thickness of the paper bearing the original drawing from a few minutes to several hours. It is better to give too much than too little exposure, as the color of a dark impression can be reduced by long washing, while a feeble print is irremediably spoiled. By leaving a bit of the sensitive paper projecting from under the glass, the progress of the coloration can be observed. When the exposure has continued long enough, the frame is opened, and the sensitive sheet withdrawn, and thrown into a pan of water, to be replaced immediately by another, if several copies are desired, so that the exposure of the second may be in progress while the first is being washed and fixed. The water dissolves out the excess of the reagents used in the preparation of the paper, and after several washings with fresh water, the print loses its sensitiveness, and becomes permanent. It is advantageous, after several washings with water, to pass over the wet surface a weak solution of chlorine or of hydrochloric acid, 3 or 4 parts of acid to 100 of water, which gives brilliancy and solidity to the blue tint, and prevents it from being washed out by long soaking. This should be followed by two or three rinsings with fresh water, and the print may then be hung up to dry, or placed between sheets of blotting paper.

This mode of reproduction, whose simplicity has led to its adoption in many offices, has the inconvenience of giving a copy in white lines on a blue ground, which fatigues the eye in some cases, while the application of other colors is impracticable. By repeating and reversing the process, copying the white line print first obtained on another sensitive sheet, a positive picture, representing the black lines of the original by blue lines on a white ground, can be obtained; or the same result may be reached by a different mode of treating the sensitive paper.

Several varieties of paper called "caynoferric," or "gommoferric," are sold, which have the property of giving a positive image. The mode of preparation is nearly the same for all: Three solutions, one of 60 parts by weight of gum arabic in 300 of water; one of 40 parts ammoniacal citrate of iron in 80 parts of water; one of 25 parts perchloride of iron in 50 of water, are allowed to settle until clear, and are then decanted, mixed, and poured into a shallow dish, the sheets being floated on the surface as before, and hung up to dry. The solution soon becomes turbid, and must be used immediately, but the paper once dry is not subject to change unless exposed to light or moisture. The reactions involved in the printing process are more complex than in the first process, but present no particular difficulty. Under the influence of light and of the organic acid (citric) the perchloride of iron is reduced to a protochloride, and on being subjected to the action of ferrocyanide of potassium the portions not reduced by the action of the light, that is, the lines corresponding to the black lines of the original drawing alone exhibit the blue coloration. The gum plays also an important part in the process, by becoming less soluble in the parts exposed to light, so as to repel in those portions the ferrocyanide solution. The mode of printing is exactly the same as before, but the paper is more sensitive, and the exposure varies from a few seconds in sunshine to fifteen or twenty minutes in the shade. The exact period must be tested by exposing at the same time a slip of the sensitive paper under a piece of paper similar to that on which the original drawing is executed, and ruled with fine lines, so that bits can be torn off at intervals, and tested in the developing bath of ferrocyanide of potassium. If the exposure is incomplete, the paper will become blue all over in the ferrocyanide bath; if it has been too prolonged, no blue whatever will make its appearance, but the paper will remain white; if it is just long enough, the lines alone will be developed in blue on a white ground.

During the tests of the trial bits, the printing-frame should be covered with an opaque screen, to prevent the exposure from proceeding farther. After the exact point is reached, the print should be removed from the frame, and floated for a few moments on a bath of *saturated* solution of ferrocyanide of potassium, about one part of the solid crystals to four of water. On raising it the design will be seen in dark blue lines on a white ground. It is necessary to prevent the liquid from flowing over the back of the paper, which it would cover with a blue stain, and to prevent this the edges of the print are turned up all around. On lifting a corner, the progress of the development may be watched. As soon as the lines are sufficiently dark, or blue specks begin to show themselves in the white parts, the process must be immediately arrested by placing the sheet on a bath of pure water. If, as often happens, a blue tint then begins to spread all over the paper, it may be immersed in a mixture of 3 parts of sulphuric acid, or 8 parts of hydrochloric acid, to 100 parts of water. After leaving it in this acidulated liquid for ten or fifteen minutes the design will seem to clear, and the sheet may then be rinsed in a large basin of water, or under a faucet furnished with a sprinkling nozzle, and a soft brush used to clear away any remaining clouds of blue; and finally, the paper hung up to dry.

The ferrocyanide bath is not subject to change, and may be used to the last drop. If it begins to crystallize by evaporation, a few drops of water may be added. The specks of blue which are formed in this bath, if not removed by the subsequent washings, may be taken out at any time by touching them with a weak solution of carbonate of soda or potash. The prints may be colored in the usual way.

FIRE-EXTINGUISHERS.

To the Editors of the American Architect: —

Dear Sirs, —Your correspondent who signs himself "L," in his article headed "Recent Railway Disasters," published in the *American Architect* of the 4th inst., in commenting upon the message of the Governor of New York to his Senate, and the bill which has been introduced in the Senate relative to fire-extinguishers, etc., on railway-cars, makes an onslaught on fire-extinguishers and the method now in use for heating cars. I do not think that your correspondent had practically and fully investigated either of the said subjects, for he is certainly not versed in the improvements which have been made in fire-extinguishers the past year, for within that time a pneumatic fire-extinguisher in which is used a fire-extinguishing compound of French origin, has been placed upon the market in New York city, and its adaptability for service in railway-cars is absolutely perfect. It contains no carbonic-acid gas, nor does the compound used in them evolve any gases that will stifle or endanger the lives of passengers who might perchance be so unfortunate as to be pinioned in close proximity to the fire, in case of a disaster like that which occurred at Spuyten Duyvil. These machines are non-freezing, and possess far greater extinguishing capacity than the chemical extinguishers, or as your correspondent calls them, "carbonic-acid or soda-water machines." The liquid used in this pneumatic extinguisher will simultaneously extinguish fire, annihilate smoke, and dispel heat, which are merits much to be desired in a fire-extinguisher to be used in a railway-car containing passengers. Every objection which your correspondent makes to fire-extinguishers is entirely overcome by the construction and extinguishing capacity of this pneumatic machine.

I will agree with your correspondent in his onslaught on fire-extinguishers where made applicable to chemical machines only, as they are seldom found in an operative condition, unless continual care and expense are bestowed upon them, and if used in a burning car containing passengers the carbonic-acid gas thrown by them would doubtless endanger the lives of all, and probably prove fatal to many.

In the matter of heating railway-cars your correspondent admits that a car heater which carries hot water in pipes under the seats, near the floor, does supply ample heat in the car for the comfort of the travelling public. Such a heater is now in use in many of the railway-cars, and in nearly all of the Pullman and Wagner parlor-cars. The heater can be placed at one end of the car, and as it is used merely to supply hot water for the pipes it can be so enclosed and held in a compartment that if an accident should occur, fire

could not be strewn about the car, and if the car should ignite it could be easily extinguished if a suitable fire-extinguisher were carried on each car. If the pneumatic extinguisher referred to had been carried on each car of the wrecked train at Spuyten Duyvil the fire could have been extinguished in less than one minute, and no lives would have been lost, except that of Senator Wagner, who was on the platform and was instantly killed.

I desire to make mention of these facts for the information of your correspondent, and the instruction and benefit of the readers of your valuable journal.

If your correspondent can devise better, safer, and more desirable means and appliances for warming cars and protecting the lives of the travelling public than the above-named extinguisher and car heater, he will be a public benefactor and merit the praise of his fellow-man. WILLIAM HARKNESS.

DRAWINGS FOR PUBLICATION.

BROOKLYN, N. Y., February 13, 1882.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Dear Sirs, — I write you in regard to the manner of procedure in publishing designs from architects. I have never sent you any yet, and therefore need a little explanation upon the subject.

Also, will you give me a little information? Can I run a speaking-tube from house to stable, say a distance of 300 feet, with whistle, and be distinctly heard? If not, what would be the best thing? I want to avoid any chemical apparatus. Very respectfully,

C. C. BUCK.

[IN regard to publishing drawings, very much depends upon their interest, and quite as much upon the manner in which they are executed. Our correspondents do not always remember that this journal circulates largely among persons of trained taste and judgment in architecture, and that showy perspective drawings, such as may be excellent for exhibition in public, are often much less interesting to architects and connoisseurs than a good plan, a well-proportioned or well-rendered elevation, or a faithful drawing of a beautiful piece of detail. We are glad enough to welcome a first-rate perspective drawing, particularly of a good design, but we are no less pleased to receive plans and elevations in simple line, provided they express a skilful arrangement or a beautiful composition; while of detail work, sketched in the manner of the *Materiaux et Documents*, for instance, we can never have enough. The great defect of our American structures is the slovenly character of the carved or moulded work which is supposed to adorn them. With a natural sense of proportion and composition as keen as that of any people in the world, our architects are as a rule content, after the main masses of their buildings are proportioned to their mind, to decorate them with the crudest forms, copied perhaps by a bungling draughtsman at second-hand out of a book, or, perhaps more frequently, to turn the whole over to a fourth-rate carver, who reproduces his stock patterns whenever they will go into a given space, without regard to the surrounding work, the style of the building, or the appropriateness of his motives. From this state of artistic semi-barbarism a frequent interchange of detail sketches among those qualified to make them would do much to deliver us. There are moments, we presume, in the life of every architect when his mind is inspired with a conception of a beautiful cornice, a rich arabesque, or a delicate moulding. If, on such occasions, the artist would take the trouble to send us a drawing of his idea, particularly if it has been tested by being carried into execution, he will do the profession a service, and will be amply rewarded by the encouragement which his example will offer to others to do the same.

To make them suitable for reproduction, drawings must be in line, on white paper, without tinting of any kind. If the lines are open, so as to avoid the possibility of blurring, tracings on cloth or paper can be reproduced, but not otherwise. Small pen-and-ink sketches, such as those which we use for initial letters, are easily made, and reproduce to great advantage. Pencil sketches can sometimes be copied successfully, but as often fail. The best results are obtained by using black ink, mixed, in the case of a plan, with ivory black, to take off the gloss.

In regard to the second question, we do not think that an ordinary tin speaking-tube could be run underground for three hundred feet with success. A wrought-iron enamelled pipe 1½″ in diameter, well put together and laid in a trench one foot deep, will give satisfaction and is the only durable speaking-tube that can be used under the conditions stated. Private telephones are much used to replace speaking-tubes in such cases. They are put in and kept in order at a very low charge, — six or eight dollars a year, or more, according to the instruments used.—EDS. AMERICAN ARCHITECT.]

ILLUSTRATIONS OF FRENCH DESIGNS.

CLEVELAND, O., February 12, 1882.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Gentlemen, — I am desirous of studying French architectural design, having a sincere admiration for many of the fine qualities which their work possesses, and wish to subscribe for one of their architectural periodicals for this purpose. Will you have the kindness to advise me which one to take, as I am not in a situation to compare and choose? Unfortunately, I do not read French, so the illustrations will be the main thing.

Very respectfully, A SUBSCRIBER.

[THE best periodical for the purpose would be the *Croquis d'Architecture*, published, very irregularly, by the students of the Ecole des Beaux-Arts. It can be procured, we believe, through Messrs. A. H. Roffe & Co., 11 Bromfield St., Boston. — EDS. AMERICAN ARCHITECT.]

NOTES AND CLIPPINGS.

ULM CATHEDRAL. — The work upon the restoration and completion of the Cathedral of Ulm progressed satisfactorily during last year. Scheu, the architect in charge, who recently died, has been succeeded by Professor Beyer, of Stuttgart. The latter thinks that the principal spire can be completed within ten years. Several notable paintings, frescoes, and windows have been added.

ROMAN MOSAIC.—The London *Telegraph* has the following: The guardian in the velvet skull-cap came to my aid, when I was at fault, with most courteous explanations. He mentioned incidentally that, in a portrait of Pope Pius V, there were 1,700,000 pieces, each no larger than a grain of millet; but this statement I take to have been merely guesswork. The enamel, he proceeded to tell me, is a kind of glass, colored with metallic oxides, and it is so fusible that it can be drawn out into threads, small rods, or oblong sticks of varying degrees of fineness, slightly resembling the type used by compositors. These polychromatic rods are kept in drawers properly numbered, so that the artist always knows to which case to repair when he requires a fresh supply of a particular tint or tints. When the picture is commenced the first step is to place on the easel a slab of marble, copper, or slate of the size fixed upon; and this slab is hollowed out to a depth of about three and a half inches, leaving a flat border all round which will be on a level with the completed mosaic. The excavated slab is intersected by transverse grooves or channels, so as to hold more tenaciously the cement in which the mounts of enamel will be imbedded. Then the hollowed slab is filled with "gesso," or plaster-of-Paris, on which the proposed design is accurately traced in outline, and usually in pen-and-ink. The artist then proceeds to scoop out a small portion of the plaster with a little sharp tool. He fills up the cavity thus made with wet cement or "mastic," and into this mastic he successively thrusts the "spiculæ," or the "tesseræ," as the case may be, according to the pattern at his side. In the broad folds of drapery or in the even shadows of a background, or a clear sky, his morsels of enamel may be as large as one of a pair of dice; in the details of lips, or eyes, or hair, or foliage, or flowers, the bits of glass may be no larger than pins' heads. The cement, or mastic, is made, so far as I could gather from my informant, of slaked lime, finely-powdered Tiburtine marble, and linseed oil, and when thoroughly dry is as hard as flint. Sometimes the mastic which fills the cavity is smoothed and painted in fresco with an exact replica of the pattern, and into this the bits of glass are driven, according to tint, by means of a small wooden mallet. If the effect produced wounds the artist's eye, he can easily amend the defect by withdrawing the offending piece of enamel and driving in another while the cement is still wet; and, by observing proper precautions, it can be kept damp for more than a fortnight. When the work is completed, any tiny crevices which may remain are carefully plugged or "stopped" with pounded marble, or with enamel mixed with wax, and the entire surface of the picture is then ground down to a perfect plane, and finally polished with putty and oil. Byzantine may be broadly distinguished from Roman mosaic by the circumstance of the surface of the former being left unground and unpolished — save where there is burnished gold — thus leaving an irregularity of surface productive of great vigor of effect. A virtuous picture of the Byzantine style can at once be recognized as a mosaic, even if it be hung at an altitude of one hundred feet from the ground; but a perfected mosaic picture, after the Roman manner, might easily be mistaken, even at a very short distance, for a very elaborately finished and highly varnished painting in oils.

DOVETAIL. — Is the generally received derivation of this technical term correct? I do not remember to have seen any other suggested, and turning to the only English dictionary within ready access, I find: "Dovetail, joint in form of a dovetail spread." It seems probable that the word is no more derivable from "dove" than "rabbet"—another term of carpentry—from "rabbit," but is one of many familiar technical terms borrowed from the French. The French *douve* (which appears in German as *daube*) is a cask-stave, and is connected, Littré says, by Ducange with L. Latin *doga*, a vase, a cup—the transition from *doga* to *douve* being normal. So "dovetail," if *douve-taille* as surmised, would have meant such "cutting" (French *tailler*) as was applied to cask-staves. Whether such staves are precisely dovetailed affects the question but little. Their joints were necessarily water-tight, and thus a very close joint may well have been called a "dovetail." It is right to add that the compound word *douve-taille* (possibly obsolete) does not appear in any of the several French dictionaries I have consulted.—*Notes and Queries.*

EFFECT OF COMPRESSION ON SOLIDS.—A German chemist has recently published an interesting memoir, giving the results of a series of experiments as to the effect of powerful compression on various bodies. The substances experimented with were taken in fine powder, and submitted in a steel mould, to pressures varying from 2,000 to 7,000 atmospheres, or about 7,000 kilogrammes per square centimetre. Lead filings, at a pressure of 2,000 atmospheres, were transformed into a solid block, which no longer showed the least grain under the microscope, and the density of which was 11.5, while that of ordinary lead is 11.3 only. At 5,000 atmospheres the lead became fluid, and ran out through all the interstices of the apparatus. The powders of zinc and bismuth, at 5,000 to 6,000 atmospheres, gave solid blocks having a crystalline fracture. Toward 6,000 atmospheres zinc and tin appeared to liquefy. Powder of prismatic sulphur was transformed into a solid block of octahedric sulphur. Soft sulphur and octahedric sulphur led to the same result as prismatic. Red phosphorus appeared also to pass into the denser state of black phosphorus. A certain number of pulverized salts solidify through pressure, and become transparent, thus proving the union of the molecules. At high pressures the hydrated salts, such as sulphate of soda, can be completely liquefied. Various organic substances, such as fatty acids, damp cotton and starch, change their appearance, lose their texture, and consequently undergo considerable molecular change.

MUTUAL ANTAGONISM IN WOODS.—It is interesting and it may be instructive to some, to learn that certain kinds of wood, although of great durability in themselves, act upon each other in such a way as to produce mutual destruction. Experiments with cypress and walnut, and cypress and cedar, prove that they will rot each other while joined together, but on separation the rot will cease, and the timbers remain perfectly sound for a long period.—*Manufacturers' Gazette.*

BUILDING INTELLIGENCE.

(Reported for The American Architect and Building News.)

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

BUILDING PATENTS.

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

253,493. Sheet-Metal Pipe. — William Austin, Philadelphia, Pa.

253,500. Wrench. — William H. Bielefeld and David C. Hinkle, Moulton, Ohio.

253,520. Adjustable Ventilating-Door. — Josiah S. Du Bois, Haddonfield, N. J.

253,534. Fastener for Meeting Rails of Sashes.—John E. Howard, Reading, Mass.

253,535. Device for Cooling Dwellings. — John A. B. King, Cincinnati, Ohio.

253,540. Manufacture of Glass Fittings and Trimmings of Buildings. — Christopher W. McLean, New Berne, N. C.

253,541. Manufacture of Annealed and Toughened Glass Slabs. — Christopher W. McLean, New Berne, N. C.

253,542. Glass Mantle.—Christopher W. McLean, New Berne, N. C.

253,551. Wash-Basin. — Fred P. Palmer, Montmorenci, S. C.

253,556. Process of and Apparatus for Drying Lumber.—James Randall, San Francisco, Cal.

253,561. Weather-Strip. — Wilson Thompson, Belleville, Kans.

253,563. Sash-Fastener. — Henry P. Tyler, North Brookfield, and James B. Atwood, Three Rivers, Mass.

253,564. Conductor-Pipe. — Ezekiel Van Noorden, Boston, Mass.

253,581. Vise.—Calvin L. Butler, Greenfield, Mass.

253,610. Door-Bell. — James J. Johnson, Columbiana, Ohio.

253,648. Automatic Water-Lifter. — Addison G. Waterhouse, New York, N. Y.

253,658. Fire-Proof Building. — John Arbuckle, Brooklyn, N. Y.

253,671. Crosscut-Saw. — Eben M. Boynton, West Newbury, Mass.

253,672. Sash-Cord Pulley. — Thomas Breen, Knowlton, Pa.

253,677. Water-Closet.—Joseph Budde, San Francisco, Cal.

253,679. Anti-Friction Roller Bearing.—Heinrich Bussing, Brunswick, Germany.

253,695. Governor Attachment for Elevators. —A Hefner, Eatonton, Ga.

253,720. Fire-Extinguisher. — Isidor Kitsee, Cincinnati, Ohio.

253,742. Guard for Doors and Windows. — John L. MacDonald, Shakopee, Minn.

253,740. Cooling and Ventilating Houses. — Thomas McGrory, Philadelphia, Pa.

253,756. Bench-Vice.—Jesse Lindon Parker, Fountain City, Ind.

253,789. Knob Attachment. — Henry R. Towne, Stamford, Conn.

253,790. Ice-House.—Arthur Von Krause and Mathias Kuhnen, Blauveltville, N. Y.

253,795. Alarm-Lock. — James E. Wells, Auburn, N. Y.

253,793. Hydraulic Elevator.—Charles T. Windstrand, Minneapolis, Minn.

253,816. Shingling-Gage. — George B. Clark, Springville, N. Y.

SUMMARY OF THE WEEK.

Baltimore.

Stores, etc.—Wm. F. Weber, Architect, is engaged upon the following:

Three-st'y store and warerooms, 18′ x 66′, for Mr. C. G. Carmine, No. 60 North Howard St.; cost, $6,000.

Three-st'y addition to store, No. 58 North Howard St.; cost, $4,500.

Addition to store for Nathan Gutman, Esq., No. 66 Lexington St., 44′ x 44′, two stores and basement; cost, $7,000.

Five three-st'y basement dwellings, for Mr. W. L. Stock, Madison Ave., cor. of Roberts St.; to be built of brick, with stone trimmings; cost, $30,000.

Building Permits.—Since our last report twenty-three permits have been granted, of which the more important are as follows:

Jos. H. Rieman, four-st'y brick warehouse, No. 64 N. Howard St., s e cor. of Clay St.

Michael Wagner, two-st'y brick building, Duncan Alley, between Pratt and Gough Sts.

Orlando Dufer, three-st'y brick building, Edmondson Ave., e of Arlington Ave.

Geo. Worrick, 2 two-st'y brick buildings, Hoffman St., e of Aiquith St.

Wm. Peat, three-st'y brick dwelling, Chase St., w of Forrest Place.

F. W. Classen, 6 two-st'y buildings, Charles St., beginning 16 feet n of McComas St.

Boston Fear, 5 three-st'y brick buildings, Fulton St. beginning 94 ft. n of Edmondson Ave.

Ebenezer W. Haviland, 13 three-st'y brick buildings, beginning at the n w cor. Presstman and Stricker Sts., fronting on Presstman St.

C. H. Lake, a green-house, in rear of No. 259 Greenmount Ave., between Biddle and John St.

James Guvoy, two-st'y brick building, Harmony Lane, between Carrollton and Arlington Aves.

Henry McGraw, three-st'y brick building, Eden St., between Aliceanna and Lancaster Sts.

Henry Jakes, two-st'y brick building, McHenry St., between Monroe St. and Goldsmith Alley.

G. P. Bartenbacker, two-st'y brick building, McHenry St., in rear of No. 907 Pratt St.

Thos. Godey, three-st'y brick building, in rear of No. 41 Hanover St.

Geo. W. Cooper, three-st'y brick building, Chester St., n of Baltimore St.,

Boston Fear, 5 two-st'y brick buildings, 12′ x 26′ each, Bruce Alley, beginning 94 ft. n of Edmondson Ave.

Jos. Wm. Jenkins, two-st'y brick building, Hoffman St., e of Belair Ave.

Boston.

Building Permits. — *Brick. — Commonwealth Ave.*, near Exeter St., Ward 11, for S. Endicott Peabody, dwell., 26′ x 84′, four-st'y and mansard; Hugh McLaughlin, builder.

Newbury St., No. 333, near Hereford St., Ward 11, for Chas. W. Parker, dwell. and stable, 22′ x 60′, two-st'y; L. P. Soule, builder.

Roanoke Ave., cor. Revere St., Ward 23, for Episcopal Society, stone church, 47′ x 112′; John D. Wester, builder.

Wood. — Melville Ave., rear, near Washington St., Ward 24, for Mrs. Rebecca T. Shaw, stable, 27′ x 38′; S. H. L. Pierce, builder.

High St., rear of, opposite Charles St., Ward 23, stable for John Gately, 21′ x 23′; Thomas Shed, builder.

Conant St., No. 130, rear of, Ward 22, for Lewis S. Conant, stable, 20′ x 26′, two-st'y.

Alford St., rear of, near Malden Bridge, Ward 4, for Bridget Crowley, stable, 14′ x 20′.

Milton St., rear of, cor. Wadsworth St., Ward 1, for Mary J. Burnett, stable, 18′ 6″ x 25′; John Scott, builder.

Market St., rear of, opposite Lyman Ave., Ward 25, for National Market Bank of Brighton, carriage-shed, 20′ x 30′.

Boston St., near Dorset St., Ward 15, for Leander H. Jones, dwell., 22′ 6″ x 43′, two-st'y; Leander H. Jones, builder.

Dorset St., near Boston St., Ward 15, for Leander H. Jones, dwell., 21′ x 40′, two-st'y; Leander H. Jones, builder.

Rockview Pl., near Rockview St., Ward 23, for Dougald McDonald, dwell., 22′ and 30′ x 30′, two-st'y.

Euclid St., near Withington St., for Wm. C. Hawkes, Jr., dwell., 22′ x 30′, two-st'y; J. H. Wilder, builder.

Brooklyn.

Building Permits.—*Flushing Ave., No.* 784, s s, 56′ w Yates Pl., 1 two-st'y frame factory and dwelling; cost, $2,500; owner, Fred Hosch, 782 Flushing Ave.; architect, Th. Engelhardt; builder, B. Rauth & Bro., and Jno. Rueger.

India St., Nos 117 *and* 119, n s, 150′ w Manhattan Ave., 2 three-st'y frame dwellings; cost, $4,000; owner, George W. Allen, 121 India St.; architect, F. Weber; builders, J. Rooney and J. Randall.

Willoughby Ave., s s, abt 100′ w Clermont Ave., 1 three-st'y brown stone dwelling; cost, $5,500; owner, John Hopkins, Adelphi St., near Willoughby Ave.; architect, M. J. Morrill; builders, P. J. Carlin and Long & Barnes.

Bridge St., s w cor. Plymouth St., 1 five-st'y brick factory; cost, $16,000; owner, Patrick Cassidy, Fifth Ave., New York; architect, R. Dixon; builder, John Guilfoyle.

Oates Ave., s s, 175′ e Franklin Ave., 3 three-st'y brown stone dwell'gs; cost, each, $7,000; owner, D. A. Sanborn, 521 Clinton Ave.; architect and carpenter, H. J. Smith; builder, J. J. Bentsen.

Fifth Ave., s e cor. Eighth St., 4 three-st'y brown stone stores and flats; total cost, $24,000; owner, Wm. Irvine, Court St. cor. Ninth St.; architect, J. Brune or Brunee; builders, J. Buchman & Son and N. J. Conway.

Prospect Pl., n s, 100′ w Albany Ave., 6 three-st'y frame dwells.; cost, each, $1,250; owner, J. Herod, 1389 Atlantic Ave.; architect, A. Hill; builders, J. Ashfield & Son.

Chicago.

Plasterers' Wages.—The plasterers have issued a manifesto stating that they will demand $2.75 per day after March 1, next.

Stores.—John V. and Charles B. Farwell, six-st'y and basement stores, 397′ x 255′, on the block bounded by Monroe, Market, Adams Sts., and the Chicago River. Stone front faced with St. Louis pressed brick, and granite columns; cost, $550,000; J. M. Van Osdel, architect.

Building Permits. — Howting & Crowhurst, two-st'y concrete dwelling, 20′ x 60′, Thirty-second and Wallace Sts. ; cost, $2,400.

Goss & Phillips M'f'g Co., three-st'y addition to factory, 60′ x 150′, Twenty-second and Fisk Sts. ; cost, $10,000.

Henry Meyer, two-st'y flats, 23′ x 56′, n e cor. Webster and Orchard Sts.; cost, $3,500.

Thos. Walker, two-st'y dwelling, 20′ x 44′, 3759 Dearborn St. ; cost, $2,500.

Amos Williams, 2 two-st'y flats, 40′ x 46′, Oakley Ave. and Harrison Ave. ; cost, $6,000.

J. G. Earle, 4 two-st'y dwellings, 40′ x 72′, Stanton and Thirty-seventh Sts.; cost, $6,000.

John Johnson, three-st'y store, 52′ x 70′, Chicago Ave. and Sedgarick St.; cost, $8,000.

A. Hanter, two-st'y store, 21′ x 50′, 699 N. Halsted St.; cost, $4,000.

Aug. Kluiger, three-story dwelling, 22′ x 60′, 169 Milton Ave.; cost, $6,000.

Union Iron Co., addition to factory, 40′ x 94′, Erie and Sedgwick Sts.; cost, $2,800.

Alex Owens, two-st'y flats, 22′ x 40′, Seymour and Fulton Sts.; cost, $2,000.

Chas. Noyes, two-st'y factory, 24′ x 94′, Milwaukee Ave. and Clinton St.; cost, $7,000.

Young & Farrell Stone Co., one-st'y brick stone works, 105′ x 200′, Lumber St., near River; cost, $15,000.

D. M. Osborn, three-st'y warehouse, 100′ x 160′, Morgan and Sixteenth Sts.; cost, $10,000.

R. T. Crane, Repair Factory destroyed by fire, 150′ x 250′; Judd and Wilson Sts.; cost, $25,000.

McGerten, two-st'y and cellar brick dwell., 22′ x 54′, Hurlbut near Centre St.; cost, $4,000.

Ed. Gannott, three-st'y and basement brick dwell., 21′ x 64′, 2219 Wentworth Ave.; cost, $6,000.

J. P. Dreudel, two-st'y brick dwell., 22′ x 49′, Larrabee St.; cost, $3,700.

E. B. Washburne, 2 three-st'y and cellar brick dwells., 23′ x 72′, Maple St., west of State St.; cost, $25,000.

Republic Life Building, two additional stories, 86′ x 90′, 161-163 La Salle St.; cost, $35,000.

Fisher & Wheeler, five-st'y and basement brick factory, 75′ x 100′, s e cor. Polk St. and Third Ave.; cost, $50,000.

Walker & Lauritzen, two-st'y brick dwell., 21′ x 48′, 3547 Dearborn St.; cost, $2,500.

John Kleinschmidt, two-st'y and basement brick dwell., 22′ x 53′, 223 N. Ashland Ave.; cost, $3,000.

Schack & Pewestorf, two-st'y brick livery stable, 24′ x 100′. 533 Chicago Ave.; cost, $4,000.

John Haller, two-st'y and attic brick dwell., 21′ x 57′, Nineteenth St., near Paulina; cost, $3,600.

A. Christianson, one-st'y brick factory and barn, 42′ x 60′, rear 425 and 427 W. Harrison St.; cost, $3,000.

O. M. Brady, two-st'y brick flats, 22′ x 50′, 119 Walnut St.; cost, $2,500.

James Conway, two-st'y brick dwell., 21′ x 28′, 369 Thirty-second St.; cost, $2,000.

Weir & Craig, two-st'y brick addition to factory, 32′ x 55′, 2252 Archer Ave.; cost, $3,500.

C. F. Schumacker, three-st'y and basement brick store and dwell., 36′ x 57′, Blue Island Ave. and Thirteenth St.; cost, $6,000.

John Lauritzen, two-st'y and basement brick dwell., 25′ x 54′, 3524 Indiana Ave.; cost, $5,000.

Union National Bank, repair damaged buildings, 184′ x 186′, Twenty-second St.; cost, $3,600.

A. Morck, three-st'y and basement brick dwell., 22′ x 56′, 201 Taylor St.; cost, $4,000.

F. Kubic, three-st'y and basement brick dwell., 23′ x 58′, 441 So. Desplaines St.; cost, $4,200.

Cincinnati.

Builders' Exchange.—The committee appointed at the last meeting to report a ticket to be placed in nomination as officers of the Builders' Exchange for the ensuing year has submitted the following ticket: President, William H. Stewart, Jr.; Vice Presidents, L. B. Hancock, and William Schuberts, Jr.; Directors, J. C. Harwood, Saml. B. Tappin, Thomas Gibson, T. E. Livezey, Chas. Crapsey, J. H. Finnigan, H. H. Post, Thos. H. Curry, E. P. Ransom, and Jos. Cotteral, Jr.; Committee on Arbitration, James Dale, S. L. Snodgrass, E. R. Loughead, A. C. Nash, John Parker; Committee on Appeals, Thomas Gilpin, A. W. Williamson, T. E. Livezey, M. B. Farrin, H. B. Luckey, H. McCollum, F. S. Rohan, H. E. Holtzinger. Upon motion the report was adopted, and the committee authorized to fill any vacancies that might occur on the ticket before the day of election, which takes place on Monday, March 6, between the hours of 10 A. M. and 4 P. M.

City Hall.—The Legislature is to be petitioned for a bill authorizing a levy of $1,000,000 for the erection of a new city building.

Museum of Fine Arts.—Mr. Chas. W. West who gave $150,000 of the $300,000 already subscribed and paid in for the purpose of erecting a new Art Museum building, in Eden Park, has lately given another sum of $150,000, the interest of which is to be applied to the maintainance of the museum.

Building Permits. — The following permits have been issued since our last report:—

John F. Luhring, two-st'y brick dwells., cor. Kenton and Morgan Sts.; cost, $2,000.

Rentfleish, two-st'y brick dwell., Observatory Road; cost, $3,000.

H. Johanning, three-st'y brick dwell., No. 17 Adams St.; cost, $45,000.

Mrs. H. Kock, three-st'y brick dwell., No. 219 Betts St.; cost, $2,000.

Chas. Hanna, two-st'y frame dwell., Brown St., near Bamiller St.; cost, $1,000.

M. Johns, two-st'y frame dwell., Kenton and Wayne St.; cost, $2,900.

Dr. D. W. Clancey, four-st'y stone front dwell., s e cor. of Seventh and John Sts.; Mr Saml. Hannaford, architect; cost, $14,000.

John Kirchuls, two-st'y brick dwell., Calhoun St., near Dennison St.; cost, $4,500.

A. Hoppe, two-st'y frame dwell., Camp Washington; cost, $2,500.

Thirteen permits for repairs, costing, $7,750.

Detroit.

Hotel.—The Russell House, Woodward Ave., is undergoing additions and alterations, at a cost of about $100,000; Gordon W. Lloyd, architect.

Building Permits.—The following are the more important of the eighty-two permits granted since our last report:

Dingeman & Smith, 2 frame dwells. on Fourth St.; cost, $4,000.

Peter D. Tallent, brick dwell., No. 109 Abbott St.; cost, $2,800.

A. Rose, frame dwell., Frank St.; cost, $2,700.

John Wilk, 2 frame dwells. on Thirteenth St.; cost, $2,000.

H. R. Chope, frame dwell., No. 296 Park St.; cost, $2 000.

De Man Bros., sash and door factory, No. 297 Trumbull Ave.; cost, $3,000.

W. P. Gibbings, frame dwell., No. 428 Fourth St.; cost, $3,500.

John La More, 3 frame dwells., Fourteenth St.; cost, $4,200.

Clement Lafferty, 3 frame dwells. on Thirteenth St.; cost, $2,000.

Henry Knowles, frame dwell. on Willis Ave.; cost, $2,200.

(Continued on next page.)