THE AMERICAN ARCHITECT AND BUILDING NEWS.

VOL. XIV. Copyright, 1883, JAMES R. OSGOOD & Co., Boston, Mass. No. 416.

DECEMBER 15, 1883.

Entered at the Post-Office at Boston as second-class matter.

CONTENTS.

THE New York Board of Fire Underwriters has undertaken to influence building in a new, and very promising way, by defining what shall be regarded by underwriters as a "standard building," and establishing various penalties, in the shape of extra premium rates, for any deviation from the model. The description of the standard building, as adopted at a recent meeting, specifies that it shall not exceed five thousand square feet in area; that all its walls shall be of brick, of the thickness required by the present city building law, having corbelled projections to receive the floor-beams, and all carried up above the roof and coped; that its roof shall be of iron or copper, or brick or concrete of some kind approved by the Board, all supported upon iron rafters; that cornices and gutters shall be of metal; that all party-walls shall be carried up four feet above the roof; and that all exterior openings above the first floor shall have iron shutters, of which one vertical row on the front must be arranged to open from the outside. The standard building will also contain no open hatchways or elevators, and its stairways are to be enclosed by partitions and doors. The additions to the premium rates incurred by violating these principles vary from five to one hundred cents on one hundred dollars, representing an augmentation of from five to one hundred per cent, so that it is apparently the intention of the underwriters to make it worth while for owners to conform to the standard. To us the idea of constituting a model for building, from the underwriters' point of view, seems to be an admirable one; not only making it much easier for property owners who wish to secure the best terms of insurance to accomplish their object than has hitherto been the case, but providing a skeleton, so to speak, to which can be added the best future improvements in the art of cheap incombustible construction. Among the inexpensive devices of this kind, for instance, which deserve to be incorporated in the underwriters' ideal, is that of securing the plaster to the ceilings by means of wire, either in the form of wire-lath, or as a network put on over the first brown coat, and secured by nails, in the manner now very common. To say nothing of the security which such wiring offers against the shaking down of basement ceilings by trucking heavy goods over the floor above which is to be observed in most stores not so protected, exposing the hollow wood construction of the floor at its most vulnerable and dangerous point, the wiring of the ceilings, by preventing the plaster from falling when the laths which hold it are warped and curled by the heat, enables them to defend the wood-work behind them for a long time against a fire burning below, and, what is nearly as important, assists them in retaining water which may be thrown into the rooms above, and leaks through the flooring. An ordinary plastered ceiling, as every one knows, will fall in a few hours, or even minutes, if a weight of water is allowed to accumulate above it, while a ceiling wired in either way will sometimes remain tight for weeks, with the exception of a slow filtration, even though the water may stand a foot deep over it.

A GREAT deal of trouble has been caused in New York by the natural water-courses, which in the progress of the city toward the upper end of Manhattan Island have been, for the most part, simply filled up with rubbish, and streets and houses built over them, the stream, of course, continuing to run slowly through its ancient channel below. The principal source of supply to the brooks being now the street-wash, they have become very foul, and threaten the health of those who live over or near their course by malarial, or even worse diseases, as well as by the dampness which exhales from them. It is said by old and experienced physicians that the course of all the principal streams which existed as brooks a century or so ago can still be traced by noting on the map of the city the lines of greatest prevalence of malarial diseases, but a more ready means of ascertaining them is to be found in an excellent map, made up some years ago from ancient authorities, and representing all the brooks and marshes which now lie concealed beneath the streets and houses. From this map it appears that about twenty-five hundred acres of land in the city still remains saturated with slowly-flowing fresh water at a small distance beneath the surface, while about the same amount has within a few years been drained by sluices, conveying the subsoil water to the rivers.

ONE can hardly learn without a blush that the astonishing "invitation to artists" composed by the managers of the Garfield Monument Association has been, by request of the diplomatic representatives of the United States, published in the foreign technical journals, where its mean and ignorant assurance appears doubly conspicuous by contrast with the terms of competition usually found there. As we find it rendered in *La Semaine des Constructeurs*, we are glad to notice that an error in translation has made one of the preliminary clauses unintelligible, so that one may hope that the great French sculptors, for whose eye the notice is intended, will become confused, and lose their interest in the subject, before they reach the humiliating items which announce that "the Commission reserves the right to reject all or any of the designs;" and that "the designs of superior merit in the opinion of the Commission will receive an award, for the best, of one thousand dollars," and so on, concluding with the stipulation that "the premiated designs," (together with all the rejected ones not called for within two months after the decision,) "shall become the property of the Commission." One can imagine the comments of the guests at a sculptor's reception in Paris upon this precious document, and the enthusiasm with which M. Falguière, for instance, will prepare himself for six months' hard work upon a model to be judged by a commission of Yankee financiers whose idea of an "image" or an "emblem" is but too clearly foreshadowed in the language of their circular, and which, if it should receive their suffrages, would be rewarded with one-fifteenth of the usual remuneration, and appropriated by the committee to be carried into execution in the way which might please them best. It is instructive to notice on the next leaf of *La Semaine* a paragraph mentioning that a competition after the French fashion had just been decided at Beauvais. The subject of this competition was a design for *a sofa*, and the prize was an award of four hundred dollars in money, nearly half the amount that the Garfield Commission thinks sufficient compensation for the best design for the most important, and in many respects the most interesting work of pure art which it has yet been attempted to erect in this country.

A SERIOUS complaint is made by Mr. Rebisso, one of the sculptors who took part in the competition for the Garfield monument at Cincinnati, in regard to the method in which the award was made; and so far as appears from his letter to the Cincinnati *Commercial Gazette*, he is certainly justified in his strictures. It seems that the circular to artists, issued by the committee in charge, invited each of those who received it to submit a "model" for the statue, "of the height of eighteen

inches, the measure being taken from the sole to the crown of figure." Three out of the four competitors understood this to mean that only one model was to be submitted by each, and sent their designs in accordance with this interpretation, keeping, moreover, the dimensions strictly within the stipulated limit. The fourth competitor, who has probably more experience of non-professional committees than the others, submitted four models, one of them being twenty-two inches high instead of eighteen. This model was selected by the suffrages of the committee and adopted. To Mr. Rebisso the selection of the design of a sculptor who deliberately violated one, if not two, of the plain requirements of the programme seemed unfair, and in concert with the other unsuccessful competitors he protested against the admission of the irregular models, only to find his letter treated with contempt.

MR. REBISSO'S inference from these proceedings, that the members of the committee were actuated in their decision by "ill-concealed favoritism," rather than judicial integrity, hardly seems to us to be justified, but it is none the less certain that any committee which, whether ignorantly or not, receives and rewards a design prepared in violation of the stipulations of the programme, makes itself a party to a successful fraud upon the rights of the more conscientious competitors, and can, we think, be held responsible to them for all the trouble and expense which they have been at in following out the programme which the committee chooses to disregard. The fact is that the members of committees of this kind, like other business men, are so accustomed to looking upon the artists or architects who scramble after their "jobs" as an exquisitely helpless sort of fools, that the idea of paying any regard to their weak complaints does not occur to them; and it is unfortunately also true that competitors of intelligence and responsibility, ashamed, after the competition is over, to have it known that they condescended to participate in it, will generally submit to the most bare-faced breaches of faith without any attempt to make their rights respected. In the present case, supposing the assertions of Mr. Rebisso to be true, the submission by any competitor of a model larger in scale than those of his rivals unquestionably destroyed at once the fairness of the competition. The merest tyro in such matters knows the increased conspicuousness and apparent importance of a model somewhat bigger than those about it, and with the average committee-man, as every experienced competitor understands, this quality counts for more than all the rest; so that one who has reason to suppose that the committee will pay no regard to the stipulations in this respect can easily obtain a great advantage over his rivals. There are many other tricks of the professional competitors, among them, for instance, the well-worn but most effective one of withholding a design as far beyond the specified time as the patience of the committee will allow, in order to give it the advantage over those already received of novelty and gratified anticipation; but it is not necessary now to consider these. The point to which we wish to call attention is that competitors so defeated have full redress at hand, if they will only pluck up courage to ask for it. A programme inviting designs, no matter how brief it may be, constitutes a valid contract between the persons issuing it and all those who accept the invitation and submit their designs in accordance with it. Not one word of this contract can be waived or modified by one party without the express consent of all the individuals who form the other party, and if any breach of the stipulations is committed by either party, any of the persons who constitute the other may, as we think, insist upon their contract, and require payment in full for all the work which they may have done in accordance with the published terms.

TWO very serious conflagrations took place last week in Europe, one destroying six hundred houses in a poor suburb of Constantinople, while the other, after burning for more than a day, consumed the interior portion of one wing of the Palace of the Belgian Legislature, at Brussels, with many valuable documents and other objects, the whole loss being estimated at about two and a half million dollars. It is a long time since so serious a fire has occurred in any European public building. With the exception of the Hôtel de Ville and the Tuileries at Paris, which the ingenious malice of the Commune with difficulty succeeded in destroying, the only important structure which has suffered by fire for many years seems to have been the Louvre, which, in consequence of a change in the heating apparatus, took fire several times within a few months. Constantinople, unlike the more civilized cities of the Continent, is very subject to extensive conflagrations, the houses in the poorer portions, and particularly in the suburbs, being mostly of wood, and crowded together.

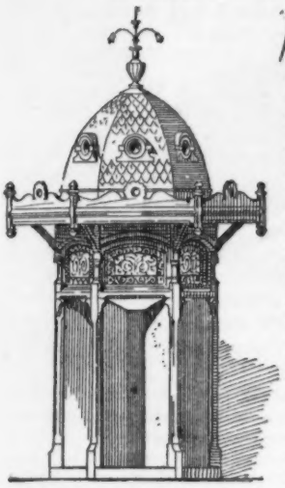
IT seems, from an account given in the New York *Tribune*, that the work upon the Hudson River Tunnel is suspended, nothing having been done on the New York side since July last, and nothing on the New Jersey side for about a year. The excavation and the caisson on the New York side of the river have been allowed to fill with water, but on the opposite side an effort has been made to keep the tunnel clear. Nothing is said about any accident to the work, and as no difficulty is found in clearing the western portion of accumulated water, no defect of importance probably exists, and the suspension of active operations may be due merely to lack of funds. It is certainly to be hoped that so important an enterprise will not be abandoned at this point. If we are not in error, the subaqueous excavation is already longer than any other tunnel in existence, and the most difficult steps have already been taken.

A QUARREL has been raging for some time in the bosom of a quiet New Jersey village, and the participants, too prudent to indulge in warlike encounters, have devised some singular methods for gratifying their hostile feelings. The quarrel arose, as such conflicts sometimes do, upon the occasion of the erection of a church in the town. The village is divided by a stream, and naturally enough, the inhabitants of each division wished the building placed on their side. The question was decided by an agreement that the church should be built in the district which should contribute the most money toward its cost; and as the people of the west side proved the most generous, the building was placed among them. Unfortunately the east-siders conceived a suspicion that the church treasurer, who was a west-sider, had so manipulated the contributions as to secure an apparent, but not a real victory for his party, and their resentment at this supposed wrong soon made itself felt. To soften their anger, a young lady from the east side was appointed organist to the church; but some inconsiderate west-siders, aggrieved by the suspicions of the others, and seeing an opportunity for revenge, attacked the young lady organist by means of anonymous letters, and at last succeeded in driving her away, and procuring the appointment of a west-sider in her place. It may be imagined that the dissension was not allayed by this proceeding, and on the first Sunday after his appointment, when the new organist went to assume his post at the church, he found the organ transformed into the likeness of an immense bird, by means of a coat of tar and feathers applied all over it. The congregation very naturally laid this performance to the friends of the dispossessed organist, but they denied it, and charged it upon the west-siders, who, as they said, wished to injure the young lady's reputation. The result of the strife will probably be a separation of the village into two congregations, the east-siders contributing some more money, and building a church for themselves.

AN excellent example for future occasions has been set in arranging for the preliminaries of the competition for the extension of the Museum at Berlin. About three hundred and fifty copies of the programme were sent out, so that the number of competitors will probably be little less than a hundred, and notice was given that on a certain day the authorities of the Museum would meet the intending competitors, to answer questions in relation to any points of the programme which seemed obscure, or to explain matters not mentioned in the programme. The meeting took place as announced, and was attended by a large number of architects. Thirty-two questions were put, and answered clearly and fully by the representatives of the Museum, for the benefit of all present, so that the competitors who took the trouble to go to the meeting will be able to set about their designs with tolerable certainty that their time will not be thrown away. We commend this feature, as well as the others which distinguish real competitions for important work abroad, to the attention of those who wonder why respectable architects in this country cannot be induced to waste their time and money in the cheap scrambles which go under that name here.

SANITARY PLUMBING.[1]—XII.

LATRINES AND TROUGH WATER-CLOSETS



ARE designed for use in public places where an attendant can be employed to take constant charge of them, and where water is so abundant that its extravagant consumption is no disadvantage. Trough water-closets consist of a long reservoir or trough, inclined towards one end, where a discharge-plug is placed, and having a single or double row of water-closet seats placed over it, so that all the closets are flushed together, or, in other words, so that the flushing of one necessitates the flushing of all the rest in the series connected with it. They are constructed in different manners, either of brickwork having vertical sides and rounded bottom, or of iron, usually enamelled.

Latrines (Fig. 29) are practically trough water-closets having the trough diminished in size, and a bowl or funnel discharging into it under each seat. The bowls are constructed of earthenware or white enamelled iron, and the trough or pipe with which they are connected is made of iron, and has a trap at its end under the discharge-plug. In the figure the discharge-plug is hollow, and consists of a stand-pipe with overflow-passage through it. The height of the overflow regulates the position of the standing water in the bowls. The plunger or discharge-plug is under the control of the attendant, who flushes the closets as often as he considers it advisable. The bowls are so constructed that the waste matters fall directly into the standing water, and nothing strikes their dry sides; they are thus

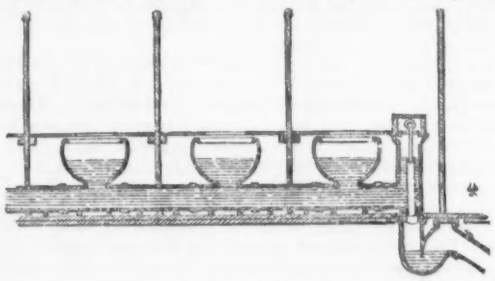


Fig. 29.—Latrines.

partially deodorized. But the liquid and soluble portions of the solid wastes, which are allowed by the faithful attendant to remain for some length of time in the latrines, as well for the sake of economizing water as to enable him to attend to his other duties, soon precipitate a slimy deposit all along the inner surface of the closet, and particularly around the plunger-chamber. This is not easily removed, and always forms more or less of a nuisance. In most cases it will be found much better to provide, instead of latrines, a row of good hopper-closets, with treadle, door or seat attachment for automatic flushing, if desired.

SLOP-SINKS, SLOP-HOPPER SINKS, AND SLOP-HOPPERS.

Figures 30, 31 and 32 represent three kinds of fixtures designed for the reception of slops. The first and second have no means pro-

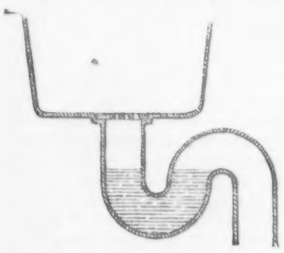


Fig. 30.—Slop-Sink.

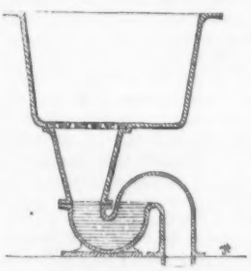


Fig 31.—Slop-Hopper Sink.

vided for the flushing of the walls of the sink; the last is provided with a flushing-rim for the purpose. But the use of the flushing-rim in private houses is oftener neglected than observed. Servants will not take the trouble to thoroughly cleanse the slop-hopper at every usage, and it soon begins to emit a disgusting odor. In hotels or large club-houses, where their use is constant and under systematic supervision, where special attendants are detailed to take charge of them, and where each story is independently provided with a separate slop-hopper, their use may be recommended; but in private houses they should never be allowed. A good hopper water-closet, with a strong enamelled-iron drip-tray to protect the bowl, is much better, inasmuch as, while it serves the purposes of the slop-hopper equally well, it escapes its objections by ensuring a periodic flushing. Every time the closet is used for the purposes of nature it is thoroughly flushed, and even slops are much seldomer allowed to stand in the bowl, because their presence would be immediately detected by the next regular user of the water-closet, and the damage would be likely to recoil upon the head of the offender. It is customary in private houses to place the slop-sink in the attic, but no house-owner can give any better reason for its existence there than that he had seen it in some other houses. When valve, pan and plunger closets were used to the exclusion of the more modern hopper, the slop-sink had a certain *raison d'être*. In these closets, especially those requiring an overflow-passage, the closure of the outlet is apt to cause an overflow of the slops when a large pailful is poured in quickly.

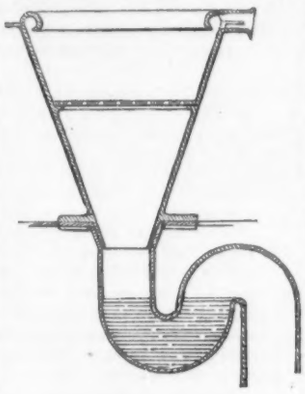


Fig. 32.—Slop-Hopper.

But the modern hopper-closet has a clear, open passageway into the drains, and, being provided with the most improved form of flushing apparatus, is, in fact, the best form of slop-hopper that has been devised. Some persons who have insisted, even contrary to the advice of their architect or sanitary engineer (who now unite in condemning them), upon having the customary slop-sink duly installed in their attics, wishing to have at least an appearance of a reason for their waywardness, urge that the virtue of the slop-sink lies in the strainer: this serves to prevent the obstruction of the drain by scrubbing-brushes, rags, large cakes of soap, or other household articles used in scrubbing, capable of clogging the soil-pipe, which a careless servant might throw with the slops into the sink. This office of the strainer is certainly a useful one, and if every story in the house contained a slop-sink provided with such a guard, and every water-closet had a movable or portable strainer endowed with sufficient intelligence to close the outlet only when slops were poured in, the soil-pipes might really be protected from the gross carelessness of our friends so much feared. But as such a profusion of slop-sinks and strainers is evidently impossible in private houses, and as slops are collected in every story of the house as well as in the attic, and as no servant careless enough to throw scrubbing-brushes into a water-trap would take the trouble to lug slops from the lower stories up to the attic, in order to protect the neighboring water-closet trap from such an accident, or, in other words, mount one or more flights of stairs to avoid the trouble of removing the scrubbing-brush from the slop-pail before emptying the slops into the nearest water-closet bowl, it is evident that the argument of protection to soil-pipes has little weight.

For hotels and some other public buildings, the best and only proper form of slop-sink is the so-called "slop-hopper" of Figure 32, which is superior to the others in having a good flushing-rim. But the bowl should be properly protected by a stout iron drip-tray, properly supported, to receive the frequent blows bestowed upon the hopper by the careless pail.

URINALS.

As they are generally made, urinals are very objectionable things in private houses. Urine undergoes rapid decomposition, and gives off a powerful and very disgusting odor. When in this state, it has the power of turning fresh urine into the same condition almost immediately, so that unless the urinal is so formed and placed that its surfaces are thoroughly cleansed after use, it soon becomes a very foul and disagreeable fixture in a house. Figure 33 represents the most economical form of urinal, as they are now made. The bowl is generally constructed of glazed earthenware, with some form of fan or flushing-rim for spreading the flushing stream over its entire interior surface. The urine escapes through numerous perforations in the bottom and back of the bowl, into the waste-pipe. In some forms the trap is made in a single piece of earthenware with the bowl. There are a number of different forms of urinals, both swinging and stationary, and they are flushed either by a stop-cock directly on the supply-pipe, to be turned by hand, or by a special cistern. The former method of flushing is open to the same objection as the direct supply to water-closets, and is now forbidden in some places by law. The pressure may be at times insufficient to fill the pipes,

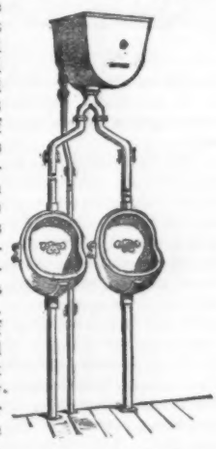


Fig. 33.—Urinals.

[1] Continued from page 272, No. 415.

and the foul air from the surfaces of the urinal, perhaps containing disease germs, may be sucked into the supply-pipes on opening the stop-cock. In the figure, an automatic flushing-cistern is used, which has within it a tilting vessel arranged to give a periodic flush as it slowly fills under a small faucet kept constantly open. This is perhaps the only certain method of ensuring a sufficient flush for single urinals constructed in the usual way; but it involves a great consumption of water and is very wasteful, inasmuch as the flushing goes on always, whether it be required by the use of the urinal or not.

For private houses it is much better to construct the urinal in the manner shown in Figure 34. It is a simple hopper-closet raised to the height of a urinal. By this arrangement, all of the advantages of a urinal are obtained, without any of the objections. Moreover, by stepping upon the steps or foot-rests at the floor in front of the fixture, the device serves equally well as a water-closet. The writer has found by experience that this form of urinal never becomes foul, nor is its use as a water-closet accompanied by the least inconvenience. He has used it both in public and private buildings with equal success. The bowl, containing a large body of standing water, dilutes the urine, and prevents its fouling the sides. Habit, with water-closets, leads to its flushing after its use as a urinal at times when the ordinary form of urinal would have been left unflushed. But should, by any chance, the flushing be neglected, the next use of the fixture as a water-closet would ensure its cleansing. Moreover, by combining the two fixtures in one, economy both of space and first cost is obtained, while the offensive appearance and smell of the urinal is avoided and the consumption of water is greatly diminished. Not the least of the advantages of this arrangement is that it is suitable for use by both sexes, a consideration of some importance, especially in the hall of a private house, where the want of space limits one to the use of a single fixture.

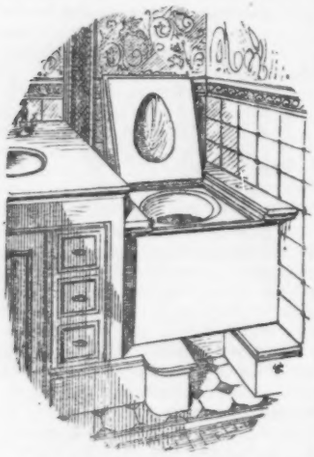


Fig. 34.—Combined Urinal and Water-Closet.

In public buildings, however, such as hotels, railway-stations, manufactories, school or club houses, where proper and systematic attention may be expected to be given to them, urinals may become not only desirable, but absolutely necessary. Stall urinals should also be constructed in various places in the main thoroughfares, easily accessible to the public, as an important sanitary measure.

The initial cuts at the beginning of this chapter and of Chapter VI represent ornamental isolated urinals for the public thoroughfares, and Figure 35 shows a stall urinal, more suitable for use under cover, as in railroad-stations and public buildings. These urinals are usually made of iron lined with marble, slate or plate-glass. The water-supply is generally constant in public urinals for the streets, but in railroad-stations and hotels it is controlled by valves operated either by a treadle arrangement or by the door of the apartment in which the urinal is placed, or it is operated by a special attendant. In the distribution of water to public urinals, care should be taken that not only every part of the urinal should be properly washed, but that also the trough at its foot, which receives the drippings, should be cleansed. It is calculated that for stall urinals having a constant supply, the consumption of water often equals a half a gallon per minute per stall.

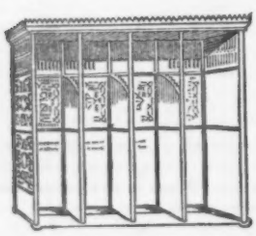
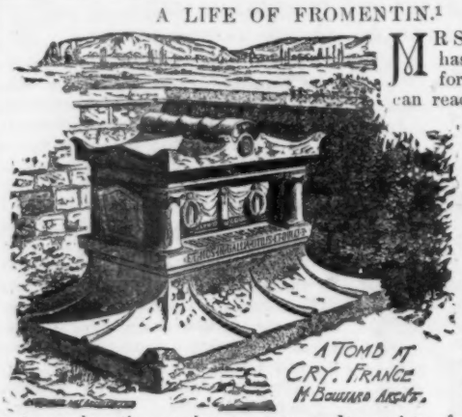


Fig. 35.—Stall Urinal.

The width of the stall should not be less than two feet, as some persons will not enter a narrow stall; so that a narrower one would lead to the formation of a nuisance outside the urinal. An open grating should be provided below the feet, and below this an inclined floor, which should be washed by the distributing-pipe. The division between the stalls should also be flushed. In many urinals these divisions never get washed, and consequently such urinals are never entirely free from smell. The best of ventilation should always be provided in the building where urinals are placed. In constructing a public urinal the aim should be to confine the urine to as narrow limits as possible, in order to economize the supply of water. Hence the ordinary urinal basin (Fig. 33) is to be preferred where it can be used. Unfortunately, however, these are generally too high for small children; hence the plain slab shown in Figure 35 is sometimes required. The divisions should not exceed five feet in height: beyond this there is only a waste of material, and more surface to be kept clean.

A LIFE OF FROMENTIN.[1]



MRS. ROBBINS has done a work for which American readers should be grateful, in supplementing her translation of Fromentin's "*Old Masters of Holland and Belgium*," published nearly a year ago,[2] by this translation, similar in external form, of the biography of the master. Gonse's life is not an exhaustive one by any means. It consists of a collection of papers first published in the *Gazette des Beaux-Arts* (of which he is the editor), and gives much more place to a criticism of Fromentin as painter and writer, than to an account of him as a man. There is, indeed, a brief biographical chapter clearly and sympathetically written, but it gives us little more than an outline or glimpse of a personality that must have been extremely charming. A little further insight, however, is fortunately afforded by a few letters of Fromentin's written to George Sand, which are introduced when the works of which they speak are criticised. Frenchmen, whether they write books or letters, are apt to be more outspoken in personal matters, more self-revealing, more naïve, if you will, than we who speak the English tongue. So one is not surprised to find these few epistles of Fromentin's giving us a better idea of the inner character of the man than is often afforded by a whole volume of similar documents in our own vernacular. So charming, so interesting is the personality thus suggested, that these few pages are among the most valuable in the book, and provoke an earnest wish that more of Fromentin's correspondence might be given to the world.

After all, however, what we are chiefly concerned with in an artist is his art, and to Fromentin's art — to his arts, to speak more correctly — M. Gonse gives careful and unbiassed attention. He studies him first as a painter, then as a writer, and in each case goes to work with a very keen critical insight, a very impartial mind, and a peculiarly French felicity of brief and telling speech. Such a study of such a master must be profitable to every reader who interests himself in art, and it would be well indeed for such if all the great men of Fromentin's generation might be presented to them in similar fashion. Fromentin was not, as a painter, the most important among them. I should say he held a very high place in the second rank of modern French artists, rather than a place among the very first. But his talent was eminently individual, and as such merits to be examined by and for itself, and not merely as complementary to the talents of other men. The analysis which M. Gonse makes of it seems to me eminently just, in spite of his personal friendship for the painter — a thing we can not often say, by the way, of similar sketches in our own tongue. He sees Fromentin's deficiencies as clearly as another, but rightly concludes that they are but slight and unimportant defects in an art of great elegance, distinction, refinement, ideality and personality. I need not here quote his analyses and conclusions, as the book is within reach of every one, and as any abstract could give but a mangled idea of such delicate and clever writing. Fromentin's works are sufficiently well known and appreciated in this country, I think, to attract many readers to the volume.

But interesting as he is as a painter, Fromentin seems to be much more remarkable as a writer. M. Gonse himself rates his literary work above his pictorial, placing the one in a high class, but the other in the very highest. Nor can any one hold that he speaks too boldly, since, though he had produced but four small volumes in all, Fromentin would have been admitted to the French Academy on the strength of their merits, had not his premature death intervened. These books are: a novel called "*Dominique*," which is most beautifully written and full of attractive and interesting thoughts, (valuable, moreover, as being in some degree autobiographical,) but which *as* a novel is hardly a success; two volumes of travel in Africa, and the "*Old Masters*" already referred to. No such exquisite work in the same line has ever been done as the two volumes of travel, "*A Year in the Sahel*," and "*A Summer in the Sahara*." The author's gifts as a painter gave him a marvellous power of vision, a marvellous sensibility to effects of color and light and form, and these were supplemented by a literary gift of even greater power: a command over his language unrivalled by any descriptive writer, and an ear for the subtleties of style that had been cultivated by early poetical attempts and produced some of the most wonderful work to be found in all the wonderful gallery of French prose writing. Even Théophile Gautier, as M. Gonse says, seems almost commonplace as compared with Fromentin as a descriptive writer — even George Sand is not quite his equal. The finish, the nicety, the keenness, the exactness of his language are only equalled by its ease, its grace, its charm.

[1] *Eugène Fromentin, Painter and Writer.* By Louis Gonse. Translated by Mary Caroline Robbins. Boston: James R. Osgood & Co., 1883.

[2] See *American Architect* for December 9, 1882.

He absolutely transports us to the scenes he is describing, and steeps us in an illusion the memory of which long remains. There is no bold synthetic painting, no attempt to condense an impression into a few main points, and to dwell upon these with such force as to stamp them vividly on the mind. On the contrary, his effects are produced by an accumulation of details such as could only have been perceived by a painter's eye, and such as could only have been painted by a consummate artist in words. It is impossible to give those who do not know these books any idea of the magical descriptive power of Fromentin, or of the way in which he so mingles it with personal feeling and with dramatic incident that it never becomes tedious, as word painting does in the hands of a lesser master. To me they seem the most wonderful pieces of prose writing I have ever read, making the work of other men seem gross and clumsy in comparison, and all other books of travel the commonplace records of what has been seen by commonplace eyes. They could never be translated into English without losing much of their charm, and those who love them best must be the last to wish to see the task attempted.

With the "*Old Masters*" the case is different. The style is here almost as exquisite, almost as impossible to render perfectly in English. But there remains so large a residuum of incomparable criticism, even after part of its charm has evaporated, that we gladly welcomed Mrs. Robbins's version. The most remarkable thing about Fromentin is, as M. Gonse points out, not that he was at the same time a great writer and an admirable painter, but that he kept the two branches of his work so entirely apart from one another. His painting has not the first shadow of the "literary" flavor we so often find in the works of those, even, who cannot write at all. And his writing is as absolutely perfect in form as though he had done nothing else all his life; yet it was but his secondary concern, filling in the gaps left when brush and palette were laid by. M. Gonse seems half to regret that the division of his labors was made in just this way. However this may be, it is certainly a misfortune that Fromentin could not have had a life twice as long as that of other men, since to him Nature had given a double endowment, the full development of either branch of which might easily have occupied three-score years and ten. It is not in quality that we count our loss. He could never have written better, since he wrote more perfectly than any other man; and though his painting was steadily progressing, and though he died comparatively young, yet we may believe that here, too, he could hardly have gone beyond the point he attained when at his very best. But what have we not lost in quantity by his dying at the age of fifty-six! Those who see as I do in the "*Old Masters*" the finest and most vital and instructive piece of pictorial criticism that was ever written in any tongue, will be moved to deep regret when they find from this biography that Fromentin projected at different times of his life several schemes for other books, some of which, at least, would probably have been executed had he lived a few more years. These included other studies of the old masters of former days; a sketch of the rise of modern developments; an examination of the collections at the Louvre; and a study of Corot. It is hard to say which work would have been the most valuable. It is easy to agree with his biographer that, Fromentin leaving them undone, they will never be written with the same degree of excellence; for when again shall we have a man with such an endowment as Fromentin's — the eye of a true painter joined to a temperament of extreme sensibility, to catholicity of taste, to the brain of a critic of the very first rank, and to the pen of a French prose writer of the very highest class? French artists are better writers as a rule than English, and much better critics, and French literary men have a far keener natural sense for art, and a far better education therein, than their English-speaking brethren; but there is not a chance in a million that another personality will be developed uniting both these talents, and having each in so rare a degree of perfection as was the case with Fromentin. Feeling what we have been defrauded of, therefore, we are all the more grateful for the unpublished fragments from Fromentin's note-books and portfolios which M. Gonse has incorporated into his volume. The "*Note-Books in Egypt*," published as an addendum to the French edition, have not, however, been included in the translation.

The etchings and large plates which appeared in the former are also omitted here. We get no versions of Fromentin's completed works; only a number of his sketches and studies. These, however, are well reproduced, though sometimes on a smaller scale than in the original volume. They will be most interesting to those who know the painter's work, though they can give no idea of it to unfamiliar eyes.

Mrs. Robbins's translation seems to me more nearly perfect than was her version of the "*Old Masters*,"— a circumstance that might have been anticipated from the fact that though M. Gonse is an excellent and elegant writer, he is after all not a Fromentin. In spite of occasional slips and some instances where the translation is not as close as it might have been, much of the spirit and grace of the original is preserved, and the work as a whole may be said to be sympathetically and satisfactorily done. Students are to be congratulated, not only that the book has now been opened to those who read English alone, but also that it is furnished them in so good a shape.

M. G. VAN RENSSELAER.

"*TRUTH*" AND ILLICIT COMMISSIONS.

"A MAN building his own house has every one against him. Theoretically he is protected by his architect, but as the architect is paid a commission on the amount spent, it is his interest to make that amount as large as possible. It almost invariably happens, too, that the architect is paid a second commission by those whom he employs, and thus becomes their slave. This, of course, is fraud; but architects apparently do not think so. In almost every article used in building a house there is a trade price and a general public price. The architect should insist on the trade price, but were he to do so he would not get a commission from the vendors. Whenever an architect particularly recommends mantel-pieces, or grates, or any such articles which are made by some particular firm, it is fifty to one in favor of his having a personal reason for the suggestion."— *Truth*, *October* 18, 1883.

The following correspondence lately appeared in *Truth*, and has reference to the foregoing remarks recently made by the editor of that journal concerning architects and commissions: —

ROYAL INSTITUTE OF BRITISH ARCHITECTS,
9 CONDUIT STREET, HANOVER SQUARE, LONDON, W., November 6, 1883.

Sir, — The attention of the Council of the Royal Institute of British Architects has been called to a paragraph in *Truth*, of the 18th ult., in which you inform your readers that "almost invariably the architect is paid a second commission by those whom he employs;" that he does not consider such a course of procedure to be a fraud; and that "whenever an architect particularly recommends mantel-pieces, or grates, or any other such articles, which are made by some particular firm, it is about fifty to one in favor of his having a personal reason for the suggestion."

We are directed by the Council to state, in the most unqualified manner, that the accusations thus brought against architects are, as far as they regard the members of this Institute, calumnious and untrue.

On the assumption, however, that before venturing to make accusations so sweeping, and so damaging to an honorable profession, as those to which we refer, you were in possession of facts injuriously affecting individual architects, we are directed to invite you to communicate to the Council their names and addresses, in order that some action may be taken thereon. Every Fellow and Associate of the Royal Institute of British Architects is bound by a written obligation *not* to receive or accept any pecuniary consideration or emolument from any builder or other tradesman whose works he may be engaged to superintend, and *not* to have any interest or participation in any trade contract or materials supplied at any works the execution of which he may be engaged to superintend. The proved infraction of these fundamental rules involves immediate expulsion from the Institute.

We beg leave to enclose for your information a list of our members, and we are to request that you will accord to this letter publicity equal to that given to the serious accusation it refutes.

We remain, sir, your obedient servants,

J. MACVICAR ANDERSON, Hon. Secretary.
WILLIAM H. WHITE, Secretary.

Sir, — I am in receipt of your letter, in which you refer to certain paragraphs which have appeared in *Truth* respecting architects, and in which it is alleged that many are in the habit of receiving a second commission from those whom they employ, in addition to that paid to them openly as architects, and you ask me to communicate to your Council the names and addresses of any architects who are members of your Institute, and who have received such commissions.

It must be obvious to you that if the allegations be correct, it is impossible for me to accede to your request, for the tradesmen who give the commissions would not wish in their own interests to have their names made public.

I shall, however, have much pleasure in publishing your letter, which you say is a refutation of my statement, so far as the members of your Institute are concerned; but in doing so, I shall also publish my reply.

As I understand the position of an architect, it is this: He is employed by an individual who is about to build a house. He receives a commission of five per cent on expenditure. In return, he is expected to make plans, to see that the work be well and efficiently performed, and to protect his employer against all undue charges.

Is it not the "custom of the trade" for articles required in the building and decorating of houses to be subjected to most extraordinary discounts? Take, for instance, ornamental tiles, now so popular. They are bought by the builder subject to a discount varying from 10 to 20 per cent. Grates and mantel-pieces are subject to a discount of 20 to 33⅓ per cent. Wall-papers are subject to a discount of 50 per cent. Many other articles, which it is needless to enumerate, are subject to like discounts.

This being unquestionably the fact, I would venture to ask: 1. Why this extraordinary "trade custom" prevails? 2. Whether the members of your Institute are in blissful ignorance of it? 3. Whether

they, or some of them, do not certify to the correctness of a builder's account when it contains items on which these discounts are allowed, without their being deducted? 4. Whether architects do not invariably insert the names of houses where these discounts are allowed in their specifications, and insist upon the builders dealing with these houses, and whether in these cases the builder does not receive from such houses a smaller discount?

Let us assume, for the sake of argument, that the architect in no case receives any portion of these discounts directly from the houses which are in the habit of giving them. By the rules of your Institute he is permitted to receive five per cent on expenditure. If the builder is allowed to receive 50 per cent on wall-paper, besides a cash discount, it is evident that the architect receives a commission on this 50 per cent. You can hardly imagine that an employer has the remotest idea when he chooses a wall-paper — say at 12*s.*, a piece — that the cost to the builder is 6*s.* a piece, less cash discount, or that the architect who is employed to protect him is certifying to the 12*s.*, and receiving a commission not only upon the real price, but upon the artificial price.

So long as the "trade custom" prevails, so long as architects insert in their specifications the names of particular houses, instead of allowing builders to deal in the open market, I, for one, shall continue to believe that many architects take more care of themselves and of their friends than of their employers. The subject is one of considerable interest, and if you like to furnish me with any explanation of the points to which I have alluded, I shall be quite ready to give publicity to it. I do not question the desire of your Council to protect the public. What I deny is, that they succeed in doing so.

Yours obediently, THE EDITOR OF "*Truth.*"

THE ILLUSTRATIONS.

HOUSE FOR JOSEPH M. JOHNSON, ESQ., BINGHAMTON, N. Y. MESSRS. HARTWELL & RICHARDSON, ARCHITECTS, BOSTON, MASS.

THE ETHNOLOGY OF ARCHITECTURAL FORMS.

THESE very amusing and ingenious parallels are redrawn after an article by M. H. Espérandieu, published a dozen or more years since in the *Revue Générale d'Architecture*, to which we refer our readers for such information as they cannot gather from the sketches themselves.

THE RESULTS OF TESTS ON THE TRANSVERSE STRENGTH OF BEAMS, MADE AT THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY, BOSTON, MASS.

SEE succeeding article.

TRANSVERSE STRENGTH OF TIMBER.[1] — III.

THE machine with which the tests were made is a 50,000-pounds machine, and is capable of testing beams 25 feet long, as well as many of the framing-joints used in practice. It consists, as shown in the first cut (*see Illustrations*), of a compound lever hung in a cast-iron frame, to which is connected, by means of a steel rod and turn-buckle, one end of a lever, of equal arms, placed below, this lever having a 12-inch leverage, and being connected at its other end by means of a chain, with the yoke shown in the cut. Two hard-pine beams, each 20 inches deep, 10 inches wide, and 26 feet long, are laid across the timbers of the machine in such a way that the chain already referred to is midway between them. Two common jack-screws, each in a pair of wrought-iron stirrups, are placed at a distance apart depending upon the span of the beam to be tested, the latter being placed, as shown in the cut, upon the jack-screws and under the yoke. The jack-screws are then screwed up, and the beam to be tested is thus raised at its two ends, and hence loaded at the point where the yoke is attached.

The deflections are recorded to the ten-thousandth of an inch, as the measurements were made with a micrometer screw that could be read to that degree of accuracy, and hence it was thought best to give the results as they were obtained, although it is not claimed that change of temperature or other disturbing causes, which would be inappreciable as far as any practical result is concerned, may not cause so great a variation as to render it unnecessary to read to such a degree of accuracy. Moreover, I think that a perusal of the preceding summary will warrant the following conclusions in regard to beams: —

1. That the values of modulus of rupture, both for spruce and hard-pine, are much less than those commonly given in our handbooks and text-books.

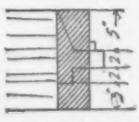
2. That the values of the modulus of elasticity of spruce and hard-pine, as deduced from the immediate deflections, are somewhat less than those usually given.

[1] By Gaetano Lanza, Professor of Applied Mechanics, Massachusetts Institute of Technology. Continued from page 273, No. 415.

3. That until we have more time tests we should use a factor of safety with the modulus of elasticity, in calculating deflections.

4. The question of beams giving way by longitudinal shearing is one that should be taken into account in practice.

TABLES OF TESTS. (*See Illustrations.*)



No. 1. — Spruce joist, 2″ x 12″, framed at ends into two pieces 4″ x 12″, 6′ 8″ apart; loaded at centre.

Tested by Messrs. Ely, Heins & Snelling.

Broke at 6304 pounds, by the joist splitting off at the tenon.

No. 2. — Spruce header, 4″ x 12″, framed at ends by double tenon and joint bolt into two pieces of 4″ x 12″; span = 6′ 8″. Mortised for four tail-beams at points 16″ on centres; load distributed at four points over the tail-beams.

Tested by Messrs. Ely, Heins & Snelling.

Broke, by splitting off at lower tenon, at a load of 10338 pounds.

No. 3. — Spruce joist, 2″ x 12″; span = 15′; loaded at centre.
Tested by Messrs. Ely, Heins & Snelling.

Loads in lbs.	Deflection in inches.	Differences.	Remarks.
591	.000		
1101	.130	.130	
1611	.258	.128	
3000	—	—	At about this point cracks at the neutral axis had opened so far that daylight could be seen through them.
5794	—	—	Left over night.
—	—	—	Next morning broke upon raising load to 3650.
3652	—	—	

Calling 5794 the breaking load.

Modulus of rupture = 5432 pounds per square inch.
Modulus of elasticity = 1237215 " " " "
Maximum intensity of shear at neutral axis = 181 " " " "

No. 4. — Spruce joist, 2″ x 9″; span = 6′ 7½″; loaded at centre.
Tested by Messrs. Ely, Heins & Snelling.

Loads in lbs.	Deflection in inches.	Differences.	Remarks.
403	.0000		
597	.0121	.0121	
801	.0293	.0172	
905	.0446	.0153	
1209	.0617	.0171	
1209	.0695	.0078	After one hour.
1413	.0860	.0165	
1617	.0987	.0127	

Broke at 7227 by tension.

Modulus of rupture = 5320 pounds per square inch.
Modulus of elasticity = 1067893 " " " "
Maximum intensity of shear at neutral axis = 301 " " " "

No. 5. — Spruce joist, 2″ x 12″; 15′ span, loaded at centre; length 18′; from Bangor, Me., cut in 1881.

Tested by Messrs. Foss & Stebbins.

Broke at 5586 pounds.
Modulus of rupture = 5237 pounds per square inch.
Maximum intensity of shear at neutral axis = 174 pounds per square inch.

No. 5 *a*. — Spruce joist, 2″ x 12″; span = 7′, length 7′ 8″; loaded at centre; sawed from No. 5 after breaking, and tested in a reversed position, the upper edge being the one that was at the bottom in the previous experiment.

Tested by Messrs. Foss & Stebbins.

Broke at 8582 pounds by tension at the lower fibres after carrying the load an hour.

No. 6. — Spruce joist, 2¾″ x 9″; span = 6′ 8″; length = 9′; from Bangor, Me., cut in 1880; loaded at centre.

Tested by Messrs. Foss & Stebbins.

Loads in lbs.	Deflection in inches.	Differences.	Remarks.
586	.0000		
786	.0127	.0127	
986	.0246	.0119	
1186	.0368	.0122	
1586	.0641	.0273	
2086	.0968	.0327	
2586	.1298	.0330	
3086	.1660	.0362	
4086	.2327	.0667	
5086	.3050	.0723	
7586	—	—	Breaking load. By tension.

Modulus of rupture = 4082 pounds per square inch.
Modulus of elasticity = 938453 " " " "
Maximum intensity of shear at neutral axis = 230 " " " "

No. 7. — Spruce joist, 3″ x 9″; span = 4′; loaded at centre; from Bangor, Me., cut in 1880; very knotty and cross-grained on upper side.

Tested by Messrs. Foss & Stebbins.

Broke at 11086 pounds by tension at cross-grained fibres on lower edge.
Modulus of rupture = 3285 pounds per square inch.
Maximum intensity of shear at neutral axis = 308 pounds per square inch.

No. 8. — Spruce joist, 3″ x 9″; span = 10′; loaded at centre; from Bangor, Me., cut in 1880. Heart-wood at top, a number of diagonal

COPYRIGHTED 1883, JAMES R. OSGOOD & CO.

THE ETHNOLOGY OF ARCHITECTURAL FORMS. (After the *Revue Générale de l'Architecture.*)

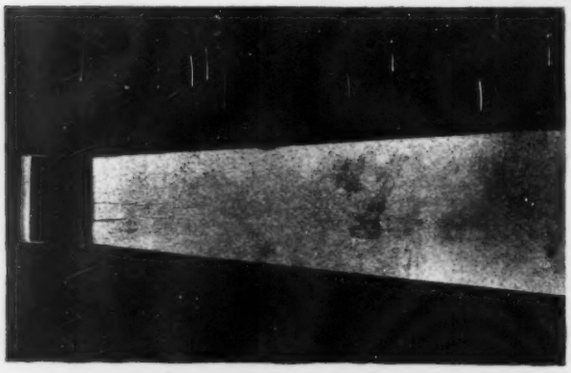
H. ESPÉRANDIEU, Architect.

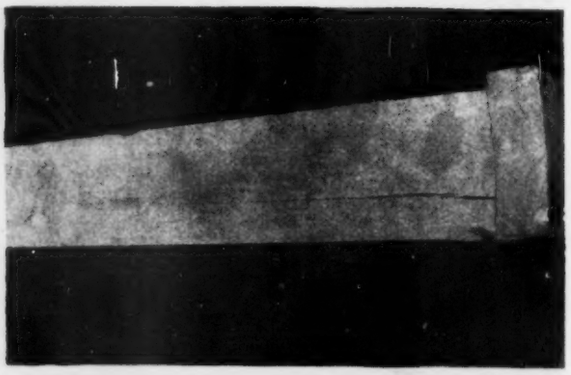
COPYRIGHTED 1883 JAMES R. OSGOOD & CO.

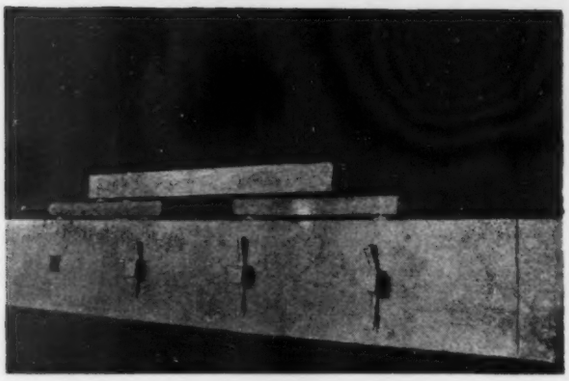
Results of Tests of Transverse Strength of Beams

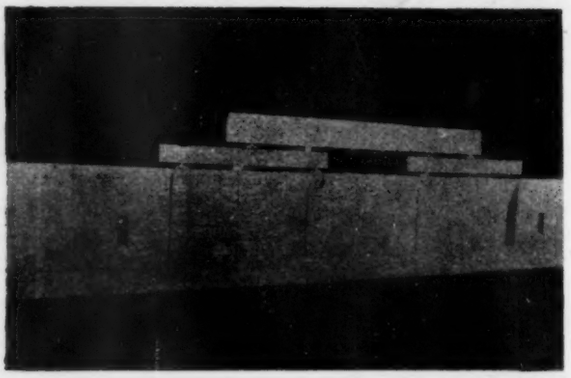
THE MACHINE

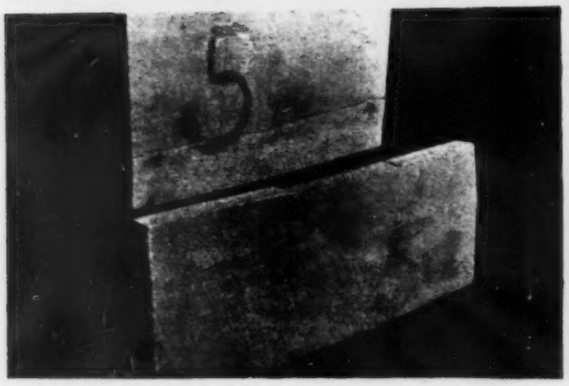
Made at the Mass. Institute of Technology, Boston.

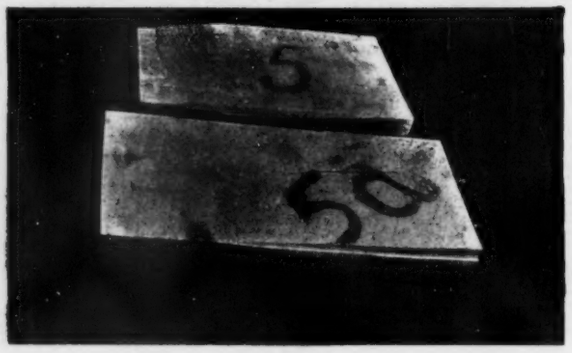






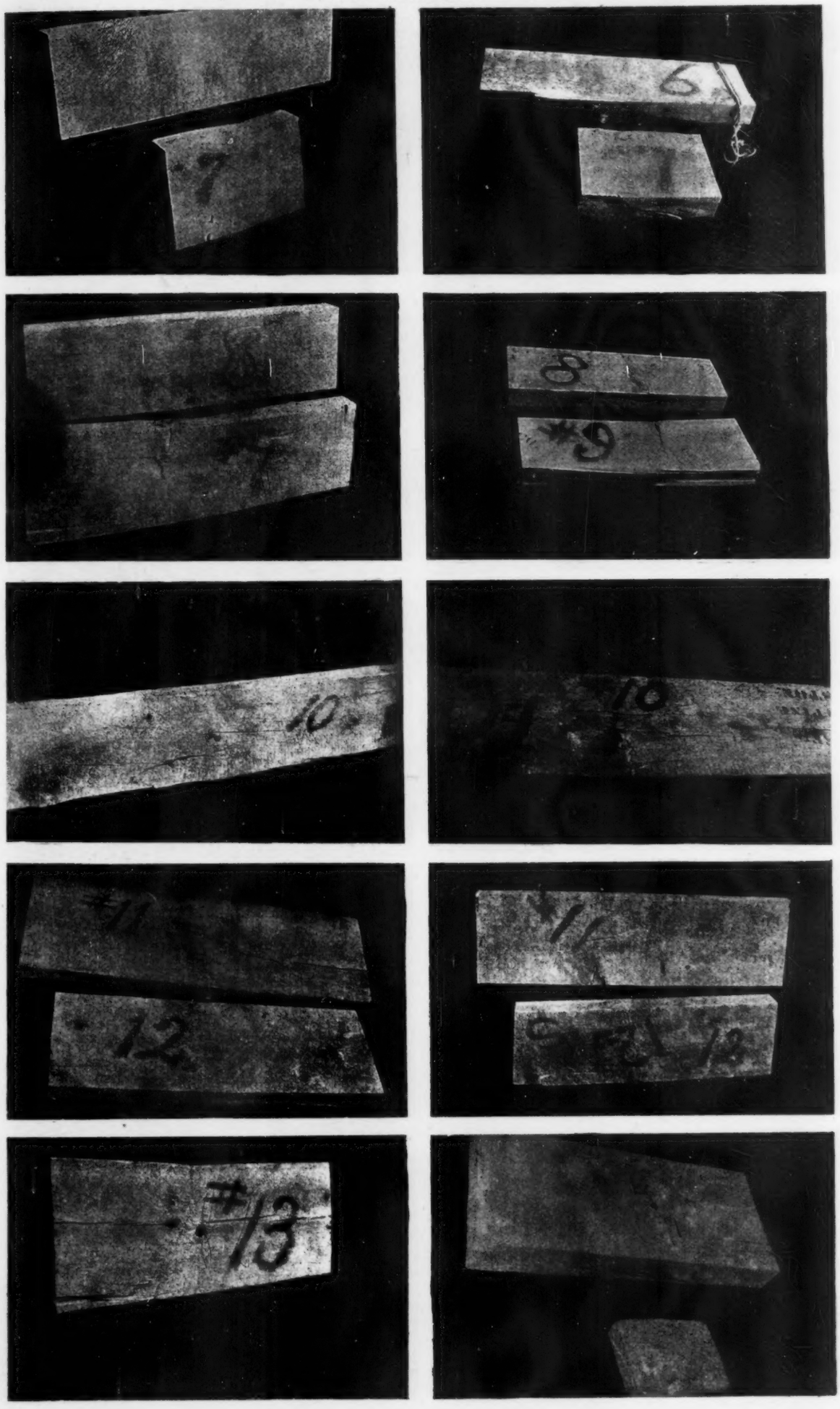






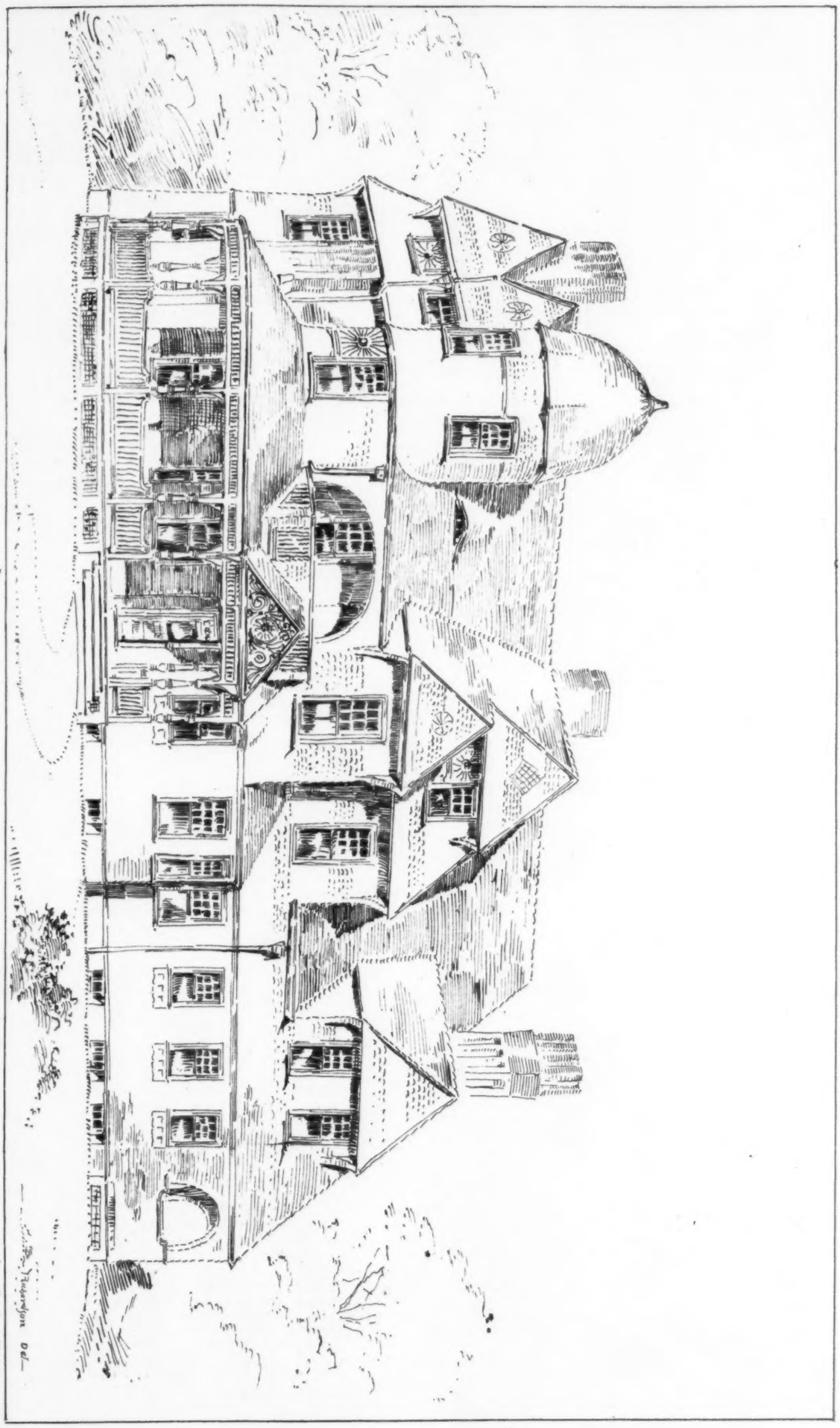
The Heliotype Printing Co. 211 Tremont St. Boston.

COPYRIGHTED 1883, JAMES R. OSGOOD & CO.



The Heliotype Printing Co. 211 Tremont St. Boston.

COPYRIGHTED 1883 JAMES R. OSGOOD & CO



HOUSE FOR JOSEPH M. JOHNSON, BINGHAMPTON, N.Y.

HOUGHTON & RICHARDSON, ARCHTS, BOSTON.

cracks in upper half of beam; knot on the side, near the bottom, running through to under side of beam, about 4″ from center.

Tested by Messrs. Foss & Stebbins.

Broke at 6086 pounds by tension, fibres parting at the knot first.
Modulus of rupture = 4508 pounds per square inch.
Maximum intensity of shear at neutral axis = 170 pounds per square inch.

No. 9. — Spruce joist, 3″ x 9″; length = 18′ 6″; loaded at centre; from Bangor, Me., cut in 1881; span = 15′; heart nearest lower edge; checked from one end to a point just beyond the centre.

Tested by Messrs. Foss & Stebbins.

Broke at 5086 pounds by tension, compression developing immediately afterwards around a knot in the upper edge.
Modulus of rupture = 5651 pounds per square inch.
Maximum intensity of shear at neutral axis = 141 pounds per square inch.

No. 10. — Spruce joist, 3¼″ x 12″; span = 20′; length = 23′; loaded at centre; from Bangor, Me., cut in 1881; slightly checked at centre.

Tested by Messrs. Foss & Stebbins.

Broke at 6586 pounds by tension at cross-grained fibres in lower edge.
Modulus of rupture = 4253 pounds per square inch.
Maximum intensity of shear at neutral axis = 106 pounds per square inch.

No. 11. — Spruce joist, 2½″ x 13½″; span = 10′; loaded at centre; from Bangor, Me., cut in 1880; bad knot about 1′ 9″ from centre on lower edge.

Tested by Messrs. Johnson & Morrison.

Broke at 4585 pounds by tension at knot.
Modulus of rupture = 3787 pounds per square inch.
Maximum intensity of shear at neutral axis = 208 pounds per square inch.

No. 12. — Spruce joist, 3¼″ x 12″; span = 16′; loaded 4′ 6″ from one end; from Bangor, Me., cut in 1882.

Tested by Messrs. Johnson & Morrison.

Broke at 7585 pounds by tension at cross-grained fibres on lower edge.
Modulus of rupture = 3271 pounds per square inch.
Maximum intensity of shear at neutral axis = 126 pounds per square inch.

No. 13. — Spruce joist, 3¾″ x 12″; span = 16′; mortised for header by double tenon and joint bolt at a point 4′ 6″ from one end; loaded at this point; from Bangor, Me., cut at same time as preceding; extra good stick.

Tested by Messrs. Johnson & Morrison.

Broke at 9085 pounds by tension at mortise, some compression also developing.

No. 14.— Spruce plank, 7″ broad = 2″ deep; span = 7′; loaded at centre. Cut in 1877 in Jerusalem Township, Franklin Co., Me. Tested as a plank.

Tested by Messrs. Johnson & Morrison.

Broke at 1914 pounds by crushing, and afterwards by tension. Modulus of rupture = 8748 pounds per square inch.
Maximum intensity of shear at neutral axis = 105 pounds per square inch.

THE ACTION OF FROST ON POSTS.

AT a recent meeting of the Engineers' Club, of Philadelphia, the action of frost on hydrants and other posts sunk in the ground was considered.

Mr. Allen J. Fuller presented notes upon the "Effect of Frost upon Fire-plug Casings." He referred to a general impression that the freezing of the earth around fire-hydrants has a tendency to grip fast to the frost-jacket and lift it with the expanding or heaving earth: this he denied for the following reasons: —

1. The frozen earth slides on the surface of the frost-jacket, because its expansion is greater than that of iron.

2. As the expansion of the earth must be in proportion to the intensity of the cold, so will it be greater above than below a given point, therefore, the first foot of frozen ground will have a greater upward movement than that which is below it, and the second foot greater than the third, etc. Thus it will be seen that the earth below a given point rises more slowly than that above, and its friction is opposed to the one above.

3. If this is true of feet it is true of inches, and of portions of an inch; therefore, there is a retardation of movement throughout.

4. The upward movement of the ground, the freezing being greatest towards the surface, and such movement involving a more complete fracture of the earth surrounding the frost-jacket, it follows that the friction is less at this point than that below it, and in consequence there is less power to move upward than downward.

Of course the above does not apply to any construction that the frost can get beneath.

Mr. Frederic Graff noted and described the form of wooden casing which had been successfully used in the early practice of the Philadelphia Water Department.

In response to the theory advanced in regard to the action of frost in raising the casings of fire-plugs, and to the statement that if the base of a structure extended below the frost-line it would not be lifted, Professor Haupt remarked that he thought the theory was in part sustained by the fact observed by some of the district surveyors, and verified by the accurate measurements they were obliged to make, that fences moved bodily to the south and east in consequence of the action of the sun and frost upon the ground on opposite sides of them. He thought also that the deductions concerning the immobility of structures resting below the frost-line was not fully sustained by the facts, as in the Northwest, where ice forms rapidly, he had heard of numerous instances of piles, driven for bridges and extending some distance below the frost-line, having been raised as much as five to six inches in a single night, and he conceived the action in this case to be similar in kind to that of piles driven entirely through solid ground, the only difference being in the *amount* of the resistance offered by friction and weight of pile. The water in freezing around the pile acts upon it as a gripper or vise, and the expansion of the various strata or laminæ of water as they become converted into ice act as levers to force up the pile.

The Secretary did not consider the case cited by Professor Haupt as parallel, as the so-called piles being driven through water and soft mud were probably columns resting upon their bases and depending but little upon the frictional resistance of the material through which they passed. Therefore the expansive force upward of the freezing water would be opposed by little more than the weight of the pile, whereas in a fire-hydrant casing or other deeply planted post, the presumably well-rammed material around the whole length under ground would offer such proportional frictional resistance as to cause the freezing earth to slide up the post rather than to lift it. If the ice could be supposed to act downwards upon the piles in question it is hardly likely that it would have forced them further home.

LOCAL WARNINGS AGAINST TORNADOES.

IN the issue of *Science* for October 19, Professor Edward S. Holden writes: —

"I have lately examined with some care the excellent compilation by Sergeant Finley, of the Signal Service, 'Characteristics of Six Hundred Tornadoes,' with reference to the question of devising a simple apparatus for saving human life. Saving property seems to be out of the question, as no structure can withstand the force of the tornado wind. Life may be saved by recourse to underground shelters, cellars, etc., such as actually have been built in many places for this end. Two facts may be quoted from the work named: 1. Three hundred and forty-seven out of three hundred and ninety-three tornadoes (that is, eighty-eight per cent) originated between the west and south-southwest points; 2. The average velocity of progression was about one mile in two minutes. . . . If five minutes' warning could have been given at any of the late tornadoes, many lives might have been saved. If each household could be warned by the continuous ringing of a bell, for example, that a wind of destructive force (say, seventy miles per hour and upward) was approaching, and that five minutes were available in which to seek shelter, this would be well worth doing.

"I have found that it is practicable to erect, at a moderate expense (less than $500), an apparatus which would give from three to five minutes' warning to all the inhabitants of a small town, by the firing of a cannon, for instance; and in addition, and without any increased expense, this apparatus could ring a bell in every house. The additional expense to each house would be less than ten dollars, the cost of maintenance would be less than one hundred dollars a year, and the work could be done by any intelligent person. The system, for a small town, would be something like the following: Suppose a circle described about the town with a radius of from two to two and one-half miles. The only serious danger from tornadoes is to be feared from the part of this circle between the west point and south-southwest point. Along the circumference of this circle, between the south-southwest and west points, run a line of single telegraph-wire on twenty posts to the mile, and from the west point bring the wire into the town, letting it end at the telegraph-office. It is grounded at each end of the line, and at the telegraph-office it is connected with a battery, which sends a constant current over the line. Within the town, connection is made in various houses with magnets. Each magnet holds a detent, which prevents a bell from being rung by the action of a cheap clock-work governed by a coiled spring. If the circuit is broken anywhere in the line, each bell begins to ring, and continues to sound till its spring is run down, for four or five minutes, for example. A cannon could be fired by a simple device, which would warn persons in the fields, etc., to seek shelter. In a large town the circuit might end in one of the engine-houses of the fire-department, and ring a bell there. This would be the signal for the man on watch to repeat the warnings simultaneously through as many local circuits as desirable.

"It remains to indicate the way in which the circuit is to be broken by the wind. The circuit of telegraph poles from the south-southwest to the west points would contain about fifty poles. On every one of these the wire would run first to an insulator, then to an iron horizontal axis screwed into the sides of the post. On this axis a piece of board one foot square can revolve freely. An iron rod projects below this board, and from the lower end of it a small wire goes to a pin in the telegraph-pole. This pin is connected by wire to a second insulator. From this the line goes to the next pole, and so on. The circuit ordinarily passes to the first insulator, thence to the iron rod, thence down the iron rod to the thin wire, through the pin and to the second insulator, and so to the next telegraph-pole. The thin wire is a necessary part of the circuit. It is so made that it will break when the pressure of the wind on the square board is fifty pounds. The apparatus for each post is tested practically before it is set up. This can be

done at any time in a simple manner. Whenever any single one of these boards is subjected to the pressure of fifty pounds, its wire will be ruptured, and the circuit will be broken, thus sending the necessary warning along the whole line. I have made one such indicator, which is connected with a small bell in this observatory. The wire is arranged so that it breaks at a wind velocity of about ten miles per hour, and it works in a perfectly successful manner. The extension of the system for the protection of a small town is a simple matter. For a large city a more expensive system would have to be provided, as the wires between poles should be carried underground to protect them from the chance of disturbance."

MICROSCOPIC ORGANISMS IN BUILDING MATERIALS.

New York, December 2, 1883.

To the Editors of the American Architect:—

Gentlemen, — Having read with the interest of a professional microscopist, the article in your issue of August 4, on "Microscopic Organisms in Building Materials," intending at the time to furnish some additional facts from my own observations on the subject, I take the liberty, in view of the rejoinder of Mr. Goodrich in your issue of October 27, to transmit a few desultory notes that may serve to enlighten the curious reader as to the origin, classification, and real significance of the organisms described in your original memorandum, and verified by your correspondent. Mr. Goodrich will, perhaps, permit me to correct the impression conveyed in his note, that organisms possessing a spinal axis are to be found in the microscopic world. The animalcule he describes with such exactness, saving the error I have pointed out, is not properly a bacterium, as he implies when he places it among the bacilli; but a vibrio of the most familiar species, which was discovered, so far as I am acquainted with the literature of the subject, by Professor Clarke, of Harvard College, and first described and figured in his "*Mind in Nature;*" copies of which are now rather rare. The Professor was at the time pursuing a series of very interesting studies of decomposition with the assistance of a lens magnifying 3,500 diameters — a very extraordinary objective for that day — by means of which he was enabled to make out and delineate the link-shaped structure of many of the larger vibrios. The organism has since been thoroughly studied and described by microscopists, to whom it is familiar under the names of the "death" and the "decomposition" vibrio. In a series of studies of *post mortem* decomposition in animals, conducted during the session of 1877–8, in the laboratory of the New York College of Veterinary Surgeons, I found this organism to be a constant phenomenon of decomposition, requiring at a temperature of 100° Fahrenheit from thirty to thirty-six hours for its development in land animals, and from twenty-four to thirty in fishes. Under experimental conditions the initial development, requiring from twenty-four to thirty hours in land animals, and from fifteen to twenty in marine, consists in myriads of shooting monads of the average diameter of one four-thousandth of a millimetre, perfectly spherical, colorless, transparent, and apparently without limiting membrane; in a word, mere globular particles of living and germinal matter. Rod-shaped organisms (the bacilli or bacteria of microscopic observers) follow rapidly upon the development of the monads; while the third stage of decay is represented by swarms of death vibrios. By neutralizing with liquor-potassa a few ounces of fresh and healthy urine, and adding a trace of oxalic acid, swarms of the same organism may be developed under experimental conditions in a few hours; but if the oxalic acid is omitted, the decomposition is accompanied by myriads of bacilli; while the addition of a little sugar, in place of the acid, results in amorphous masses of fungous slime. The decomposition vibrio is constantly present in the pores of bricks used in the construction of cesspools, interpenetrating the whole structure; and in large cities the moisture of the soil carries thousands in every drop. It exists by millions in every saturated splinter of the timber of decaying wood-pavements, and is frequent in the damp under-surface of paving-stones. Let me give you a curious experiment, by way of showing the constancy in nature, not of the decomposition vibrio only, but of other organisms of decay. Arrange your instrument for examination; then construct a cell-slide capable of containing one minim of water, by cementing a glass circle or ring of the proper thickness to the surface of an ordinary slide. This done, cut the thinnest possible shaving from the interior of a block of perfectly dry white-pine or other timber; transfer the section to the cell, add a drop of water which has undergone the process of sterilizing; cover with a common circle of glass carefully cleaned, hermetically seal the preparation, and place it under the lens. From the instant of cutting the shaving until the first clear observation is obtained, the interval occupied need not exceed ten seconds; but short as this interval is, the field is already alive with monads, the contact of the dry and apparently dead timber with moisture having instantaneously reawakened millions of slumbering particles of living matter, which might have slept for years, possibly for centuries, had the timber been kept perfectly dry. A section of a dead leaf forms an equally interesting object for experiment; but if you put away the slide and wait for the secondary and tertiary development, the resulting organisms will not be vibrios, as in animal decomposition, but curious ovoid discs very sluggish in movement — a turtle-shaped organism with sixteen long, flexible tentacles at each end, and a bacteroid organism with dark lines of longitudinal striation, having twenty tentacles at each extremity. Forest mould after a summer rain swarms with these three microscopic forms of life; showing how Nature in her wonderful laboratory is forever engaged in economizing her vital resources, and from the decomposition of the larger visible forms wrings an equivalent in microscopic organisms for each imprisoned particle of living matter; for to the experienced microscopist, whose optical analysis has penetrated deep into the processes of nature, there is no such thing as death, in the sense of the extinction of vital activities, in that mysterious basis of tissue forms, the so-called protoplasm, or living plasma from which brain and bone, muscle and membrane of our larger life are evolved; and the body that lies so silent in its coffin, though its functional activities have ceased, still lives in myriads of microscopic lives — those universally present organisms of decay described by your correspondent, hiding themselves in the pores of brick and stone, penetrating wherever moisture can penetrate. Lying ill on one occasion, several years ago, in a room on the second story of a brownstone mansion in Twenty-eighth Street, during the winter, I became curiously interested in the drops of moisture oozing from the wall, and running down in tiny rivulets. My first work on getting so as to sit up in bed was to rig my microscope and make a study of this ooze, which proved to be loaded with vibrios of decomposition that had migrated through the brick walls, thus showing how essential to good sanitary construction it is that ample air and ventilating spaces should be left in the most solid and apparently impermeable structures.

Apologizing for having troubled you with an essay where I intended but a mere memorandum, I remain, your most obedient servant, Francis Gerry Fairfield, Ph. D.

Prof. Histology and Microscopy, N. Y. C. V. S.

THE PEDESTAL FOR THE STATUE OF LIBERTY.

New York, December 7, 1883.

To the Editors of the American Architect:—

Gentlemen, — Whoever penned the editorial in your issue of last week in regard to the "panic that had overtaken the unfortunate Committee of the Statue of Liberty," was a well-informed man. He has made a few mistakes which, I think, should be corrected through justice to one who evidently understands the situation, and knows "how many guns" each of the General or Executive Committee can mount for service.

The Committee still have in a bank over $50,000 with which to go on and complete the foundation, but as frost has set in they will work slowly so as to be sure of its solidity. This suspension of work during frost will permit the Committee to meet, discuss and adjourn without any positive action being taken; so as to permit the general public to subscribe. This is a fascinating feature of their operations for six months past.

The concrete foundation is being made of *Rosendale* cement instead of *Portland*, because it is supposed to be slower setting and just as strong, but as a majority of the Committee have probably some general knowledge of many of the late decisions of the Berlin Society of Civil Engineers, and the information that even the English engineers have been obliged to change their formulas to conform to the German developments, you can easily appreciate the wisdom of the Committee in repudiating the action of a narrow-minded class of professionals.

You make a mistake about the granite, because the samples of what may be wanted are all on a table in the room of the Committee, and it is not the deficiency of funds that prevents the contracts being given out, but the faculty of postponing a discussion until some member of the Executive Committee can be found who will express an opinion through which they can agree, or it is ascertained that a member of the General Committee will not object.

You confound fear of responsibility with a deficiency of funds. Such an inference is unjust, and it is only fair to give them time to test the strength of the various granites, and the same consideration will be given to the quality of the granite as has been given to the cement.

You were unreasonable in placing the burden of subscription upon the owners of realty on Brooklyn Heights, because the opportunities of the residents on the ridge of Jersey highland, between Jersey City and Bayonne, were as great as those of the wealthy class on Brooklyn Heights, and you should not limit the field of subscription to the short line of residences there overlooking the bay. The statue was given to the Government of the United States, and Bedloe's Island was ceded for its exclusive use, hence it does not rest upon the New York people alone to pay all the bills.

While the deposits were light in the public boxes set out everywhere to raise money enough for a monument to Peter Cooper, and even the boxes for hospitals receive a scanty supply of daily papers, it is hardly fair to expect the Committee to make any mistake in following a fashion. It is true they are going to start a ferry between the city and Bedloe's Island, so that all who want to see the statue erected can do so by paying twenty-five cents, but this scheme was not original with the Committee. As I understand, it was suggested by an outside party, and as soon as the Executive Committee, after a lapse of a month, began to conceive what the definition of a ferry meant, they at once delegated a sub-committee to look into the merits of the idea, and generously and promptly discarded the gentleman who suggested it as a man not fitted to be considered in the general deliberations, and have turned ferry proprietors themselves! Rip Van Winkle would not believe he had been asleep for twenty years, and none of the members of the Committee on the Statue of Liberty have any idea that they are or have been asleep, until the forlorn applicant

of an idea, contract or suggestion impresses the Committee with the fact that *he* is the victim of Hendrick Hudson's spirits. The fact is, there are too many names on the Committee list.

Every monument in the land, erected to the memory of the fallen in the national conflicts of 1776, 1812, 1861–1865, bears the names of the heroes, and some who were not distinguished; hence you can understand that our Committee have an eye to a monument outside of Greenwood, where a grateful public can see the names of men who so far have subscribed some money, and now are giving their time as an offset to the public generosity. It is to be hoped that the *smaller impulses and acts* of the Committee, or whoever may influence or guide its decision, will not be recorded. It will be only fair that such of them who have "sat in grave deliberation" and given their money will not be condemned for appropriating the suggestions or advice of others as an additional subscription through the force of their active minds. Wealth has great influence here, and always justifies its position in mistaking brains for money. You can appreciate such an error of judgment, as we have no Governor Butler to investigate abuses. Respectfully, OBSERVER.

A WATER-PROOFING FOR WALLS.

PHILADELPHIA, December 3, 1883.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Gentlemen,— Accept thanks for your note of yesterday promising some memoranda in regard to the matter of earth-closets. There is another matter as to which I would be glad to have you call forth some opinions. I have of late been making some small experiments in saturating exposed stone surfaces with paraffine wax, and am partly convinced that if the surface of stone, brick and other materials, perhaps even wood after it is built up, be heated by such a hand-furnace as is used to remove old paint, and while hot is saturated with paraffine wax it will resist for a very long time the action of the weather. We have all noticed how sandstone will crumble away in less than an average lifetime, and how the lime, and even bricks, are disintegrated when exposed to the exhalations of a neighboring chimney, especially if the latter be to the north-eastward of the wall, though this is mainly applicable where hard coal is used; leading us to presume that the sulphurous acid given out forms in an easterly storm a bath of dilute sulphuric acid. I find, however, that I cannot saturate the Bedford limestone to such an extent that aquafortis will not attack it, and I find also that a certain amount of heat will evaporate the paraffine wax. The wax is not expensive, and as its name implies should be unaffected by acids or alkalies. Can you say if this material has ever been so used?

Very truly yours, C. M. BURNS, JR.

[WE believe that paraffine wax is the base of the water-proofing compound manufactured by Theodore Hunt, of St. Louis, but we do not know whether in applying this preparation heat is applied to the mixture or to the building, as our correspondent suggests.—EDS. AMERICAN ARCHITECT.]

MEASURING BRICKWORK.

NEW YORK, November 23, 1883.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Dear Sirs,—Will you kindly furnish me with the following information: being a young student I would like to get posted in estimating. How many bricks are there in an eight, twelve, sixteen, eighteen, twenty and twenty-four inch wall, also how do builders take out the quantities? By so doing you will greatly oblige a

YOUNG STUDENT.

[VOGDES gives the following numbers of bricks per superficial foot of wall-surface: single brick thick, 14; brick and a half, 21; two bricks, 28; two and a half bricks, 35; and seven bricks additional for each half-brick added to the thickness of the wall. Builders charge more for arches, belts, pilasters, etc, than for plain walling. Arches are measured on the outer curve, per cubic foot; pilasters, per thousand brick laid; chimneys and flues solid; belts and corbelling allow 4½″ increase of thickness for each projection up to 4½″, and 9″ for all over 4½″; dentils solid and doubled; outside corners doubled; circular and octagonal walls per thousand; openings are measured or not as agreed on. "Student" will do well to procure and study "*Vogdes's Architects' and Builders' Pocket Companion.*"—EDS. AMERICAN ARCHITECT.]

REFERRED TO OUR READERS.

WASHINGTON, D. C., December 10, 1883.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Dear Sirs,—Can you tell me what is the composition of fibrous plaster used in the new Adelphi Theatre, London?

Very respectfully, your obedient servant, M. C. MEIGS,
Sup. Eng. and Arch., new Pension Building, Brig. Gen. U. S. A. (*retired*).

MIXING PLASTER WITH SALT.

WINONA, MINN., December 3, 1883.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Dear Sirs,—I am about to have a house plastered, and as the weather sometimes gets rather cold here the plasterer proposes to use a little salt in his first coat. What will be the result of it? Will it make as good a job? Will the plaster fall? Will it make the walls damp? Very truly, JUNIUS.

[SALT in the first coat of mortar will certainly make the walls damp, and will injure paper or paint put on the plastering.—EDS. AMERICAN ARCHITECT.]

THE NEW YORK CHAPTER, A. I. A.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Dear Sirs,—The following action took place at a regular meeting of the New York Chapter, A. I. A., held at its new office in the Bryant Building, November 14, 1883:—

Resolved, That this Chapter desires to express its deep regret at the sudden death, on the 12th inst., of Mr. Henry Fernbach, the architect of many important buildings in this and other cities, and for many years a member of the American Institute of Architects, and Treasurer of its New York Chapter.

Resolved, That in the death of Mr. Fernbach the profession has lost an able and accomplished practitioner, the community an upright and conscientious citizen, and the members of the New York Chapter a most faithful and valued friend.

Resolved, That this society begs to offer to his widow and his family, in their affliction, its sincere condolence.

At the same meeting Mr. James E. Ware, of New York City, and Mr. Augustus Eichhorn, of Orange, N. J., were elected Practising Members, and the following officers and Standing Committees were elected for the year 1884.

President, E. H. Kendall; Vice-Presidents, Geo. B. Post and C. W. Clinton; Secretary and Treasurer, A. J. Bloor; Executive Committee: N. Le Brun, R. M. Upjohn. Committee on Examinations: N. Le Brun, R. M. Upjohn, G. B. Post. Committee on Library and Publications: H. H. Holly, W. A. Potter, Benj. Silliman, Jr. President and Secretary, members *ex officio* of these Committees.

"CONDITIONS" OF PUBLICATION OF DRAWINGS.

BUFFALO, December 9, 1883.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Gentlemen,—Would you please let me know what is required, and what are the conditions to have buildings and plans published in your paper. You would very much oblige me in kindly answering my questions. Yours respectfully, A. ESENWEIN.

[WE are constantly in receipt of such inquiries as the foregoing, the writers of which having apparently given credence to the accusation which has in the past been brought against us, that only the drawings of "a certain clique and body of men" (presumably members of the American Institute of Architects) were accepted for publication. We will once more publicly state that we do not care who the man is who offers a drawing for publication, or what he has done. His offering is judged in each case strictly on its own merits. So long as the subject is not too hackneyed, the treatment artistic, and the design not too far below the average of designs already published, the drawing will stand a good chance of being accepted. Drawings are declined because of serious shortcomings in the matter of architectural design; because they are rendered so inartistically that what architectural merit they may have is destroyed, or, although they fulfil these conditions, because so many designs of a similar character and class have been recently published that it is considered best in the interest of the subscribers to discontinue temporarily publications of similar designs. Drawings are never declined because they are the offerings of Brown, Jones, or Robinson.—EDS. AMERICAN ARCHITECT.]

NOTES AND CLIPPINGS.

MAGNITUDE OF THE CYPRESS.—To give some idea of the magnitude to which some of the cypress trees attain, which are cut on the river above and brought to this market, I will state that two weeks since I surveyed a raft that came from Calhoun County (Louis Refoe), four logs of which were sawn from one tree and scaled as follows:—

36-inch diameter, 16 feet long	1,024
38-inch diameter, 16 feet long	1 156
40-inch diameter, 16 feet long	1,296
42-inch diameter, 16 feet long	1,444

making a grand total of 4,920 feet—Doyle's rule. The top log was perfectly sound, and all of the best quality of white cypress. There was not a knot visible on the surface of any of them. The lowland forests contiguous to the river and tributaries abound in similar monsters, and it only requires capital and enterprise to unlock these treasures of wealth.—*Apalachicola (Fla.) Tribune.*

ROMAN RUINS IN TUNIS.—Some remarkable ruins have been discovered in Tunis by Lieutenant Massenet, who has been dispatched on an archæological mission to the neighborhood of Bograra and El Kantara, in the Gulf of Gabes. The exact spot of the discovery is near Fabella and El Kantara, to the south of the Island of Djerba, and it is believed from the importance and extent of the ruins that they form what was once the capital of the island, many years before the Christian era. The sight is said to be most impressive. The remains of a great temple—from its form presumably dedicated to Zephyr—have been brought to light near the seashore. They are of marble, and of singular architectural richness, composed in parts of huge blocks measuring more than fifty square yards at their base. Immense columns of red and green marble form the eastern entrance, and there is a square inclosure surrounded with white marble friezes, supported by twisted columns. Numbers of statues, sculptured in Egyptian granite, were lying upon the ground, and it was remarked that, while they were all decapitated, not a single head was to be found. Another temple was discovered, about half a mile away, built of the same marble as that used in the pagan temple of El Kantara. The old fortifications of the town can still be traced, having a circumference of three or four miles, while the mosaic floors of the houses are easily visible, although much damaged by long exposure to the open air. The island was originally joined to the mainland by a causeway of Roman construction, the remains of which are even now apparent.—*London Daily Telegraph.*

"Signing" Buildings. — "In worse taste is the fashion of the architect sprawling his name conspicuously on the face of the building. This unprofessional mode of advertising — which, by the way, is by no means confined to New York — should not be allowed by the owner of the property. A more than usually conspicuously offensive tablet of this kind greets one in Boston in passing the unsightly structure of the Foreign Exhibition." — *The Art Amateur.*

It would please us greatly to have it logically explained by the writer of the above why what is permitted to and expected of the painter, sculptor, etcher, engraver, decorator and so on, is to be forbidden to that other artist — the architect.

A Re-discovery of Paintings at Antwerp. — A few years ago the administrators of the Hospices, or asylums, in Antwerp ordered all the works of art in the establishments under their direction to be sought out in order that a complete list of them might be made. A careful search was made, and from various nooks and corners forgotton pictures came to light, until now no fewer than one hundred and forty-three works by the first artists of the sixteenth and seventeenth centuries, which were probably concealed at the time the French Republican army invaded Belgium, have been collected. This unexpected addition to the art treasures of Antwerp includes pictures of great beauty by Rubens, Vandyck, Holbein, Van Erp, De Vos, Franz Hals, and other masters. About one hundred of them have been restored, and of the rest comparatively few are in a condition of hopeless ruin.

Insurance Salvage. — There were 8,754 fires reported in Massachusetts during the five years ending with 1882, and of this number 2,773 were total losses, and 5,981 were partial. The insurances on the property involved were upwards of fifty millions of dollars, and the losses paid were only about fifteen millions. This list does not include the great Haverhill fire, and there would seem to be no chance for a denial that it was better for the insurance companies that the fifty millions should have been written than to have had insurances merely to the amount of the fifteen millions destroyed. These figures show how important an element in fire insurance is salvage, though they do not show to what an extent rates would have to be raised if valued policy laws should become general. They give a hint in that direction, however, which is worth remembering. — *The Weekly Underwriter.*

Drying Lumber. — Small quantities of timber may be quickly and thoroughly seasoned by steaming. The philosophy of this process — which, if properly performed, does not injure the strength or durability of the timber — is very simple. A very large percentage of the sap in all kinds of wood is water. This water, heated to boiling, expands sixteen hundred and fifty times. It follows that if wood be heated to 212°, the boiling point of water, the capillary cells can contain only one-sixteen-hundred-and-fiftieth as much water as at ordinary temperature, the expanded water escaping as steam. The proportion of moisture left in the wood is, after steaming, less than that demanded by its ordinary hygroscopic condition. At least it is found to be so for certain species of hickory and white ash, which increased in weight after being removed from the steamer and the surfaces had become dry. The steaming should be done gradually — that is, time should be given for the wood to gradually rise in temperature, and so that the sap may escape gradually from the cells without rupturing them by its expansive force when converting them into steam. The steam should be generated in a suitable boiler, and allowed to escape at two or three pounds pressure, which should be gradually reached in proportion to the size of the pieces which it is desired to season. — *Lumber World.*

A German Fire-Department. — A correspondent of the Boston *Herald*, writing from Bayreuth, in describing a fire, says: The night I arrived I had the unexpected pleasure of seeing a comedy. It was a genuine German comedy, too. Its subject matter was the efforts of the Bayreuth fire-brigade to put out a fire. I was awakened from a sound sleep by the loud beating of a drum under my windows. I could hear drums beating in various parts of the city, the church bells were ringing, there was the heavy tramp of soldiers through the street, people rushing about and shouting "Fire," — in fact, every indication of a fire, except the noise of fire-engines. A house a little way down the street was burning. A crowd had gathered there. I found the infantry guarding a patch of beans, the cavalry stationed about the potato patch with flashing sabres, and the artillery drawn up around a pear tree. The flames were crackling merrily among the beams. At last, around the corner appeared six big Germans carrying a small ladder, and, after them, six small Germans carrying a big ladder. These twelve Germans wore green suits and brass helmets. When they had managed to place the big ladder against the front of the house, they ran away again. After a while we heard a rattling, as though a dog with a tin can tied to his tail was running through the next street. The twelve Germans again turned the corner, drawing after them what looked like a tin box on wheels. It was the fire-engine — an open tin box with a hand-pump. A hose was attached. A fireman mounted the ladder. Another fireman carried the hose up to him. Meanwhile, women with large wooden panniers strapped to their backs brought water from the neighboring fountain and emptied it into the engine. Finally everything was ready, and the pumping began. Several large streams of water came from the joints of the hose and wet the bystanders. A small stream came from the nozzle. The fire was such a trifle that they really managed to get it pretty well under control. Then they consulted as to whether they should adjourn then and there, and get some beer, or go on until the fire was completely out. They decided to adjourn. In about an hour they came back and finished their work. I heard one Bayreuther say to another, that after all the Bayreuth fire-brigade was the best in the world. The next day the city council voted a resolution of thanks and a compensation of twelve and a half cents to the women who carried the water from the fountain to the engine. During the "Parsifal" performances the firemen are distributed through the theatre. This seems to me unnecessary; the building could burn down without their assistance.

The New Niagara Bridge. — Niagara River is at length spanned in full view of the mighty cataract by the Michigan Central's cantilever bridge. On the 11th of last April a contract was entered into. The excavations for the foundations were begun April 15. The pits for the piers were finished, and the introduction of the béton cement begun June 6. The foundations were completed June 20 on the American side and seven days later on the Canada side. The first stone for the piers on the American side was laid June 26, and on the Canada side July 13. The American piers were capped August 20, and the Canadian September 3. On August 29 the first column of steel for the tower was lowered on the American side, and on the Canada side September 10. The last section of the American tower had been laid two days previous, and on the Canadian tower it was put down September 18. On the 24th the first iron for the cantilever was run out, and both cantilevers were completed on the 17th inst. Last Tuesday a heavy beam of timber was thrown across, and the Canadian and American gangs of builders were able to clasp hands. One of them, Jack McCoy, found the temptation to be the first man to cross on the beam too strong for resistance, and over he went on a keen jump, in violation of the orders of his foreman. His eagerness to be the "first man" therefore secured for him what the workmen designate a "red ticket." In other words, he received immediate dismissal from the service of the contractors. Yesterday the work of putting in the fixed span began early, and when the hour of noon arrived the sections had been connected and the bridge practically completed. The principle of the cantilever plan is that of a trussed beam, supported at or near its centre, with the arms extending each way, and one end anchored or counter-weighted to provide for unequal loading. In practice it is entirely new, this being the only bridge completed upon the principle. The Firth of Forth bridge in Scotland, with a clear span of 1,000 feet, is being built upon this plan, and also in this country the Fraser River bridge, 315 feet clear span, on the Canadian Pacific. These are the only examples of this design yet undertaken. The total weight of the iron and steel entering into the composition of the massive structure is 3,000 tons. The bridge is of sufficient width for a double track, and is built to carry upon each track at the same time a freight train of the heaviest kind extending the entire length of the bridge, headed by two "consolidation" engines, and a side pressure of thirty pounds per square foot, which pressure is produced by a wind having a velocity of seventy-five miles per hour. Under these loads the structure is strained to only one-fifth of its ultimate strength. The total length of the bridge proper is 900 feet and nine inches, divided into two cantilevers of 895 feet on the Canadian side, and 395 feet on the American side, supported on steel towers arising from the water's edge. A fixed span of 119 feet and 9 inches is suspended from and connects the river arms of the cantilevers. The clear span across the river is 494 feet and 9 inches, being the longest double-track truss span ever yet built. The bridge spans a chasm of 859 feet from bluff to bluff. The total weight resting on each of the towers under a maximum condition of strain is in round numbers 3,200 tons. The total uplifting force that can be exerted on each of the shore arms of the cantilever is 340 tons, and the weight of each shore anchorage is 800 tons. It will be seen that every single piece of material is five times as strong as it actually need be, so that the bridge can be strained to only one-fifth of its ultimate strength. — *Buffalo Courier.*

The Gas-Companies of London. — Many years ago there were thirteen companies supplying the City of London with gas. They fought among themselves, and their mains crossed each other in all directions. Not until 1859 did they agree to confine their operations to separate districts. The number of companies began to decrease in 1869. Now there are only two companies; eleven have been absorbed by the old Gas-Light and Coke Company, and the only organization that has escaped absorption — the Commercial Company — will yield, it is predicted, in the course of time. The total capital of the Gas-Light and Coke Company is £15,500,000, and the annual dividend is eleven per cent as against a maximum dividend of ten per cent paid by the thirteen companies before amalgamation. Gas is very much cheaper to the consumer in London than it is in any city of the United States, the price being only 3*s.* 9*d.* per thousand. Some of the London papers in speaking of the growth of this great monopoly say that it is better that one company should exist instead of thirteen, because it will be easier for the corporation of London to deal with one compact monopoly than with thirteen companies when it shall become necessary to make the supplying of gas a municipal work. — *New York Times.*

The Waste of Water. — Mr. Thomas J. Bell, assistant superintendent of the Cincinnati (Ohio) Water Works, in the course of a paper written by him upon "The Wastage of Water," gives the following table as representing the daily per capita consumption of five American cities, and claims, with perfect truth, that the great increase of rate is to be charged directly to waste instead of necessity: —

Boston, per capita rate in 1850,	30 gallons;	in 1881, 92 gallons.
Brooklyn, per capita rate in 1866,	17 gallons;	in 1880, 54 gallons.
Chicago, per capita rate in 1867,	43 gallons;	in 1880, 114 gallons.
New York, per capita rate in 1867,	62 gallons;	in 1876, 100 gallons.
Philadelphia, per capita rate in 1867,	56 gallons;	in 1880, 67 gallons.
Cincinnati, per capita rate in 1845,	21 gallons;	in 1881, 87 gallons.

— *Scientific American.*

The Vitality of the Redwood Tree. — Against the final extinction of the redwood tree, even with all the reckless wastefulness which is characteristic not only in California, but of our people throughout the country, comes in a striking peculiarity, or at least a feature more strongly developed than is the case with most species. When one is cut down, the stump sends up very vigorous shoots, which grow rapidly. One — sometimes two — of these presently overpowers the others, and a thriving redwood is the result; the twins formed by two surviving shoots are not very uncommon. It thus becomes almost impossible to exterminate a redwood forest. Nothing but fire, occurring in many successive years will commonly destroy the vitality of the roots. — *Cotton, Wool and Iron.*

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.]

289,373. FAUCET. — William J. Barr and John L. Nelson, Chicago, Ill.

289,387. VENTILATOR FOR WINDOW-SASHES. — Edward Wells Chadwick, Edgartown, Mass.

289,408. WINDOW SHADE AND SCREEN. — Elmer Green, North East, Pa.

289,411. ELECTRIC ANNUNCIATOR. — Fredrick Happersberger, Madison, Ind.

289,422. BRICK-MACHINE. — John A. Lafler, Albion, N. Y.

289,426. VENTILATOR. — Michael A. W. Louis, Washington, D. C.

289,435. DOOR-LOCK. — V. Mumford Moore, Ravenswood, Ill.

289,451. PLASTIC CEMENT MIXTURE FOR FIRE-PROOF AND OTHER STRUCTURES. — Ephraim Hyde Rust, Boston, Mass.

289,457. PARALLEL RULER. — Charles A. Shields, Washington, D. C.

289,458. SASH-BALANCE. — Gary B. Smith, Denver, Colo.

289,459. SPOKESHAVE. — Gary B. Smith, Denver, Colo.

289,463. BEVEL. — Larcy Sunderland Starrett, Athol, Mass.

289,470-471. ELECTRIC BURGLAR-ALARM. — Jas. Tomney, New York, N. Y.

289,481-482. HOT-AIR ENGINE. — Stephen Wilcox, Brooklyn, N. Y.

289,495. WATER-CLOSET AND TRAP. — Joseph Bennor, Philadelphia, Pa.

289,496. WASH-BASIN. — Joseph Bennor, Philadelphia, Pa.

289,501. TOOL-HANDLE. — Edgar Buell, Clinton, Conn.

289,502. BIT-STOCK. — Edgar Buell, Clinton, Conn.

289,506. WRENCH. — James Davison, Central City, Colo.

289,512. GRADUATED MEASURE OF LENGTH. — Samuel Darling, Providence, R. I.

289,526. WINDOW-SCREEN. — James N. Gibney, Vicksburg, Mich.

289,537. ILLUMINATING SIDEWALK OR ROOF TO A CONTINUOUS VAULT OR GALLERY, ETC. — Thaddeus Hyatt, New York, N. Y.

289,538. ILLUMINATING GRATING-TILE AND CONSTRUCTIONS MADE THEREFROM. — Thaddeus Hyatt, New York, N. Y.

289,542. LOCK. — Fredrich P. Krings, Chicago, Ill.

289,544. WINDOW-CORNICE. — Michel Linz, New York, N. Y.

289,552. ELECTRIC ANNUNCIATOR. — Augustus C. Palmer, Utica, N. Y.

289,568. FIRE-ESCAPE. — John Schmittknecht, New York, N. Y.

289,599. STRAP-HINGE. — Wm. L. Bacon, Philadelphia, Pa.

289,636. CHIMNEY-CAP. — Benjamin P. Field, Babylon, N. Y.

289,644. APPARATUS FOR ERECTING AND SUPPORTING COLOSSAL STRUCTURES. — John C. Goodridge, Jr., New York, N. Y.

289,663. COMBINED VAULT-COVER AND VENTILATOR. — T. Wesley Langill, New York, N. Y.

289,666. DOOR-CATCH. — Frederick J. Lee, Oswego, Kan.

289,697. DOOR-CHECK. — Patrick K. O'Lally, Boston, Mass.

289,701. FIRE-ESCAPE. — Samuel Webber Parker, and Henry Blackman, New York, N. Y.

289,710. SELF-ACTING FAUCET. — Anton Prier, Charles Doherty, and Pierce E. Everett, Kansas City, Mo.

289,730. FIRE-ESCAPE. — Charles W. Tillett, Fairview, O.

289,732. SASH-CORD FASTENER. — Bernhard Vogel, Baltimore, Md.

289,744. STEAM-PIPE AND BOILER COVERING. — La Fayette Aldrich, Milwaukee, Wis.

289,766. VARNISH. — Chas. M. Ely, Lexington, Ky.

289,769. BRICK-MACHINE. — William A. Graham, Carlisle, Pa.

289,772. AWNING. — Frederick Hohorst, Brooklyn, N. Y.

SUMMARY OF THE WEEK.

Baltimore.

BUILDING PERMITS. — Since our last report eighteen permits have been granted, the more important of which are the following: —

Jos. Hampson, Jr., 4 three-st'y brick dwells., e s Carey St., between Edmondson and Harlem Aves.

John Hubner, 10 two-st'y brick buildings, w s Etting St., n of Bloom St., and 9 two-st'y brick buildings, e s Etting St., n of Bloom St.

Owen McKenna, three-st'y brick building, e s McKim St., s of Chase St.

Luther M. Reynolds, 3 three-st'y brick buildings, w s Chestnut St., n of Douglas St.

McCoy & Sorter, 5 three-st'y brick buildings, s w cor. McCulloh and Robert Sts.; and 4 three-st'y brick buildings, s s Robert St., in rear.

John Pfaff, three-st'y brick building, n w cor. Saratoga St. and Parrish Alley.

Louis Eckhard, two-st'y brick stable, in rear n e cor. Light St. and Fort Ave.

J. S. Rosenthal, 60 two-st'y brick buildings, e and w s Garrett Ave., between Fort Ave. and Clement St.

Jacob Saurn, 7 three-st'y brick buildings, e s Druid Hill Ave., between Gold St. and North Ave.

George Worick, two-st'y brick building, e s Aisquith St., s of Hoffmann St.

Jacob H. Taylor, 5 two-st'y brick buildings in rear of s s Mulliken St., between Broadway and Ann St.

Boston.

BUILDING PERMITS. — *Brick.—Rogers Ave.*, rear, near Ruggles St., Ward 22, for Boston & Providence R. R. Co., machine-shop, 60′ x 172′, one-st'y pitch; offices, 20′ x 40′, one-st'y flat; store-room, 20′ x 25′, one-st'y flat; blacksmith-shop, 60′ x 172′, one-st'y pitch; Geo. F. Folsom, builder.

Commonwealth Ave., Nos. 350-358, Ward 11, for Geo. Wheatland, Jr., 5 dwells., 22′ x 58′, three-st'y mansard; Vinal & Dodge, builders.

Commonwealth Ave., No. 203, Ward 11, for Leopold Morse, dwell., 26′ x 70′, four-st'y flat; J. H. Kelley, builder.

East Mt. Vernon St., Ward 9, for Albert P. Fairbanks, dwell., 22′ x 34′ 6″, three-st'y flat; J. S. Lampey, builder.

Wood. — West Sixth St., Ward 13, for James V. Devine, 4 dwells., 18′ 9″ x 32′, three-st'y flat; James V. Devine, builder.

Hamilton Ct., Main St., Ward 4, for Joseph T. Whiton, stable, 30′ and 44′ x 47′ 6″ and 17′ 6″ x 44′, three-st'y flat; Joseph W. Hill, builder.

Franklin St., near North Harvard St., Ward 25, for Frank P. Thing, stable, 34′ x 50′, one-st'y flat; Frank P. Thing, builder.

Cliff St., rear, near Glenwood St., for G. A. Brackett, carriage-shed, 18′ x 34′, two-st'y flat; G. A. Brackett, builder.

Rockland St., near Wakulla St,, Ward 21, for J. V. N. Stults and H. W. Manseed, dwell., 20′ x 40′, two-st'y pitch; John Pottov, builder.

Farrington St., near Orient Ave., Ward 1, for Lawrence Ryan, dwell., 20′ x 24′, two-st'y pitch; G. W. Adams, builder.

Bodwell Park, Ward 20, for Mortimer M. Brown, owner and builder, dwell., 22′ and 26′ x 29′ 5″, two-st'y pitch.

Unnamed Pl., off Lincoln Ave., Ward 19, for Valentine Bock, owner and builder, dwell., 25′ x 35′, three-st'y flat.

Monadnock St., Ward 20, for Mrs. Frances Knox, dwell., 14′ x 18′ and 23′ x 32′, two-st'y hip; Wm. A. Blazo, builder.

Brooklyn.

BUILDING PERMITS. — *Clay St., No.* 92, s s, 175′ e Manhattan Ave., three-st'y frame double tenement, felt and gravel roof; cost, $3,000; owner, Timothy Desmond, Dupont St., Greenpoint; builder, J. H. Murphy.

Twenty-fifth St., n s, 300′ w Fourth Ave., two-st'y frame dwell., tin roof; cost, $2,990; owner, Charles Kroneback, Twenty-fifth St., and Third Ave.; architect, F. Ryan; builders, R. Wyeth and G. W. Brandt.

Quincy St., s s, 160′ w Tompkins Ave., two-st'y and basement brick dwell, tin roof; cost, $4,000; owner and builder, Jas. W. Stewart, 435 Bedford Ave.; architect, M. Walsh.

Putnam Ave., s s, 170′ w Throop Ave., 6 three-st'y brick dwells.; cost, each, $6,000; owner, Hannah E. Stroutenburg, 187 McDonough St.; architects, Parfitt Bros.; builders, Wm. Johnston and George B. Stroutenburg.

Central Ave., e s, 50′ s Troutman St., three-st'y frame double tenement, tin reof; cost, $4,000; owner and builder, Wm. Boyer, Star St.; architect, G. Hillenbrand.

Lafayette Ave., n s, 212′ 6″ w Lewis Ave., 5 two-and-one-half-st'y brownstone front dwells., tin roofs; cost, each, $4,500; owner, architect, and builder, P. F. O'Brien, 148 Lee Ave.

Evergreen Ave., Nos. 315 *to* 319, s e cor. Harmon St., 3 two-st'y frame tenements, tin roofs; cost, each $2,600; owner and architect, Theodore J. Beir, 772 Broadway.

Chicago.

ADDITIONS. — Furst & Rudolph, architects, planned additions to factory on Ontario St., for which permit was issued to J. McGregor Adams, 74′ x 100′ for one, and 42′ x 78′ for the other, six-st'y; cost, $100,000.

DEPOT. — The largest permit of the week is that issued to the Chicago & Western Indiana Railroad Co., for a passenger-depot. This structure will be 213′ on Polk St., 446′ on Third Ave., and 185′ on Fourth Ave.; cost, $300,000.

BUILDING PERMITS. — E. Baumann, 2 two-st'y dwells., 531-533 Jackson St.; cost, $10,000; architect, E. Baumann.

Mrs. Klinger, three-st'y dwell., 3525 Wabash Ave.; cost, $5,000; architect, Fred Keltenich; builder, A. Harnowsky.

M. Tracy, 4 cottages, 1045-51 Thirty-fourth St.; cost, $4,000.

J. L. Bloomingstone, 2 two-st'y dwells., 3726-28 Ellis Ave.; cost, $10,000; architect, J. J. Flanders, builders, S. J. Moss & Co.

Chicago & West Ind. Railroad Co. passenger-depot, Polk St. and Third and Fourth Aves.; cost, $300,000; architect, C. L. W. Eidlitz.

A. E. Case, cottage, 3821-23 La Salle St.; cost, $3,000.

A. Baumann, two-st'y dwell., 184 Lewis St.; cost, $3,000.

F. R. Schell, 3 two-st'y dwells., 3218-20 Prairie Ave.; cost, $10,000; architects, Furst & Rudolph; builder, H. Appel.

Hebrew Congregation, basement, 283-285 Rush St.; cost, $15,000; architect, W. A. Arndt.

Chas. Leonhardt, three-st'y dwell., 605 Thirty-first St.; cost, $7,500; architect, P. W. Ruehl; builder, Theo. Kaiser.

Frank Mankowski, two-st'y store and dwell., 723 West Seventeenth St.; cost, $4,400.

Chas. Husche, two-st'y dwell., 739 Hoyne St.; cost, $5,000; architect, H. Clay; builder, J. Frehlich.

A. Burdt, two-st'y dwell., 502 West Chicago Ave.; cost, $4,000; architect, H. Clay; builder, William Meyme.

H. L. Thompson, five-st'y warehouse, 201-209 Michigan St.; cost, $29,000; architect, S. V. Shipman; builder, Geo, Chambers.

O. M. Wells, 3 cottages, 790-796 Tallman St.; cost, $3,000.

J. Junk, three-st'y brewery, 3708-3710 Halsted St.; cost, $12,000; architect, P. W. Wolf; builders, Swartz & Keys.

Henry Goetz, two-st'y store and dwell., 214 Lincoln Ave.; cost, $6,000; architects, Frommann & Jebsen; builder, L. Kabell.

J. McGregor Adams, six-st'y factory, 110-114 Ontario St.; cost, $100,000; architects, Furst & Rudolph; builder, T. Nicholson.

H. T. Weeks, 5 two-st'y dwells., cor. Congress and Paulina Sts.; cost, $13,000; architect, W. J. Flanders; builder, J. Gallagher.

Robert Law, two-st'y dwell., 197 Lincoln St.; cost, $5,000; architect, W. H. Thomas; builders, W. H. Thomas & Son.

New York.

"MUSEE GREVIN." — The directors of the "Musée Grevin" have appointed Mr. Theo. de Lamos, architect, for the completion of their building on Twenty-Third St., bet. Fifth and Sixth Aves., designed by the late Mr. Henry Fernbach.

THEATRES. — Plans have been filed for the theatre to be erected on the w side of Fourth Ave., bet. Eighteenth and Nineteenth Sts. The cost is to be about $150,000; Messrs. J. B. McElfatrick & Son, architects.

Preliminary plans have been made for the erection of five additional stories to Wallack's Theatre; Mr. W. H. Smith, architect.

HOUSES. — Mr. Richard Deeves will build on the n s of Eighty-second St., 175′ e of Ninth Ave., 3 four-st'y and basement houses, brick with stone trimmings, two 16′ 10″ x 50′ each, and one 16′ 4″ x 50′, to cost about $50,000: Messrs. D. & J. Jardine, architects.

Three three-st'y brick and stone houses are to be built on the e s of St. Nicholas Ave. bet. One Hundred and Forty-ninth and One Hundred and Fiftieth Sts.; from designs of Mr. Carl Pfeiffer.

On the cor. of One Hundred and Thirty-second St. and Seventh Ave., the Hon. John Kelly proposes to build a row of dwells. from designs of Mr. James Stroud.

Mr. Michael Brennan proposes to build 5 four-st'y brownstone houses on the 100′ lot on the s s of Eighty-fourth St., 175′ e of Ninth Ave.

BUILDING PERMITS. — *West Thirty-fifth St., Nos.* 147, 149, *and* 151, six-st'y brick factory, tin roof; cost, $65,000; owner; Marie L. Oliff, One Hundred and Thirtieth St. and Fifth Ave.; architect, George Ed. Harding.

East One Hundred and Twenty-seventh St., No. 169, five-st'y brick tenement, tin roof; cost, $15,000; owner, Francis Geis, 72 East One Hundred and Twenty-seventh St.; architect, Julius Boekell.

One Hundred and Thirtieth St., n s, 205′ w Seventh Ave., three-st'y brownstone front dwell., tin roof; cost, $10,000; owner, Hannah M. Halpin, 217 West One Hundred and Thirtieth St.; architect, W. J. Merritt.

Fourth Ave., w s, 53′ n Eighteenth St., three-st'y brick theatre, metal roof; owner, Kiralfy Bros., 39 Washington Sq.; architect, J. B. McElfatrick.

West Houston St., Nos. 118 *and* 120, six-st'y brick laundry-building, gravel roof; cost, $40,000; owner, Mrs, Ellen E. Ward, Roslyn, L. I.; architect, Stephen D. Hatch; builder, Robert L. Darragh & Co., and John Malloy.

Fifty-seventh St., n s, 125′ e Seventh Ave., four-st'y brick dwell., tin roof; cost, $22,000; owner, Chas. T. Wills, 462 West Eighty-first St.; architects, D. & J. Jardine; builders, Sinclair & Wills.

Fifty-seventh St., n s, 344′ e Seventh Ave., 2 four-st'y brick dwells., tin roofs; cost, $22,000 and $23,000; owners and architects, D. & J. Jardine, 1262 Breadway; builders, Sinclair & Wills.

Fifty-seventh St., n s, 182′ e Seventh Ave., 2 four-st'y brick dwells., tin roofs; cost, $23,000 and $25,000; owner, Richard Sidenberg, 54 West Fifty-second St.; architects, D. & J. Jardine; builders, Sinclair & Wills.

One Hundred and Thirty-third St., n s, 260 West Seventh Ave., three-st'y brick dwell., tin roof; cost, $15,000; owner, Chas. Kopf, 4 and 6 New Chamber St.; architect, James Barrett.

East Fifteenth St., Nos. 537, 539, 541 *and* 543, 4 five-st'y brick tenements and stores, tin roofs; cost, each, $10,000; owner, James Mulsy, 307 East Twelfth St.; architect, Fred Jenth.

East Seventy-sixth St., Nos. 102 *to* 118 *inclusive*, 13 three-st'y brownstone front dwells., tin roofs; cost, each, $14,000; owner and builder, John J. McDonald, 1532 Park Ave.; architect, Augustus Hatfield.

Eighth Ave., e s, from One Hundred and Thirty-fourth to One Hundred and Thirty-fifth Sts., 7 five-st'y brick tenements and stores, tin roofs; owner, E. H. M. Just, 689 Broadway; architect, M. C. Merritt.

Washington Pl., s s, 305′ e Monroe Ave., two-st'y frame dwell., tin roof; cost, $3,000; owner, Joseph Ducimetiere, 352 Fourth Ave.; architect, John E. Kirby.

St. Ann's Ave., e s, 150′ s Rae St., 3 two-st'y frame dwells., tin roofs; cost, each, $1,600; owner and architect, B. C. Murray, 904 Westchester Ave.

One Hundred and Sixth St., s s, 450′ e First Ave., three-st'y brick factory, gravel roof; cost, $15,000; lessees and builders, Wm. Hall Sons, 522 East Twentieth St.; architect, Burt Walther, 2255 Third Ave.

First Ave., s e cor. One Hundred and Fourth St., 4 five-st'y brick tenements and stores, tin roofs; cost, each, $12,000; owner, Wilhelmina Jush, 307 East One Hundred and Sixth St.; architect, C. V. Bielo, 2082 Second Ave.; builders, Ed. Hammer and Paul Duden.

One Hundred and Fourth St., s s, 69′ e First Ave., five-st'y brick tenement, tin roof; cost, $16,000; owner, architect and builders, same as last.

Sixth Ave., n w cor. One Hundred and Twenty-second St., four-st'y brownstone front dwell., tin roof; cost, $35,000; owner, architect, and builder, A. B. Vandusen, 26 Mount Morris Ave.

Eighty-ninth St., n s, 134′ s Fourth Ave., 2 five-st'y tenements, tin roof; cost, $21,000; owner, Wm. Henderson, 512 East Eighty-second St.; architect, J. C. Burne.

Ninetieth St., s s, 100′ w Second Ave., 4 five-st'y brick tenements, tin roofs; cost, each, $20,000; owner, Wm. Henderson, 512 East Eighty-second St.; architect, John C. Burne.

Christopher St., No. 167, rear, one-st'y brick workshop, gravel roof; cost, $3,500; owners, H. C. & J. H. Calkins, 256 West St.; builder, Richard Shapter.

One Hundred and Thirty-second St., n s, 150′ w Sixth Ave., three-st'y brick and brownstone front dwell., tin roof; cost, $7,000; owner, Jane Anderson, 255 West One Hundred and Twenty-second St.; architect, G. A. Schellanyer.

Avenue A, s w cor. Eighty-seventh St., 3 five-st'y brick tenements and stoies, tin roofs: cost, each, $10,000; owners, Emiline Johnston and Elizabeth Johnston, 443 and 445 East Eighty-fourth St.; architect, A. B. Ogden.

Eighty-seventh St. s s, 75′ Avenue A, five-st'y brownstone front tenement, tin roof; cost, $10,000; owners and architect, same as last.

ALTERATIONS. — *Eleventh Ave.*, s e cor. Forty-second St., four-st'y brick extension and alterations to front; cost, $5,000; owner, Wm. Van Twistern, 258 West St.; architect, Julius Kastner.

Leonard St., Nos. 66, 68, 70 *and* 72, three-st'y brick brick and iron extension, and internal alterations; cost, $20,000; owners, Henry B. Livingston and Margaret F. Lee, Florence Flats, Fourth Ave. and Eighteenth St.; architect, Arthur Crocks.

Sixty-ninth St., s s, 25′ w Ninth Ave., one-st'y brick extension on westerly side; cost, $3,000; owner, Church of the Transfiguration, G. H. Houghton, pastor, 1 East Twenty-ninth St.; builders, W. C. Hanna, and W. Hughes.

Seventeenth St., No. 8, one-st'y brick extension, new store front and internal alterations; cost, $6,000; owner, Josephine H. Egan, 56 East Tenth St., carpenter, Charles W. White; mason, not selected.

Cedar St., No. 3, raise one-st'y and a two-st'y brick brick extension, front and rear walls to be rebuilt; cost, $5,000; owner, John H. Rhoades, Exr., 39 West Twenty-second St.; builders, A. G. Bogert & Bro.

Philadelphia.

BUILDING PERMITS. — *Ruan St.*, bet. Main and Edwards Sts., (Frankford) two-st'y addition to factory, 39′ x 51′; James Bannister, owner.

Marshall St., w of Twentieth St., 3 three-st'y dwells., one, 14′ x 40′; two, 15′ x 40′; A. M. Zane, owner.

Chester Ave., cor. Forty-eighth St., three-st'y dwell., 20′ x 48′; Jas. D. Arthur, contractor.

"D" St., s of Clearfield St., two-st'y dwell., 15′ x 41′; Jno. Cunningham.

Thirteenth St., cor. of Wallace St., three-st'y store, 14′ x 26′; R. W. Robinson, contractor.

Clarkson Ave., near Duy's Lane, two-st'y stable, 24′ x 32′; Sarah L. Wistar, owner.

Front St., No. 913, three-st'y dwell., 15′ x 20′; H. Coulomb, contractor.

Cresson St., above Adam St., two-st'y dwell., 18′ x 32′; Thos. Haggerty, contractor.

Chancellor St., cor. Race St., bet. Thirty-second and Thirty-third Sts., 4 three-st'y dwells., 15′ x 42′; Albert Demmell, owner.

Twenty-third St., cor. Huntingdon St., two-st'y stable, 16′ x 20′: Robt. Pleis, owner.

Garfield St., bet. Main and Wakefield Sts., two-st'y dwell., 16′ x 31′; W. Garvin, contractor.

Main St., cor. Johnson St., 8 three-st'y dwells., 18′ x 45′; Jas. Sowden, owner.

COMPETITION.

COLOSSAL STATUE OF SIR W. WALLACE.
[At Aberdeen, Scotland.]

10 BRIDGE ST., ABERDEEN, October 15, 1883.

The testamentary trustees of the late Mr. John Steill, of Edinburgh, hereby notify that they will receive models for a colossal statue of Wallace, in bronze, with basement of granite blocks, to be placed on the mound in the northwest part of the Duthie Public Park, near the city of Aberdeen, in conformity with instructions left by Mr. Steill, at a cost not exceeding £3,000.

Intending competitors, on application, accompanied with a remittance of 10 *s.* 6 *d.*, to Mr. John Otto Macqueen, 10 Bridge Street, Aberdeen, will be supplied with copies of (1) Mr. Steill's instructions, (2) conditions of the competition, and (3) lithograph plan of the Duthie Park, showing sections of the mound.

The author of the accepted model will be employed to execute the work, and the author of that next in order of merit will receive a premium of £50. The trustees do not, however, bind themselves to accept any of the models.

All models must be in conformity with the above conditions, and must be delivered in Aberdeen, free of expense, addressed to Mr. J. O. Macqueen, Municipal Buildings, Aberdeen, **not later than July 1, 1884.**

420

PROPOSALS.

COTTON EXCHANGE.
[At Memphis, Tenn.]

The Building Committee of the Memphis Cotton Exchange will receive sealed proposals at their office, Memphis, Tenn., **until 12 M., on the 10th day of January, 1884,** for the erection of a new cotton exchange building.

Proposals will be received in lump or in detail. All proposals in lump have to be accompanied with a good solvent bond of $10,000. Proposals for the detail work have to be accompanied with a good and solvent bond of ten per cent of cost of work.

Drawings and specifications can be seen at the Cotton Exchange in Memphis, Tenn., and at the office of H. Wolters, architect, Louisville, Ky.

The committee reserves the right to reject any or all bids.

J. M. FOWLKES,
417 Chairman Building Com.

PROPOSALS.

ELEVATORS.
[At New York City.]

OFFICE OF SUPERVISING ARCHITECT,
TREASURY DEPARTMENT,
WASHINGTON, D. C., December 7, 1883.

Sealed proposals will be received at this office **until 12 M., on the 21st day of December, 1883,** for furnishing and erecting two steam freight-elevators, one in the Assay Office Building and the other in Public Stores Building, corner Laight and Washington Sts., New York City, in accordance with specification, copies of which and any additional information may be had on application at this office or the office of the Superintendent of Repairs at New York City.

M. E. BELL,
417 Supervising Architect.

GLASS.
[At Charleston, W. Va.]

OFFICE OF SUPERVISING ARCHITECT,
TREASURY DEPARTMENT,
WASHINGTON, D. C., December 11, 1883.

Sealed proposals will be received at this office **until 12 M., on the 3d day of January, 1884,** for furnishing and delivering, ready for fixing in place, all the plate, double-thick sheet, double-thick sheet ground, and cathedral glass required for the post-office, court-house, etc., at Charleston, W. Va., in accordance with specification, schedule and diagrams, copies of which and any additional information may be had on application at this office or the office of the Superintendent.

M. E. BELL,
417 Supervising Architect.

ELEVATED RAILROAD.
[At Pittsburgh, Pa.]

CHIEF ENGINEER'S OFFICE, PGH. J. R. R. CO.,
ALLEGHENY, November 25, 1883.

On and after December 1st, 1883, sealed proposals will be received at this office for the building of the iron elevated railroad, Pittsburgh Junction R. R. Co., on Thirty-third St., Pittsburgh, Pa., **until December 20th, 1883.**

Plans and specifications can be seen at office of Theodore Cooper, Consulting Engineer, No. 35 Broadway, New York city, or at office of the Chief Engineer, in P. & W. R. R. Depot, Allegheny City, Pa.

H. A. SCHWANECKE,
416 Chief Engineer P. J. R. R.

AGENCY BUILDINGS.
[At New Crow Reservation, Montana.]

DEPARTMENT OF THE INTERIOR,
OFFICE OF INDIAN AFFAIRS,
WASHINGTON, D. C., November 26, 1883.

Sealed proposals, endorsed "Proposals for Agency Buildings on the New Crow Reservation in Montana," which are to be erected about fourteen miles south of Fort Custer, near to the Custer battle-field, on the north of said field and on the west bank of the Little Big Horn, will be received at the office of the Commissioner of Indian Affairs, Washington, D. C., **until 12 o'clock, M., Wednesday, December 26, 1883.**

Complete plans and specifications of the buildings, fourteen in number, and of the work to be done, can be examined at the office of the Agent at Crow Agency, M. T., of the *Inter-Ocean*, Chicago, Ill.; *Pioneer Press*, of St. Paul, Minn.; and *Nonpareil*, Council Bluffs, Io., and at this office.

The contract to be awarded to the lowest responsible bidder or bidders, subject to the approval of the Secretary of the Interior; the right is, however, reserved to reject any and all bids, or any part of any bid, if deemed for the best interest of the service.

Proposals must be made for each building separately, as none will be received for all the buildings in a lump; and proposals must state the length of time required for the completion of each building after the approval of the contract. Time required to complete the building will be taken into consideration.

CERTIFIED CHECKS.

Every bid must be accompanied by a certified check upon some United States depository for at least five per cent of the amount of the proposal, payable to the order of the Commissioner of Indian Affairs, which check will be forfeited to the United States in case any bidder receiving an award shall fail to execute a contract with good and sufficient sureties; otherwise to be returned to the bidder.

The contract will provide for four payments, three of which will be made at such stages of the work as will fully protect the United States: the last payment will be made when the building is accepted.

H. PRICE, Commissioner.

PUMPING MACHINERY.
[At Mare Island, Cal.]

NAVY DEPARTMENT,
BUREAU OF YARDS AND DOCKS,
WASHINGTON, D. C., November 12, 1883.

Sealed proposals, addressed to the Chief of the Bureau of Yards and Docks, Navy Department, Washington, D. C., endorsed "Proposals for Pumping Machinery," will be received at this Bureau by the undersigned **until 1 o'clock, P. M., of Tuesday, the 22d day of January, 1884,** at which time and place the proposals will be opened in the presence of bidders, for furnishing, delivering and erecting the pumps, engines, and other attachments pertaining thereto, for the stone dry-dock at the Mare Island Navy Yard, California, in accordance with printed instructions for the guidance of bidders.

Plans of the pump-house, pump-well, and culverts can be seen, and copies of specifications and instructions to bidders obtained, by applying to the Bureau of Yards and Docks, Navy Department; the Civil Engineer's Office at the Navy Yard, Mare Island, California; or the Navy Pay Offices at No. 17 State St., New York City; and No. 45 Milk St., Boston, Mass.

The Bureau reserves the right to reject any or all bids that may not be deemed advantageous to the Government.

No proposal will be considered unless accompanied by the prescribed bond which forms a part of the same.

EDWARD T. NICHOLS,
417 Chief of Bureau.

PROPOSALS.

WATER-WORKS.
[At Fort Smith, Ark.]

The Board of Aldermen of the city of Fort Smith, Ark., desiring to obtain a system of water-works, will grant a liberal franchise to a company willing to erect and operate the same. To that end propositions will be received up to the **first Monday in February, 1884.** For information address

ED. M. KENNA,
418 Chairman Committee on Water-Works.

GRAVING DOCK.
[At Esquimalt Harbor, British Columbia.]

DEPARTMENT OF PUBLIC WORKS,
OTTAWA, November 12, 1883.

Sealed tenders, addressed to the undersigned and endorsed "Tenders for Graving Dock, B. C.," will be received at this office until Friday, the 8th day of February, 1884, inclusively, for the construction and completion of the partially finished Graving Dock, at Esquimalt Harbor, British Columbia, according to plans and specifications to be seen **on and after Monday, the 24th December next,** at the Department of Public Works, Ottawa, and on application to the Hon. J. W. Trutch, Victoria, B. C.

Persons tendering are notified that tenders will not be considered unless made on the printed forms supplied and prices affixed to the whole of the items stated therein, and signed with their actual signatures.

Each tender must be accompanied by an accepted bank check for the sum of $7,500 made payable to the order of the Honorable the Minister of Public Works, which will be forfeited if the party decline to enter into a contract when called upon to do so, or if he fail to complete the work contracted for. If the tender be not accepted the check will be returned.

The Department will not be bound to accept the lowest or any tender.

By order,
417 F. H. ENNIS, Secretary.

FLOATING GATE OR CAISSON.
[At Mare Island, Cal.]

NAVY DEPARTMENT,
BUREAU OF YARDS AND DOCKS,
WASHINGTON, D. C., November 12, 1883.

Sealed proposals, addressed to the Chief of the Bureau of Yards and Docks, Navy Department, Washington, D. C., indorsed, "Proposals for Floating Gate," will be received at this Bureau by the undersigned **until 1 o'clock, P. M., of Tuesday, the 22d day of January, 1884,** at which time and place the proposals will be opened in the presence of bidders, for furnishing the necessary labor and material for the construction of a floating gate, or caisson, for the dry-dock at the Mare Island Navy Yard, California.

Plans of the floating gate, or caisson, and all attachments thereto, can be seen, and copies of specifications and instructions to bidders obtained, by applying to the Bureau of Yards and Docks, Navy Department; the Civil Engineer's Office at the Mare Island Navy Yard, California; or the Navy Pay Offices, at No. 17 State St., New York City, and No. 45 Milk St., Boston, Mass.

The Bureau reserves the right to reject any or all bids that may not be deemed advantageous to the Government.

No proposal will be considered unless accompanied by the prescribed bond which forms a part of the same.

EDWARD T. NICHOLS,
417 Chief of Bureau.

INDUSTRIAL SCHOOL.
[At Devil's Lake Agency, D. T.]

DEPARTMENT OF THE INTERIOR,
OFFICE OF INDIAN AFFAIRS,
WASHINGTON, D. C., November 23, 1883.

Sealed proposals endorsed "Proposals for the construction of an Industrial School-building at Devil's Lake Agency, D. T.," will be received at this office **until Wednesday, December 19, 1883, at 12 o'clock, M.**

Complete plans and specifications of the work can be examined at the office of the *Inter-Ocean* of Chicago, Ill.; the *Pioneer Press* of St. Paul, Minn.; the *Bismarck Tribune* of Bismarck, D. T., and at the agency.

Bids are requested for building complete, with the basement, and also without the basement, as per plans and specifications.

The contract to be awarded to the lowest responsible bidder or bidders, subject to the approval of the Secretary of the Interior; the right is, however, reserved to reject any and all bids, or any part of any bid, if deemed for the best interests of the service. Time required to complete the building will be taken into consideration, and proposals must state the length of time required for the completion of the building after the approval of the contract. Each bid must give the names of all parties interested in or parties to it, and a copy of this advertisement must be attached to bid, with post-office address.

CERTIFIED CHECKS.

Each bid must be accompanied by a certified check or draft upon some United States depository, payable to the order of the Commissioner of Indian Affairs, which check or draft shall be not less than five per cent on the amount of the bid, and shall be forfeited to the United States in case any bidder receiving an award shall fail to execute promptly a contract with good and sufficient sureties, according to the terms of his bid; otherwise to be returned to the bidder.

Bids not accompanied by a certified check or draft will not be considered.

Parties receiving awards will at once enter into contract.

The contract will provide for three payments, two of which will be made at such stages of the work as will fully protect the United States; the last payment to be made when the building is completed and accepted.

H. PRICE,
416 Commissioner.