

# THE AMERICAN ARCHITECT AND BUILDING NEWS.

VOL. XIV.

Copyright, 1883, JAMES R. OSGOOD & Co., Boston, Mass.

No. 394.

JULY 14, 1883.

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

## CONTENTS.

### SUMMARY:—

|                                                                                                                                                                |    |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------|----|
| The Murch-Hill Investigation.—The Awarding of Contracts.                                                                                                       |    |
| —St. Paul, Minn., desirous of having a Building Inspector.                                                                                                     |    |
| —The Niagara Park Survey.—Suit against the New York Elevated Railroads.—Proposed Crystal Palace for New York.—Proposed Transcontinental Narrow-gauge Railways. |    |
| —Canadian Asbestos.—The Second Suez Canal.—The Inland African Sea Scheme.                                                                                      | 13 |
| WATER-CLOSETS.—XIV.                                                                                                                                            | 15 |
| THE LAST OF A NOTED CASE.                                                                                                                                      | 16 |
| SALUBRITE PARISIENNE.                                                                                                                                          | 17 |
| AMERICAN COTTAGES.                                                                                                                                             | 18 |
| THE ILLUSTRATIONS:—                                                                                                                                            |    |
| The Cathedral of All Saints, Albany, N. Y.—House at Allegheny City, Pa.                                                                                        | 18 |
| RECOLLECTIONS OF FLEMISH ARCHITECTURE.—I.                                                                                                                      | 19 |
| "WATER-HAMMER" IN STEAM-PIPES.                                                                                                                                 | 21 |
| COMMUNICATIONS:—                                                                                                                                               |    |
| Moulds for Cement Pipe.—The Secretaryship of the American Institute of Architects.                                                                             | 21 |
| NOTES AND CLIPPINGS.                                                                                                                                           | 22 |

THE investigation into the affairs of the Government Architect still continues, although the evidence brought forward has not done much, we imagine, to bring conviction to the minds of the committee of investigation. Perhaps it is not unfair to say that the inquiry assumes more and more the air of a proceeding instigated and sustained by unsuccessful competitors for public work, and as such it has an interest for other architects, who, as most of them know, sometimes suffer severely from the vindictiveness of disappointed contractors. As is not unnatural, the prosecution in the present case takes pains, wherever it may be possible, to give special prominence to the fact that certain contractors who have done a good deal of work for the Government were not the lowest bidders for the work, evidently expecting in this way to impress the minds of the jury, or the public, with the idea that an unfair, if not a corrupt discrimination was exercised against some honest citizen who was ready and willing to do the same work at a smaller price; and thus to arouse their resentment at official injustice, as well as at unnecessary waste of the public money.

WHAT the indignation of the public, if a plausible case should be made out in regard to these two points, would be serious, seems to be better understood by the prosecution than the defence, and there has as yet been little or no attempt to give satisfactory reasons for exercising in the public business such preferences as even a private architect sometimes finds it difficult to justify to a client who has perfect confidence in him. Certain circumstances, such as the general reputation of a contractor, previous experience of his work, or the knowledge that he possesses some special facilities for carrying out his agreement in a satisfactory manner, often have a much greater importance in the eyes of the architect than in those of his employer, and although the estimate of the professional man is generally the correct one, he often finds himself reduced to serious straits to defend it. If, then, an architect in private business finds it sometimes so hard to convince his clients of his intelligent devotion to their interests, it is likely to be all the harder for one in an official station to prove the sincerity of his acts before judges incapable of appreciating circumstances which seem to him all-important; and as it would be a misfortune for the whole profession to have a false construction placed upon the exercise of a discretion which is essential to the usefulness of its members, we hope that the defence in the present case will see that in this respect no doubt whatever is left in regard to the propriety of the awards.

THE people of St. Paul, Minnesota, have done an excellent thing in petitioning the city Government to appoint as Inspector of Buildings, under their new law, a well-trained engineer, who has practised his profession in and about the town for some time. Although the chief inspectors who control building operations in our large cities have, as a rule, shown great ability and discretion in directing practical work,

they have not generally been furnished with the theoretical knowledge which would enable them to judge accurately concerning novel constructions, and their influence has in consequence been rather adverse to real progress in the art of building. Every one who is familiar with municipal building laws knows that their requirements in regard to the thickness of walls, for instance, not only fail to provide for anything beyond ordinary contingencies, but treat these with a certain generalization which, although suited to a limited discrimination on the part of those who are to carry them out, is not adapted to promote economy in the cost of construction, and leads practically to the expenditure, every year, of an immense amount of money on bricks and mortar which simply encumber the building containing them, without adding anything to its stability or strength. Such cases as these can be better dealt with by an engineer, who can easily see the course of the strains in a design, than by a practical builder, who, unless of very exceptional character, is likely to be rather afraid of any departure from the ordinary routine, and to require an unnecessary margin of safety.

A LITTLE difficulty has been found in carrying out the praiseworthy scheme for the improvement of the territory bordering upon the Falls of Niagara, in the shape of an unexpected demand of one of the State Departments for payment for work which every one expected to have done for nothing. The law establishing the Commission in charge of the new park provided that before any steps were taken for acquiring title to the land near the Falls a map should be made of the territory "by the State Engineer and Surveyor;" and in accordance with the authority which they imagined to be conveyed by these expressions, the Commissioners requested the State Engineer to make the map referred to, giving him at the same time a detailed list of the various tracts which they had decided to take for the public use. The answer to this communication was a request from the State Engineer to be informed whether the Commissioners were prepared to pay the necessary expenses connected with the preparation of the proposed map; and a second letter informed them that the cost would be about three thousand dollars. This intelligence was rendered the more surprising by the fact that the State Engineer's office, although sustained by a liberal annual appropriation, is said to perform little or no public service, and the preparation of the map would not involve the employment of any assistance outside of the office; while, even if it had been necessary to engage outside help, the entire cost of the map is estimated by other engineers as being properly only about three hundred, instead of three thousand dollars. As the Commissioners had no funds for paying the State Engineer's bills, and could go no farther without a map, it seemed at first necessary to suspend operations, perhaps until the next meeting of the Legislature, but some United States engineer officers have come to their aid, and have promised them a copy of their own map, which will undoubtedly serve their present purpose.

ANOTHER suit has been begun against the New York elevated railway companies, to recover damages for injury to the health, business and property of two physicians, who have occupied for eleven years the houses on the corner of Sixth Avenue and Fifty-third Street, using them partly for residence, and partly as a hospital, where some of their patients are kept. Five years ago the elevated railway was constructed around two sides of their estate, the track being about on a level with their third-story windows, and passing within a few inches of the corner of the building, and since then they and their patients have been greatly annoyed by the whistling, rumbling and hissing of trains, as well as by the sparks, cinders, gas, steam and smoke from the locomotives, and the obstruction of light and air, and convenient locomotion through the street. The plaintiffs set the value of the injury done them at the moderate sum of twenty-five thousand dollars. The answer of the railway company is the familiar one, denying any nuisance or trespass, and asserting that the road was built with great skill, and does not obstruct any light or air. It claims also that streets are not intended for light or air, but for passage, and that if owners of abutting property want light and air, they can get them in some other way, and insists further

that in any case the streets are the property of the Mayor, Aldermen and commonalty of the city of New York, who gave the company the right to build a railroad through them, and are responsible for all the consequences. One is a little surprised that some one of the counsel for the company does not emulate the example of the New Jersey paper manufacturer, who poured carbolic acid into the drinking supply of Jersey City, and claim that the roar and smoke of trains is beneficial to invalids in the neighboring houses, but that argument may be held in reserve. It will probably be many months before the case is decided, if it should not be compromised; but we shall be curious to learn what the courts will say to the doctrine that streets are not meant to supply light and air.

**A** STORY is going the rounds of the papers, to the effect that a number of capitalists in New York propose to erect a Crystal Palace, after the model of that at Sydenham, in the suburbs of New York or Brooklyn, where a permanent exhibition will be held. It is said to have been already decided that the structure, or rather, group of structures, shall include a machinery hall, an agricultural building, a horticultural building, and a hall of arts and sciences. A company has been formed for the purpose of carrying out this interesting undertaking, and stock will be issued to the amount of five million dollars, on which it is "confidently expected" that annual dividends of ten per cent will be paid. After the experience of the public with the Keely Motor Company, we can readily understand that stock in some such scheme as that described may sooner or later be put upon the market; but to believe that buildings of anything like the proposed size and cost will ever be erected in or about New York or Brooklyn for the proposed purpose, or that, if they should be, they would ever pay interest on the capital invested in them, requires a faith too great for our powers. To say nothing of the fact that the malarious character of all, or nearly all, the open spaces around New York and Brooklyn would reduce the attendance at evening entertainments, upon which the Sydenham Palace relies for much of its income, to the smallest limits, it might as well be remembered that the Sydenham Palace itself, which, instead of being built new by its present owners, was bought at second-hand for a mere song, has not, even under most excellent management, and with a great variety of attractions, earned enough to pay for the repairs necessary to keep the rain out of it, to say nothing of any dividends to stockholders.

**A**NOTHER of those schemes for supporting temporarily a few sharpers at the expense of simple people has been introduced in the central part of the United States, which is generally supposed to be the most favorable field for such enterprises. According to the descriptions in the newspapers, which give it an amount of free advertising which does no great credit to their penetration, the new project has in view the construction of two double-track narrow-gauge railways, one extending from New York to San Francisco, and the other from Chicago to New Orleans. As there are already several other railroads connecting these points, none of which, even with the help of the local traffic secured by touching at all the inhabited points on the way, can do much more than pay expenses, it is difficult to understand the necessity for building more lines at present; but the explanation is probably to be found in the fact that the new ones are to be "The People's Railroads," those already in operation being, we presume, the monopolists' railroads, or something else objectionable of that sort. The cost of the People's Railroads is to be three hundred million dollars, and this modest sum is to be raised by popular subscription. In order that "every poor man in the country" may become a stockholder in so beneficent an enterprise, the price of shares is fixed at five dollars, which, as may be perceived by dividing this into the capital, will not only afford all the poor men a chance of subscribing, but will leave a considerable surplus of shares for the rich men. In fact, the promoters of the scheme seem to have thought it prudent to interest some of the rich men first, for, with an inconsistency which should, no doubt, be attributed to their zeal in so good a cause, it was announced, at a recent meeting in Indianapolis, that the State of Indiana would be allowed only one hundred subscribers, of which seventy-five might be residents of Indianapolis. This, unless an unfair discrimination is to be made against Indiana as compared with other States, would indicate that the subscribers there are expected to hold at least one hundred thousand dollars' worth

of stock apiece, and that the people of Indianapolis require restraint to prevent them from contributing more than seven millions and a half toward the road. All the employés of the company are required to be stockholders, but whether of the hundred-thousand or the five-dollar variety is not stated; and in order to give the affair more attractiveness in the eyes of silly people, it is announced as having "somewhat the character of a mutual benefit association." We should like to see the balance-sheet of a mutual benefit railroad after a few years of existence. It is sad to think that unless some unwary step should serve to bring them within the reach of the law, the originators of this pretended scheme are likely to succeed, with the aid of the newspapers, in making many dupes.

**E**VERY one may not know that the asbestos mineral which is now brought from Canada, and manufactured into a variety of articles of daily use, is a very different substance from the ancient asbestos, or amianthus, which has been extracted in small quantities for twenty centuries from certain mines in Italy. The Italian asbestos, as well as a similar substance found in the Tyrol, is a double silicate of lime and magnesia, containing also protoxides of iron and manganese, with fluorine, and a trace of water, and as found in the mines it consists of slender fibrous pieces, of a color something like that of green slate, occupying crevices and cavities in the rocks. The Canadian asbestos, on the contrary, occurs in large stratified masses, of a pinkish color, fragments of which are readily crushed into a mass of silky filaments, ready for spinning or matting into felt. The composition of the Canadian stone is as different from that of its ancient prototype as its appearance. Strictly speaking, it is not asbestos at all, but a variety of serpentine known to mineralogists as chrysolite, and instead of being a double silicate of lime and magnesia, it contains silica and magnesia alone, joined, however, unlike the Italian asbestos, with a large proportion of water, amounting to nearly one-third of its bulk.

**A**T a recent meeting of the Parisian Society of the graduates of the Ecole Centrale, M. de Lesseps, who was present by invitation, delivered an address containing interesting references to the great works in which he is now, or has been engaged. In regard to the second Suez Canal, about which his audience naturally showed some curiosity, M. de Lesseps said little, preferring not to anticipate the report which he was to present at the meeting of the stockholders which was soon to occur; but he assured his hearers that the design for a parallel canal, to be constructed when the first one should become inadequate to the demands of commerce, had always formed part of his project, although he was perhaps the only person who foresaw from the first that it would soon be necessary. The widening of the present canal, in place of excavating a second, would, in M. de Lesseps' opinion, which certainly seems well founded, be injudicious. The meeting of vessels, even in a widened canal, at other points than in the turn-outs provided for the purpose, would be a fruitful source of accidents and losses, all of which would be avoided by keeping, as he proposed, the routes for northward and southward passage entirely distinct.

**A**BOUT his latest, and most romantic scheme, that for inundating the great African desert, M. de Lesseps spoke more at length. It seems that further surveys have been made of the territory to be flooded, which confirm the approximate levels previously taken; and Captain Roudaire now announces the readiness of himself and his friends to undertake the work, without any subvention, guaranty of interest, or other pecuniary aid whatever from the public purse, asking only to be allowed the use for ninety-nine years of such lands bordering the canal and the new lakes as would without them be entirely sterile. At the end of the term, the whole territory, with the canal and other property, would revert to the Government; and as M. de Lesseps sarcastically observed, even supposing that the predictions of the opponents of the scheme should be realized, and the inland sea become a mass of salt, the Government would at least be put at the end of the lease into possession of an immense quantity of a substance which passes for money in the interior of Africa, and could be quarried and sold at a great profit.

WATER-CLOSETS.<sup>1</sup>—XIV.

**THE Hartford Glass Closet.**—The glass closet which has been recently introduced into the market was invented in this country by M. Hogan in 1878, and he also received patents for improvements in the year 1882. In addition to the novelty in the form of the overflow, which is intended to take place through an opening in the plunger, this closet is provided with a lining or inner shell composed of glass, on the supposition that glass will not have the small net-work of cracks which cover the glazed surface of most earthenware. These small cracks, the "craze," in earthenware serve as a nucleus around which filth and



Fig. 140.

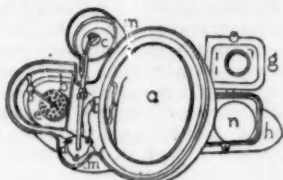


Fig. 141.

a, Bowl. b, Plunger-chamber. c, Float. d, Valve for supply. e, Top of plunger, showing perforations for overflow. f, Iron casing. g, Inspection-opening. h, Trap. i, Flap-valve. j, Overflow. k, Mechanical valve. l, India-rubber ring.

sediment collect. Of course glass can be used as readily in this connection with a valve or hopper closet as with the one under consideration, and to their advantage, if the claim made of the non-collection of sediment can be sustained. The plunger in this closet has an overflow through perforations on top of the plug into a water-seal trap situated in the bottom of the plunger. The overflow also has a mechanical valve as an additional seal against sewer-air. The valve is so arranged that the water flowing from the bowl of the closet would raise it from its seat, while it would drop into its place again as soon as the pressure of the water should be removed. The water-seal trap is arranged either as shown in the illustration or in the form of a simple U-trap, with the mechanical valve on the top of the short arm of the trap. The siphon trap under the closet has a flap-valve and inspection-cover bolted on near its crown, the flap-valve being intended to form a fourth intervention between the soil-pipe and closet-bowl.

Among other closets belonging properly to this class and type, in which the plunger is different from the ones previously described, I find one invented by Blunt in 1876, one by W. Turton, 1878, one each by Keith and Blesch in 1882. These closets all received patents from the United States.

**The Blunt Plunger.**—The Blunt plunger consists of one cylinder, closed at the top, slipped over one of a smaller diameter, which is open at both ends. When the two cylinders are joined together there is a passageway for the water through the space formed by the difference in their

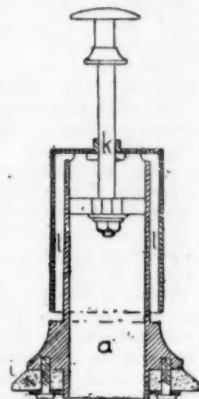


Fig. 142.—Blunt's Plunger.

a, Small cylinder. b, Space between cylinders. c, India-rubber flange. d, Hand-pull.



Fig. 143.

Keith's Plunger.

a, Overflow. b, Trap. c, Bell.

The water-seal trap is formed on the same principle as that of the bell-trap in such common use for area cesspools. The seal in the trap is slight and would be easily destroyed by evaporation.

**The Blesch Plunger.**—Blesch's plunger is arranged with a supply-pipe running down into the centre of it. In this manner the centre of the plunger, which is hollow, is filled with water when the plunger is lifted from its seat. The water can only escape through small holes left for the purpose, and consequently the

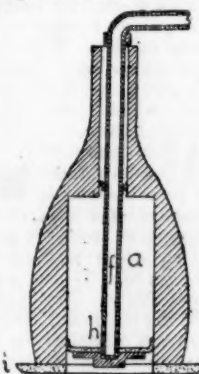


Fig. 144.—Blesch's Plunger.

a, Hollow in centre of plunger. b, Supply-pipe. c, Piston on supply-pipe. d, India-rubber bottom.

plunger takes its seat gradually. The illustration shows the plunger raised to its highest point.

## SOLID-PLUNGER CLOSETS.

Closets of this type cannot claim a novelty on the distinctive feature of the class, as the solid plunger is old, unless it be for the shape, position, or manner of lifting. The first closet of this type and class, and also the first plunger-closet for which a patent was issued, was invented in this country by Henry & Campbells in 1857, being one year earlier than the invention of Jennings in England.

**Henry & Campbells's Closet.**—There was nothing new in either the tank, which was placed under the seat, or in the plunger, which was solid, when this closet was patented. This closet, as

will be seen by the illustration, contains a large amount of water for scouring the soil-pipe. When the plunger is lifted from its seat, the contents of the tank, plunger-chamber and bowl would be emptied into the soil-pipe. The interest in this closet consists in its being the first of the class patented.

**Conron's Closet.**—The United States in 1868 granted patents to G. Conron for a solid-plunger closet. In this closet the bowl is conical, while the outlet is at the bottom; thence it passes through a horizontal pipe about eighteen inches long, at the end of which is situated a branch pipe, which serves as a conduit for water into the float-chamber that contains the float governing the supply-valve. The

Henry & Campbells's Closet.

Fig. 145.—Section.

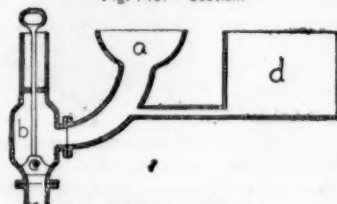


Fig. 146.—Top View.

a, Bowl. b, Plunger-chamber. c, Plunger. d, Tank.

the plunger-chamber. Between this chamber and the bowl is a branch pipe, which serves as a conduit for water into the float-chamber that contains the float governing the supply-valve. The overflow opens near the top of the plunger-chamber, and connects with the soil-pipe below the seat of the plunger, this part of the closet being a solid sphere joined directly to the hand-pull by a simple rod. J. J. Frey improved this closet by adding a flushing-rim.

**Ingleton's Closet.**—In 1869 a closet belonging to this type was invented in England by James Ingleton. This closet is a good example of the form with a solid plunger. The plunger and float compartments are separate from the bowl and each other, being only connected by short pieces of pipe. What is gained by having these compartments only large enough for the plunger and float to

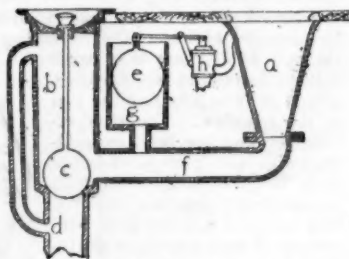


Fig. 147.—Conron's Closet.

a, Bowl. b, Plunger-chamber. c, Plunger. d, Overflow. e, Float for supply-valve. f, Horizontal connecting-pipe. g, Float-chamber. h, Supply-valve.

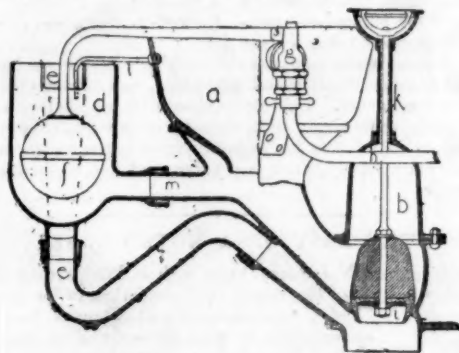


Fig. 148.—Ingleton's Closet.

a, Bowl. b, Plunger-chamber. c, Cast-iron block on bottom of plunger. d, India-rubber bottom. e, Float-chamber. f, Overflow. g, Float. h, Supply-valve. i, Supply-pipe. j, Rod for hand-pull. k, Dribble to fill trap of overflow. l, Connection between bowl and float-chamber.

move in them is more than counterbalanced by the disadvantage of the pieces of pipe connecting the bowl with the two chambers. Such are always to be avoided on account of the difficulty in keeping them clean. The overflow is from the top of the float-chamber through a siphon-trap, and empties into the soil-pipe just below the seat of the plunger. The overflow is kept full of water by a dribble. The top part of the plug of the plunger is made of cast-iron, being intended to act as a weight and keep the plunger in place, while the bottom is a slightly conical piece of vulcanized india-rubber, the part that fits into the seat being in the form of a projecting lip, so as to be flexible.

**Pearson's "Twin-Basin" Closet.**—The "Twin-Basin Closet," invented in England by Pearson, in 1874, appears to have been extensively used in that country, and also to have had a limited sale in this country. This closet was divided into two compartments of almost equal dimensions, one for the bowl, the other for the ball-cock float and plunger. This closet when first introduced was without an overflow, but the manufacturers found it necessary to supply the closet with an overflow which is taken from the

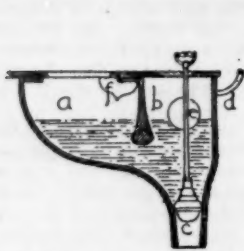


Fig. 149.—Section of Closet.

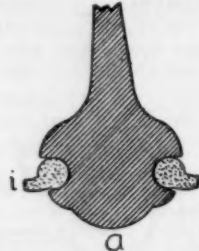


Fig. 150.—Section of Plunger.

a, Bowl. b, Plunger-chamber. c, Plunger. d, Supply-pipe.  
e, Float for valve-cock. f, Rubber band around plunger.

top of the plunger-chamber and is sealed by water before it enters the soil-pipe below the plunger. The ball-cock is not as delicate as the hydrostatic diaphragm valve; it does not require the nice adjustment, and is less liable to get out of order. This closet with the overflow is illustrated in the articles on "Modern Plumbing" (see *American Architect* for September 14, 1878).

**Zane's Closet.**—The "Sanitary" Closet is manufactured by Joseph Zane & Co., of Boston. The bowl, of porcelain, is attached to the plunger-chamber, which is of zinc-coated (galvanized) or enamelled iron, by means of clamp-screws. The supply-valve is a ball-cock designed specially for this closet. The plunger is solid and has a rubber ring around the bottom. The overflow is through a balanced pan or saucer that will tilt when it has received a certain amount of water, thus allowing any excess of water to pass through it. There is a small dribblet from the supply-valve, placed so as to drip into the pan of the overflow. The plunger-chamber and the bowl connecting with the plunger-chamber have large openings to which vent-pipes, which are inserted into a heated flue, are to be connected. These vent-pipes are intended to cause a current of air, created by the heat in the flue, to pass from the room through the two compartments of the closet, thence into and up the flue, taking with it any offensive or injurious gases, left by the actual passage of fecal matter, or arising from the sediment that adheres to the sides of the plunger-compartment. This closet takes a large amount of water when used, but the simplicity of the mechanism, the enamelled plunger-chamber and vent-pipes, make it one of the best of its class in the market. This closet should be supplied with a siphon-trap, properly vented. It is furnished with a straight outlet and an offset that is intended to be joined directly to the soil-pipe. It can only receive its supply through a valve, and has no flushing-rim of consequence.

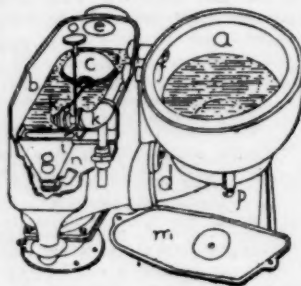


Fig. 151.—Zane's "Sanitary" Closet.

a, Bowl. b, Plunger-chamber. c, Float. d, Connection between plunger-chamber and bowl. e, Vent. f, Overflow. g, Balanced pan. h, Dribblet. i, Supply. m, Cover. n, Hand-pull. p, Clamp-screw.

#### THE LAST OF A NOTED CASE.<sup>1</sup>



IN January, 1879, Seth L. Phelps, then President of the Board of Commissioners for the District of Columbia, employed Thomas L. Plowman, an architect, to erect three dwelling-houses in the city of Washington. Associated with Plowman, though nominally in his employ, was George R. Tolman, between whom and Phelps, during Plowman's life-time, were no direct relations.

In April following, Plowman somewhat suddenly died, leaving the plans, etc., for the houses only partially prepared, and but one of the houses actually in course of erection. Thereupon Phelps employed Tolman to continue the work to completion.

Upon what terms Tolman was employed was the chief question in the controversy that subsequently ensued, and presently to be noticed. At any rate, the work proceeded, Plowman's plans being first altered, and then wholly abandoned: new and entirely different plans being prepared by Tolman, and the uncommenced buildings being laid out and proceeded with according to them—all with the full knowledge

and assent of Phelps; and the relations of the parties were entirely harmonious until the second day of June following.

On that day, Tolman, having occasion to ask a payment on account, sent Phelps a note containing a request to that effect; in response to which the latter sent another note, by the same messenger, enclosing his check for but half the amount asked, and claiming the sum thus sent to be the amount due in full to date. This check Tolman at once returned by his messenger, assuring Phelps that there was some misunderstanding in the premises and inviting him to an interview, in order to correct such misunderstanding before further progress in their relations.

Phelps did not reply to this last note, nor did he seek the invited interview until the following morning, June 3. But on the same evening, that of June 2, he sent for another architect, who at once responded to the call that evening. In the interview that ensued Phelps stated that he had "done with Mr. Tolman," and asked his visitor to take the work. That gentleman, discovering that some difference had occurred between Phelps and Tolman, promptly protested that he could not enter upon the work on the latter's plans, because "plans, as instruments of service, are always the property of the architect;" but he promised to serve Phelps in the premises whenever a settlement with Tolman should have been effected. Phelps scouted the notion of the architect's ownership of plans, but the interview ended with an understanding that he would settle with, or, as events prove him to have intended, "settle," Tolman.

Thereupon, on the following morning, June 3, Phelps, with one of his employés, waited on Tolman at his office and opened the interview with a peremptory demand for "his [my] plans." He was told that the plans were not his, but those of the architect; and the usage to that effect, already brought to his notice the evening before, was again stated and explained to him: Tolman in addition stating that he, Phelps, could not have even the use of the plans until a settlement had been effected, Phelps then being in his debt. Further colloquy ensued, Phelps repeating his demand; and finally Tolman, expressing regret at the misunderstanding, offered to leave the whole matter to arbitrators, to be named by Phelps, and himself to retire and give up the plans on receiving whatever sum such arbitrators might award him in the premises. This offer Phelps at once declined, saying that Tolman must take what he, Phelps, would give or nothing. He thereupon left, declaring that he would "take steps to get the plans."

This interview developed that, while Tolman had uniformly understood Phelps to have employed him on the same terms as those on which Plowman had been engaged—that is, as an architect, to do an architect's work and receive an architect's compensation—Phelps, on the other hand, claimed Tolman to be merely a draughtsman in his, Phelps's, employ, at a stated monthly salary. This claim Tolman at once pronounced to be not only wholly new to him but also absurdly preposterous, at the same time exhibiting to Phelps a list of expenditures by him, Tolman, necessary to the work, that would have made his actual personal receipts on the terms claimed by Phelps much less than his receipts while associated with Plowman. This was quite clear; for while with Plowman Tolman was free from many expenses which, when himself conducting the work, he had to bear; yet Phelps, in seeming soberness, claimed that Tolman, under the altered circumstances, agreed to go on for just the same sum as that received from Plowman.

In this connection, another significant fact is that Phelps himself signed at least one contract with a contractor, duly drawn up, with Tolman named in the body as architect of the building, and containing the usual provisions that the work and material should be to the satisfaction of "the architect," who should decide all disputes, etc. Against all this, and much more strongly corroborative testimony was opposed the single word of Phelps.

Later on this same day, June 3, Tolman was served at his office with a writ of replevin for the plans, sued out by Phelps. Although the greater number of the plans were then in the office, and the same employé of Phelps was sent with the officer to identify the plans, none were taken. By his employé Phelps had again sent the check originally enclosed in his note to Tolman of the day before; which being again offered Tolman, he, needing the amount, received, distinctly stating, however, that he accepted it as a payment on account only.

The replevin having failed, there followed a lull in the proceedings, so far at least as outward manifestations were concerned. The same employé of Phelps, calling on Tolman, asked for and received the only plans necessary for the immediate prosecution of the work—which single fact conclusively negatives the idea, advanced by Phelps, that Tolman was using his possession of the plans to extort from Phelps more than was due. From Phelps himself, however, nothing was heard until the 5th, two days later. On that day Tolman was served with a warrant, sworn out by Phelps, charging him with *embezzling* the plans, the product of his own labor and which had never been out of his control. It was thus made manifest that Phelps was seeking the aid of the criminal law to attain his own private ends, which civil process had failed to serve, the only difference being that in the civil proceedings he had sworn the value of the plans at \$150, while in the criminal effort he swore the value of the same plans at \$500. Tolman was at once arrested and imprisoned in the common cell of a station-house, where he remained several hours and must have remained all night without food or bed, but for his accidental success in getting word to counsel.

<sup>1</sup> See *American Architect* for July 5, 1879, pp. 1 and 7; July 19, p. 17; January 1, 1881, p. 1; and January 28, 1882, p. 37.

The next day he was arraigned for trial, and his prosecutor being practically Governor of the District of Columbia, the judicial oddity who presides over the police-court expressed a somewhat violent determination to send the case at once to the Grand Jury — which meant six months or a year in jail or under bail. Being prevailed on, however, to hear something of the case before disposing of it, he subsequently determined that the circumstances did not establish a case of embezzlement and so discharged Tolman.

Shortly thereafter Tolman brought his action against Phelps for malicious prosecution, and the cause was tried at the current term of the Supreme Court of the District of Columbia, holding a Circuit Court. At the trial the facts and respective contentions of the parties as above set forth were established with some additions unimportant to the main consideration. But one fact, equally important and surprising, was developed, viz., that before procuring Tolman's arrest Phelps had obtained the advice of counsel favoring the contemplated outrage. This counsel stated at the trial that when advising Phelps he had heard only one side; that he had heard neither of Tolman's claim that he was working on commission as an architect, nor of his offer to submit to arbitration; none the less, however, he did know of Tolman's claim of ownership, as also of his claim to a lien for the unsettled balance due him. Under the circumstances, to have advised the prosecution is scarcely less — indeed more — amazing than to have conceived it.

All this, and every other, sort of defence to the action, however, was wholly neutralized by the perfectly blunt declaration of Phelps when on the stand: "My own impression," said he, "was that the prosecution would result in my obtaining the plans." Volumes could not speak more for the spirit underlying this prostitution of a public remedy to a private end.

Such was this case as submitted to the court and jury; nothing material to the main issue is here omitted, and nothing undeveloped at the trial is stated. The court seems to have made a noticeable effort — so much so as to excite remark — in the direction of shielding the defendant, and to have thrown against the victim of an unprovoked and gross outrage the weight of its too evident sympathy with his oppressor. The jury, however, returned a verdict for the plaintiff in the sum of \$500, enough merely to vindicate Mr. Tolman, but a mere pittance in respect of administering a wholesome and much-needed lesson to his domineering and malicious antagonist.

We have been at some pains to procure a trustworthy and accurate report of this case, of such unusual interest to the architectural profession. In setting forth the result of such effort, we have sought merely to state the facts, leaving to our readers the comment that the bare recital suggests. Whether such a case could arise elsewhere than at Washington we may not presume to say; we may only, for the sake of the human character, hope not.

#### SALUBRITE PARISIENNE.

THE following paper on the sanitary condition of Paris by Dr. Marié-Davy, the Director of the Observatory of Montsouris, is an important contribution to sanitary literature: —

In visiting London a comparison occurred to us which must have struck other excursionists. It would appear that the two capitals preserve in their condition the impress of habits contracted in the great armies of the two nations.

In France each button of the soldier's tunic is bright; his gaiters and his shoes are irreproachably clean; but his shirt and his skin are often neglected. At sea, on the contrary, the clothing of the English sailor is often blackened with tar or soiled with oil, but the shirt and skin are clean.

It is the same with the two cities. The street in Paris is well kept and is embellished with houses of which the exteriors are periodically washed: but the houses lack air and water in the interior and their odor is often offensive. In London the street is badly swept and badly washed: the attention is given to the interior of the house.

Let us preserve the cleanliness of our streets, but let us extend this cleanliness to our houses where our women and children live. With our houses this care is the more necessary because of their greater height and less complete ventilation.

We complain of the odors of the sewers of Paris; there is reason for this, and the question is asked: How would it be if we introduced therein also all of our human dejections? We forget, however, to consider that the most effective inlets are not those of the sewers which receive human dejections, but those in which there remain deposits due to the cleansing of the public streets.

Whether we discharge into our sewers all or none of the fresh water-closet matter, the odor at these inlets remains the same and is equally unacceptable. It must be overcome at whatever cost, and

when it is overcome, which is a simple question of water, and of cleansing, we shall see that water-closet matter which has not begun to ferment may be delivered into the sewers entirely unperceived.

The badly smelling sewer inlet is like the badly kept gaiter button. How many Paris houses maintain with resignation a disgusting sewer opening on each story and in each suite of apartments, and a still more disgusting opening above each roof. We are told that the wind carries away and disseminates all of this. The wind when it blows carries into the well-kept house the emanations of the unclean one. When it is strong it purifies the atmosphere of the city; but how is it when it is light, and especially when the air is descending upon the city? Aside from this, even when there is a wind, we have provided for us in the outskirts of Paris foul-smelling manufacturing establishments.

The air breathed in Paris is filled with microscopic organisms. We are far from admitting that all of these organisms are injurious; we believe, on the contrary, that the greatest part of them serve as auxiliaries, after the manner of the dogs of Constantinople. However, it will be conceded that their greater or less abundance is in accordance with the degree of purity of the air that we breathe. Experiments have established this.

If we go from the outskirts toward the centre of Paris, M. P. Miquel, the skilful micrographist of the Observatory of Montsouris, finds the number of germs contained in equal volumes of air to be as follows:

| In each cubic metre of air.               | Number of germs |
|-------------------------------------------|-----------------|
| In the Park of Montsouris.....            | 51              |
| In a room of the Observatory.....         | 325             |
| In the Micrographic Laboratory.....       | 550             |
| In the Rue de Rivoli.....                 | 680             |
| In a bedroom of the Rue de Moulins.....   | 5260            |
| In the Hospital de la Pitié (spring)..... | 7730            |
| In the Hospital de la Pitié (winter)..... | 13280           |

If we descend from the higher atmospheric positions to the level of the ground we find a considerable and even more rapid increase.

| In each cubic metre of air.                  | Number of germs. |
|----------------------------------------------|------------------|
| Top of the Panthéon.....                     | 28               |
| Park of Montsouris.....                      | 45               |
| Mayorality of the Fourth Arrondissement..... | 468              |

At the top of the Panthéon the number of microbes found in a cubic metre of air changes with the direction of the wind, according to the extent of city area that it crosses before reaching the suburbs, and also according to the quarters over which it has passed.

| Top of the Panthéon, by winds: | Number of germs. |
|--------------------------------|------------------|
| In each cubic metre of air.    |                  |
| From the northeast.....        | 64               |
| From the southeast.....        | 43               |
| From the southwest.....        | 25               |
| From the northwest.....        | 50               |

Similar results are found in examining the dust of rooms. Miquel found for each gramme of dust gathered.

| In each cubic metre of air.           | Number of germs. |
|---------------------------------------|------------------|
| At the Observatory of Montsouris..... | 750,000          |
| In a room in the Rue de Rennes.....   | 1,300,000        |
| In a room in the Rue Monge.....       | 2,100,000        |

Inhabited places may find their number of germs augmented from year to year with no apparent external cause.

#### BACTERIA FOUND PER CUBIC METRE OF AIR.

| In the Micrographic Laboratory. | In the Park of Montsouris. |
|---------------------------------|----------------------------|
| In 1880, 215                    | 71                         |
| In 1881, 348                    | 62                         |
| In 1882, 550                    | 51                         |

Furthermore, when the apartments of la Pitié, and without doubt also those of dwelling-houses, are aired by the opening of windows, the number of microbes contained in the air of the room is lowered suddenly, while that of the streets is augmented.

The experiments of M. Miquel show that dampness is one of the most effective causes in the reduction of the number of aerial germs, and the number of these germs found in sewers and in soil-pipes or the ventilation-pipes of vaults — a number which varies but little from one season to the other — is far from being in accordance with the ordinary opinion concerning the air of these conduits.

It has been suggested, therefore, that the emanations from these conduits, however unpleasant, are innocuous. Chemistry, however, has interposed its new discoveries; it has demonstrated that, among the products of vegetable fermentation, as of the fermentation of animal matter, there are formed volatile compounds, some of which, in very minute doses, have the same action as the most violent poisons. We breathe them ordinarily in such attenuated doses that the system accommodates itself to them as it does to arsenic and nicotine. This is true; but can their continued and prolonged action be disregarded in a city like Paris where noxious organisms are always present? We resist the action of these so long as we do not offer them a "terrain de culture" suited to their development. But the depressing effect of bad odors and of the poisons which may and often do accompany them, tend eventually to diminish our power of resistance.

As to the sewers, the question seems well defined. Wherever there are stagnant matters entering into fermentation, no matter what may be the origin of these matters, whether vegetable or animal, or whether they are formed of human excrement, there is always at least a disagreeable odor. The first duty, quite aside from any question of introducing excremental matter, is, therefore, to prevent stagnation and fermentation. It is this that is being undertaken

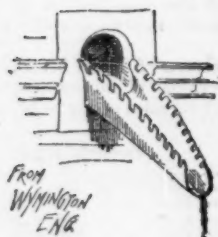


THE LION OF BRUNSWICK, GERMANY

and it will be found successful. This result once obtained, the addition of faecal matters before the beginning of fermentation will be of no effect.

But the principal enemy, to which we give too little thought, is in the houses themselves. It is there that fermentation is established; it is thence that it must be removed by copious washing. It is at this point above all that the English have concentrated the water which we lavish on the public streets. It is in the house, which we too greatly neglect, that we find the superiority of London over Paris. We are told that we lack water, while it abounds in London. This is a great error; we have proportionately more water than have the inhabitants of London, but we use it differently. Let us continue to use it in the streets, but it is absolutely necessary that it should be also delivered far and wide in the house. We must be clean without, but we must also be clean within.

#### AMERICAN COTTAGES.



**F**EW architectural terms seem to have more elasticity than the homely word "cottage," which now-a-days is made to embrace almost every variety of dwelling between the "slab" shanty of the railroad laborer, the cot dear to the hearts of lovers, and the "villa residence" (reportorial English) of the Newport "cottager," on which has been lavished a hundred thousand dollars, and which bristles with more features to the square foot than the purist can really approve of. The significant word in the title of this book<sup>1</sup> being thus elastic, we ought not to be unprepared to find that the publisher has taken full advantage of it, nor surprised to find cottages suited to purses of very diverse capacities, and appealing to tastes equally various. An inspection of the book shows that the merits of the designs and the power of their authors are sufficiently dissimilar to ensure that the sale of the book will not be confined to any one class.

The book is a compilation of the designs of a dozen or more of the younger architects of New York and neighboring towns, some of which have evidently been carried into execution, and others as evidently have not—at least, we hope so—and is probably published to meet the public demand for ready-made architecture,—to provide a *vade mecum* which shall enable every man to be his own architect. Our personal experience shows there is a demand for such books, and we do not wonder that publishers attempt to meet it, although they do not always issue as satisfactory books as this, the good qualities of which are largely due to the designs being the handiwork of different authors. Such books as this, like the illustrations in our own journal, do absolute good to the profession at large, by showing the public how infinite are the ways of treating the same problem, and that even if the appropriation be small, it is not necessary that the building should be in carpenter's vernacular: still less when the appropriation is larger.

A good deal might be said in criticism of the several designs, both in the way of praise and of blame, but taken as a whole the work is a very satisfactory specimen of its class, though better suited to the needs of a would-be householder than to those of a professional. Yet if this is the intention of the book, it is strange that so little should be said of each design in the way of explanation of the materials and methods to be used in building it. Only one design is accompanied by a specification; of the others it is only said that they can be built for about such and such sums.

The attractive feature of the book is that the designs are published as their authors rendered them, and as the hands of some were more cunning than those of others their designs appear to better advantage. Thus the designs of Mr. Barlow and Messrs. Rossiter & Wright make more impression than any in the book, with two exceptions: one a design by Messrs. Kimball & Wisedell, for a very large stone house to be built in the Bermudas—a singular design to be found amongst American cottages—a peculiar combination, though striking withal, of Norman, Decorated and Tudor Gothic, with Saracenic and Moorish forms, and perhaps a little genuine American. The other exception is the block of houses built in New York for the Honorable John Kelly, which from every point of view is the most striking and the most atrocious thing in this collection, and we trust it cannot be equalled in any other. Unless its publication can be explained on political grounds, we are at a loss to account for it, and still less can we account for its appearance as one of the illustrations of a late issue of *Building*: if it were there inserted to advertise the book under consideration, it will probably do more harm than good. Another singularity is a "Row of Brick Dwellings, English style, American Plans." We confess we do not understand why such a title was selected, for if ever there was a design in vernacular American, this is one. Still another is the cottage designed by Mr. Jones, which embodies more architectural contortions for \$4,000 than any but a confirmed jerry-builder could ever think of compassing.

<sup>1</sup> *American Cottages*. Consisting of 44 large quarto plates, containing original designs of medium and low-cost cottages, seaside and country houses; also a club-house, pavilion, school-house, and a small seaside chapel, together with a form of specification for cottages. All in the latest prevailing styles, from the drawings of a number of prominent architects, thus securing a great variety of plans and diversity of treatment, and offering the largest opportunity for selection. New York: William T. Comstock, 1883. Price, \$5.00.

#### THE ILLUSTRATIONS.

THE PROPOSED CATHEDRAL OF ALL SAINTS [SELECTED DESIGN,] ALBANY, N. Y. MR. R. W. GIBSON, ARCHITECT, ALBANY, N. Y.



**T**HE style adopted is Gothic or pointed architecture of the first period, worked out with much of the feeling of the cathedrals of this age in Spain and the south of France.

The plan is based upon that of the early cathedrals, a Latin cross. The choir is 91 feet long and 35 feet wide, and is planned in five bays, the two eastern bays forming the sanctuary. There are choir aisles, 53 feet long, 21 feet wide, of established proportions at the sides of the other three bays, opening into the choir by the main arcades, and to the transepts by arches corresponding.

The nave is 99 feet long and 40 feet wide, and has narrow side aisles its entire length. The greatest departure from ancient custom is here: the many attempts in modern times to use side aisles for actual accommodation of worshippers has always resulted in one of two evils; either many of the congregation have been placed behind piers and columns of the main arcades, so that the service has been out of their sight and hearing, or the piers and columns themselves have been pared and reduced to proportions

artistically distressing, and almost dangerous structurally. Therefore the architect has arranged the side aisles to be used as passages only, and has widened the nave to the maximum, consistent with other considerations.

The transepts also show some originality of plan. They are 110 feet in complete breadth from north to south (including crossing) and 40 feet wide, forming a square crossing with the nave. Side aisles have been introduced to the west only, opening with one large arch, much as if the ancient arrangement of Eastern chapels were reversed, and by this arch being nearer to the crossing than to the end, the pillars are thrown out of the line of vision of any of the congregation.

The crossing has four great arches, corresponding with those of the nave and transepts, and above them breaks, by pendentives, into an octagon, in the manner frequent in the early Gothic cathedrals. The proportions and method of the octagon lantern and its ceiling are, however, designed to avoid excessive internal height and consequent acoustic difficulties.

An ambulatory continues the passageway of the side aisles all around the sanctuary, and affords an egress from the cathedral to the cloister.

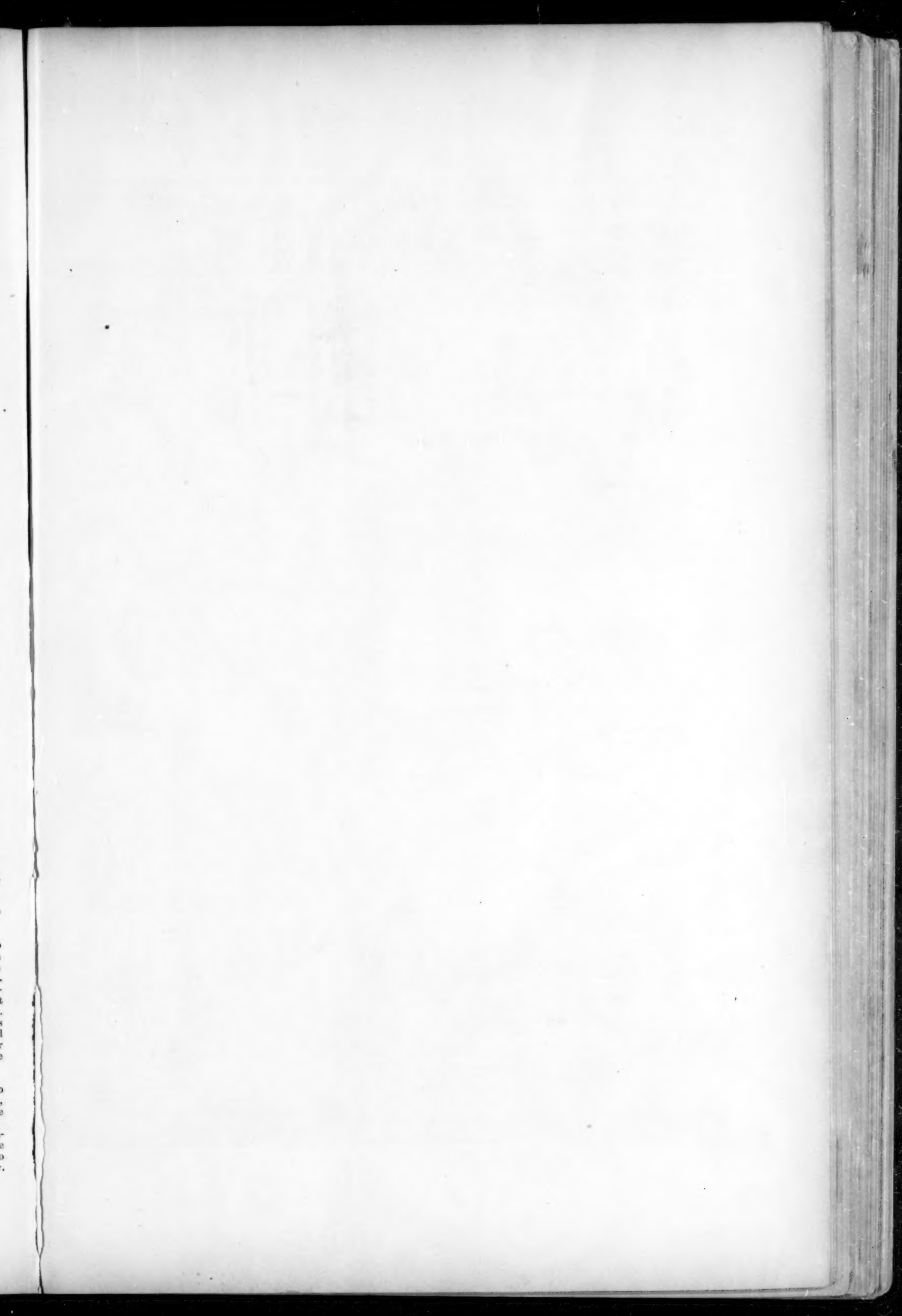
A crypt is shown beneath the whole of the main structure.

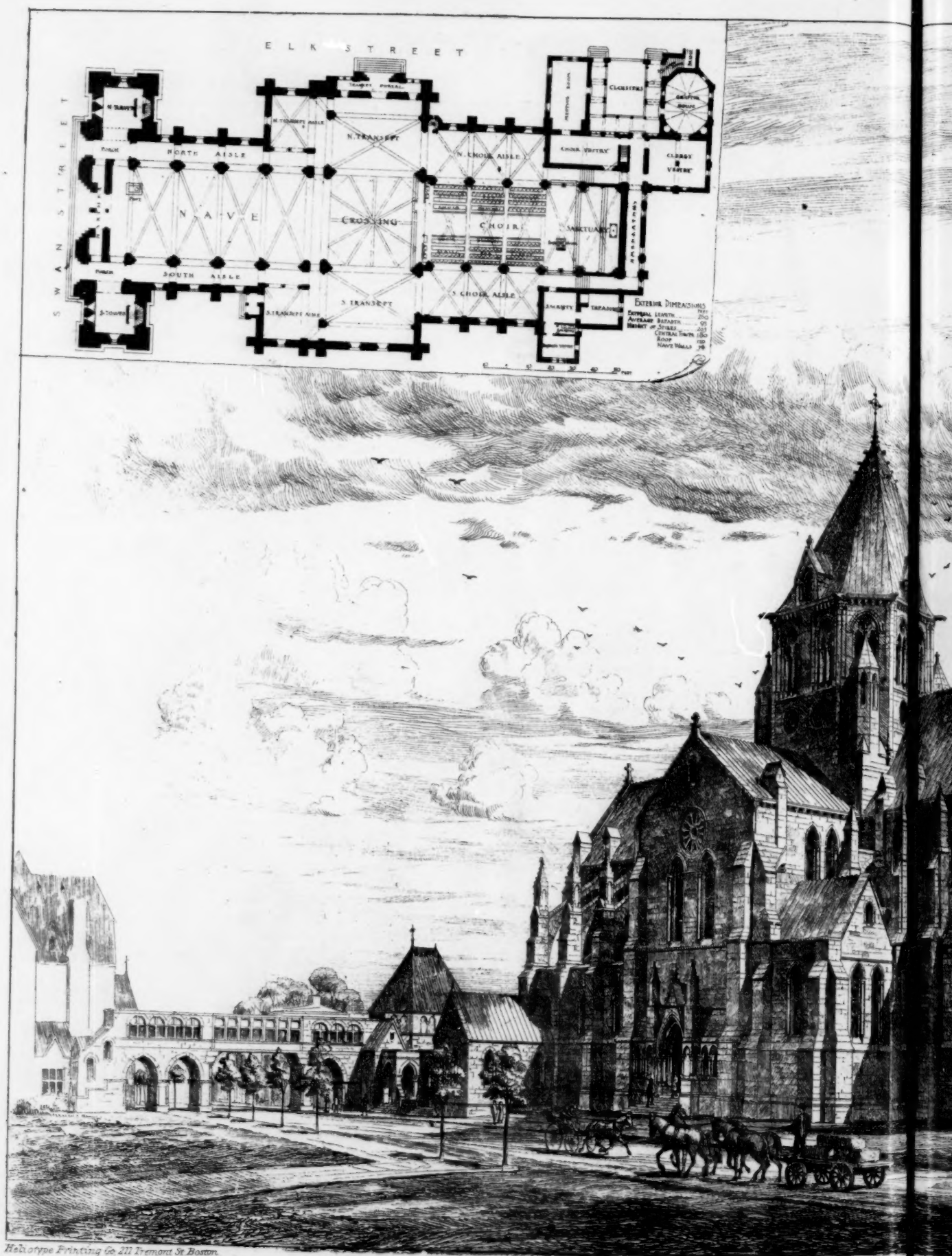
The choir, nave and transepts with their side aisles are designed to be vaulted in stone with quadripartite groined vaults. The octagon of the crossing is to be (for the sake of lightening the load upon the foundations, and for acoustic reasons,) covered with a ceiling of wood. These stone vaults would not be in any way unprecedented or experimental, although they are of large size (40 feet wide). The vault of the great hall of the New Courts of Justice at London is 48 feet. That of Gerova Cathedral is 73 feet, and with its centuries of age, is true and firm, and Canterbury, York, Paris, Bourges and several other cathedrals are more than 40 feet clear between piers. The outer roofs of copper are to be carried by trusses of iron resting upon the main walls and buttresses.

The heights of the interior (from floor of nave) are as follows:

To springing of arches of nave and transept vaults, 48 feet; to underside of bosses, 70 feet; to centre boss of lantern over crossing, 113 feet; to springing of arches of choir vaults, 45 feet; to underside of bosses, 66 feet.

There is no tracery to the sides of nave nor in the nave aisle windows, little in the transepts, but more in the choir, and generally the choir has been given a richer character than the nave; leading up to the great traceried window in the square east end of the sanctuary.





Halotype Printing Co. 211 Tremont St. Boston.

New Cathedral of All Saints, *ALBANY, N.Y.*  
Robert W. Gibson, Architect. *ALBANY.*



NEW CATHEDRAL  
OF ALL SAINTS  
ALBANY,  
N.Y.

THE PROVISIONAL  
DESIGN, INTERIOR  
LOOK  
ING EAST.



NEW CATHEDRAL OF ALL SAINTS, ALBANY, N.Y. THE PROVISIONAL BUILDING.  
ROBERT W. GIBSON, ARCHT. ALBANY.



|                 |         |
|-----------------|---------|
| Length          | 260 Ft. |
| Average breadth | 95 "    |
| Height to Cross | 125 "   |
| " Nave Walls    | 80 "    |
| " Roof          | 80 "    |

COPYRIGHTED 1883 JAMES R. OSGOOD & CO.

Residence of Mr. Wm. Flaccus,  
Allegheny City, Pa.  
Chas. B. Bartberger,  
Architect,  
Pittsburg, Pa.



J. H. Kirby Del.

Heliotype Engraving Co. 211 Tremont St. Boston.



The western end of nave has a rich circular window of radiating tracery, giving the required balance or rather echo to the eastern part and connecting the whole. The interior generally will be of fine cut stone of a warm, but not very dark red.

There are three steps up to the choir floor and three more to the sanctuary where the altar is raised upon a third group of three steps, in all about 5 feet above the floor of nave; this is sufficient to bring it properly in view.

A rood-screen of wrought-iron and brass is designed to separate the choir from the crossing.

The Bishop's throne and choir stalls are to be of cherry or oak carved and moulded. The pulpit is to be of fine stone or marble of a character similar to the already existing baptismal font. The organ is put over the first bay of the north aisle of choir with large arched front to the choir and another to the transept. The north side aisles of choir are proposed to be reserved for the pupils of St. Agnes School.

At the northeast angle are arranged the chapter-house, a lengthened octagon in form, a large clergy vestry communicating, so as to allow of their being used conjunctively; a choir vestry and a meeting hall are also arranged for combined use. These buildings are so disposed as to form three sides of a square separated from Elk Street by an iron grille fence, and round the three sides small cloisters are designed to give access to the various buildings separately and so contrived as to be enclosed in winter. The rooms do not, however, depend upon this for communication with one another or with the cathedral, as may be seen by the plan.

The Bishop's vestry and the treasury opening from a small sacristy are placed at the south side of the choir, communicating with the other vestries by means of the ambulatory.

The bridge across Elk Street to afford covered communication with St. Agnes School connects with the cloisters and thence through the side ambulatory direct to the seats in north choir aisle.

The building is proposed to be warmed by the introduction of pure heated air under the arches of the main arcades, avoiding thus the intrusion of gratings in main passageways, and also the ascending currents in the path of sound, which are great obstacles to hearing.

Keeping in view the doubtful character of the subsoil the arcaded system of wall-construction has been carried out as thoroughly as is usual in old Gothic buildings. The walls of the triforium, for example, are three feet four inches thick, made up of two one-foot walls, the inner one pierced with arches, an arrangement reducing the weight one-half, and giving beautiful and appropriate features to the interior, and offering an acoustic improvement in breaking up reflecting surfaces of wall. The same principle governs the construction of the clerestory and the central lantern, etc. But its greatest application is in bringing the side-aisle walls near to the main arcades, and uniting them in one foundation of unusual breadth, so that it may be said that the nave has hollow walls of enormous width, with the passage-aisles running through the hollow. Much value is attached to this disposition of weights. The simple walls it is proposed to build hollow, lightness, warmth and dryness being better secured, while the massive proportions of the masonry generally will contain an amount of material sufficient to insure stability. The buttresses where greater strain is concentrated will, of course, be solid. The foundations are of homogeneous concrete, covering nearly half the entire area.

The disposition of the passageways and seating space is shown upon the plan. The seating space is sufficient for a congregation of 1,550 persons, allowing five feet superficial to each. The stalls for clergy are 153 in number, and choir seats 54, making a total of 1,757 persons, but in a crowded state the edifice would certainly contain 2,000 persons.

The west front is flanked by towers, with belfries and spires, with freshness of design as far as that is consistent with the style. The height to top of belfry is 136 feet, and to top of finial 203 feet. The west end of nave with its traceried circular window is recessed between the towers, while the portals project somewhat.

The central tower, or lantern over the crossing, rises high enough above the nave roof to allow of a well-proportioned arcade around it, and is also roofed with copper at a steep slope. It is one hundred and forty-four feet high at top of masonry (dormers), and one hundred and eighty feet to top of finial cross.

The pitch of the transept roof is less to admit more light to the central lantern below the inner vault.

The subordinate buildings, chapter-house, vestries, cloisters, etc., have been grouped and designed with a view to their effect upon the main building. Owing to the lower ground upon which they stand all the principal features of the choir rise well above them, and will gain by the contrast of size afforded; and the lower roofs and walls make a composition, carrying the sky-line down and toward the St. Agnes school buildings near by, bringing it into the group even if the projected bridge were not supplied to complete the connection.

The exterior walling is to be of Potsdam stone, with exceptionally flat, split or rock face. The trimmings, arches, jambs, shafts, water-tables, cornices, etc., are to be of hard Medina stone, as described for the interior.

The external dimensions of the plan are as follows: Total length, 260 feet, or with vestries, 286 feet; breadth across western front, 124 feet; breadth across nave, etc., 78 feet; breadth across transepts, 128 feet; breadth across choir and aisles, 97 feet.

The provisional building is shown upon separate drawings. All

the main structure is built up to a height sufficient for a good appearance, and the accommodation is practically the same. The main arcades are all completely finished up to the top of string-course, except the carving, for which, however, a considerable sum is allowed to complete some important capitals as examples for the rest. The triforium, instead of being built a "blind" story as it will ultimately be, is pierced with windows to form a provisional clerestory. The vaults are necessarily omitted.

A stained open-timber roof as light as is consistent with safety is provided to temporarily cover the edifice.

The windows in the end walls are rearranged so that they come at proper heights in the provisional building, but very little of the brickwork thus built will have to be taken down, as it is in most cases so disposed as to form parts of the complete work.

The estimates include the bishop's throne, and clergy and choir-stalls of cherry or oak, with some of the carving upon them completed. The stone pulpit is also to be constructed in the same manner. Considerable amounts are included for provisional reredos, rood-screen and some decoration of the choir, and for re-erecting the organ. It is supposed that the present altar and baptismal font will be established in the new building.

To provide steady, continuous ventilation (upon which acoustic qualities largely depend) a ventilating *fliche* or spire is placed over the crossing of nave and transepts. Externally it serves to break the long lines and relieve the unfinished appearance of the temporary roofs.

Proposals have been obtained from two contractors of this city, for the works drawn and described for the provisional building. They are as follows: mason, \$129,855; carpenter and other work, \$19,695; total of all works and provision for extras, \$149,550.

HOUSE OF WILLIAM FLACCUS, ESQ., ALLEGHENY CITY, PA. MR. CHARLES M. BARTBERGER, ARCHITECT, PITTSBURGH, PA.

#### RECOLLECTIONS OF FLEMISH ARCHITECTURE.<sup>1</sup>—I.



THE castle and grayish-white chalk cliffs of Dover are gradually receding in the distance, the *Calais-Douvres* is ploughing her way through the watery expanse, and gradually increasing the distance between us, as she makes for the French coast, whilst we, who are bound for the picturesque towns of Flanders, take a more northerly direction and are soon in mid-channel. So far the day has favored us. The sun is shining brightly as we speed onwards from Folkestone to Dover, the sea is lying calm, gray, and peaceful at the foot of the cliffs, and any anxious forebodings that might have troubled our minds with regard to the weather on our journey to the coast are dispelled by the peaceful aspect of the ever-varying ocean. We are two in number, both imbued with the desire to glean some grains of inspiration from the relics of mediæval architecture in the Low Countries, and to return

home with a larger knowledge of the characteristics and details of the edifices which lend so great a charm to the once busy and prosperous Flemish cities. We are now in the midst of the North Sea; the sun is hiding itself behind banks of gray cloud, the brightness to a large extent has departed, the wind, which to commence with was merely a gentle breeze, has increased in intensity, and is stirring up the surface of the sea into leaden-colored billows, crested with foam, and our little craft, which is not of large dimensions, is pitching and rolling, and quivering and creaking from bow to stern. The next two hours are rather trying ones to the travellers on deck, who comprise several nationalities, all easy to detect by their characteristic countenances. Many, my companion among them, take refuge in the cabin, others crouch in woe-begone attitudes, tarpaulin-covered, on the seats by the sides of the vessel trying to forget their miseries. One or two more courageous souls try to find their sea-legs by walking in zig-zags along the deck, biting their cigars, every now and then receiving a shower-bath of spray, whilst I, clinging to one of the ropes of the rigging, endeavor to equalize the motion of the vessel in a way not easily described, but tolerably successful in its results, and gaze anxiously for the first sight of land. At last patience receives its reward. A weather-beaten mariner points out the towers of Dunkirk (our ancient possession), the low sandy dunes are visible on the horizon, and stretch on and on until Nieuport is reached. Then another interminable stretch of banks of sand until

<sup>1</sup> A paper read before the Leeds Architectural Association, by W. H. Thorp, and published in the *Building News*.

Ostend comes in sight, the glass-domed roof of the Kursaal glittering in the sun, which has again deigned to favor us, forming a conspicuous landmark for many miles. Approaching nearer, the miscellaneous collection of buildings begin to assert their respective identities, and we see a fine range of modern handsome buildings, hotels and private houses, facing the sea, and fronting on to the promenade, or Digue as it is called, terminated at one end by the king's wooden summer palace, and at the northern extremity by the old wood piers and quaint, stumpy light-houses. We are now gliding along in smooth water between the wooden piles, and at last are moored alongside the quay, opposite the Douane, where the custom-house officers, two or three gens-d'armes and a motley crew of blue-bloused porters and wharfingers are awaiting our arrival.

For one who has never been abroad before, Ostend is not exactly the place one would choose to make a first acquaintance with foreign soil. It is too new and modern. The buildings fronting the sea are all asserting their recent origin, and might to all appearances have been transported from one of the new boulevards in Brussels. The season has not yet commenced, and most of the hotels and handsome houses on the Digue have their windows and plate-glass fronts covered with huge shutters, to protect them from the ravages of the gales, and the blinding clouds of sand which blow up from the beach, over the sea wall, and across the promenade against the buildings, cutting the unprotected faces of the venturesome passers-by who are sufficiently daring to brave the fury of the elements. Our baggage is very modest as regards quantity, only two Gladstone bags, which are not even opened by the officials, who hastily mark them with white chalk, and two packages containing drawing-boards and sketching-materials in black glazed cotton cases, which have a more suspicious appearance, and are overhauled and looked into with curious, prying eyes by the *douaniers*, who, however, are soon satisfied that no attempt is being made to defraud the public revenue. A long, jointed measuring-staff, the property of my friend, in appearance like a fishing-rod, which never came into requisition, and was often a cumbersome hindrance when hurrying through the streets to catch a train, having a malicious trick of its own of occasionally tripping up an unsuspecting wayfarer, completed our belongings. On our journey from London to Dover we had occupied ourselves in consulting the guide-books to find out a suitable hotel in which to spend the Sunday before proceeding on our travels to Bruges, and decided in favor of Hôtel du Lion d'Or, which we had not much difficulty in finding in the Place d'Armes—a quiet place which we had all to ourselves for the most part, and which we should not have cared to patronize for a longer period than two or three days. In looking through the letters written at the time, I find that most of the hotels we went to bore the significant termination of "d'Or." One might imagine that gold was more plentiful in the Low Countries than elsewhere, judging from the number of golden animals they appear to be familiar with. In England the golden calf has been an acquaintance from the days of our childhood, but here they are on intimate terms with a whole Noah's ark full of animals made of that precious metal.

As has been previously mentioned, Ostend is no place for an antiquarian or a lover of the picturesque. No doubt, in the season, it presents a gay, animated, and brilliant appearance, as is the custom with all Continental watering-places; but out of the season it is decidedly dull and uninteresting. At present it is undergoing the process of spring cleaning and painting, preparatory to the gay whirl of excitement and fashion which will commence in a fortnight's time. The promenade on the Digue is being paved afresh, women taking the place of laborers and carrying bricks for the men and mixing up mortar and cement. The buildings fronting the sea are decidedly important-looking and handsome in appearance. Most of them may be described to be of Renaissance or Free Classic character, in which picturesque grouping and a florid and vigorous handling of detail have been more thought of by the architect than Classical proportions or purity of style. Here and there we meet with one or two successful attempts to revive the picturesque style of the sixteenth and seventeenth centuries, the buildings displaying as their leading features curved pedimented or crow-stepped gables, mullioned windows, corbelled arched projections, and ornamental floriated wrought-iron holdfasts to the tie-rods, which the Belgians have such an affection for. The materials chiefly used in these houses are bricks about two inches thick, of a deep red color, walled with thick joints, with dressings of a hard grayish stone, something similar in color to our mountain limestone. Besides using this for dressings round doors and windows, a common mode of treatment is to have bands of the stone at intervals of a few feet apart in the red brickwork of the front, which has the result of giving a striped appearance to the façade. This characteristic is met with in many ancient buildings both in Holland and Belgium, among which may be mentioned as examples, the Town Hall at Leyden and the old Fish Market in Antwerp, and evidently finds favor with the Flemish architects of the present day, for you find it a conspicuous feature in most of the modern buildings, both in those based on the style of the seventeenth century, contemporaneous with our Jacobean, and in more important edifices which are more decidedly Classical or Italian in character. One house on the northern end of the Digue arrested attention by the novelty of treatment displayed in its exterior. Although only a narrow building with a gabled end fronting the sea, the effect of light and shade obtained by the architect was admirable. On the ground-floor a deeply recessed loggia, spanned by an elliptical arch, formed

a picturesque feature with its outside staircase leading to the entrance doorway, taken up alongside the interior wall and closed with delicate wrought-iron balustrading of artistic design. A few flowering shrubs in pots or tubs behind the low wall dividing the loggia from the street added color and life to the architectural background. The upper stories were characterized by nicely proportioned mullioned and transomed windows, bands of stone interspersed amongst the brickwork, an open arched balcony, and the whole surmounted by a curved pedimented gable-end adorned with obelisk-shaped finials.

Before leaving the Digue some notice must be taken of the seaside residence of the King of the Belgians, a wooden erection which looks like a gigantic summer-house. An English architect was responsible for its design, and it was fully illustrated in the *Building News* two or three years ago. Messrs. Lucas Brothers, of Lowestoft, were the contractors for the building, and the whole of the timber-work was put together there, afterwards being taken to pieces and shipped to Ostend, where it was reerected by English workmen on a structure of masonry previously prepared for it. The employment of foreigners having given rise to jealousy amongst the Belgians, an additional pavilion for the Queen was entrusted to a Brussels architect and native work-people. The palace is elevated above the beach, and in front of it is a wide terrace of considerable length, with means of egress from it at either end to the shore. It is constructed entirely of timber, the local bricks having been rejected on account of their porous character. The principal features of the building, as viewed from a distance, are the verandas fronting the sea, and an octagonal tower with a belvedere and flagstaff. Taken as a whole, it has an unsubstantial, cardboard-like appearance, and it is cause for regret that material of a more substantial character was not employed for at least a portion of the erection. The walls, if built of the deep red brick obtainable in the locality, although rather porous in nature, if constructed with a hollow cavity and well backed behind with common brickwork or concrete, would have had no difficulty in withstanding the inroads of the weather. The upper part of the building might have been carried out in half-timbered style with panels filled in with brickwork and cemented, finished a vellum color, with tile-hung or boldly timbered gables, and the roof covered with brindled tiles of hard and durable quality. The verandas might have been retained, but designed in a rather more vigorous and artistic manner. This character of building may now be seen carried out in some of the hotels and residences of our English seaside resorts, the results being usually highly satisfactory, as compared with the stucco and rough-cast crudities formerly in vogue. Our cousins across the Atlantic have also learnt a thing or two during the last few years; and judging from illustrations of buildings recently carried out at one or two of their watering-places, they do not intend to be behindhand in producing work of an artistic character which will tend to enhance the natural beauties of the situation, instead of detracting from them.

Returning to Ostend: a fine new railway station is in course of erection, and is now nearly completed. Strange to say, the style adopted is decidedly English in character, and the architect who designed it has evidently been inspired by the Tudor buildings in Oxford or Cambridge, or otherwise has a close acquaintance with Pugin's works illustrative of this particular phase of art. In composition the building is fairly effective, but the detail is rather too bold and crude, and lacks the delicate niceties of contour of moulding which are nowhere met with in greater perfection than in the works of our leading English ecclesiastical architects. But enter the interior, and there we find we have much to learn. If we excel them in beauty of moulding, they can completely eclipse us in the lightness and delicacy of their iron roofs. It is evident wrought-iron is used in preference to cast, and where we use four or five tons of metal, as a usual thing they are content with one. Compared with the roof of the new station approaching completion at Bruges, that at Ostend is plain in character and detail. At Bruges we have, besides the constructional parts of the roof, spandrels enriched with ornamental hammered work of exquisite design, ribs elaborated with beaten flowers and delicate tendrils—work in fact which we English are accustomed to associate with chancel-screens and sanctuary gates, and not to expect to see used in so utilitarian a structure as a station-roof. Compare this roof at Bruges or that covering the Bourse at Antwerp (built not many years ago) with that of the station at York, and I feel sure that the majority of my audience would record their votes in favor of the Belgian structures. Whilst upon the subject of wrought-iron work, mention must be made of the modern wrought-iron balconies which abound everywhere, and are noticeable for their artistic design and the beauty of their workmanship. In character many of them resemble the style of work now in vogue here in connection with buildings of so-called Queen Anne or Renaissance work, although some are still more fanciful in form, and recall the era of Louis Quatorze.

**DISCOVERY OF A BURIED PORTUGUESE VESSEL IN BURMAH.**—A Portuguese vessel of the sixteenth century has been found embedded eight feet below the ground, near Rangoon, in British Burmah. While cutting the Twantay Canal through the barren country, in order to facilitate communication between Rangoon, Bassein, and other stations, the laborers came on the stem of an old ship, very much damaged, and managed to successfully unearth their find, which is now in the Phayre Museum, Rangoon. It is one hundred and fifty feet long, and must have been of about two hundred and fifty tons burden.

"WATER-HAMMER" IN STEAM-PIPES.<sup>1</sup>

THE writer has been called upon during the past winter, in the course of his professional work, to examine into the systems of steam heating in use on so large a scale in New York city and elsewhere, and to report upon the condition and capabilities of one of those "plants" which have been put in operation. In the course of this investigation he was compelled to examine into the peculiar methods of injury to which long lines of steam-pipe thus used are exposed.

The action familiarly known as "water-hammer" had been long known to him, as to every engineer who has had much to do with steam power, and its singular effects had been often observed and commented upon by him, as by others; but, in this case, these effects were developed on so large a scale, and were so serious oftentimes in their consequences, as to impress upon him the desirability of examining into the matter more carefully than had yet

been done. He has not been able to make a systematic and thorough investigation, such as he would have liked to make; but he has been able to collect some facts, a few of which will be here presented, that may at least have the effect of calling the attention of engineers more generally to this matter, and may lead to further study of the subject.

When a pipe is filled with steam, and then has introduced into it a quantity of cold water, or when a pipe, itself cold, and containing cold water, even in very small quantity, and without pressure, has steam turned into it, the first contact of the two fluids is accompanied by a sudden condensation, which causes a sharp blow to be struck, usually at the point of entrance; and sometimes a succession of such blows occurs, which are the heavier as the pipe is larger, and which may be startling, and even very dangerous.

It is not known, so far as the writer is aware, precisely how this action takes place in all cases, or what conditions are most favorable to the development of the tremendous pressures which are often produced. Perhaps the action is as follows:

The steam, at entrance, passes over, or comes in contact with the surface of the cold water standing in the pipe. Condensation occurs, at first very slowly, but presently more quickly, and then so rapidly that the surface of contact between the two fluids is broken, and condensation is completed with a suddenness that produces a vacuum. The water surrounding this vacuum is next projected violently from all sides into this vacuous space, and crossing it, strikes upon the surface surrounding it. As water is nearly incompressible, the blow thus struck is like that of a solid body, and the intensity of the resulting pressure is the greater as the distance through which the portion of surface attack can yield is less. In this manner enormous pressures are sometimes produced.

In some cases it seems certain that such pressures may be caused at points in the pipe far from either end, and from the point of entrance of the steam. For example, a pipe may lie in a nearly or quite horizontal line, and, if not fully drained, may contain a considerable quantity of water lying in the lower portion, while the steam may flow in above it. The passage of this steam along the surface of the water may cause some disturbance of the surface of the liquid, and this disturbance being gradually increased as the flow of steam becomes more rapid, may finally cause a break in the surface of the water, which disturbance may produce more rapid condensation and still further agitate the mass, until condensation occurs with such rapidity that a vacuum is formed at the point of greatest action. The next result is the rushing of steam from both directions towards this point, carrying with it, as it goes, masses of water which, coming from opposite directions with enormous velocity, meet at the intermediate spot at which the condensation has been most rapid, and being stopped by instant collision, produce a pressure which may only have as its limit the strength of the pipe.

Where pipes are not burst by this action, it is common to see them sprung and twisted out of line, torn from their connections, and, when a succession of shocks occur, as is often the case, the whole line writhes and jumps lengthwise to an extent that is sufficiently serious to cause well-grounded alarm.

The writer had an opportunity, in the course of his work on the case above alluded to, to obtain some probably approximate measures of the intensity of this action in long and heavy lines of pipe. Four lengths of 8-inch pipe had been split by this action, and the writer desired to ascertain whether they remained, in their injured condition, strong enough to bear the ordinary steam pressure of the line from which they were taken. This never rose above fifty or sixty

pounds per square inch. They were therefore subjected, in a proving-machine, to gradually increased pressures until the already fractured parts were still further injured, the repairs, or rather the patching having been carefully done in such a way that they were not strengthened by it. This was done by putting on soft patches along the line of the split and securing them by bolts which were set in the line of the split. The patches thus served as simple top-valves, preventing the exit of the water through the break.

The following are the results of the tests:

Pipe No. 1. — This pipe was split, near one end, for a distance of fifteen inches, along the line of the weld. When placed in the proving-machine, it bore the applied pressure until it attained an intensity of 400 pounds per square inch, when the split suddenly extended about ten inches; the pressure could no longer be kept up, and the test terminated.

The pipe was then taken to a pipe-cutting machine, and the injured part cut off. It was then again subjected to pressure. It bore a pressure of 1,100 pounds per square inch, — the highest that it was convenient or customary to apply to that size, — and was taken out sound.

Pipe No. 2. — This length was cracked for a distance of fifteen inches along the line of weld, not far from the middle of its length. The crack had opened a little and the pipe was slightly bulged. This piece bore 300 pounds and then gave way, the fracture extending just enough to let off the pressure.

At the opposite end of the pipe was another split, eight inches in length. The part just fractured was cut off, and the remaining portion was again subjected to the water pressure. This time it bore 1,050 pounds per square inch, when the crack was started and ran about fifteen inches. It began leaking, and showed plainly the effect of the pressure at about 800 pounds.

This was an unusually interesting specimen, as the pipe had been bulged considerably by the water-hammer along the line of the 8-inch crack. The pressure afterward borne, therefore, seemed to the writer to be likely to be a fair measure of that produced originally by the water-hammer. Such bulging as was here seen never occurs at usual pressures. The new break did not follow the weld, but ran irregularly, and apparently indifferently, through weld or solid iron.

Pipe No. 3. — This length was split for a distance of twenty-two inches, the end of the break being about three feet from the end of the pipe. It sustained a pressure of 250 pounds. The sound part of the pipe was then tested up to 1,050 pounds without injury.

Pipe No. 4. — This piece was split, like the last, and to just about the same extent: was tested similarly, and gave way at 300 pounds per square inch.

All of this pipe was 8-inch pipe,  $\frac{3}{8}$ -inch thick, and made with the usual form of lap-welded joint. The welds were not always perfect, as is probably the fact with all such pipe; but this pipe, butt-welded, would have borne very much higher pressures than those to which it was subjected in ordinary work by the steam carried on the line. It cannot be asserted that these lengths of pipe did not split under pressures less than those to which they were afterward subjected by the writer, as it is very possible that the first blow may have found a weak part of the pipe, and the split may, in some cases, have extended to stronger portions. Nevertheless, the writer is inclined to believe that this was not the case in all instances, and is convinced that in one case at least — that of the 8-inch crack, which was accompanied by a decided bulge in the pipe — the water pressures, at the test, were, at least approximately, equal to, and are very likely to have exceeded, those obtained at the later test. It seems to him very certain that we may consider it as proven that the pressures produced by "water-hammer" are often enormously in excess of those familiar to us in the use of steam, and that they have in many cases exceeded 1,000 pounds per square inch. It is, then, evident that it is not often safe to calculate upon meeting these tremendous stresses by weight and thickness of metal, but that the engineer must rely principally, if not solely, upon complete and certain drainage of the pipe at all times as the only means of safely handling steam in long pipes, such, especially, as are now coming into use in the heating of cities by steam led through the streets in underground mains.

The facts here presented have been, to the writer, something of a revelation, and have seemed to him to possess unusual interest and importance to the engineer using steam under such conditions as are here referred to. It is a fact which has long been well known, that these suddenly produced pressures are often very great. The writer has occasionally, for many years, known of serious and sometimes fatal accidents due to this cause; but that these stresses are often as great as is here indicated has probably been as little realized by engineers generally as by him.

## MOULDS FOR CEMENT PIPE.

86 PUTNAM ST., SYRACUSE, N. Y., July 9, 1883.

TO THE EDITORS OF THE AMERICAN ARCHITECT: —

Dear Sirs, — Will you be kind enough to inform me where I can purchase cast-iron moulds for manufacturing cement sewer-pipe? Cannot find any advertisement in your paper that will give the address of any parties making such an article. You will confer a great favor by answering the above inquiry.

Yours truly,

JOHN S. VILLAR.

[We refer this to our readers. — EDS. AMERICAN ARCHITECT.]

<sup>1</sup> A paper by Prof. Robert H. Thurston, read before the American Society of Mechanical Engineers, June, 1883, and published in the *Journal of the Franklin Institute*.

## THE SECRETARYSHIP OF THE AMERICAN INSTITUTE OF ARCHITECTS.

AMERICAN INSTITUTE OF ARCHITECTS, SECRETARY'S OFFICE.  
Bryant Building, 55 Liberty St., New York, June 11, 1883.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Dear Sirs,—Permit me to make use of your far-spread and ever-hospitable columns to inform the wide-scattered members of the Institute that the Trustees, at a meeting held here on the 7th inst., were fortunate enough to be able to persuade Mr. George C. Mason, Jr., of Newport, and late Secretary of the Rhode Island Chapter, to accept the Secretaryship of the Institute *pro tem.*, during my own absence for several months in Europe, a step forced on me by the fact that my health has been considerably deteriorated by overwork. On this account, though I accepted a trusteeship, and I declined, at the last convention, a re-election as Secretary, and I have since held over the latter office simply because Mr. William R. Ware, who was elected to it, has positively declined to serve.

Mr. Mason is well known as the author of several able essays on subjects which have, within the last few years, interested alike the public and the profession, in which he is so active and successful a practitioner, and the Institute is to be congratulated as long as he continues to hold the office. But well knowing how much time and careful consideration its current and unpaid duties absorb from its incumbent's private interests, I beg your readers to allow me to bespeak for him only such correspondence—and that well-considered and well-condensed—as may be essential to the well-being of the profession, and the enlargement and success of its recognized organization, the Institute.

Yours truly,

A. J. BLOOR.

## NOTES AND CLIPPINGS.

THE FORT DUQUESNE BLOCK-HOUSE.—There are probably a select few of the citizens of Pittsburgh who are aware that a location of great historic interest exists in that smoke-begrimed city; but it is a fact that the majority of the citizens of that town could not find the old Fort Duquesne block-house without a guide. Surrounded by all kinds of dilapidated tenements, itself occupied as the domicile of a poor family, the fortress for which nations strove and which armies marched and died to assault or defend a century and a half ago is as good as buried from public view. It is discreditable to the city which originated and grew up around these historic walls that the old fort has not been preserved and made the chief point of attraction to all patriotic people who visit its busy marts. A movement has lately been set on foot to acquire the property and create a public park, of which it shall be the chief attraction. It is to be hoped the enterprise will be something more than merely talked about. The people of Pittsburgh owe it to themselves to rescue this monument of the early occupation of our country from the oblivion into which it has fallen. No city on the continent has so proud a monument of the heroic days of the republic's vigorous childhood and youth as this. It should be preserved to the latest possible time.—*Philadelphia Times.*

RAPHAEL'S "MADONNA DELLA STAFFA."—St. Petersburg has narrowly escaped losing the most precious of its art treasures, the celebrated Madonna della Staffa of Raphael. The picture, which for more than three centuries and a half belonged to the Staffa family, was purchased in 1870 by the Emperor of Russia for £12,400, and was by him presented to the late Empress, who at her death bequeathed it to the art museum at the Hermitage. The heated air of the gallery in which the picture was hung recently split the square pine panel on which Raphael painted his masterpiece, and for a time it was feared that the danger was irreparable. A certain artist named Sidoroff volunteered at last, however, to set matters right. After carefully supporting the face of the picture with linen backed by a slab of marble, he laboriously rubbed away the panel, first with files and afterward with powdered glass, and then succeeded in mounting the thin remaining film on canvas. In the course of this delicate operation it was discovered that, instead of the book which the Madonna in the picture now holds, there was originally a pomegranate, toward which the infant Jesus stretched out his hand with childish curiosity.—*St. James's Gazette.*

A SUBMARINE OBSERVATORY.—The Marseilles correspondent of the *London News* writes: The International Exhibition at Nice is reserving some wonders for the foreigners who may propose to pass a portion of the winter of 1883-84 upon the borders of the Mediterranean. One of these wonders is a balloon which its inventor, M. Toselli, calls "the observatory under the sea." It is made of steel and bronze, to enable it to resist the pressure which the water produces at a depth of one hundred and twenty metres. This "observatory under the sea" has a height of eight metres, and is divided into three compartments. The upper apartment is reserved for the commander, to enable him to direct and to watch the working of the observatory, and to give to the passengers the explanations necessary as to the depth of the descent, and what they will see in the depths of the sea. The second apartment, in the centre of the machine, is comfortably furnished for passengers to the number of eight, who are placed so that they can see a long distance from the vessel or machine. They have under their feet a glass which enables them to examine at their ease the bottom of the sea, with its fishes, its plants and its rocks. The obscurity being almost complete at seventy metres of depth, the observatory will be provided with a powerful electric sun, which sheds light to a great distance in lighting these depths. The passengers have at their disposal a telephone, which allows them to converse with their friends who have stopped on the steamboat which transports the voyagers to such places as are known as the most curious in the neighborhood. They have also handy a telegraph machine. Beneath the passengers an apartment is reserved for the machine, which is constructed on natural principles, that is to say, as the bladder of a fish, becoming heavier or lighter at command, so as to enable the machine to sink or rise at the wish of the operator.

THE REFUSE OF FURNACES FOR BUILDING PURPOSES.—On the utilization of the refuse material from blast furnaces for mortar for building purposes, Mr. W. Mattieu Williams, F. S. A., relates some interesting experiences. It is far from a new idea to make a conglomerate from the slag of a furnace for building purposes, and Mr. Williams thinks he has heard of its use in finer work, and he concludes from the chemical nature of the cinder heaps found around furnaces that their composition renders them well suited for many purposes where lime-mortar is now used. The slag refuse is composed of silicates of lime and alumina, intermingled with silicates of iron, manganese, and magnesia in variable proportions. When the silica is in excess they are glassy; when the proportion of lime is greater they are earthy. These earthy cinders pulverize spontaneously, and are those which, I believe, have been used directly for cement; but I should expect the best result from the glassy cinders (or "slags" as they are improperly called), as these contain sufficient silica to combine actively with the lime of mortar, and thereby harden efficiently. While on the subject I may mention a little device which I adopted in building the brickwork setting for the retorts, premising, however, that I began at this work quite as a novice, a purely amateur builder. At first I contracted in the usual manner with the bricklayer, at so much per cubic foot measured all over, I finding all materials, he only doing the work. The work was badly done in spite of all my vigilance, and the discharging of three or four bricklayers in succession, the fault being that the bricks were not laid closely enough, and the thick joints of mortar crumbled when the whole structure was heated. At last I found a remedy for this which was very simple. Instead of finding all the materials I only found the bricks, leaving the contracting workman to supply his own mortar, and of course paying him accordingly. The difficulty of making each brick to rest in firm contact with its neighbor, with no more mortar between each than was necessary for filling up inequalities of surface, immediately disappeared.—*Scientific American.*

ORIGIN OF JADE.—A correspondent writes to *Nature*: "During the last ten years much has been written on the origin of the jade objects found in America and Europe, no raw materials of the stone having yet been discovered out of which the articles could have been manufactured. Professor H. Fischer, of Freiburg in Baden, therefore brought forward the hypothesis, supported by several of his scientific brethren, that the jade objects of America had been transported thither from Asia in prehistoric times, when Mongolian tribes settled in the New World, and that the intercourse of trade had later acted in the same manner. For Europe, where thousands of these objects have been found, the Aryans had done this service, when wandering from the very heart of Asia to the west, the source of the jade objects of both continents being Asia, where deposits of the mineral are known to occur in Siberia, Turkestan, and Burmah. Recently Dr. Meyer, of Dresden, has energetically opposed these views in a large folio work containing many plates, and has come forward with the opinion that the jade sources of Europe and America yet remain to be discovered. As to America we are glad to hear that this much simpler and more reasonable explanation of the problem has now been verified, the Smithsonian Institution of Washington lately having received from Louisiana an immense number of objects of jade, among them implements, knives and other articles, many having an admirably high finish, and with them a considerable quantity of the stone of which the objects were made. We do not doubt that similar discoveries may soon be expected in Europe, especially in Switzerland, and that we shall succeed in ascertaining the exact districts where the mineral is to be found."

AB CENTRO AD ASTRA.—The directors of the Glasgow City and District Railway have been again frustrated in their attempts to construct a railway under houses without paying compensation. Two cases were brought last week before the Court of Session, and it was again affirmed that the ancient principle is still applicable, and that the owner of the surface of a piece of ground has rights to all the strata beneath it. What is of more importance, it was laid down by the Lord President that the rights were stronger when a house stood on the surface. According to his lordship, as long as land is unbuild upon, "land is the proper description of the property; but when ground is built upon the *solum* on which the house rests is never described as land. The owner, therefore, becomes the owner of house property instead of landed property; and if he conveys his estate, the manner in which he conveys it is by disposing the house without the slightest reference to the soil on which it stands. There can be no doubt of the application of the general rule that the owner of the surface is owner *ad centrum*; or in other words, the vertical measurement of his property is indefinite—it has no limit. Therefore, it seemed to the Lord President to be abundantly clear that where the property belonging to the owner was a house, the ground on which that house stood was just as much a part of that house as the walls or roof of it, and the ground on which it stood was not a few inches, or a few feet, or a few yards in depth from the surface, but it was the entire underlying strata as far as the imagination could carry one. In this opinion the other judges concurred, and unless there is some new discovery by their lawyer the railway company in Glasgow will have to pay for the site of their line.—*The Architect.*

MALARIA IN ITALY.—The Italian Minister of War has just issued a discouraging report on the subject of malaria in Italy, with a statistical map showing the position of the malarial districts and their relative standing as respects the danger of infection. At the present time only six of the sixty-nine provinces of the kingdom are free from poisonous exhalations, and upwards of 40,000 soldiers are annually affected at a cost to the Government of \$2,000,000. Moreover, malaria throws thousands of workmen out of employment, prevents the cultivation of large tracts of land, and is altogether an enormous economic drawback. It is worthy of note that with the construction of railways the malaria area has increased at an alarming rate, the explanation being that the excavations have brought much swamp land to the surface and interrupted natural drainage.

## 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.]

280,342. DOOR-HANGER.—Wilbur F. Berry, Chicago, Ill.  
 280,354. SHINGLE-MACHINE.—John R. M. Crawford, Booneville, Miss.  
 280,358. COMBINED PLUMB, SQUARE AND LEVEL.—William H. Delaney, Rochester, N. Y.  
 280,368. REAMER.—Cicero R. C. French, Providence, R. I.  
 280,373. FIRE-ESCAPE LADDER.—Justus H. Heath, Mott's Corners, N. Y.  
 280,374. MOUTH-PIECE FOR SPRAYING-TUBES.—Max Heideleimer, Chicago, Ill.  
 280,376. AUTOMATIC FIRE-EXTINGUISHER.—Geo. W. Horton, Cincinnati, O.  
 280,390. DIVIDERS.—William H. Mitchell, Boston, Mass.  
 280,398. CARPENTER'S SQUARE.—Edwin Prescott, Arlington, Mass.  
 280,400. SASH-FASTENER.—William E. Rines, Arlington, Mass.  
 280,407. PILE-DRIVER.—Jesse P. Seawell, Hope, Ark.  
 280,415. MORTAR-TUB.—John P. Thomas and Daniel J. Thomas, Turner's Falls, Mass.  
 280,417. WATER-CLOSET.—William H. Umpleby, Trouton, N. J.  
 280,419. SAFETY ATTACHMENT FOR ELEVATORS.—Frederick W. Voerde, Chicago, Ill.  
 280,420. BORING-TOOL.—Josiah Wade, Halifax, County of York, England.  
 280,422. DRAWING-APPARATUS.—William S. Worden, Kearney Junction, Neb.  
 280,433. FIRE-ESCAPE LADDER.—Thomas Wyatt and Jason F. Jones, Providence, R. I.  
 280,440. LUMBER-DRIER.—William S. Bates, Chicago, Ill.  
 280,445. SASH-HOLDER.—Russel B. Callahan, Lansing, Mich.  
 280,448. FAUCET.—William Cassin, Brooklyn, N. Y.  
 280,453. WOOD-TURNING MACHINE.—James D. Craig, Detroit, Mich.  
 280,457. CROSSCUT-SAWING MACHINE.—William A. Doherty and Charles G. Van Sickle, Muskegon, Mich.  
 280,462. LOCK-HINGE.—Adolph Gärtner, Jersey City, N. J.  
 280,468. COMBINATION LOCK.—Henry Lemmon, Guelph, Ontario, Can.  
 280,492. ORNAMENTAL MANTEL, CHILING, ETC.—John McCully, Chicago, Ill.  
 280,494. WEATHERBOARD GAUGE.—Joseph C. McEwen, Lochloosa, Fla.  
 280,497. HAND-SAW.—Thomas U. Nekeel, Cold Spring, N. Y.  
 280,517. LOCK.—James Roche, Terryville, Conn.  
 280,526. VENTILATOR.—George Smart, St. Louis, Mo.  
 280,527. FIRE-ESCAPE WITH AN ALARM-ATTACHMENT.—Jas. H. Smiley, Caroline, N. Y.  
 280,538. FIRE-ESCAPE.—Morgan S. Washburn, Billings, N. Y.  
 280,539. DEVICE FOR ADJUSTING ROSES TO DOORS.—George Watkins, Detroit, Mich.  
 280,545. GREASE-TRAP.—Silas Wilcox, Portland, Oreg.  
 280,581. DOOR-LATCH.—Samuel L. Coales, Newport-Pagnell, England.  
 280,594. VENTILATING-APPARATUS.—John Fernie, Philadelphia, Pa.  
 280,595. APPARATUS FOR VENTILATING APARTMENTS.—John Fernie, Philadelphia, Pa.  
 280,607. BIT-SCREW.—Frank Grant, Chester, Mass.  
 280,609. SASH-CORD GUIDE.—Winfield S. Greening, Decatur, Ill.  
 280,612. RE-ENFORCING PLATE FOR SAW-HANDLES.—William H. Hankin, Jr., and Cornelius Tinney, Brooklyn, N. Y.  
 280,643. SASH-HOLDER.—William C. Mathews, Shenandoah, Iowa.  
 280,645. APPARATUS FOR HOISTING AND CONVEYING EARTH FROM SEWER-TRENCHES.—Patrick H. McCauley, Des Moines, Iowa.  
 280,648. WATER-CLOSET VALVE.—Timothy McHugh, Cambridge, Mass.  
 280,653. FIRE-ESCAPE.—Myron E. Moore, Woodford's, Me.  
 280,668. STEAM ROCK-DRILL.—Joseph W. V. Rawlins, Houghton, Mich.  
 280,670. ELEVATOR.—Frank M. Reynolds and Geo. M. Tewksbury, Newark, N. J.  
 280,673. WRENCH.—Carl Schinke, St. Louis, Mo.  
 280,679. MORTAR AND BUILDING COMPOSITION.—Joseph A. Shinn, Pittsburgh, Pa.  
 280,681. ROOFING.—William C. Smalstig and William Massey, Springfield, Mo.  
 280,706. SPIRIT-LEVEL.—Thomas W. Wood, Asbury Park, N. J.  
 280,728. DOOR-KNOB.—Charles Elveena, Detroit, Mich.  
 280,787. EAVES-TROUGH.—Joshua P. Gould, Bangor, Me.  
 280,741. FIRE-ESCAPE.—John Harper, Duncan, Pa.  
 280,756. WINDOW-BEAD FASTENER.—Charles H. Myers, Phelps, N. Y.

## SUMMARY OF THE WEEK.

## Baltimore.

WAREHOUSE.—D. E. Conklin, Esq., is to build a five-story warehouse on Sharp St., between Lombard and German, of brick and iron, with stone and terra-cotta finish, cost \$20,000, from designs by Chas. L. Carson, architect.

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

James D. Hodge, 4 two-story brick buildings, e s Division St., between Dolphin and Hoffman Sts.; and 4 three-story brick buildings, w s Etting St., between Dolphin and Hoffman Sts.

Catherine McDonald, three-story brick building, w s Duncan Ave., between Bank St. and Eastern Ave.

Dr. H. F. Hill, three-story brick building and brick stable in rear, s w cor. Schroeder St. and Edmondson Ave.

D. Wright, 6 two-story brick buildings, s s Fort Ave., between Hanover and Race Sts.

## Boston.

HOUSE.—Messrs. Allen & Kenway are the architects of a house for Mrs. C. L. Carr, on Beacon St. It is of brick and stone, three stories, 26' x 70'; Messrs. L. P. Soule and Leander Greely, contractors.

BUILDING PERMITS.—Wood.—Lake St., near Kendrick St., Ward 25, for Phineas B. Smith, 2 buildings for storage of ice, 32' x 100' each, one-story pitch; Peter Hutchinson, builder.

West Fifth St., Nos. 325 and 327, Ward 14, for Thomas P. Frost, 2 buildings for storage of wagons, 25' x 55' each, one-story flat; Laming & Drisko, builders.

## Chicago.

BUILDING PERMITS.—Chas. Schumacher, three-story flats, 367 South Morgan St.; cost, \$4,000.  
 Grace Episcopal Church, one-story church, Girard St.; cost, \$3,000.

A. F. Ewing, 6 two-story dwellings, Thirteenth Pl.; cost, \$2,000; architect, Treat; builder, A. Reibold.  
 J. B. Barry, three-story dwell., 237 Park Ave.; cost, \$7,000; architect, J. J. Flanders; builder, Duffy.

Geo. F. Whidden, 2 three-story flats, 64 and 70 St. John's Pl.; cost, \$5,000; architect, W. Stripleman; builder, W. Hickox.

Geo. F. Whidden, 2 two-story flats, 66 and 68 St. John's Pl.; cost, \$4,000.

Mrs. C. J. Armstrong, two-story flats, 308-308 Honora St.; cost, \$16,000; architect, J. W. Armstrong; builder, E. Hayden.

S. Gregston, three-story and basement front addition to flats, 1804 and 1806 Wabash Ave.; cost, \$4,000.  
 B. & P. Mahon, three-story flats, 2716 South Dearborn St.; cost, \$5,500; architect, J. J. Eagan; builder, B. Mahon.

Wm. Gordon, two-story store and dwell., rear 130 North Ashland St.; cost, \$3,700.

C. P. & P. J. Sullivan, three-story store and flats; cost, \$4,500.

John O. Couski, two-story and basement flats, 718 Noble St.; cost, \$3,600.

J. M. Steuben, four-story basement store and flats, 56 West Indiana St.; cost, \$8,000; architect, F. Thompson; builder, J. Steuben.

J. Kincaid, 2 two-story and basement dwells., 594 and 596 South Halsted St.; cost, \$4,100.

S. F. Orginalst, two-story dwell.; cost, \$4,500; architect, S. T. Orginalst; builder, E. T. Gobill.

Thos. Sueda, three-story and basement store and flats, 59 North Ashland Ave.; cost, \$6,500; architect, J. Kolff; builder, D. Sueda.

Peter Smith, two-story basement dwell. and store, 367 Halsted St.; cost, \$4,300.

Dennis S. Sherman, two-story dwell., 48 Sloan St.; cost, \$4,500; architect, Henry Clay; builder, Rudnik.

C. H. Blair, 2 two-story dwells., 2909 and 2911 Prairie Ave.; cost, \$17,000; architect, E. Bowman; builders, Griffiths & Co.

Thos. Dunne, two-story dwell., 408 South Morgan St.; cost, \$3,400.

John Ryan, two-story and basement dwell., 3150 Indiana Ave.; cost, \$5,000.

Wm. Atkins, 2 two-story dwells.; cost, \$6,500; architect, P. W. Ruchl.

N. P. Smith, 2 two-story dwells., 3263-3265 Groveland Park.

F. H. Gault, 4 two-story dwells., Congress St.; cost, \$12,000.

Mrs. L. K. Smith, two-story dwell., cor. State and Schiller Sts.; cost, \$30,000.

Anton Hottlinger, four-story flats, 312 and 314 Sedgwick St.; cost, \$15,000.

Wm. Schroeder, two-story dwell., 699 North Park Ave.; cost, \$5,000.

G. Thompson, two-story dwell., 234 Hubbard St.; cost, \$5,000.

Mrs. Wm. Moore, cottage, 452 North Paulina St.; cost, \$2,000.

Thomas Olson, three-story flat, 346 West Erie St.; cost, \$10,000.

O. J. Frauchere, three-story store and dwell., 24' x 51', 316 E. ue Island Ave.; cost, \$10,000; architects, Burling & Whitehouse; builder, A. Kaiser.

C. Le Beau, three-story flats, 22' x 50', 12-16 Gold St.; cost, \$6,000; architect and builder, C. Le Beau.

J. Cordano, three-story flats, 22' x 56', 104 Centre Ave.; cost, \$5,000; architect, N. W. Cussel; builder, M. Hutchinson.

Rich Bros., 5 two-story dwells., 50' x 98', 1059-1067 Wilcox Ave.; cost, \$15,000; architect, Wm. Stripleman; builder, H. E. McKay.

D. Harry Hammer, three-story basement store and flats, 50' x 64', 2718-3720 State St.; cost, \$15,000; architect, Wm. Langheist; builder, A. Bemont.

F. Fleisemann, three-story dwell., 25' x 73', 483 Dearborn St.; cost, \$10,000; architects, Cudell & Blumenthal; builders, Sturm & Kueker.

J. A. Heath, two-story and basement dwell., 25' x 50', 3222 Prairie Ave.; cost, \$6,500.

J. A. Heath, two-story dwell., 24' x 50', 3136 Prairie Ave.; cost, \$7,500.

Rev. S. Marretti, three-story and basement rectory, 25' x 50', 64 Illinois St.; cost, \$6,000; architect, C. A. Alexander.

John Hubka, two-story and basement flats, 22' x 70', 79 Wade St.; cost, \$4,500.

Thos. Olson, three-story flats, 45' x 55', 346 West Erie St.; cost, \$10,000.

J. M. Allen, 11 one-story cottages, each 20' x 28'; cost, \$8,000; architect and builder, S. J. Hicks.

## Denver, Col.

BUILDING PERMITS.—In the six months ending June 30, the Inspector granted 236 permits for the erection of buildings worth \$899,570.

N. H. Meldrum, two-story brick residence, 36' x 50'; cost, \$8,500; barn, 28' x 30'; cost, \$1,500; Grant Ave., bet. East Seventeenth and East Eighteenth Sts., E. P. Brink, architect; Jacob Ott, builder.

F. D. Spaulding, two-story brick and stone basement dwell., 44' x 66'; cost, \$10,000; Glenarm St., bet. Lincoln Ave. and Twenty-first St.; E. F. Fassett, architect; R. P. McDonald and E. J. Noles, builders.

Dennis Sullivan, two-story brick dwell., with basement, 30' x 60'; cost, \$12,000; Colfax St., bet. South Fourteenth and Evans Sts.; F. E. Edbrook & Co., architects; A. F. Rafert, builder.

## Detroit.

BUILDING PERMITS.—Peter Dupont, frame store, Seventh St.; cost, \$3,800.

Geo. H. Fowler, brick store, Gratiot Ave.; cost, \$7,000.

Wolverine Paper Co., factory, Campan Ave.; cost, \$6,300.

J. V. Smith & Co., addition to dwell., 136 Howard St.; cost, \$3,800.

Gearing & Co., additions to brick house, 666 Jefferson Ave.; cost, \$8,700.

Michigan Central Station, Third St.; cost, \$165,000.

W. G. Vinton & Co., art loan building, Congress St.; cost, \$13,000.

R. Bolton & Co., double brick house, Lafayette Ave.; cost, \$3,800.

Duest Bros., addition to Eagle Iron Works, Congress St.; cost, \$2,400.

C. Hubbard, frame house, Piquette Ave.; cost, \$2,400.

## Macon, Ga.

WAREHOUSES.—English, Huguenin & Co., cotton warehouse and compress, cor. of Seventh and Poplar Sts.; A. Blair, architect.

U. M. Gunn, cotton warehouse, on Fourth St., between Cherry and Poplar Sts.; cost, \$9,000; D. B. Woodruff, architect.

HOUSE.—M. J. Harker, brick and stone house on Georgia Ave.; Perkins & Bruce, architects.

STORES.—Willingham & Co., block of four stores on Second St.; cost, \$3,500 each; P. E. Dennis, Jr., architect.

CHURCH.—Baptist Church, at head of Poplar St.; cost, between \$15,000 and \$20,000, being built by day labor; D. B. Woodruff, architect.

## New York.

BACHELOR APARTMENT-HOUSE.—It is proposed to erect a building on Forty-third St., in the fall, for bachelors; Mr. C. W. Clinton is preparing the plans.

STORES.—A seven-story store, 50' x 115', is to be built of brick, on the n e cor. of Forty-ninth St. and Third Ave., by Mr. Peter A. Cassidy, to cost about \$80,000.

A five-story store is to be built of brick, with stone finish, 20' x 50', at No. 113 West Broadway, for Mr. G. Berndt, from designs of Mr. J. Hoffmann, to cost about \$20,000.

TENEMENTS.—Several cheap tenement-houses are being designed, and this class of building forms the greater portion of work projected at the present time.

BUILDING PERMITS.—One Hundred and Twenty-fifth St., 235' e Sixth Ave., 5 four-story flats and stores, tin roofs; cost, total, \$100,000; owner, John A. Hardy, Sing Sing, N. Y.; architects, Cleverdon & Putzel.

Sixty-seventh St., n s, 200' w Eleventh Ave., 8 four-story brick tenements, tin roofs; cost, each, \$10,000; owner, George Kuhn; architect, George J. Carey.

Eighty-ninth St., s s, 100' w Third Ave., four-story brick and stone flat, tin roof; cost, \$28,000; owner, Chas. E. Rhineland, 158 East Eighteenth St.; architect, Geo. B. Post; builders, Peter Tostevin's Sons and Peter Leenan.

Eighty-ninth St., s s, 129' 10" w Third Ave., four-story brick and stone flat, tin roof; cost, \$14,000; owner, architect and builders, same as last.

Water St., No. 24, four-story brick store, tin roof; cost, \$15,300; owner, John H. Jones, 137 Adelphi St., Brooklyn; architect and builder, W. A. Vanderhoof.

One Hundred and Thirty-second St., n s, 225' e Eighth Ave., 2 three-story brownstone front dwells., tin roofs; cost, each, \$10,000; owner, Robert Lundsey, 2225 First Ave.; architect, J. H. Valentine; builder, John Hutchison.

One Hundred and Thirty-second St., n s, 253' e Eighth Ave., 4 three-story brownstone front dwells., tin roofs; cost, \$11,000; owner, architect and builder, same as last.

East Twelfth St., No. 20, five-story brick and stone flat, tin roof; cost, \$40,000; owner, Thos. B. Tappan, 348 East One Hundred and Twentieth St.; architect, J. Wightman; builders, J. & W. C. Spears.

South St., Nos. 378 to 381, two-story brick factory, flat roof; cost, \$9,000; owners, Herring & Co., 251 Broadway; architect, Andrew Craig; builders, Drummond & Jones.

Pearl St., No. 480, six-story brick store, tin roof; cost, \$15,000; owner and architect, Thos. R. Jackson, 61 Broadway.

Madison Ave., s w cor. One Hundred and Twenty-seventh St., 5 four-story brownstone front dwells., tin roofs; cost, each, \$18,000; owner, Franklin A. Thurston, 62 East One Hundred and Thirty-third St.; architect, G. Robinson, Jr.

Third Ave., w s, 50' n One Hundred and Eighth St., 2 five-story brick flats, tin roofs; cost, each, \$20,000; owner, Richard Connor, Astoria, L. I.; architect, G. Robinson, Jr.

One Hundred and Thirty-fourth St., n. s. 275' e. Willis Ave., 2 four-sty' brownstone front tenements, tin roofs; cost, each, \$10,500; owner, Hans Heinrich Schramm, 1365 Third Ave.; architect, Adolph Pfeiffer.

Third Ave., e. s. 59' 41" s. Ninety-third St., five-sty' brick flat, tin roof; cost, \$20,000; owner, Wm. Fernschild, 324 East One Hundred and Fourteenth St.; architect, Geo. Fernschild.

Pier 36, North River, wood and iron freight-shed and offices; cost, \$40,000; lessee, Inman Steamship Co., Limited, 31 Broadway; architects, Chas. McDonald and A. Namur; builder, Chas. K. Hedden.

Fifty-seventh St., s. s. 100' w. Second Ave., 2 two-sty' brick factories and show-rooms, gravel roofs; cost, total, \$10,000; owner, Adolph Klaber, 165 East Sixty-first St.; architect, Henry Fernbach; builders, J. L. Murtha and A. E. Fountain.

East One Hundred and Fifth St., No. 317, four-sty' brick tenement, tin roof; cost, \$8,700; owner, Christine Helmsch, 51 Hewes St., Brooklyn; architect, and builder, Henry Hollwedel.

Second Ave., n. w. cor. One Hundred and Fourth St., 4 four-sty' brick tenements, tin roofs; cost, total, \$55,000; owner, David Stevenson, 521 Tenth Ave.; architects, Thom & Wilson; builder, Robt. Auld.

One Hundred and Seventeenth St., n. w. cor. Lexington Ave., four-sty' brick tenement and store, tin roof; cost, \$10,000; owner and builder, Jno. W. Warner, One Hundred and Sixth St., cor. Fifth Ave.; architect, Wm. Graul.

One Hundred and Seventeenth St., n. s. 20' w. Lexington Ave., four-sty' brick tenement, tin roof; cost, \$8,000; owner, builder and architect, same as last.

One Hundred and Seventeenth St., n. s. 39' w. Lexington Ave., four-sty' brick tenement, tin roof; cost, \$1,000; owner, builder and architect, same as last. St. Nicholas Pl., e. s. 75' n. One Hundred and Fiftieth St., 2 three-sty' stone and frame dwellings, slate roofs; cost, total, \$22,000; owner, James Monteith, St. Nicholas Ave., cor. One Hundred and Fifty-fourth St.; architect, Wm. M. Grinnell; builders, Wm. Cowen and Jas. Pettit.

#### Philadelphia.

**BUILDING PERMITS.**—Passung Ave., s. e. cor. Rope Ferry Road, two-sty' dwell., 25' x 35'; Thos. Gruman.

Wilder St., w. of Nineteenth St., 5 two-sty' dwellings, 15' x 49'; M. B. Stackhouse, owner.

Westminster Ave., w. of Forty-second St., 5 two-sty' dwellings, 14' x 39'; J. R. Pyle, contractor.

Filbert St., w. of Eighth St., five-sty' store, 50' x 145'.

East St., cor. Terrace St., 4 two-sty' dwellings, 16' x 32', and three-sty' dwell. and store, 22' x 34'; A. Laubenstein, owner.

North Sixth St., No. 40, four-sty' brick building, 18' x 45'; Morris & Wickersham.

Paul St., n. of Orthodox St., two-sty' dwell., 16' x 42'; Chas. E. Deal, contractor.

Kensington Ave., n. of Adams St., two-sty' store and dwell., 17' x 60'; Jos. Miller, contractor.

Dilwyn St., No. 350, two-sty' machine-shop, 20' x 70'; Joseph Blochinger, contractor.

Lancaster Ave., cor. Westminster Ave., three-sty' store and dwell., 20' x 48'; Geo. Kehoe, owner.

Sixty-fifth St., cor. Hamilton St., two-sty' dwell., 30' x 34'; Rev. J. G. Brown, rector.

School Lane, between Pulaski Ave. and Township Line, two-sty' dwell., 24' x 48'; Geo. Hearst, contractor.

Hick St., between — and Dickinson Sts., 38 two-sty' dwellings, 14' x 38'; also, Fifteenth St., s. of Dickinson St., 6 three-sty' dwellings, 14' x 50'; also, on Dickinson St., w. of Fifteenth St., 8 three-sty' dwellings, 14' x 38'; W. R. Matchett, owner.

Jefferson St., cor. Mansion Ave., three-sty' dwell., 18' x 48'; Geo. Stanley, owner.

Haines St., opposite Cedar Lane, three-sty' dwell., 18' x 34'; J. J. Schuller, contractor.

Kensington Ave., Nos. 2544 and 2546, 2 three-sty' stores and dwellings, 20' x 58' and 22' x 58'; W. Kane, owner.

Colona St., e. of Twelfth St., 2 two-sty' dwellings, 16' x 42'; John Klebe.

Richmond St., No. 313, three-sty' brick building, 15' x 50'; C. G. Harris, contractor.

Edward St., between Second and Hancock Sts., 2 four-sty' factory-buildings, 46' x 56' and 60' x 76'; Jno. A. Ebert, owner.

Fifth St., w. s. n. of Cambria St., 2 two-sty' dwellings, 18' x 42'; E. C. Sheppard, contractor.

North Fifth St., No. 958, three-sty' dwell., 18' x 62'; H. M. Martin, contractor.

Jefferson St., s. s. w. of Mansion Ave., three-sty' dwell., 18' x 48'; McIlvain & Cunningham.

York Road, e. s. between Green Lane and Branchtown, two-sty' dwell., 14' x 30'; D. J. Mott, owner.

Filbert St., No. 3426, two-sty' dwell., 15' x 45'; H. C. & A. R. McIlvain, owners.

Long Lane, e. s. of Reed St., 6 two-sty' dwellings, 16' x 20'; Robt. McFarland, owner.

Thirty-seventh St., cor. Elm St., 7 three-sty' dwellings, 15' x 45'; Wm. J. Shedwick & Bros., owners.

Arad St., s. e. cor. Franklin St., three-sty' dwell., 18' x 34'; Jno. C. Haines, contractor.

Dudley St., s. s. between Seventh and Eighth Sts., 6 two-sty' dwellings, 14' x 28'; also, Eighth St., s. e. cor. Mercy St., 3 two-sty' dwellings, one with store; 16' x 42'; J. C. D. Smith, owner.

#### St. Louis.

Wm. Moore, frame dwell.; cost, \$7,000; Joseph E. Truitt, contractor.

Gen. W. T. Sherman, brick dwell.; cost, \$2,500; Cameron, architect and contractor.

S. Prag, brick tenement; cost, \$3,200; A. Delitz, architect and contractor.

Henry Schoenweisz, brick dwell.; cost, \$3,600; Beekunier & Rieckman, contractors.

R. W. Golson, brick dwell.; cost, \$10,000; Johnson, architect; Henry Roach, contractor.

Joseph Roifmeyer, brick dwell.; cost, \$5,000; John H. Frye, architect and contractor.

Nicholas Ast, brick dwell.; cost, \$3,665; Schilling, architect; Hermann & Schumacher, contractors.

Clara E. Martin, brick dwell.; cost, \$2,800; J. E. Twitt, architect and contractor.

Wm. Schoenlan, brick dwell.; cost, \$15,000; Paul & Weidenmuller, contractors.

Louis Haeger, brick dwell.; cost, \$3,800; F. W. Dette, architect; John Boehler, contractor.

Wm. Marshall, brick dwell.; cost, \$3,700; Twitt, architect and contractor.

Wm. Ruhland, brick tenement; cost, \$12,000; Berk, architect; Haeseler & Lewis, contractors.

Geo. Millinger, brick tenement; cost, \$3,075; Hammer & Puhl, contractors.

Ada V. Churchill, brick dwell.; cost, \$5,000; C. B. Clarke, architect.

Isaac H. Walker, brick stores; cost, \$10,000; W. M. Walker, architect.

J. J. Carroll, brick dwell.; cost, \$2,500; Bradshaw, contractor.

Mrs. Lucy M. Brown, brick dwell.; cost, \$11,000; E. Mortimer, architect; J. V. Majors, contractor.

German School Association, brick school; cost, \$9,000; C. E. May, architect; C. L. Salomon, contractor.

M. H. Earle, brick dwell.; cost, \$5,000; Earle, architect and contractor.

T. S. Paterson, brick dwell.; cost, \$2,500; Paterson, architect and contractor.

Dr. John Green, brick office; cost, \$4,000; Thomas Young, architect; Milburn & Rich, contractors.

T. Toensfeldt, brick school; cost, \$6,500; Gosse, architect; Henry Hagan, contractor.

Peter Wertz, brick dwell.; cost, \$2,700; Wertz, architect and contractor.

Dr. H. Nagel, brick dwell.; cost, \$6,800; Raeder, architect; S. F. Hoffmann, contractor.

Johanna Carpenter, brick dwell.; cost, \$10,200; Goesse, architect; Goesse & Remmers, contractors.

Caspar Stolle, brick warehouse; cost, \$8,000; Berke, architect; Stolle, contractor.

D. McCarthy, tenements; cost, \$3,500; B. Carley, architect and contractor.

J. Dollis, tenements; cost, \$5,000; Koenig, architect; J. Weis, contractor.

J. & J. Francis, tenement; cost, \$4,000; S. V. Clark, architect and contractor.

T. McCormack, store and rooms; cost, \$7,500; Megher, architect; J. Waters, contractor.

W. Brown, dwell.; cost, \$5,600; Elsemann, architect; J. D. Fitzgibbon, contractor.

J. J. O'Brien, dwell.; cost, \$6,000; S. H. Hoffmann, architect and contractor.

W. M. Hall, dwell.; cost, \$3,200.

F. Megher, dwell.; cost, \$6,500; C. Chapman, contractor.

J. H. Dellehay, tenements; cost, \$3,750; C. L. Aufderheide, architect and contractor.

H. Dierker, store and dwell.; cost, \$3,300; A. Wieden, architect and contractor.

J. J. Tilford, store and dwell.; cost, \$5,000; W. C. Schaper, architect; F. W. Leffhagen, contractor.

J. P. Gleeson, dwell.; cost, \$4,500; J. A. Conlon, architect and contractor.

J. H. Maurice, dwell.; cost, \$8,000; J. H. Maurice, architect and contractor.

J. H. Maurice, dwell.; cost, \$8,000; J. H. Maurice, architect and contractor.

B. Rust, tenements; cost, \$5,000; H. Ellermann, architect and contractor.

C. Stephens, dwell.; cost, \$4,300; Helm Bros., architects; H. Ellermann, contractor.

D. Evans & Bro., dwell.; cost, \$3,000; Mortimer, architect; D. Evans & Bro., contractors.

M. McGrath, dwell.; cost, \$3,000; Furlong, architect; M. McGrath, contractor.

#### Toledo.

**OFFICE-BUILDING.**—Five stories and basement, St. Clair St.; cost, about \$60,000; Messrs. Carrington & Cummings, owners; N. B. Bacon, architect; E. Malone, builder.

**STORES.**—Brick business building, four stories and basement, St. Clair St., cor. Jefferson St.; cost, about \$21,000; Estate of E. Walbridge, owners; N. B. Bacon, architect; E. Malone, builder.

**HOUSES.**—Two-sty' frame dwell., Nineteenth St., for Mr. Berr; cost, about \$3,500; E. O. Fallis, architect; M. A. Stegenga, builder.

Two-sty' frame residence and stable, Jefferson St.; cost, about \$5,500; Mrs. A. M. C. Barnes, owner; N. B. Bacon, architect; Jno. W. Lee, builder.

Two blocks, comprising four frame dwellings, two stories, Jefferson St., near Twenty-first St.; A. B. Waite, owner; Jno. Kerruish, builder.

Two-sty' frame residence, Ashland Ave.; cost, about \$4,000; Rev. Mr. Toensmeir, owner; N. B. Bacon, architect.

Two-sty' frame residence, Lincoln St.; cost, about \$2,600; C. L. Smith, owner; N. B. Bacon, architect.

**SOLDIERS' MEMORIAL BUILDING.**—Brick and stone, three stories, Adams St., cor. Ontario St.; Gibbs & Stine, architects. Corner-stone laid July 4, 1883.

**CLUB-HOUSE.**—Additions to Draconian Club Building, Superior St.; cost, about \$2,500; N. B. Bacon, architect; Jno. Kerruish, builder.

**SCHOOL-HOUSES.**—Two ward school-buildings, brick, two stories; cost, about \$5,000; Gibbs & Stine, architects; A. Bentley and Dawson & Anderson, builders.

#### Washington.

**STABLE.**—The Union Transfer Co. is about to build a stable from plans by Wilson & Brothers, architects, Philadelphia.

**BUILDING PERMITS.**—Three-sty' brick dwell. on Connecticut Ave., bet. M and N Sts., for C. E. Hawley; cost, \$12,000; Gray & Page, architects; W. J. Kenedine, builder.

Three-sty' brick and stone dwell., in county, for E. Berliner; cost, \$10,000; C. A. Didden, architect.

Three-sty' brick dwell. on Twentieth St., bet. M and N Sts., for F. J. Lippett; cost, \$8,000; Gray & Page, architects; W. J. Kenedine, builder.

Five two-sty' brick dwellings on Corcoran St., bet. Fourteenth and Fifteenth Sts., n. w. for D. A. Winslow; cost, \$15,000; Chas. Cole, architect.

Three-sty' brick safe deposit building on Pennsylv.

vania Ave., bet. Ninth and Tenth Sts., n. w. for Washington Safe Deposit Co.; cost, \$50,000.

Three-sty' brick dwell. on Jefferson St., for Mrs. E. W. Lippett; cost, \$7,000; Gray & Page, architects; Bright, Humphrey & Co., builders.

Two four-sty' brick dwellings on Connecticut Ave., bet. H and I Sts., n. w. for C. Edmonston, agent; cost, \$14,000.

Three-sty' brick dwell. on Connecticut Ave., near N St., n. w. for D. L. Yulee; cost, \$40,000; C. H. Reed, Jr., architect.

Two-sty' frame dwell. in the county, for S. W. Saxton; cost, \$4,000.

Four-sty' brick dwell. on B St., near First St., n. w. for J. F. Farnsworth; cost, \$9,500; J. Gernuller, architect.

Three-sty' brick dwell. on Sixteenth St., near Scott Circle, for J. A. Cormody; cost, \$6,000; W. M. Poindexter, architect.

Two three-sty' brick stores on Ninth St., bet. D and E Sts., n. w. for Ed. Temple; cost, \$17,000; Wm. Price, builder.

Three-sty' brick dwell. on M St., bet. Tenth and Eleventh Sts., n. w. for M. L. Boardman; cost, \$6,300; Wm. Price, builder.

Four-sty' brick dwell. cor. Nineteenth and G Sts., to be known as the "Lenthal Home;" cost, \$20,000; W. M. Poindexter, architect; R. L. Parry, builder.

Four-sty' brick dwell. on Connecticut Ave., bet. M and N Sts., n. w. for David King; cost, \$28,000; R. I. Fleming, builder.

Four-sty' brick dwell. on N St., bet. Nineteenth and Twentieth Sts., n. w. for Mrs. C. V. English; cost, \$6,000; C. A. Didden, architect; G. W. Rae, builder.

Two-sty' brick store and dwell. cor. Eleventh and B Sts., n. e.; cost, \$4,600; S. J. King, builder.

#### General Notes.

**ACKLEY, IO.**—F. D. Hyde, architect, Dubuque, Io., is preparing the plans for a one-sty' frame school building, 26' x 42', for the primary department; to cost about \$1,500.

**ATHOL, MASS.**—George H. Cooke is soon to build two houses on the corner of School and High Sts. The building interests in town are very extensive this spring, among the projectors being Calvin Miller, George Bishop, Orin Lamb, Frederick Choney, C. W. Woodward, O. F. Amdeins, and W. W. Fish.

**ATTLEBORO, MASS.**—Ground has been broken for the new Catholic church, 50' x 90'.

**AUBURN, R. I.**—A Free Baptist church is building here.

**BABYLON, L. I.**—Wm. H. Beers, architect, of New York, is building a house for J. M. Bergen, Esq., of Brooklyn; cost, \$12,000.

**BAY SHORE, L. I.**—A large stable to cost about \$6,000, is to be built for Mr. B. Phelps, from designs of Mr. C. C. Buck, of New York.

**BELCHERTOWN, MASS.**—D. P. Clapp and K. L. Clapp are making additions and alterations to their houses, at a cost of about \$18,000.

A hotel for a lot on Main St., at the southern end of the park, to contain sixty rooms, and to cost \$50,000; H. F. Kilburn, architect, New York.

**BELL'S FALLS, VT.**—The Selectmen are authorized to build a town-house, to cost, with site, \$12,500.

**BISMARCK, DAK. TER.**—The competition for plans for the penitentiary closed May 30.

**BRIDGEPORT, CONN.**—E. Farmlly, two-sty' frame dwell., Park Ave.; cost, \$12,000; W. R. Briggs, architect.

The Methodists at Washington Park, E. D., are erecting a brick church from plans by L. B. Valk, New York; Rutherford & Spargo, builders.

The excavations for the Bridgeport hospital have been commenced on Old Mill fill. \$100,000 is now at command for the work; Lambert & Bunnell, architects.

Dr. Warner and E. C. Bassick are building twenty-five workmen's cottages, from plans by H. A. Lambert, architect.

C. Hawley, 9 houses of frame, in blocks, on Lafayette St.; cost, \$2,000 each; A. A. Skaats, architect.

G. E. Hobbs, a pair of frame houses on Seeley St.; cost, \$7,000; G. E. Potter, architect.

M. A. Daly, two houses on Railroad Ave.; cost, \$5,000; Falliser, Falliser & Co., architects.

**BROCKTON, MASS.**—The Herbert & Kapp Elastic Fabric Company will put up three one-sty' buildings, each 44' x 160'.

**BUYN MAWE, PA.**—Stone house for Dr. W. C. Powell; Wilson Brothers & Co., architects, Philadelphia.

**BUFFALO, N. Y.**—J. C. Kingston is erecting a five-sty' brick last factory, 70' x 100'.

**CAMBRIDGE, MD.**—Christ P. E. Church, stone, 74' x 88' 8", style, Gothic, seating capacity 500; cost, \$15,000, exclusive of pews, etc.; Chas. E. Cassell, architect, Baltimore.

**CAMDEN, N. J.**—Alterations to North Baptist Church; Wilson Bros. & Co., architects, Philadelphia.

**CANANDAIGUA, N. Y.**—A large brick house for J. A. McKechie, Esq.; house to cost \$40,000; facade of cut stone, terra-cotta and brick; Jas. G. Cutler, architect, Rochester; Ha'h King, contractor.

**CLEARFIELD, PA.**—D. W. McCurdy, two-sty' brick house, cost, \$5,000.

**DETROIT, MICH.**—A large brick dwelling-house for Mr. B. B. Mitchell, cor. Delaware and Woodward Aves.; to cost, \$10,000; brick barn for the above to cost \$3,000; Jas. G. Cutler, architect, Rochester, N. Y.; G. L. Thomas, contractor.

**DUBUQUE, IO.**—Thos. Ryan, Esq., is to build a three-sty' brick building, 32' x 75', for stores and flats, on Iowa St., near City Hall; cost, \$8,000.

The Paint Works Co. has begun a three-sty' brick building, 30' x 100', at corner of Jackson and Tenth Sts., for mill and warehouse; cost, about \$6,000.

James Howie, Esq., will begin a block of six three-sty' brick houses, on Seventeenth St., near Locust St., as soon as the plans are ready; cost, about \$15,000.

F. D. Hyde, architect, furnishes plans for the above work.

**ELYRIA, O.**—Frame dwell. for L. McLean; cost, \$6,000; F. H. Norton, architect, Cleveland, O.