

THE AMERICAN ARCHITECT AND BUILDING NEWS.

VOL. XI.

Copyright, 1882, JAMES R. OSGOOD & Co.

No. 324.

MARCH 11, 1882.

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

CONTENTS.

SUMMARY:—

The New York Superintendent of Building and the Windsor Theatre.—Mr. Newton on the New York Water-Supply.—The Panama Canal and the Chagres River Floods.—The Two English Channel Tunnel Schemes.—Exhibition of School Buildings at Paris.—Effect of Cements on embedded Metals.—The New Berlin Parliament-House Competition.—A New School Stove.—Mill Fires in 1881.—The Pathology of Malarial Fever.	109
MONT ST. MICHEL-EN-MER.	111
THE DE MORGAN COLLECTION OF ANTIQUITIES AND THE UNITED STATES CUSTOMS.	112
THE ACTION OF CEMENTS ON EMBEDDED METALS.	114
THE ILLUSTRATIONS:—	
Lowther Lodge, Exterior and Interior.—Old Ladies' Home, Lowell, Mass.—Foreign Sketches.	115
THE SIXTH AMERICAN ARCHITECT COMPETITION.	115
ENGLISH CHURCH BUILDING RULES.	115
THE LENZ HEATING-STOVE.	117
STEAMY AND FROSTED STORE WINDOWS.	118
COMMUNICATIONS:—	
Iron-workers' Stock Designs.—The Flexibility of Marble.—Fire-Extinguishers on Railway-Cars.—Cellar Drains.—Rubber Sash Anti-Rattlers.	118
NOTES AND CLIPPINGS.	119

THE Superintendent of Buildings in New York, discontented with the reversal of his orders in regard to the walls of the Windsor Theatre, has published a letter in the *World*, containing expressions which would seem to put him in some danger of experiencing the penalties attached to a contempt of court. The theatre in question was reported to the Building Bureau as unsafe, and on inspection it was found that one of its walls leaned in a dangerous manner, and the owners were notified to have it put in proper condition without delay. The latter requested a respite in order that the profits of the theatrical season might not be interrupted, and on their application being refused appealed to the Supreme Court, as the statute provides. The judge, Van Brunt, after hearing the evidence on both sides, decided that the wall in question was "ordinarily safe," and refused to authorize the Superintendent to compel its demolition. It is hardly surprising that Mr. Esterbrook takes this decision to heart as casting an imputation on his personal authority as an expert, and he rejoins by personalities which are quite undisguised. According to him, the witnesses who testified in rebuttal of the evidence offered by the Department were four in number, two of them being former heads of the Department of Buildings, one a surveyor who had previously examined the same wall and pronounced it unsafe, and the fourth an ex-inspector of the Department, who reported as safe the walls of the Grand Street buildings which afterwards fell and killed ten persons. In regard to the first two witnesses, the fact of their having been Mr. Esterbrook's own predecessors in office certainly does not argue their ignorance of construction, but perhaps their jealousy of the present incumbent might be supposed to color their judgment a little, and in a matter of such difficulty as the question whether a crooked wall is or is not in immediate danger of falling, it is important that the error, if any, shall be on the safe side.

MR. THOMPSON, the Commissioner of Public Works for the city of New York, has presented to the Mayor a report of the Chief Engineer of the Water Board in relation to the best means of obtaining the additional water-supply so much needed. The report first considers the proposition so often made after the occurrence of serious fires, that a salt-water supply should be provided for use in extinguishing conflagrations and for washing the streets, in place of the Croton. Such a scheme Mr. Newton considers inexpedient. The cost of the necessary mains, pumps, stand-pipes and hydrants would be not less than twelve million dollars, and the salt water being unfit for street sprinkling, on account of its contamination with sewage, its only use would be for fire purposes, that could be better served by a large addition to the Croton supply, which would be little more costly, and certainly of infinitely more value. The increase in the supply of Croton could be assured, Mr. Newton believes, by the enlargement of the aqueduct, which must soon be rebuilt in any case, and the construction of a storage reservoir sufficiently large to collect the whole year's flow, which

is ascertained to be, even in the driest years, equivalent to a daily supply of two hundred and fifty million gallons—an ample provision for many years to come, and much more than twice the present supply. The main storage reservoir would be, he thinks, best constructed at Quaker Bridge, about twenty-six miles above the city, where a dam could be built, flooding a deep valley, whose rocky and sterile sides would present the best conditions for storing water, with the least damage to arable land, while its great depth would make it available as a settling basin, and much diminish the loss from evaporation. The total cost of the reservoir and the new aqueduct is estimated at fourteen million dollars, and the scheme certainly seems the most promising one yet presented.

OUR exchanges this week contain a good deal of matter relating to the Panama Canal. The correspondents of the *New York World* have always presented the unfavorable side of affairs on the Isthmus, and the latest letter is no exception to the rest. According to this writer, the contract with Messrs. Huerne, Slavin & Lynch, of San Francisco, for six million cubic metres of excavation, has not yet been signed; not through any indisposition of the California contractors to perform their duty, but, it is rumored, on account of the inability of the Canal Company to collect assessments from its stockholders, or to obtain further advances from the bankers on whom it relies for support. The correspondent of the *New York Herald*, who seems to be on terms of intimacy with the officers of the company, also reports that the contract for excavation had not been signed at the time his letter was written, but adds that the signatures would probably be affixed within twenty-four hours. This correspondent asserts that the number of workmen employed at different points on the line diminishes daily, and suggests that the immense engineering difficulties of the undertaking are as yet hardly comprehended, and that it will be long before they can be so thoroughly studied as to warrant effective action.

ONE of the most serious matters will be the necessity for some provision to dispose of the surplus water of the Chagres River, which often rises in the rainy season from twenty to thirty feet in a day. Some kind of dam will be necessary, but how a dam can be economically constructed which will retain so vast a body of water is a problem still unsolved. At the lowest estimate, the storage basin to be formed will cover two hundred and forty thousand acres, or nearly four hundred square miles; while one of the canal engineers sets the area at no less than three thousand square miles. The overflow from this enormous basin, about five times as large as Lake Champlain, must be carried away by means of a tunnel, for which there are two plans. One contemplates a passage less than a mile long, under a neighboring mountain, to the ravine on the other side, throwing the waste water into the river valley below. The other proposes to build a tunnel fourteen miles in length, in hard rock, to convey the stream to the city of Panama, now much in want of a good water-supply. Independent of this change in the course of the Chagres, the difficulties of excavation seem to accumulate as the ground is more fully explored. Borings show that the ledges, hard enough at the best, grow harder below the surface, and in one portion a cutting three hundred feet in depth must be made through basalt and trap rock.

COMPARED with the appalling difficulties of the Panama Canal, the submarine railway between England and France seems an easy undertaking. The encouraging statement made a few weeks ago by the officers of the South-eastern Railway Company, which controls the tunnel now in process of excavation, seem to have stimulated the rival and earlier corporation,—the Channel Tunnel Company—to renewed activity, and there are now two lines in contemplation instead of one. The ludicrous apprehension of a portion of the English press, that the tunnel would serve for the passage of an invading army of Frenchmen, seems to have died away, and the only apparent anxiety is that exhibited by each of the hostile corporations lest the other should get the first control of the road and the profits from it. During the altercations over the channel tunnel a second submarine road has been surveyed, and is likely to be built at once, under the Strait of Messina, between Sicily and the main land of Italy. The strait is only about four miles wide, and although the difficulties of execution will probably be

greater than those of an excavation in the soft chalk of the English Channel, there seems to be no formidable obstacle to be overcome.

IN JUNE next is to be opened in Paris an exhibition, under the auspices of the Government, of plans and models for school buildings of all kinds, which will be of great interest to architects and others concerned in educational matters. Of late years the science of school building has been carried in France to a height at least equal to that attained in Germany. The best methods of heating, lighting and ventilation have been thoroughly studied, and under the lead of the distinguished Trélat many structures have been built in which the principles deduced from observation have been thoroughly carried out. To the accepted theory of school-room lighting, that the windows should be on the left of the pupils as seated, M. Trélat adds a refinement of his own, that the light should come from one large window, rather than from several, divided by piers which cast long shadows across the room. To obtain the requisite area of glass, — one sixth of the floor-space, — in this way, it is necessary to make the single window very large, so lofty in fact that its top would extend beyond the ceiling of a room restricted to the height ascertained to be most suitable for such apartments; and to meet this difficulty some of the new school-houses are built with ceilings *inclined* at an angle of some twenty degrees with the horizontal, so that the left, or window side, is about twice as high as the other. Cross ventilation, which the French justly consider indispensable, is secured by openings in the wall opposite the windows, screened with louvre boards or blinds. So radical a modification of the ordinary forms as this would be slowly accepted even in this land of eccentricities, but if we prefer to follow at a long distance the example of more logical nations, it would still be worth our while to make ourselves acquainted with what has been done, by some sort of representation at the approaching show.

SOME time ago an inquiry was made in these columns concerning the action of cement upon iron, one correspondent having found an iron water-pipe, after remaining twelve years imbedded in concrete, corroded and leaky. This experience was at the time quite new to us: we had often heard of the corrosion of lead by lime as well as cement, but iron is generally considered to be protected from oxidation by the alkalinity of mortars. Very recently, however, two of our exchanges have contained articles on the subject, which we borrow with due acknowledgments in another place. The inquiry is one of interest to architects, who are frequently obliged to provide for carrying pipes under basement floors and in similar places, and need to know all the contingencies which may affect them under such circumstances.

THE competition for the New Parliament-House at Berlin is now definitely announced. The commissioners have not thought best to adopt the suggestion of the *Deutsche Bauzeitung*, and make careful experiments to determine, for the benefit of all the competitors, the best form and dimensions of the debating chamber; and are also too impatient to imitate the managers of the best recent English competitions, and call at first only for preliminary sketches, making a selection from these for candidates for the final struggle; so that the contest is to be of the old and generally unsatisfactory kind. Only German architects will, it is understood, be allowed to compete, and eighteen prizes are offered; two first prizes of fifteen thousand marks each; three second prizes of ten thousand, three third prizes of five thousand, and ten premiums of two thousand each. The jury is to consist of the building committee and eight architects and artists, one of whom must be a German residing abroad. Minute directions are given, specifying the sizes of all the rooms, and an interesting contest is promised. The successful competitors in the competition of 1872 are, we believe, to have a certain preference in the new one, but the precise character of their advantage is not stated. We made, by the way, a mistake in describing Professor Bohnstedt, the winner of the competition of ten years ago, as of Berlin, instead of Gotha, where he has resided of late years, although the Berlin architects claim him as belonging to their school. He is of a rather cosmopolitan training, having been born at Stralsund in Pomerania, and practising for many years in Russia before his return to Germany.

A DEVICE for warming school-rooms is advertised in the French journals which seems to have some excellent points. In

form and general construction the new heater resembles our so-called "school-stoves," but has the advantage over them of being constructed entirely of fire-clay, which, although perhaps at some extra expense of fuel, retains the heat longer, and affects the air of the room far less injuriously, than a cast, or wrought iron shell. The fire-pot is of a novel shape, somewhat resembling an hour-glass, of which the lower portion serves to contain the coal, while the upper forms a combustion chamber for the gases evolved from the fuel; the combination of the two chambers, communicating only through a constricted opening, presenting a singular illustration of the principle mentioned in a late issue as having been applied to the furnaces of certain steam-boilers in Cincinnati for the prevention of smoke. This double fire-pot is surrounded by a casing of enamelled earthenware, made in sections, and put together with metallic rings, like the German stoves so well known to travellers, and fresh air is brought in pipes to the space between the casing and the radiating surface, whence it issues into the room through openings around the upper part. If desired, a ring-shaped evaporating pan is furnished with the stove, which can be filled with water from the outside. By arranging the top of the stove so that the currents of warm air would be directed downward, or in a horizontal direction, a slight further improvement might be made in what seems to be an excellent invention. The cost of the stove in Paris is extremely moderate, ranging from twenty-five to thirty-five dollars, according to size.

THE Boston Manufacturers' Mutual Fire Insurance Company has issued its eighteenth annual report of fires occurring in mills owned by its policy-holders, which contains as usual much valuable information. The total number of fires recorded is eighty-four, of which the greater part occasioned only a small loss, although the account of their origin is as instructive as that of the larger conflagrations. The principal cause of mill fires seems, as in previous years, to have been the friction of machinery, to which was due nearly or quite one-half of all those recorded in 1881. Spontaneous combustion comes next, having been the means of kindling about one-sixth of the fires on the list. Foreign matter in the cotton or other raw material caused four fires, and electric-lights are responsible for two. In both these cases melted copper from the carbons of Brush lights fell upon combustible materials or fabrics. One of the most remarkable fires was set by a spark struck from the iron bands of a cotton bale by the axe used in cutting them. The flame spread instantly over twenty-five bales of raw cotton near by, which had just been opened, but the automatic sprinklers with which the room was fitted acted so promptly and effectively that no damage was done of sufficient importance to justify a claim on the insurance company for indemnity.

THE London *Lancet* describes some experiments of M. Laveran on the condition of the blood of persons suffering from malarial poisoning, which appear to throw much light on the causes and cure of such affections. The blood of one hundred and ninety-two patients affected with intermittent fever or other paludal diseases was examined, and in one hundred and eighty cases there were found floating in it minute organisms of two kinds, one crescent shaped and motionless, containing a black mass of pigment in the centre, and the other spherical, with moving filaments attached to it, and containing a little circle of dark pigment-grains, sometimes moving, and at other times quiescent. No similar organisms could be discovered in the blood of healthy individuals at any time, and in the persons affected they appeared to be present only at certain periods, just before, and during, the accessions of fever. A very small addition of sulphate of quinine to the blood destroyed the diatoms at once, and under the influence of a quinine treatment they rapidly disappeared from the circulation. The liver and spleen seemed to present particularly favorable conditions for the development of the animalculæ, and it is conjectured that in the remissions of the fever they may collect there, to enter again into the blood at the expiration of a given interval. After death from malarial disease the small vessels of these organs, and in a less degree the remainder of the circulatory system, were found to be invaded by myriads of pigment-grains, probably set free by the dissolution of the more perishable organisms which enclosed them, and in the severer cases the number was so great that the very marrow of the bones and substance of the brain was darkened by them.

MONT ST. MICHEL-EN-MER.¹

Fig. 1.

it up here, and completed the work by transforming rough stone into pinnacles, turrets, and flying-buttresses. A feeling of loneliness and complete isolation from the world is felt, which increases as we leave the mainland and, after crossing the sand, near the huge pile. Getting within a quarter of a mile of the entrance our driver

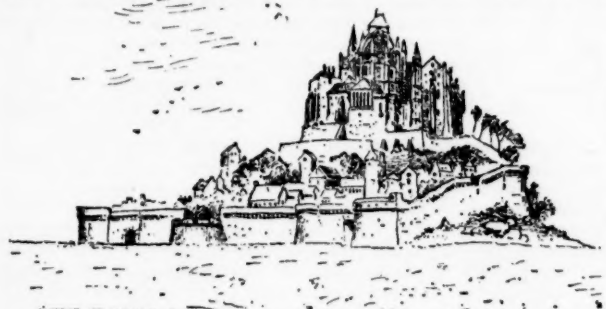


Fig. 2.

suddenly whips up his lazy, long-eared beasts into a full run, and upon looking to see the meaning of this unusual proceeding, a great wave appears on the horizon, miles away, but rolling towards us with fearful rapidity, and even as we roll through the huge archway (Fig. 1) which serves as an entrance to this curious place the water



Fig. 3.

and are soon endeavoring, as usual, to beat down the landlord of a

HERE below (Fig. 2) is what our first glimpse of Mont St. Michel revealed to us. We had endeavored to imagine it, this mysterious island, away out in the sea, with its top crowned by one of the most remarkable churches in Normandy, and now as the carriage came around a gentle curve on the mainland, it suddenly loomed up, with a full mile between us and it, a very pyramid in the midst of a desert of sand. How mysterious and solemn it looked! One might imagine that some tremendous upheaval of nature had piled

rushes under our very wheels, and in ten minutes is almost as many feet deep around the whole island, and stretches a mile away towards the mainland. This may seem an exaggeration, but it is not so, and forms one of the most interesting sights in connection with a visit to the place. The rush of the water is tremendous, and woe to the man who is caught midway between the island and the mainland as the tide rolls in. If he does not lose his life, which has often happened, he will get such a ducking as would last any common mortal a whole lifetime.

But we have passed under the massive archway,

dirty little hotel from two francs to a franc and a half for the privilege of a night's rest. This business transaction, which forms one of the most interesting features of travelling, being completed, we are told that our room is *en haut*, and following the direction of our landlord's digit, we see our quarters a hundred and fifty or two hundred feet above and overlooking the hotel; there you see it on the left of the sketch, standing out prominently. We commence our upward climb, over an old picturesque stone stairway, overgrown here and there with moss, and covered in one or two places by little projecting roofs. Just compute now, if you please, the number of steps, with, say, seven-inch risers, and it will give a good idea of a Mont St. Michel apartment-house, and make any elevator man sigh with regret that his lines are not cast in such places.

A view from our window reveals a grand panorama of battlements and towers, huge walls, old tile roofs, the towering church and monastery above, while below, the sea completely surrounds the island, where fifteen minutes before were miles upon miles of sand, and not a hill in view anywhere around. I confess it seemed very weird and mysterious.

An inspection of our sleeping apartments proving that outside was full as healthy as inside, we acted upon the suggestion, and were soon climbing stone staircases for dear life; for bear in mind that there are no streets, save one, in Mont St. Michel, but only staircases in the solid rock, rough, broken, moss-grown, and picturesque, often hanging out over the rocks and walls.

In the latter were the *machicoulis*, showing conclusively that it was not the sole occupation of the good monks of old to fight against the world, the flesh, and the devil, but that they were sometimes wont to amuse themselves with such carnal weapons as hot metal, arrows, and the like. While these thoughts are passing through our minds we are climbing up and up, and at last come to the entrance of the convent building crowning the top (Fig. 4). It is flanked by two round turrets, and looks massive enough to withstand forever the ravages of time. A ring soon brings one of "the brethren," who shows us

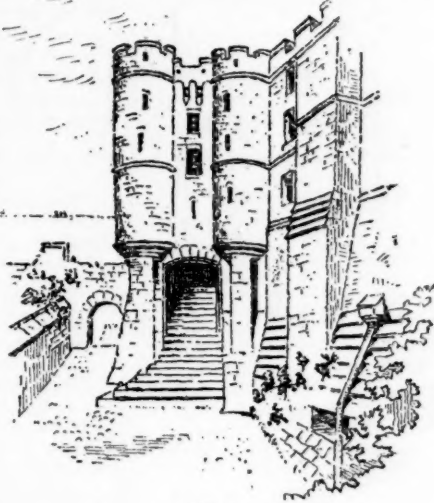


Fig. 4.

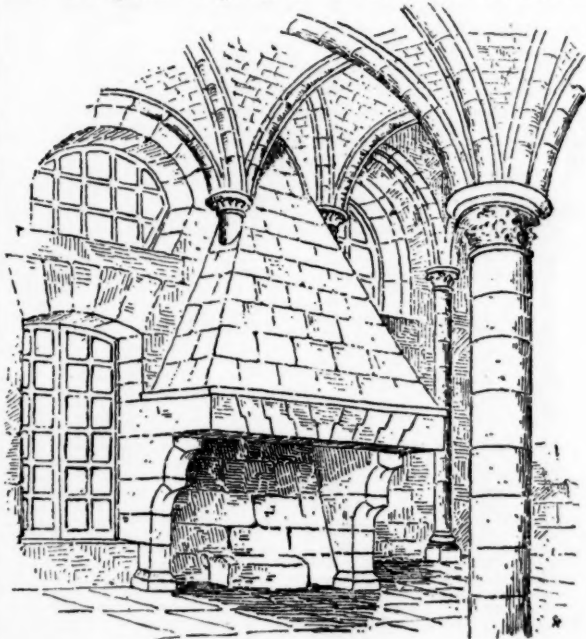


Fig. 5.

through the mass of buildings, and then, by reason of an "artist's pass" (self-made) which we present, we are given the privilege of roam-

¹Like so many medieval churches, the Abbey and Church of Mont St. Michel played a very important part in the military history of those times, so that historically, as well as architecturally and archaeologically, these buildings situ-

ated on an isolated rock on the coast of France, just on the confines of Normandy and Brittany, are more than usually interesting. They were founded by St. Aubert, in 710, that is to say, on the eve of the advent of Charles Martel, Pépin-le-

ing at our own sweet will through this labyrinth of cells, cloisters, crypts, chapels, and dungeons. Now roaming at sweet will is very romantic and poetical, but after we had found ourselves no less than seven times in the same dungeon, we felt almost as guilty as a condemned lodger, and also somewhat as Mark Twain felt when, after looking for his bed on a dark night, he consulted his pedometer and found he had made forty-seven miles within the circuit of his own room.

In one of the large halls, called the Hall of the Cavaliers, were two immense fireplaces (Fig. 5) which we considered fully worth sketching. They were about eight feet in the opening, and six feet high, with the arches beautifully bonded, and flat. Two more were

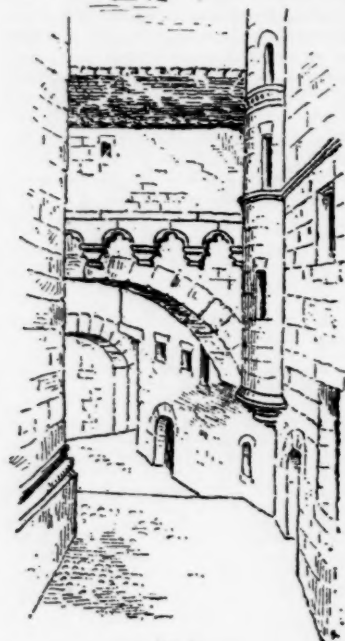


Fig. 6.

found in the hall known as the Refectory, which took up the whole end of the room, each being twelve feet in the opening, by six feet four inches high, with straight arches, bonded. These, thought we, were for the abstemious old monks, and like those at Fountains Abbey, in England, are probably topped out with a worldly 12' x 12' flue.

To describe the church would take too long, but it is a magnificent specimen of work, the nave being twelfth-century Norman, while the choir is Pointed Gothic, apparently of about the fifteenth century, surrounded by aisle and radiating chapels, and supported by noble flying-buttresses. Going out upon the roof of these aisles, we ascend still higher, up a little staircase cut in the top of a buttress, until at last we stand over four hundred feet above the water, and look out upon the vast expanse around—verily, the archangel Michael was well called "the saint of high places."

As we look around, the stupendousness of these old works gradually fills our minds. How came such masses of beautiful masonry to be built on this isolated peak, and by what mechanical means were they placed in position? These and other thoughts led to the condensed history that monks followed pagan priests, were in turn followed by kings and dukes, who built much of the church, and formed an impregnable fortress which, after withstanding siege after siege, was the only one that held out for the French king when Normandy was overrun by the armies of the hero of Agincourt. The dungeons, too, were for use, and have their story of hundreds of aged priests who were immured by the Revolution, and never afterwards saw the light of day. Thus does history repeat itself in almost every pile of antiquity. These were proper things, of course, to think of as we looked down upon the masses of masonry, but hap-

Bref and Charlemagne; and have had a history replete with romantic incident.

In 925, Rollo, who had become a Christian, restored their property to the Monks of St. Michel, and installed them in the Abbey, from which they had been driven by pirates. But it was at the death of the Conqueror that the heroic age of the Abbey commenced. The corpse of William I had not yet descended to the tomb when Henry Beau-Clerc, his third son, raised the standard of revolt, and successfully sought behind the walls of the fortress a refuge against his two brothers, William Rufus and Robert. During the Hundred Years' War the Abbey fortress sustained its most formidable assault and acquired its greatest glory. In 1425, the king appointed Louis d'Estouteville, commander of Mont St. Michel, against whom Lord Thomas Scates led a host of 10,000 soldiers in an assault against the last stronghold of the French in that part of Normandy. Assisted only by 120 cavaliers, (supported, we presume, by a considerable following of men-at-arms), d'Estouteville made a successful sortie against the English, who were repulsed and overthrown in the midst of the fatal quicksands. A similar fate awaited another army of 8,000 men, which attempted a second assault some months afterwards; so that the English had to resort to a most stringent blockade. All the efforts of the besieged to raise it were futile; and it was not until June, 1447, that the defenders were released by treaty. About a century and a half after the attack of Lord Scates the Protestants of Lower Normandy attempted to seize upon Mont St. Michel, one of the incidents of which attempt is so dramatic that we quote it in the words of the old chronicler: "The Huguenots, holding the greater part of the strongholds of Normandy, prepared ambushes every day and invented new stratagems to seize the Mount; and all the defenders of the Mount who fell into their hands were immediately put to death or reserved for the gibbet. One day, having taken one of the soldiers of the garrison and having put the cord about his neck, they said to him that if he would promise to deliver the abbey into their hands, they would grant him his life and present him with a large sum. The poor man, seeing death was near, accepted the offer and received 200 crowns. Then they agreed upon the details of the scheme, which were, that they should repair to the foot of the stairway of the fountain of St. Aubert, and that he should introduce them into the crypts of the buildings by means of the large wheel (a tread-mill or large wheel on the inner circumference of which men walked, and by so doing drew provisions, etc., up an inclined plane, which is not shown in the cut, but which forms one of the many interesting features of the place) which served to draw up from the level of the sands the water and provisions. On the 25th of September, the fête day of St. Michael, a Sunday of the year 1591, at eight in the evening, was the hour agreed upon for the assault. If God had not changed the heart of this soldier, Mont St. Michel would have been lost. He repented and warned the Governor, who, having pardoned him, commanded him to carry out what he had agreed to do; but the Governor resolved to put to the sword all of the

pening to catch numerous glimpses of old roofs and other picturesque bits, we stopped moralizing, and descended as rapidly as possible. The novelty of ascending and descending soon became worn out; streets turned into continual staircases, although picturesque, are extremely tiresome, and after our day's jaunt over them we sunk to rest, oblivious of the numerical strength of our bedfellows. C. A. R.

THE DE MORGAN COLLECTION OF ANTIQUITIES, AND THE UNITED STATES CUSTOMS LAWS.



N view of the recent decision of Judge Brown of the United States District Court, that imported antiquities should be imported free of duty, it may not be without interest to present to the public the whole history of a contest to which we referred last week.

By the Act of Congress of March, 1861, "cabinets of coins, medals, and all other collections of antiquities" are on the free list. Another Act of Congress of July 14, 1870, says that a "collection of antiquities specially imported and not for sale" is also on the free list. When the Castellani collection was sent to the Centennial, in 1876, the

second statute was not considered to repeal the first, but to be simply cumulative, or, in other words, a completion of the first. Some attempt was made after the Centennial to split up the Castellani collection and to divide it between Philadelphia, Boston and New York. Then Castellani was offered by the Trustees of the Metropolitan Museum of Art, a place to exhibit the collection, with the understanding that the Museum would purchase it if the money could be found.

Now the first difficulty began. The collection having been shipped from the Philadelphia Exhibition to New York, the first being neutral ground as far as customs were concerned, the act of sending the objects to New York with the purpose of selling them, immediately caused the Custom-house authorities to advance their claims that a duty should be paid according to their particular construction of the act of July 14, 1870. Protracted negotiations took place, and the snarl became more and more entangled. The collection had to be entered on a guarantee bond of duty on \$400,000. Fortunately, the President of the United States to-day, who was then Collector of Customs of this city, came forward, and through his intelligent exertions the Treasury Department made a ruling that apparently decided the case. The letter of Mr. H. F. French, Assistant Secretary of the Treasury, dated February 2, 1877, is clear and explicit. "The objects," he writes, "are entitled to free entry under the provisions of the Revised Statutes relating to cabinets of coins, medals, and other collections of antiquities. . . . From the evidence submitted to the Department it is satisfied that the duties ought not to be levied on any of the objects described in the catalogue. . . . and you are authorized to admit them to free entry." In pursuance of this decision, the bonds given at Philadelphia were cancelled.

enemy who should ascend in this way. The chiefs of the Huguenots were MM. de Sourval, Montgomery, and Chasseguay.

The day came, and the air was so thick with fog that they reached the appointed rock without being perceived. Then placing himself in the wheel, the soldier commenced to draw them up one after the other, where they were received with open arms by two other soldiers, who declared themselves to be of their party, and conducted them one by one into a large hall which is under the refectory, where, to better carry out the stratagem, they made them drink a cup of wine to give them courage to slay the monks; then they led them to another room, where they were pierced with a halberd stroke; and thus were put to death, — after having been broken on the wheel alive — as many as ninety-eight men. The leaders of this illustrious company being astonished that so great a number of soldiers, all picked men, should make no noise, began to doubt, and demanded that if everything was going well, a monk should be thrown out of the window to them. The soldiers of the garrison incontinently converted a prisoner into a monk; they shaved his head, gave him an old frock and cloak, and having passed a sword through his body, threw him over the cliff. But still doubting, Montgomery desired to know the actual truth before he ventured himself. "He caused his page, in whom he had every confidence, to ascend, who, seeing none of his companions, cried out: "Treason!" and let himself slide back to the ground, and the enemy, taking the alarm, descended the cliff as rapidly as possible, the garrison discharging upon them musketry and stones."

During the wars of the League the Mount sustained many assaults, the last attack taking place in February, 1598.

After this until the Revolution, nothing happened to disturb the peace of the cloister; but in June, 1790, in deference to the law voted in February, the monks quitted the Basilica of the Archangel Michael.

The State prison under the Republic, the Abbey became under the Empire a house of seclusion, which a decree of Louis XVIII later converted into a *Maison Centrale*. Among the number of political prisoners incarcerated here was Mathurin Bruas, one of the 27 pseudo-Louis XVIs. To shelter the 800 prisoners it contained an average, the Basilica of the Archangel had to undergo the most odious transformations. The nave was transformed into a refectory, the sacristy to a kitchen, the Hall of the Cavaliers to a workshop, and vanity of vanities, a button factory was established under the very vaults which had formerly looked down on the crests and pennons of the old French nobility; where helmet and dagger by his side William the Bastard, Duguesclin, Henry II, Philippe-Bel, Dunois and Francis I had devised conquests and tournaments, was now a hatter's workshop. But in October, 1863, the *Maison Centrale* of Mont St. Michel was suppressed, and two years afterwards, in 1865, the Abbey was once more transferred to the care of the Church, and finally in 1867, a colony of seven monks was established there. — Eds.

Before a business man, endowed with the least modicum of common sense, thinks of carrying on an importing trade, he necessarily examines carefully our complex system of duties. In 1878, having carefully studied this subject, Mr. Gaston L. Feuardent determined to open a house for the sale of antiquities in New York. As this ruling of the Treasury Department in regard to the Castellani collection had not yet been published, he called on Mr. Dutcher, then Appraiser of this port, was politely received, and was turned over to an official in the Appraiser's Department, who showed Mr. Feuardent this last decision of the Treasury Department, in which in black and white was written that collections of antiquities were entitled to free entry.

Mr. Feuardent thought now that it was plain sailing, but he found eventually that it was quite the contrary. He went to Europe, came back with a fine collection of antiquities, and among them were the King gems, now in the Metropolitan Museum, and the Tanagra figurines today exhibited in the Boston Museum of Fine Arts. When the entry for these collections was made (October 1878), the difficulties began. The Collector's office passed the antiquities free, but the Naval Officer had scruples and declined to pass them. The case was referred to the Treasury by the officials, as the collection was acknowledged by the importer as being "for sale." Then the Assistant Secretary, who had seen one way in the Castellani business, now saw matters in quite another light, as far as Mr. Feuardent was concerned. He ruled that a duty should be levied. To make his decision more effective he took upon himself to construe the provisions of the law according to his own ideas, for he interpolated the word "similar" in the sentence of the first statute, and the reading became "Cabinets of coins, medals, and all other similar collections of antiquities." No seven letters could have given more trouble.

Many of the principal museums and antiquarian associations in New York thereupon addressed the Treasury Department on this subject, placing before it the educational importance of such antique art importations, but their appeals were not heeded. Mr. Feuardent explained to Mr. French in person the hardship of his case, recalled the prior Castellani decision, showed that a discrimination, according to the last ruling, was made between a private collector and a dealer, and how it protected the foreign dealer to the detriment of the home one. But Mr. French was deaf to any arguments. The word "similar" was his coinage, and he was determined to stick to it.

Mr. Feuardent's fragile wares were kept in the limbo of Custom-house stores, when all of a sudden, as if there were some compunctions of conscience, the cases were delivered to Mr. Feuardent free of duty and were safe in his rooms. The antiquities were exhibited in 1879, and two of the collections were sold. Then a new phase in this antiquity business set in. M. Henry de Morgan, a young French archaeologist, who had made some very interesting discoveries in France, entered into partnership with Mr. Feuardent, and brought over to this country a collection composed of arms and implements belonging to the old Franks, which he had found on his own property in Normandy, together with a small collection of prehistoric objects, and other antiquities coming from Greece and Italy. But when these antiquities came to New York and were entered by Mr. Feuardent as "antiquities intended for sale," he found that the Treasury decision rendered in 1878 had been printed in the Custom-house pamphlet, and accordingly free entry was refused. The Treasury was appealed to, but it was obdurate, and Mr. French having entrenched himself behind his fortification of "similar," was prepared to drive back free antiquities.

Protests followed, which were as waste paper. The Attorney General, Mr. Devens, considered the construction placed on antiquities by the Treasury as "the proper one." Mr. Feuardent did not retire from the fight, though he had to abandon his partnership with M. de Morgan. M. de Morgan came over eventually to claim his goods. But here that peculiarly abstruse and impossible machinery of the Custom-house caused another tangle. A consignee to whom the goods are sent is considered as one and the same person as he who owns the goods. Now, Mr. Feuardent, having been forced to swear to the printed oath as being the consignee, the authorities insisted on regarding him as the owner. They declined to recognize M. de Morgan as possessor of the antiquities. As goods can be exported in bond, advantage was taken of this happy clause, and the rusted swords of the Franks were shipped to Canada. M. de Morgan went to the American Consul at Montreal, declared that the collection was his, and that he did not intend to sell it. Then de Morgan came back to New York with this much-travelled collection and exhibited it in Mr. Feuardent's rooms, with special tickets placed on it, on which were written "Not for Sale."

The Treasury did not like to be outwitted, and probably took umbrage at this. In the collection were some Tanagra figurines. A gentleman in Philadelphia wished to purchase some of them to present to the Pennsylvania Academy of Fine Arts. M. de Morgan and Mr. Feuardent were perfectly willing to dispose of them in order to test the law. But so that they might protect themselves, they took the precaution of addressing James L. Claghorn, Esq., the President of the Pennsylvania Academy of Fine Arts, and received from that gentleman the assurance that the Tanagra figurines were to form a portion of the permanent collection of the Academy. Thereupon, to test the crookedness of this complicated Chinese law, Mr. Feuardent sent four Tanagra statuettes to Canada, and had a new entry made for them in the name of the Philadelphia museum, and the fact was intentionally published in the New York papers.

Then the contest of free trade in antiquities raged for a while. The late Fernando Wood introduced an act in Congress for the free entry of antiquities. In the Senate, a Mr. Kirkwood, thinking that Etruscan vases and spittoons, Greek bronzes and tea-kettles, were one and the same thing, had the distinguished honor of killing this bill.

In 1880 the Custom-house authorities, having studied the ground and probably egged on by some jealousies, proceeded to action, and M. de Morgan was arrested on a charge of making a false entry for the collection of 1879, and was held to bail for \$3,000, and, as a bloody basket-hilted-sword lugger smuggler, was bidden to await the action of the Grand Jury, at Auburn. The Grand Jury having had brought to their notice the decision in the Castellani business, a copy of which was obtained from the archives of the Metropolitan Museum of Art, could see no cause. However, the de Morgan collection having been seized by the Government at the time of his arrest, a civil suit was brought against the property, (rusty swords, terra-cotta figures, prehistoric beads). After repeated delays on the part of the prosecution, the case came before the United States District Court, Judge Brown, on February 20, 1882. After hearing the defence, well and intelligently presented by Mr. Paul Fuller, of Messrs. Coudert Brothers, the Judge declared that collections of antiquities were free of duty, and there was not the shadow of blame to be cast on the integrity of M. de Morgan. The Judge's decision was as follows:

FEBRUARY 20, 1882

UNITED STATES DISTRICT COURT, SOUTHERN DISTRICT OF NEW YORK.—
The United States vs. Sixty-five Terra-Cotta Vases, etc., etc.—Wm. C. Wallace, Assistant District Attorney for United States; Coudert Brothers for claimant.

Brown, District Judge.—During the recess I have given the questions in this case such examination as the short time has afforded, and feel compelled to direct a verdict for the claimant for reasons which I will briefly state. The articles claimed to be forfeited confessedly come within the description of a "collection of antiquities." They were exhumed by, or under the direction of the claimant, De Morgan, were imported here by him from France, and designed for sale; but, owing to a controversy with the Custom-house, they were re-exported to Canada, and afterward again imported, by way of Rouse's Point, and exhibited as the De Morgan collection, not for sale. Notwithstanding this, it is proved that a number of the articles were sold by De Morgan's agent, and I shall assume that the collection was in fact designed to be sold if purchasers could be found. Section 2,505 of the Revised Statutes enumerates the articles of "the free list" which it declares shall be exempt from duty. Upon this list I find two distinct clauses relating to articles of this character: the first, "cabinets of coins, medals, and all other collections of antiquities." In a subsequent portion of the free list we find "collections of antiquity, specially imported, and not for sale."

Assuming that the articles in question were originally imported for sale, and were in fact designed to be sold, upon the second importation from Canada, it is claimed on behalf of the Government that they are not covered as free by either of the sections quoted—i. e., not by the last, since they were in fact for sale, and not by the first, on the ground that that clause is to be interpreted *ejusdem generis* as referring to articles similar to "coins or medals." The reason urged for such a limited construction of the first clause above quoted is in order to give some substantial effect to the latter clause. If these two provisions had been originally enacted together as parts of one statute, there would be ground for this construction; but an examination of the prior legislation satisfies me that this construction is unsound in this case. The second provision, "collections of antiquity, specially imported and not for sale," was first enacted by the act of July 14 1870 (16 Stat. L., p. 255), which by section 22 declares that "in addition to imported articles now by law exempt from duty, and not herein otherwise provided for, the following articles hereinafter enumerated and provided for, shall also be free," among which is found "collections of antiquity, specially imported and not for sale." This section, it will be noticed, is expressly declared to be designed to extend "the free list" to additional articles, and it does so to a large extent. There is nothing in section 22, or any other portion of the act of 1870, "otherwise providing" for the articles in question. If they were free by the pre-existing law there is nothing in the act of 1870 which declares them dutiable, and the declared general purpose of that act to extend "the free list," and not to restrict it, should prevent any construction which would make free goods dutiable by implication merely. The clause first quoted from "the free list," viz: "cabinets of coins, medals, and all other collections of antiquities," has existed without change, and in the same identical words, ever since the tariff of 1846. (Vol. 9, St. at L., 49.) It was re-enacted in the tariff of 1857 (11 St. at L., 194), and in the tariff of 1861 (12 St. at L., 194), and continued without change until incorporated in the same words in section 2,505 of the Revised Statutes. Under this provision, which thus appears to have been in force for nearly a quarter of a century, it seems to me impossible to hold that the articles in question were not prior to the act of 1870 clearly entitled to free entry under the clause, "all other collections of antiquities." The designation and description of the articles in question by this phrase is perfect; there is nothing that I find in the prior acts which would indicate any contrary interpretation, and the restricted construction now suggested could not possibly have been maintained prior to 1870. It is alleged, and not disputed, that never, until recently, have such collections been attempted to be made dutiable, and that the established practice was to admit them free, even after the act of 1870. The same practice was followed notably in the case of the Castellani collection, first brought over and exhibited at the Centennial Exposition, at Philadelphia, in 1876, and afterward exhibited at the Metropolitan Museum of Art. The articles are such as are not usually dealt in in commerce, and such as have no fixed or ascertainable commercial value. The provisions of the tariff laws for the appraisement, and assessment of duties are of necessity almost impossible to be practically applied to them. They could not by any possibility be important sources of revenue, and they are articles which, in other provisions of the tariff law, the Government has shown a desire to encourage the importation of, free of duty, in the interests of education and the fine arts.

Such being the law, the practice, and the policy of the Government for at least twenty years before the act of 1870, under the provision above quoted from the act of 1846, making free "all other collections of antiquities," some more definite indication of a purpose to make such collections dutiable must be found than is contained in the act of 1870, which is expressly declared to be designed to extend, and not to restrict, the free list, before they can be held dutiable. If it be said that this would leave the clause in question in the act of 1870 of no practical effect, it may be replied that this is

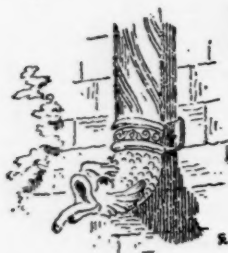
not the first or only instance of superfluity, or unnecessary reiteration, in the items of the tariff legislation. It is enough that this act does not profess and was not designed to make anything dutiable which was not dutiable before. It is in no degree incompatible with the former provision: though narrower in its scope and in reality superfluous, it is not repugnant to the former provision, and hence cannot be deemed a repeal of the former provision, contrary to the expressed general design of the act, nor a ground for any different construction from that which therefore properly belonged to it. (*Wood vs. United States*, 16 Pet. 342, 363; *Davies vs. Fairburn*, 3 How., U. S., 636, 646; *United States vs. Tynen*, 11 Wall., 92.) I hold, therefore, that the articles in question were not dutiable, and were entitled to free entry. In this point of view, the collection not being dutiable, the United States would not be legally defrauded, even though the means which the claimant used to change the status of his collection by exporting them to Canada was circuitous and would have been blamable if the United States would have been legally injured thereby.

Under the act of 1874 no forfeiture can be enforced except upon an actual intent to defraud the United States. Hence, unless the acts complained of involved a loss of duties to which the Government was entitled there could be no legal injury to the United States, and hence no actual intent to defraud them. The claimant and his agent had from the first protested against the claim that this collection of antiquities was dutiable, and as I hold that it is not dutiable a verdict is directed for the claimant.

ADDISON BROWN.

Thus concludes a series of very absurd performances on the part of certain officials of the Treasury Department. It is perfectly right that the revenue laws should be rigidly interpreted, but there are bounds to all things, and false constructions of these laws should never be permitted. M. de Morgan and Mr. Feuardent are both entitled to the thanks of intelligent people for having resisted the attempts of the Custom-House to impose a duty on antiquities when such was not the intention of the law. — *New York Times*.

ACTION OF HYDRAULIC CEMENTS UPON EMBEDDED METALS.



LEADEN pipes and cement both play such important parts in the building trade that their mutual relations offer a subject of great practical interest. In this country, if we are not mistaken, the notion is very prevalent among practical men of the trade that the two things harmonize to perfection, and that no reason exists why they should not be placed together, even in the most intimate contact. It is believed that agreeing at first and for a season, they agree permanently or forever, that is to say, as long as they respectively exist or continue good for use.

It would appear, however, that the foregoing common notion touching leaden pipes and cement must be somewhat modified, if not surrendered, if recent communications from Germany are to be accepted as true. In the underground apartment of the railway-station edifice at Brunswick, a part of the tube system connected with the water-closets ceased to answer its purpose; in other words, it became disordered. On examination it was found that a leaden pipe of 0.013 metre internal, and 0.02 metre outer diameter, so far as it lay in the mason-work and was surrounded by cement, had been destroyed, corroded by external influences. The corroded parts exhibited a reddish-gray color and a granular quality.

The condition of the pipe, and generally the circumstances of the case, suggested, in view of the known nature of the cement, that the destruction of the pipe had resulted from the alkali in the cement being set free. The case seemed sufficiently interesting to justify the sending of the injured pipe to the celebrated professor of chemistry, Dr. Fr. Knapp, in order to obtain his opinion.

With characteristic readiness to impart knowledge and oblige inquirers, Dr. Knapp after a little while replied by letter as follows: "Cements, and especially Portland cements, possess the peculiarity that, in the act of hardening and by reason of their content of lime in excess, they give off free alkali (kali, natron, potash), which, along with the water of the cement paste, form what is usually called lye, or corroding lye. Under the influence of water and air the lead becomes coated with a thin layer, a sort of lead lime, which adheres very firmly, and (as a rule) forms a protective covering against further corrosion. Even this protective covering, however, does not resist the operation of the alkali (kali, natron), and is easily taken up by it, so that, the protecting sheet being withdrawn, the corrosion proceeds. As the piece of pipe you have sent me (with your permission I add it to my collection) clearly shows, the corrosion, in accordance with the foregoing view, has not gone on from within outwards, but from without inwards; and furthermore, in the concrete case, the strongly crystalline quality of the lead has furthered and hastened the destruction. In order to arrive at a conclusive judgment, an investigation of the case in all details, and not merely of the leaden pipe, would of course be necessary."

In answer to the question, What means should be applied to prevent the occurrence of such mischiefs? Professor Knapp replied: "If my supposition as to the cause of the destruction is correct, then I should recommend, as a preventive remedy, the repeated washing of the cement plaster, after the hardening, in order to remove the alkali which has become free. Perhaps a coating of the leaden pipe with gypsum before applying the cement might be advantageous. It is to be presumed that cements of different origins are very different or unlike in their influence upon lead."

So far concludes Professor Knapp, as reported by Herr Albert Fuldner, an engineer connected with the management of the Brunswick railway. Soon after the publication of the foregoing statement, the case became the subject of discussion in the Polytechnical Society of Berlin. On that occasion, in answer to the question, Can leaden pipes be laid in cement without danger? Herr Elster said: "It often happens that masses or pieces of lead which have lain during some years in a cellar, become partially corroded, but in such cases we must presume that the lead was not pure, but was adulterated with zinc, and that an electrical operation came into play especially on damp ground."

Some one remarked that when sulphur or gypsum is in the cement, the lead may be thus corroded.

Herr Maerz said: "When the drainage and other pipes were being laid in my father's house, the contractor refused to lay the lead in cement, for the reason that the lead would be corroded by the cement." Herr Maerz promised to make further inquiries on the subject, and report the result.

Later, apparently at a subsequent session of the Polytechnical Society, Herr Maerz resumed the subject, saying:

"I have further taken pains to find out how far it is true that leaden pipes are affected by cement, and from many practical pipe-layers I learn that lead brought into contact with cement becomes hard, brittle, and easily broken, and in a short time ceases to be impervious to water, so that to lay leaden pipes in cement is a mistake. Masons whom I questioned were of the opposite opinion. They said that in cement lead holds out perfectly good, but not in lime. It was, of course, safe to take for granted *a priori* that leaden pipes would not keep good in moist lime, since alkaline substances affect lead."

In order to gain additional knowledge of an experimental kind, continued Herr Maerz, "I applied to the Machinists' Union, from some ten of whose members I obtained the answer that lead by no means keeps good in cement. A single member said that he had known a leaden pipe connected with a water-closet to last many years in good condition, though it was built in with cement. Perhaps a good deal depends upon the quality of the cement, of what sort it is, though I know nothing definite on that point. On the other hand, I was told that lead in lime keeps good, though not in cement—a flat contradiction of what I had been assured by others. In places where old metals are dealt in, it is alleged that old lead pipe offered for sale is at once examined for traces of cement, and if they are found on it the pipe is for the most part marked as worthless."

Herr Maerz finally described an experiment he was about to try with the object of testing the influence of cement on lead, and thus settling the question in controversy. Whereupon, Herr Elster remarked that in his opinion it all turned on the point of moisture. If moisture is present the lead will be destroyed by lime, etc., as it enters into the basic as well as acid combinations.

Dr. Darmstaedter closed the discussion with the remark that in the destruction of leaden pipes by cement, carbonic acid probably plays a part, as it is combined with lead in the formation of carbonate of lead; that corrosion may take place the addition of moisture is necessary, and without it Herr Maerz's experiments can yield no results. — *Brick, Tile, and Metal Review*.

JOHN C. TRAUTWINE, C. E., in a communication to the *Railroad Gazette*, dated Philadelphia, January 21, 1882, says:—

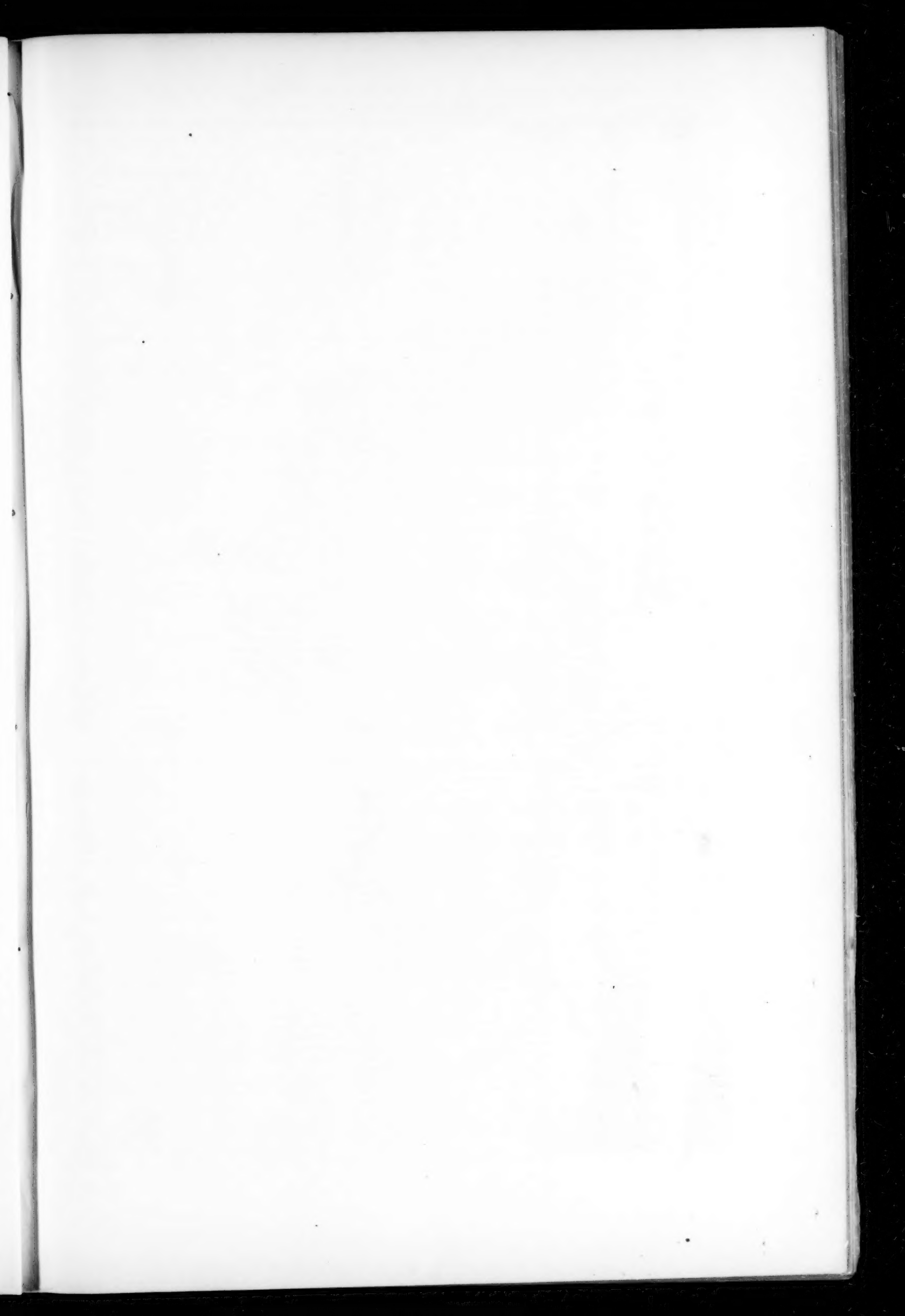
"The fact that this important subject has of late been brought somewhat prominently before the notice of civil engineers and builders induces me to send you the results of ten years' trial by myself. The hydraulic cements used were English, Portland and Louisville (Kentucky), besides which I tried plaster-of-Paris, both pure and mixed with equal measures of the cements. All were of about the consistency of common mortar; and all were kept in an upper room during the ten years, unexposed to moisture other than that of the indoor atmosphere.

"The metals were partly embedded in the pastes and partly projecting from them. They consisted of cut iron nails, (some of which were galvanized), smooth iron-wire nails, brass in both sheet and wire, zinc in sheet, copper wire, and solid cylinders of lead, three-eighths inch diameter.

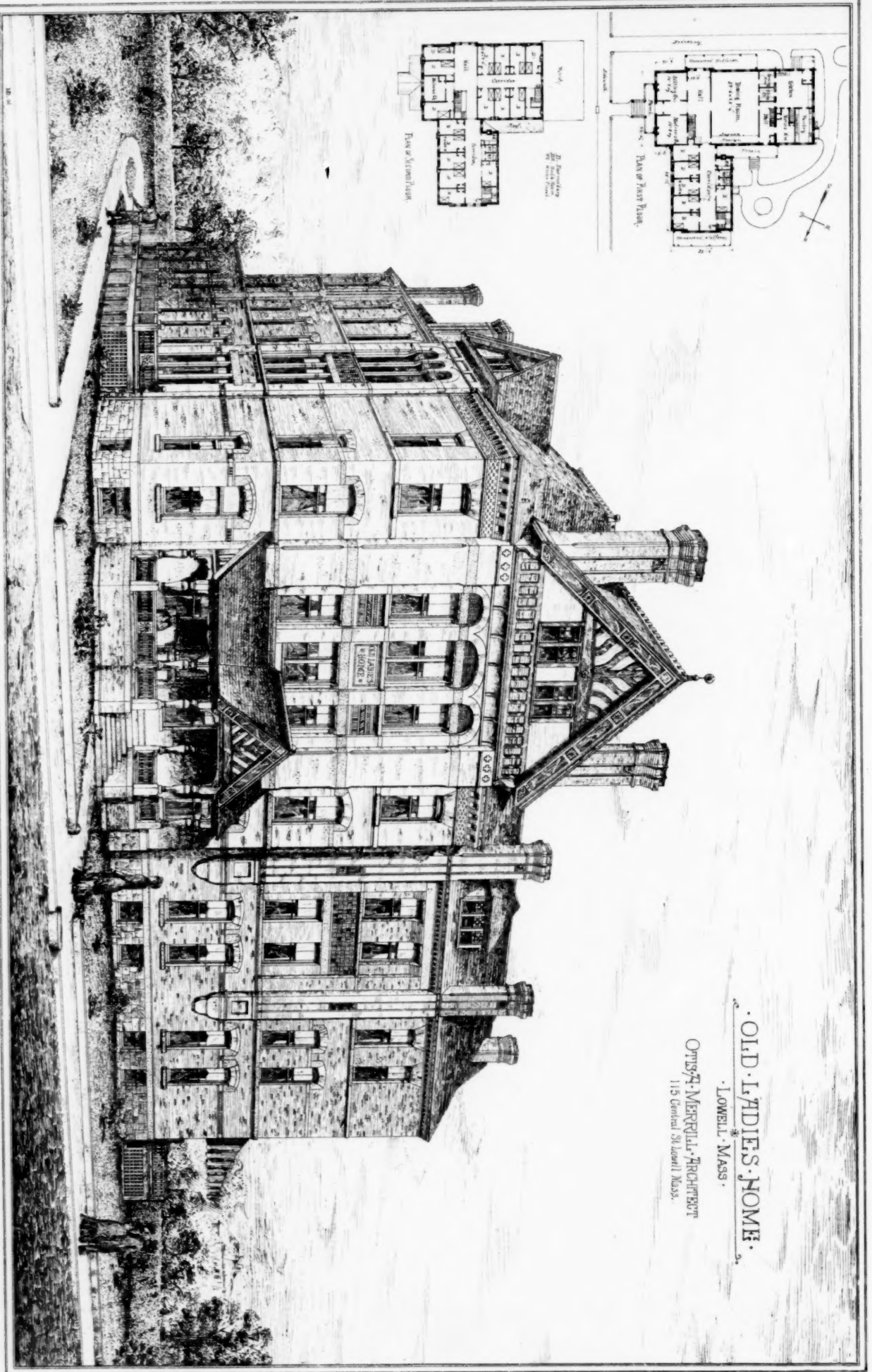
"The result at the end of ten years was that all the metals in both of the neat cements were *absolutely unchanged*; and the same was the case with those in the plaster-of-Paris, with the exception of the ungalvanized nails, which had become covered with a thin coat of rust, as were also those in the mixtures of plaster and cement, but to a less degree.

"This experience leads to the inference (already suggested by others), that moisture or dampness is the injurious agent in those cases of corrosion of iron and lead laid in cement that have lately appeared in the journals; and that if dampness can be absolutely excluded, both cement and lime-mortar will probably protect from injury all the metals employed in ordinary constructions, for an indefinite time.

"Such entire exclusion of dampness may at times be somewhat difficult of attainment; for capillary attraction *alone* (unaided by hydrostatic pressure) will cause water to rise several inches in well-hardened cement; and it would be difficult to assign limits to its penetration when aided by a high head of water. Rain-water is well known to percolate through many feet in depth of brickwork or masonry laid in lime-mortar, even when it consists partly of cement."



The Old City Building Co. 227 Broadway N. Y. City

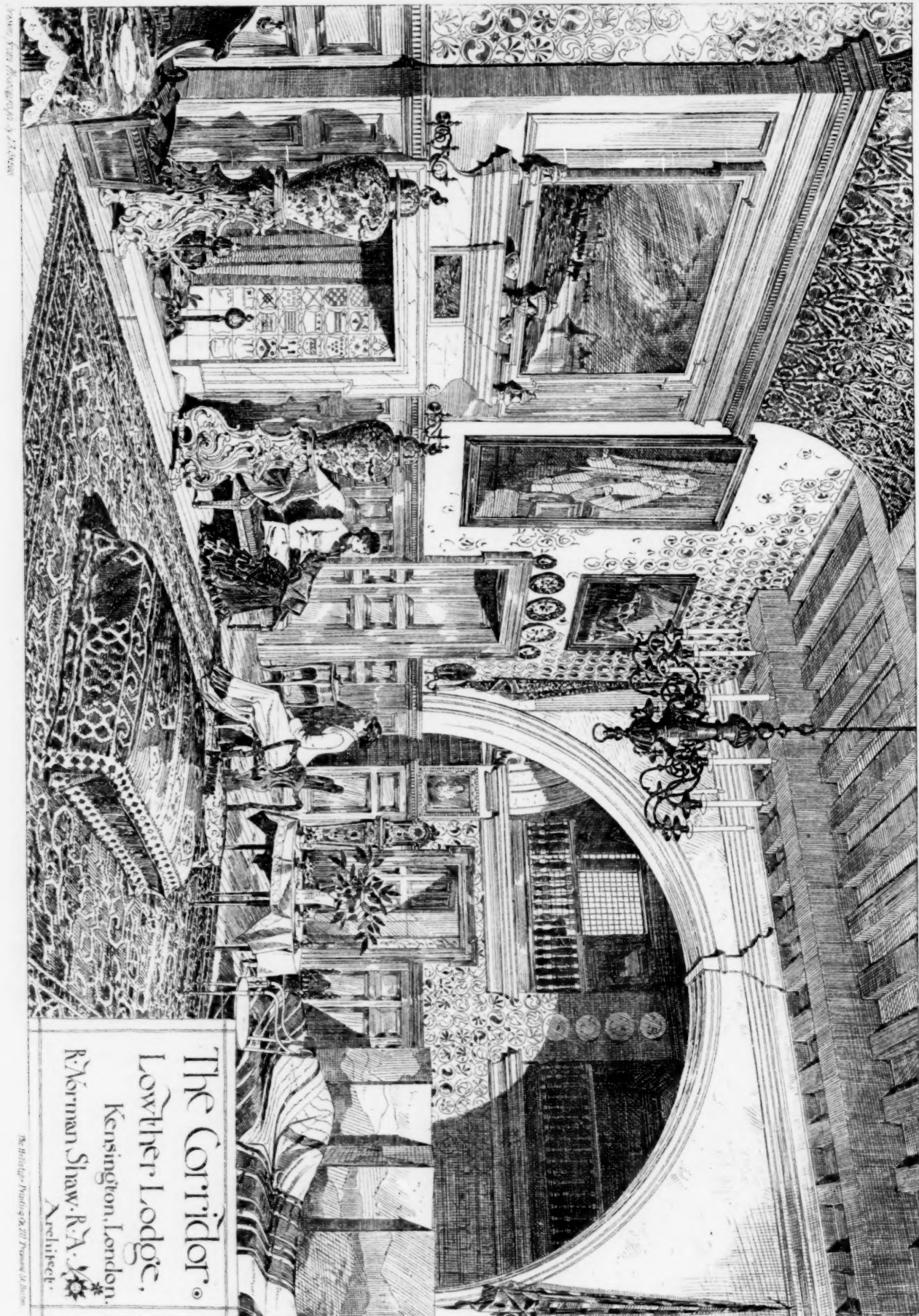


OLD LADIES HOME.

LOWELL, MASS.

OPUS 7. MERRILL PROFFERT

115 Central St. Lowell, Mass.



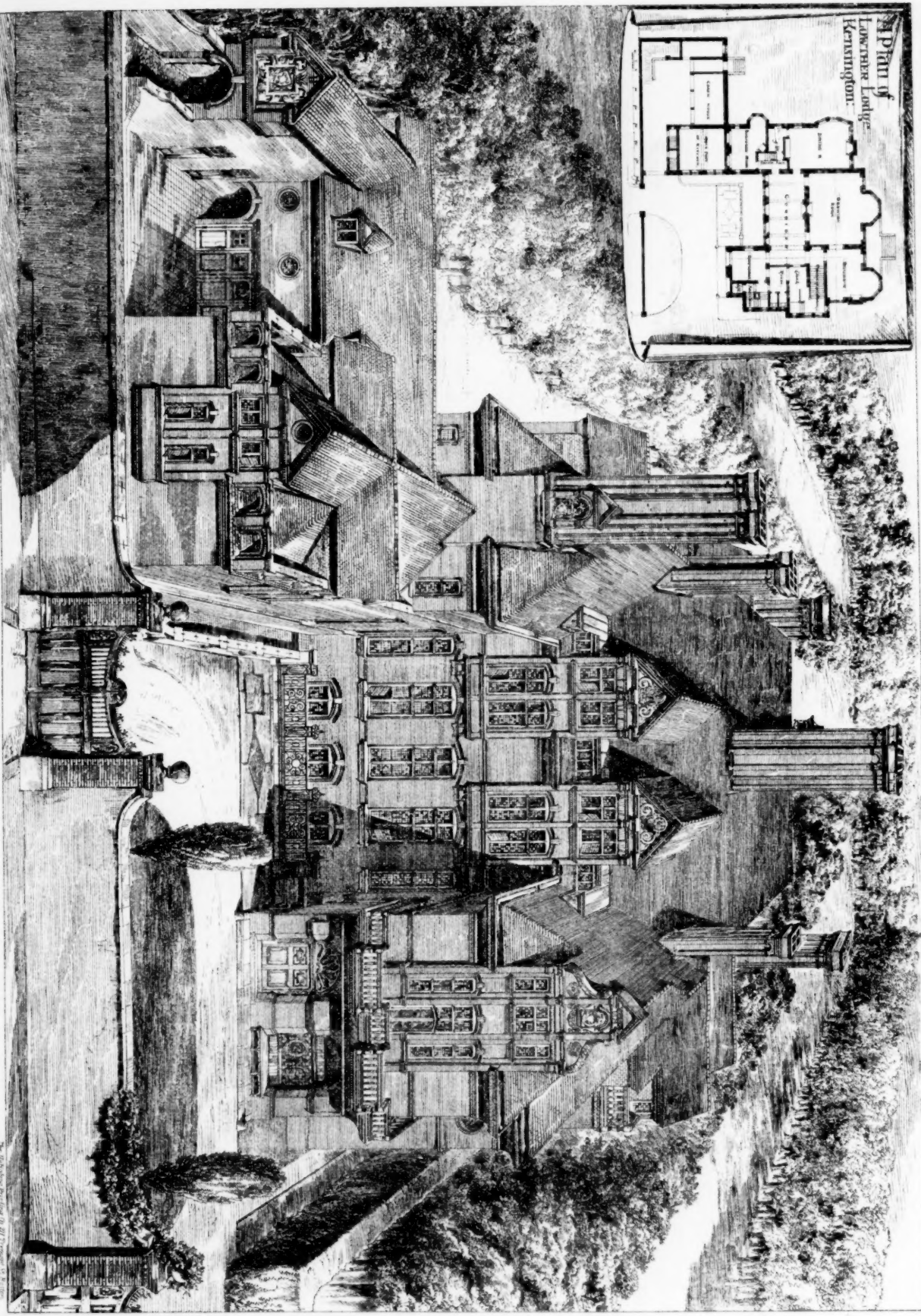
The Corridor.
Lowther Lodge,
Kensington, London.
R. Norman Shaw, R.A., Architect.

See "Hilltop" Building & all "Powers of the House."

COPYRIGHTED 1882 JAMES H. BROWN & CO.

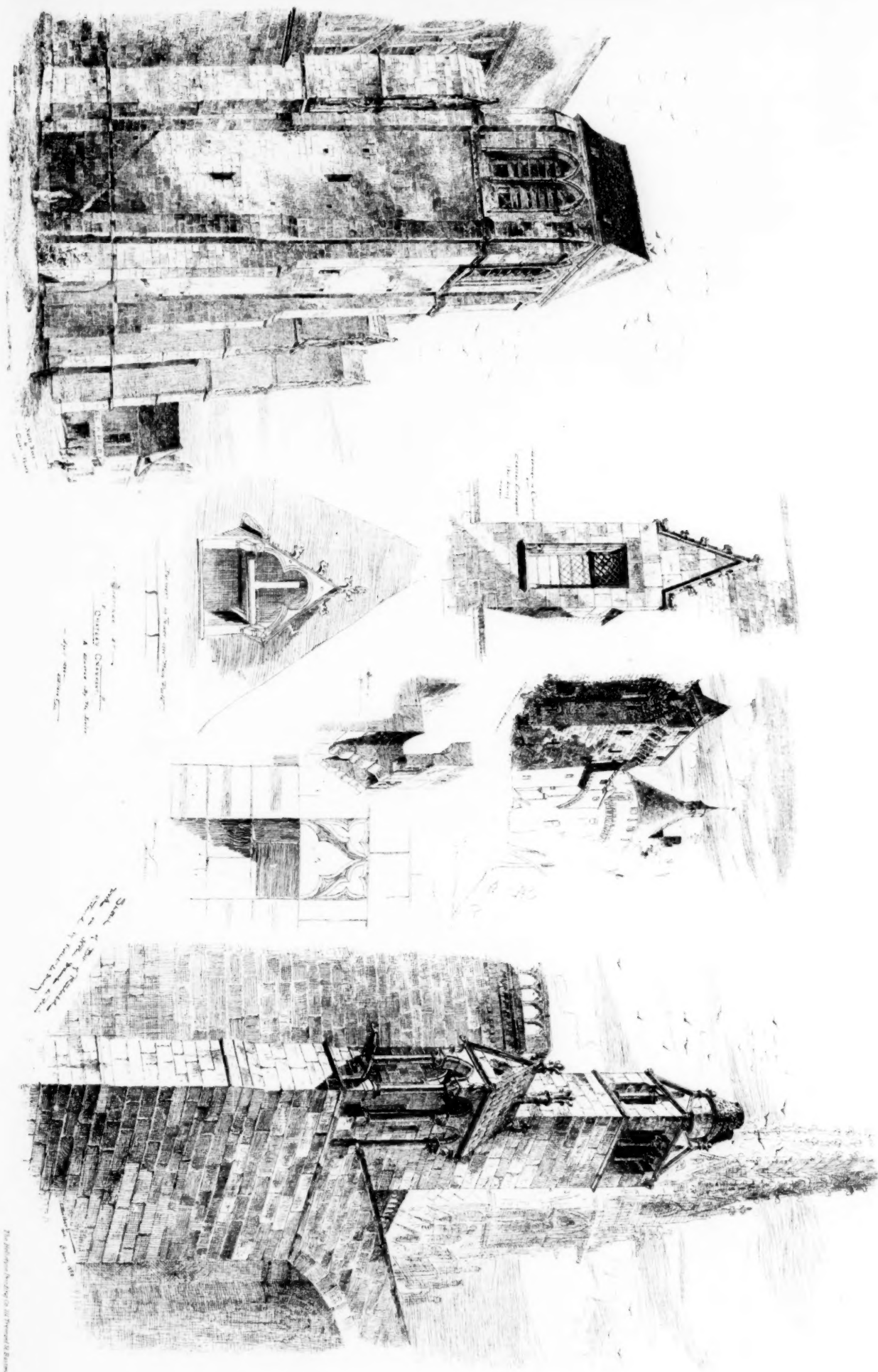
The Building News

LOWTHER LODGE KENSINGTON R. NORMAN SHAW A.R.A. ARCHT.



The Illustration is by J. H. B. & Co.

COPYRIGHTED 1882 JAMES R. OSGOOD & CO



THE ILLUSTRATIONS.

LOWTHER LODGE, KENSINGTON, ENGLAND. MR. R. NORMAN SHAW, ARCHITECT, LONDON.

THE perspective of this building we copy from the *Building News* for 1875. The view of the main hall is drawn from a photograph.

FOREIGN SKETCHES BY MR. CASS GILBERT, NEW YORK, N. Y.

The sketches in the middle of the page are from the Château of Chaumont, on the Loire, between Blois and Amboise, once the residence of Marie de Medici, and the birthplace of the Cardinal, George de Amboise. Although the château is undergoing restoration it is believed that all of the work here shown are parts of the original structure. Notre Dame de Clery, of which the tower is shown, lies between Orleans and Beaugency. The remaining sketch shows a portion of Notre Dame de Paris, as restored by M. Viollet-le-Duc.

BUILDING FOR "OLD LADIES' HOME," LOWELL, MASS. MR. OTIS A. MERRILL, ARCHITECT, LOWELL, MASS.

This building is for a charitable institution supported by the public. The building is built of "wiped" brick laid in black mortar with olive sandstone for finish; the cost including heating with steam will be \$25,000.

SIXTH AMERICAN ARCHITECT COMPETITION.



THE character and number of drawings which were submitted in solution of the programme for our last competition prove that the change in the nature of the subject was appreciated by the competitors, and at the same time was shown how much greater is their familiarity with the designing of the exteriors of buildings than with the character of design and finish which it is proper to employ in the interior decoration of a building of a distinctly specific character.

We will close the present series of competitions by announcing the following programme for the sixth competition:—

A country hotel of the character we have had in mind would belie its nature if it did not provide accommodation for "both man and beast;" therefore, we invite our competitors to submit designs for the stable, coach-house, and other dependencies, gate-way, well-house, poultry-house, dove-cote, etc., which are needful for the proper equipment of such an establishment. The stable must furnish accommodation for at least twenty-five horses in stalls and loose boxes, together with a roomy harness-room—provided with a chimney,—a grain-room, and a loft large enough to store six tons of hay. The coach-house may form a distinct building, or be connected with the stable proper—provided that proper care is taken to prevent the access to it of the ammoniacal fumes of manure, which would be alike injurious to the varnish of the vehicles, the sweetness of their linings, and prejudicial to the health of the stable-men who are to sleep in this building, and for whom rooms must be provided—three regular stable-men, and at least six grooms and coachmen in the employ of the guests. The coach-room must be large enough to contain twenty vehicles.

Required.—Two drawings—one a perspective of the group of buildings on paper, 14" x 22", the other, of the same size, is to contain plans, elevations or perspective sketches of such interesting features as are not shown in the perspective, and details of the stables, harness-room, gate, well-house, etc.

Three equal prizes of \$50 each will, as heretofore, be awarded under the usual regulations, which are re-printed in another part of the paper.

The drawings must be received at the office of the *American Architect*, 211 Tremont Street, Boston, on or before Saturday, April 29, 1882.

A GERMAN SCHEME FOR THEATRE PROTECTION.—A German paper says that Professor Oberrien proposes the following ingenious and simple arrangement for theatres: Cords of hemp are stretched from left to right across the upper part of the entire space above the stage. They are fixed at one side, and on the other they pass over pulleys, and are kept tight by means of weights which are surrounded with cases. Perpendicularly under the weights, at the bottom of the cases, is a button, which, if pressed downward, closes the circuit of a powerful battery. If a flame rises up it catches and ruptures one of these threads, when the weight falls in the same moment upon the button and closes the battery. The results are: 1, a telegraphic message to the nearest station of the Fire Brigade; 2, a fire-proof curtain is let down by a mechanism set in motion by a suitably arranged electro-magnet; 3, an electro-magnet opens a large ventilator in the roof above the stage for the escape of the flames and smoke; 4, a reservoir is opened which lays the stage under water.—*Fireman's Journal*.

RULES OF THE INCORPORATED SOCIETY [ENGLISH] FOR PROMOTING THE ENLARGEMENT, BUILDING, AND REPAIRING OF CHURCHES AND CHAPELS.

[Printed by request.]



From the *British Architect*.

IN order to prevent, as much as possible, the delay which frequently arises from the necessity of returning plans for alteration, or for further information, persons applying for aid from this Society are desired to attend as strictly as possible to the following

REQUIREMENTS AND SUGGESTIONS.

1. **Site.** This should be central with regard to the population to be provided for; dry; if possible, rather elevated, but not on a high or steep hill; not near nuisances, such as steam-engines, shafts of mines, noisy trades, or offensive manufactories; accessible by foot and carriage-ways; but not so

near to principal thoroughfares as to subject the services of the church to the danger of being incommoded by noise. The building to stand east and west, or as nearly as possible.

No style is more generally suitable for an English church than Gothic, as developed in its successive periods. In the proportions and general features, as well as in the details, good ancient examples should be studied.

2. **Style and Form.** In ordinary cases, a greater width than 24 feet under the span of one roof cannot be required: a larger span should be subdivided into nave and aisle, or aisles.

The best form for churches is a nave, with or without aisles, or a cross, consisting of nave and transepts, with or without aisles; in either case, with a well-proportioned chancel, which may also have aisles. In a small chapel the simple rectangle is also suitable; the length being at least twice as great as the breadth. If the funds do not suffice to complete satisfactorily a design otherwise eligible, or if the circumstances of the neighborhood render it probable that, at no great distance of time, the building may be enlarged, it is better to leave a part of the original design, as, for example, aisles or transepts, or the tower, than to attempt the completion of the whole design at once in an inferior manner. In such a case, the temporary walls and fillings up of arches should be so built as clearly to show that they are temporary, and that the building is incomplete, but at the same time not without due regard to ecclesiastical propriety. No place can be more appropriate for the introduction of an organ than in communication with the chancel and opening into the church.

3. **Foundation.** Great attention must be paid to the drainage. In all irregular or doubtful soils, concrete should be used for the foundations, in preference to any other material.

Graves or vaults should not be made within twelve feet of the external walls of new churches.

It would tend much to the preservation of old churches, and render them more dry, if the earth were removed from the walls to a depth of six to twelve inches below the level of the floor, and for a width of eighteen inches, and then sloped upwards to the surface of the churchyard. The bottom next the walls to be paved, and a field-drain (with proper outlets) to be laid in underneath; or, the same objects can sometimes only be attained by turning a segmental arch from the wall outside the footing. In all cases, proper drains should be made to carry off the water.

In new churches a coating of asphalt, or pitch, tar, and coarse sand, spread over the walls, a little above the ground, must be used in damp soils.

4. **Walls.** To be solid, constructed of stone, whether dressed or rubble; or of flint, or of brick, where no good stone can be procured without great additional expense. If the walls are of brick, cased with stone or flint, the stone or flint to be well bonded into the brick. The thickness must not be less than as follows:—

Dressed stone of the best quality, or brick.	Brick, faced with flint or stone.	Inferior stone, flint, or rubble.
--	-----------------------------------	-----------------------------------

If less than twenty feet high, and carrying a roof not exceeding twenty feet span

ft. in.	ft. in.
1 10½	2 3

	ft. in.	ft. in.
If twenty feet high and under thirty, or carrying a roof exceeding twenty feet span . . .	2 3	2 6
If more than thirty feet high . . .	2 7½	3 0

Note.—The arcade walls being measured from the caps of the piers, and the gable walls from the ground level to half the height of roof; the thickness of all walls being measured on the bed, and clear of plaster.

The above dimensions are given on the supposition that there are buttresses, of solidity and form suitable to the style adopted, placed opposite the trusses or principals of the roof; where there are no buttresses the thickness of the walls must be increased to meet the special case, and in all cases where the width of twenty-four feet under the span of one roof is exceeded; the Committee of Architects in their judgment determining the increase necessary, if not properly represented on the plans.

Walls built of flint must have bonding courses and quoins of stone or brick.

If a wall be built with two faces of stone, filled between with rubble, great care must be taken that they are properly bonded together to prevent any partial settlement.

The greatest attention must be paid to the quality of the mortar used.

It is of essential importance in the erection or rebuilding of a church, that the walls be not too rapidly built; and it is also desirable that ample time be allowed for them to dry before the interior is finished. It is a good plan for the building to be roofed in early in the autumn and to defer the completion until the next spring.

The best external covering is lead, which must not be less than seven pounds to the foot; Westmoreland, or other slates of a gray tint, tiles or stone slates of the best quality, are good materials for this purpose.

Next to a stone vaulted roof, none has a better effect internally than an open roof, exhibiting the timbers. The roof should be of good pitch, adapted to the covering used and the architecture selected.

If a wooden groined or panelled roof be adopted, stone must not be imitated; and plaster groining is never to be used.

If the distance between the principal trusses exceed twelve feet from centre to centre, intermediate trusses must be introduced. The distance between the common rafters should not exceed thirteen inches; and a clear space of not less than two inches must be in every case left between the under side of the covering and the upper surface of the boarding, or rafter, or plaster lath. The ends of main timbers should be carried on stone corbels, or if lodged in the walls, they must rest on templates, and, where practicable, a space left for ventilation between the timber and the walling round.

6. Gutters. Must be most carefully constructed to carry off the water into the down pipes.

Dripping eaves projecting even very far do not generally supersede the necessity of gutters or pipes, even in very sheltered situations.

Eaves-gutters must be made of iron or other metal (except zinc), skilfully fixed, and laid to proper levels.

Lead gutters are not to be less than ten inches wide in the narrowest part, with drips; each drip two inches and a half deep, at the least, and the fall between the drips not less than one inch and a half in every ten feet. The lead must not be less than seven pounds to the foot.

Additional outlets or gargoyles to be provided in parapets to carry off the overflowing occasioned by rapid thaws or otherwise, and, where practicable, snow-boxes.

The cesspools in gutters, and the heads of the rain-water pipes, to be protected by gratings, to prevent the obstruction of the water-courses.

The rain-water pipes must empty themselves into the drain with "shoes," or into socket-pipes.

The floors under the seats to be laid with wood or well-burnt tiles or dry stone laid hollow. All open spaces and passages to be paved with stone or tiles. If the church is not undervaulted,

7. Floors. the pavement to be laid on concrete or on sleeper walls. A clear space of not less than twelve inches from the under side of wood floors to the surface of ground. In old churches any vaults or graves to be effectually closed or filled in, and provision to be made for duly ventilating the vaults through the outer walls. It is also suggested that a coating of concrete should cover the whole of the area within the external walls. Allowance must be made for the future rise of the surrounding burial-ground; the floors of many churches, originally above ground, are at this day many feet below the surface, and have thereby become damp and unwholesome. It is desirable that in new churches the floor should be at least twelve inches above the ground line.

The distance between the joists of the floor must not exceed thirteen inches.

All wood plates to be supported on walls, corbels, or on a bed of concrete of sufficient substance, well ventilated.

American timber must not be used in contact with any wall, or in the floors, or in plates; and only the superior kinds of such timber in any situation.

The timbers supporting the bells must not be inserted into the walls, but supported on set-offs or on corbels.

The Society will be most unwilling to sanction any plan involving the erection of a gallery, unless in cases where it is

8. Galleries. distinctly shown that no room is unnecessarily sacrificed, by inconvenient arrangements, on the floor; or where the re-

quired accommodation cannot be obtained by an extension of the fabric itself. A western gallery is the least objectionable form. Galleries must in any case be entirely detached from the columns of the arcade.

The seats must be so placed that no part of the congregation shall turn their backs upon the Lord's Table, and in the nave and nave aisles should, if possible, face the chancel.

There must be an open passage up the whole length of the centre of the church, from west to east, and from the principal entrance, not less than three feet six inches wide where the width of the nave is under eighteen feet, or four feet where this width is exceeded. Side passages must not be less than two feet nine inches in narrow aisles, but three feet where practicable.

A clear space of three feet must be left between the fronts of seats in chancels where the span is under thirteen feet, and not less than eight feet where this span is exceeded.

Square or double pews will not be allowed.

The Society strongly recommend the introduction in all cases of low, open seats; doors to the sittings are unnecessary and inconvenient. Under any circumstances the seats throughout the body of the church must be in this respect uniform.

The distance from the back of one seat to that of the next must depend in great measure on the height of the backs. Where the funds and space admit, convenience will be consulted by adopting a clear width of three feet; but a width of not less than two feet nine inches from centre to centre will be allowed when the backs are perpendicular; and of not less than two feet ten inches from centre to centre when the backs are sloping; and that the height of the back taken from the floor be not less than two feet six inches, or more than two feet ten inches. If a greater height be adopted, the distance from back to back must be increased one inch at least for every additional inch in height; but under no circumstances must the height exceed three feet. There must not be any projecting capping on the top of the backs. Facilities for kneeling in all cases to be provided. The width of the seat-boards for adults to be not less than thirteen inches.

The seats in the chancel must face north and south, and be so placed as not to interfere with the free access of communicants.

Sittings on movable benches placed in the passages, or on seats with their backs fixed against the north and south walls, are not considered by the Society in the enumeration of sittings to be provided. Flap seats are inadmissible.

Twenty inches in length must be allowed for each adult, and fourteen for a child. Seats intended exclusively for children must be at least twenty-six inches from back to front, and must be provided with backs.

In reseating old churches, where existing widths will not admit of greater length in the seats than sufficient to afford a space of eighteen inches to each adult, such dimension is sanctioned. Wall wainscoting, or wood linings to walls to be avoided; they confine the damp, and frequently occasion dry-rot. Where used, they must be perforated under the seats, to allow the circulation of air. For the same reason tile or cement skirtings are to be preferred. The ends of seats and linings next the walls to be charred, pitched, or painted.

In the case of churches occupied wholly by chairs, the area required is seven square feet for each chair (this area including the passages, but excluding the chancel), and in cases of churches partly occupied by chairs and partly by seats,

10. Chairs. the grants will be calculated as to the seats according to the Society's scale for seats, and as to the chairs at the rate of seven square feet per chair. In all cases the position of each chair must be shown on the ground plan.

In new churches cement or plaster must not be used as an external facing in any case; nor, either externally or internally, are mouldings, ornaments, or other decorative features to be ex-

11. Plaster. cented in those materials. It is highly desirable that all windows and other architectural features should have stone dressings internally, and that all main arches and arches of arcades should be of stone; but in churches of a simple character, where it can be shown that the cost cannot be met, and that no needless expenditure has been incurred in external ornament, the use of plaster is not absolutely forbidden for plain splays. No attempt must be made in plaster to imitate stone. The use of plaster for pillars or door-jambs will not be sanctioned.¹

12. Windows. Where stained glass or ornamental patterns are not used, the glass should be in small quarries and lead.

Casements, hoppers, or other ventilators, of approved construction, must be introduced in several of the windows, to insure proper ventilation.

Where lead-lights are adopted, copper wires must be used to tie them to the saddle-bars. The glass to be well cemented into the lead.

The unsightly appearance occasioned by the wet streaming down the window-backs to be prevented by fixing a metal gutter at the bottom of each lead-light, or by a stone rebate in the sill, and conducted to the outside of the building.

Ample space must be left in front of the communion-rails for the access of communicants; in no case less than four feet from the front edge of the kneeling-step.

13. The Lord's Table. To be placed at the west end of the building, or as near as convenient to the principal entrance, but must not be under a gallery. Care to be taken that

¹ *Note.*—The use of brick or tile as an internal facing is not objected to.

the proper space is allowed for the sponsors to kneel. The font to be of stone, as directed by the Canon, and large enough to admit of the immersion of infants. To be provided with a water-drain, plug, and chain.

The reading-desk is not to be elevated to resemble a second pulpit; to be placed in the chancel, or near to the entrance thereto; to be of moderate height, and so placed as not to intercept the view of the chancel.

Good provision for the ventilation of the building to be carefully attended to. One of the most effectual means that can be adopted

14. *Ventilation.* for airing and ventilating a church is the provision of light skeleton-framed doors, covered with wire or peg lattice, to be closed instead of the wooden ones in the intervals between the services. These doors may also be used during every fine day throughout the year with great advantage to the general dryness and durability of the building.

15. *Chimneys.* If any be required, the utmost care must be taken to render them safe from fire. They should never be brought within nine inches of any timber. They must not be disguised under the form of any ornamental feature of the building. Facilities for cleaning chimneys and flues should be afforded by the introduction of soot-doors, where necessary.

16. *Protection from the effects of Lightning.* All new churches must have copper lightning conductors.

17. *Vestry.* The vestry must be properly fitted up, and with convenient access.

Though the primary object of the Society is the increase of the number and accommodation of churches, yet, as they are also most anxious to do everything in their power to promote the progressive improvement of their arrangement and character, they feel that they cannot too strongly urge upon architects the importance of keeping these objects constantly in view; and that correct and convenient arrangement, good ecclesiastical character, genuine and solid construction and materials, are necessary even in the most unpretending churches, and should in every instance take precedence of mere ornament or architectural pretension, which are out of character where the cost is limited.

The plans, etc., must, in every case, be prepared by an architect, and accompany the application for aid from this Society.

Towards building an additional church or chapel the following will be required:—

1. A plan of the building, showing the proposed arrangement; and if pew rents are intended to be taken, the sittings reserved for the use of the poorer inhabitants must also be distinctly marked on the plan. If there be any gallery, a plan of the gallery floor is required.
2. Elevations of the several fronts.
3. One longitudinal section and two transverse sections, with details of important construction.

All the above to be drawn to a scale of *not less than one-eighth of an inch to a foot*. The thickness of the walls and of any projections, buttresses, etc., and the heights of the different parts of the building, to be carefully and accurately *figured* on the respective drawings. The depth of the foundations and the spread of the footings to be correctly shown in the sections, and also *figured*.

4. A drawing, showing the construction of the roof or roofs, longitudinally and transversely, and of the seats, drawn to a scale of half an inch to the foot, with the scantlings of the different timbers *figured*.
5. A drawing, showing the construction of the galleries, if any, to the scale of half an inch to the foot, the scantlings being also *figured*.
6. A block plan of the site, to a scale of *not less than one-twelfth of an inch to a foot*, showing the site, the approaches, the cardinal points, and the drains; with sectional lines drawn across the churchyard, and with the deviations from the level, if any, *figured*.
7. A description of the nature of the site, as to the soil and fitness for foundations; stating the distance of the nearest building, and whether there are any buildings which will obstruct the light.
8. A detailed specification of the works, which must in all cases have marginal references to the items of each trade.
9. An estimate of the expense.

In the case of rebuilding, enlarging, or altering an existing church or chapel, the following are required:—

1. A plan of the whole existing church or chapel, with the dimensions *figured*, showing the present arrangement and intended addition; with the situation of any sittings that are appropriated by faculty or prescription. If the church or chapel is legally maintained by pew rents, the sittings reserved for the use of the poorer inhabitants must be distinctly marked on the plan.
2. An elevation, or photograph, of *each front* affected by the proposed alteration or addition.
3. Sections of such parts of the building as are affected by the proposed alteration or addition.
4. Longitudinal and transverse sections of the additional building.

All the above to be drawn to a scale of *not less than one-eighth of an inch to the foot*, and the dimensions *figured* in each plan or drawing.

5. Where new or enlarged roofs are required, a drawing, showing the construction of the roof or roofs, longitudinally and transversely, and also of the seats, drawn to a scale of half an inch to a foot, with the scantlings of the different timbers *figured*.

6. A drawing showing the construction of the galleries, if any, on the scale of half an inch to the foot, the scantlings being also *figured*.

7. A detailed specification of the works, and

8. An estimate of the expense.

By-Law and Regulation, No. 16.—No grant shall be made unless the plans shall be approved by the Committee before the work is commenced.

Tracings upon the usual thin paper are liable to suffer injury at the Society's Office, from lying with, and being turned over among, plans drawn upon stout paper; and the drawings sent to the Office for consideration are frequently too numerous to allow of as much care being taken of them as such a slight material requires. The tracings must therefore be mounted on paper or linen.

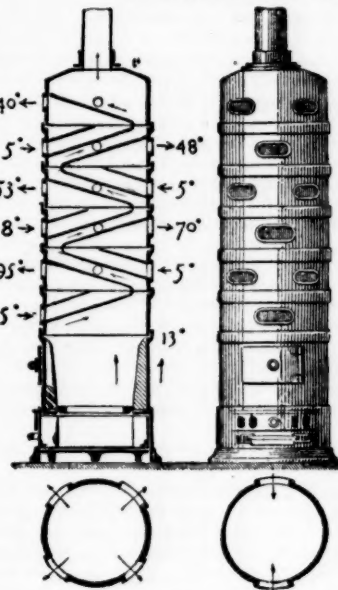
All the drawings must be in ink, and each bear the name of the place at which the church referred to is to be built or enlarged, and in all cases the scale should be distinctly stated.

In all cases where drawings have been submitted to a Diocesan Society, the report of such Society thereon must accompany the application for aid from this Society.

J. CLARKE,

Hon. Sec. to the Committee of Architects.

THE LENZ HEATING-STOVE.



AT the exhibition of sanitary appliances, held at Düsseldorf, in 1880, the Lenz heating-stove, whose construction is shown by the annexed cut copied from the *Revue Industrielle*, attracted much attention. It is said to be highly appreciated in various parts of Germany where it is frequently used for heating workshops and other rooms where the straightforward simplicity of its design would not be considered an impertinence in a country whose stoves fairly deserve the name of objects of monumental art.

The stove was at the time of its exhibition a comparative novelty, which was said to be rapidly growing in favor. The cuts explain the method of construction and the section indicates the temperature of the heated air that is discharged from the orifices at different levels, which is said to vary between 95° from the lowermost and 40° from the highest. The stove above the fire-pot is cast in duplicate cylindrical sections so that it may be built up to any height desired, but whether the material of which these sections are made is cast-iron or clay is not stated. The fact that clay, tile, and terra-cotta are so largely used in the construction of German stoves inclines us to believe that the stove is not an iron one, except possibly the sections containing the fire-pot and ash-pit. We can see no reason why the stove should not accomplish in a satisfactory way what the sectional cut declares that it does, but we hardly think the stove can be suitable for domestic use because of the difficulty of keeping the inclined tubes free from organic dust which, when heated, might give off appreciably injurious gases—though not more perhaps than arise from the hot-air pipes of a furnace venting itself in its most common position at the level of the floor.

The construction is simple and is effectively explained by the cuts. The cost of the stove is moderate and it is said to be very economical in its consumption of fuel.

SPENCE'S METAL.—The material known as Spence's metal is composed principally of iron pyrites and has the properties of melting at a low temperature and cooling very rapidly, thus enabling it to be cast in gelatine moulds, by which process the most elaborate carving can be accurately reproduced. A perfectly sharp casting can be obtained by pouring this metal at a temperature of 250 degrees F. into a gelatine mould which melts at 90 degrees. Chilled at once, the metal forms a hard skin before the gelatine has time to melt. The heat of the metal will, after some time, melt the mould, too late, however, to injure the casting. When taken out of the mould, the metal has much the appearance of black Wedgwood, and is susceptible of the same amount of polish. Statues and bas-reliefs of any size can be cast with great accuracy, and the finest work, such as the plate of a steel engraving, or the carving of a Chinese card-case, can be exactly reproduced. Its capability of withstanding exposure to the weather renders it very suitable for the decoration of architecture.—*Iron Age*.

STEAMY AND FROSTED STORE WINDOWS.



THE Ironmonger discusses as follows a subject of interest to all retail tradesmen:—

What is the cause of steamy windows? The hackneyed answer that the cold outside condenses the moisture of the air is undoubtedly correct, but it does not explain how the moisture gets into the air. And as the air in the shop is warmer than that outside, its power of retaining water in a vaporous condition is very much increased, so that the watery vapor in the air of the shop must greatly exceed that of the external air, or no deposit of moisture would take place. It is certain that the greatest deposit of moisture takes place in warm, well-closed shops, and the idea that the warmth has something to do with the deposit is a very natural one. A walk along the streets in a winter evening shows that the amount of moisture on the windows varies very much in different shops. Some will be almost free from it, others are as opaque as if they were of ground glass. For some time we have been trying to find a reason for this, and although we cannot explain all the anomalies we meet with, yet we think some light can be thrown on the matter. The best lighted and warmest shops seem to suffer most. Now, as warmth ought to decrease the deposit, provided the air could take up no more water as it got warmer, we must look for some means by which the proportion of watery vapor in the air is increased with the temperature. This is at once found in the gas, which is almost universally used for lighting and very often for warming. For the amount of light given out gas produces very much more water than either oil or candles. If the ventilation be thorough enough to keep the air of the shop nearly at the same temperature and humidity as that outside, no moisture will be deposited on the window. But if the air is at all confined, as the assistants will certainly wish it to be, then as long as gas is burned and the products of combustion allowed to escape into the air, so long will the windows be obscured by moisture. As gas is the great offender, it is useless to provide air-tight windows, at enormous cost, if they be lighted with gas inside. We know a shop where some hundreds of pounds were spent in air-tight cases for the windows, where this mistake was made. Another source of moisture is the breath of the assistants and customers, and this seems to be sufficient to make it impossible to avoid all deposit on the window. But if petroleum or electricity be used to light the shop, or if the products of the combustion of the gas be carefully removed, then the nuisance will be greatly mitigated. Some shops are lighted by "Sun" burners on the ceiling. The effect, as regards illumination, is excellent, and this plan makes it very easy to remove the products of combustion. Of course, if a gas-stove be used to warm the place, and the products of combustion allowed to escape into the shop, neither petroleum nor electricity will prevent steamy windows. Various contrivances, such as open gratings at the top of the windows, double sashes, etc., have been tried, but the measure of success achieved appears to have been irregular and often disappointing.

IRON-WORKERS' STOCK DESIGNS.

NEW YORK, February 23, 1882.

TO THE ORNAMENTAL IRON COMPANY:—



COPIES of your illustrated catalogue have been received, for which please accept my thanks. I am disappointed, however, to find the designs so far behind the times. Most of our manufacturers have accepted the advance in industrial art; but, so far as I know—much to the regret of us architects—the iron manufacturers have not sympathized with this movement, and unless we go to the expense of making especial designs for work of this character, our buildings necessarily are disfigured. This was, heretofore, the case with nearly all trades furnishing articles for building, such as cabinet-work, grates, mantels, tiles, mouldings, carving, wall-papers, carpets, stained glass, color decoration, textile fabrics, etc. All these have long since been reformed, and they are working hand-in-hand with the architects to produce harmony as well as ornament in the general design. Even the brick-makers have entered into the spirit and are furnishing colored and moulded bricks, which, in connection with some beautiful designs in terra-cotta, delight the eye in many of our modern buildings.

There was formerly an excuse for these barbarities, as there were no designers to produce better work, but now schools of design have

been established in all our leading cities, where, at but small expense, workmen may spend their evenings and receive instruction.

I hope, gentlemen, that you will pardon my calling your attention to this matter, but architects so keenly feel the want of good iron-work, that the firm who takes the lead in this reform will not only gain their esteem, but will obtain the bulk of their patronage.

Yours respectfully,

H. HUDSON HOLLY.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Dear Sirs,—I had written the above to the Iron Company, but on second thought I have concluded to change the name and send it to you for publication, as I think it applies to a number of trades requiring reform. Take, for instance, such simple things as guards for doors, windows and heaters, iron railings, erections and finials, fences and gates, lamp-posts, fountains, vases, etc. Indeed, it would seem that almost the entire craft of iron-workers are destined never to be affected by the refining influence of decorative art. What subject, for example, offers greater facilities for design than the ordinary hot-air register? Yet the manufacturers of these have allowed their hideous patterns to disgrace our houses without the slightest improvement since hot-air furnaces were first invented. Look, too, at the monstrosities in the shape of weather-vanes which have surmounted our out-houses for the last fifty years! In fact, the market affords so little in the way of ornamental iron-work, that unless the architect goes to the trouble of making especial designs at special prices, his buildings are sure to be disfigured.

I only wish, Messrs. Editors, that some of your public-spirited readers would offer a prize for the best designs in iron-work, as I think it would be the only way to set the public thinking, who, if once started in this direction, would insist upon better things.

H. H. H.

THE FLEXIBILITY OF MARBLE.

19 FEBRUARY, 1882.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

IN your issue of 4 February, my attention was called to an article copied from *La Nature*, on the "Flexibility of Marble," and supposing this matter might be of interest sufficient to warrant your notice of similar data, I take the opportunity of sending herewith a transcript of memorandum from my sketch-book, made in the summer of 1874.

Every one knows that the greater part of the façade of St. Mark's, Venice, is marble averaging two inches in thickness, veneered on a rough brick wall. In my effort to ascertain the thickness, I found this strangely sprung slab on the south side of the northernmost of the five portals just behind the columns and about five feet from the pavement. Judging from the edges of this and the surrounding slabs they have every appearance of having been sawn out of old columns, quantities of which are known to have been brought as ballast from the Levant at the time the church was being built, and it may here be noted that during the summer referred to they were sawing up old columns to restore some of the veneering on the south side. The slabs are hung to the backing by $\frac{1}{4}$ " x $\frac{3}{4}$ " copper hooks which have been driven into the brickwork. This and the surrounding slabs are about the same length, but vary slightly in width (11' 2" in the total length and 1' 6" in width); it may have been out of the same column as its more erect neighbors.

The exposure is directly westward, and I found that it became decidedly warm in the afternoon sun, while the backing would be likely to keep its temperature lower. Though the outer surface is somewhat weatherworn, I could not find the slightest tendency to fracture in any part. The bend occurs, as the sketch shows, entirely in the lower half, while the upper end has settled away to some extent from its hooks, the slab above is supported by its own hooks, and exerts no pressure on this one, so that it is very likely that this tendency to bow outward has been increased if not occasioned by an accumulation of debris from the backing in the space behind. The marble is white with slight blue veinings.

It may not be out of place here to mention a much less remarkable movement in a piece of limestone very similar in color and grain to the Bedford County, Ind., stone.

The same summer I noticed water standing midway in a garden seat at a friend's villa at Bellosguardo, outside Florence. The stone is about three inches thick, 1' 3" wide, 5' 6" long, and supported near each end on stone blocks, and had every evidence of once having been perfectly level. It had been standing there about eighty years, and I found a dip at the middle of nearly half an inch.

CHARLES M. BURNS, JR.

FIRE-EXTINGUISHERS ON RAILWAY-CARS.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Gentlemen,—Your correspondent, Mr. Harkness, who writes to your number of February 25th concerning my comments on fire-extinguishers in railway-cars, is quite right in assuming that I knew nothing of the new extinguisher of which he speaks. If it is

proved by experience to have all the virtues which Mr. Harkness, with some appearance of enthusiasm, ascribes to it, I agree that railroad companies should supply it, under compulsion if need be, to all cars which are in danger of being fired by the heating apparatus they put in them; and it should be so placed that any accident which threatened to spread the fire should automatically let off the extinguisher upon it. Such an extinguisher might, indeed, have been profitably applied in many cars in which I have travelled, without waiting for an accident. Your correspondent does not explain either the quality or the action of the extinguisher he recommends, though he stimulates curiosity by calling it pneumatic, and speaking of a French chemical compound. An explanation of it would have been of interest. Pneumatic influences have usually been applied to the opposite use (except indirectly in pumps and fire-engines), though I can remember having in my time put out a fire, somewhat unexpectedly, with a pneumatic apparatus called—a bellows.

As for inventing a car-heater which shall be better than those that are now used, that is not my business, though like all the travelling public I hope to share the benefit of it when it is done. People who venture to bring their impressions of mechanical appliances into print are not always those who provide them, a circumstance which has its advantages and its disadvantages. The railroads will get better help than mine by calling on somebody whose business it is—Mr. Harkness, perhaps, if it is his,—and keeping him at work till the thing is accomplished to their own satisfaction and the public's. Of course car-heaters would be more satisfactory which did not need to be guarded by extinguishers. The hot-water heaters which are in use on many roads do their work well, as your correspondent claims, so long as their energies are confined to it; the Baker heater, for instance, which, moreover, being of wrought-iron, we believe, is not so likely to disgorge its dangerous food under pressure of accident as a cast-iron one, and doubtless others,—but any of them would be a source of danger among the splintered wood of a crushed car. To solve the problem perfectly is not easy, or it would have been done before now; but it is not wise to conclude that any mechanical achievement is impossible to the generation that has invented the ocean telegraph. L.

CELLAR DRAINS.

BOSTON, March 6, 1882.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Dear Sirs,—Wishing to build a drain inside my cellar-wall and below the cemented floor, I would like to inquire as to best method of laying same. Would you advise the use of unglazed tiles, of small stone, or a combination of both? If the latter, is there any danger of the small stone breaking through the tile from pressure they may have upon them after floor has been cemented over the whole?

Yours truly,

AN OLD SUBSCRIBER.

[We should be inclined, if stone is plenty, to prefer a good-sized trench, filled with loose stones, and extending to the footings of cellar-wall, if a good outlet can be had for it. If it drains into a pipe, tile should be put into the bottom of the trench to collect the water into a small stream. There is no danger of breaking the tile by the pressure of the stones.—EDS. AMERICAN ARCHITECT.]

RUBBER SASH ANTI-RATTLERS.

NEW ORLEANS, February 28, 1882.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Dear Sirs,—Please give me the address of the makers of rubber rollers to prevent rattling sash. (Correct name of article not known.) Do you know of a second-hand copy of Owen Jones's Grammar of Ornament, or what is the price new, and to whom should I write?

Yours respectfully,

JAMES FRERET.

[The rubber rollers are sold by hardware dealers generally, at fifty cents per dozen. We do not know where they are manufactured. The quarto edition of Owen Jones's Grammar of Ornament can be had for about twenty-five dollars at second-hand of J. Sabin & Sons, Nassau Street, New York, or Estes & Lauriat, Washington Street, Boston, or the travelling dealers in architectural books. Of the original folio edition only occasional copies can be had, which sell for one hundred and twenty-five to one hundred and fifty dollars each.—EDS. AMERICAN ARCHITECT.]

NOTES AND CLIPPINGS.

PNEUMATIC FIRE-EXTINGUISHERS.—It is probable that the pneumatic fire-extinguisher referred to by a correspondent in a late issue of this journal is thus described by the *Metal Worker*: Messrs. Spong & Co., of London, England, have recently brought to notice a new portable fire-extinguisher, which depends for its action upon pneumatic pressure and not upon chemicals. It consists of a metal cylinder, inside of which and depending from the top is a tube about six inches long, through which the cylinder is charged with water, which, reaching to the level of the bottom of this tube, is prevented from rising further by the imprisoned air above. Attached to the base of the cylinder at the outside and running to the top is an air-pump, by means of which and a tube extending from bottom to top inside, the atmosphere in the air-chamber is compressed to 100 pounds per square inch, the degree of pressure being indicated by a gauge. The apparatus for use is slung upon the back, the tap at the base turned on, and the powerful stream of water is directed through the india-rubber tubing upon the flames. The pressure, of course, gradually diminishes as the water escapes, the last pint being ejected at about 20 pounds pressure, but in practice it is found that only about one-third of the contents (6 gallons) will be required to put out an incipient fire. It is reported that numerous experiments have been made with this apparatus, yielding satisfactory results.

A GRATE FOR BURNING WATER-GAS.—A new form of fire-grate for burning the water-gas obtained by Dr. Charles Holland's process was tested in a machine-shop in Franklin Street, Brooklyn (Greenpoint), yesterday afternoon. There were present Dr. Holland, General Samuel K. Schwenck, E. Deming, and several others. The new fire-grate had been placed on brick arches with a sheet-iron covering, looking like an immense stove. The grate first built for the Holland locomotive at Paterson contained nearly two thousand different pieces, while this contains only two hundred. There are four retorts at the front, two for naphtha and two for water. Underneath these are three "lighter" pipes, into which naphtha is let and ignited at small holes to heat the retorts at first before the gas is produced. When this heat produces steam in the retorts of water the steam is conveyed to the heated naphtha retorts. In the presence of the volatile carbon of the naphtha the steam is decomposed and water-gas formed. This gas passes from the retort to a large feeder-pipe, which runs the whole length of the grate, some ten feet. Passing from the feeder-pipe on each side at right angles are thirty one-inch pipes, each containing nine small holes for the escape of the gas. The direction of each hole is at right angles to a vertical circular opening in the plate of the grate designed to admit air. Thus an impinging flame is secured, the current of water-gas in ignition striking at right angles the large volume of air supplying abundant oxygen from below. There are five hundred and fifty-eight tiny holes for gas and two hundred and seventy-nine large openings for air. The retorts are hung upon cross-bars, and the plates forming the body of the grate are securely held in place by flanges. At two o'clock the naphtha was allowed to flow into the "lighter" pipes under the retorts, and as it oozed from the openings it was ignited. The naphtha was supplied from a pipe connecting with a tank in an upper room. For fifteen minutes the naphtha blazed under the retorts, when a bluish flame began to appear at the burner-holes for the gas along the grate. The formation of the water-gas had begun. The draughts underneath were opened and balloon-shaped yellowish jets of flame with blue centres appeared at the gas-burner and air-holes. Gradually the draught was increased. The flames roared angrily along the grate, although only two sections of the three were used. The sheet-iron trembled and seemed to sway under the force within it. The heat was so intense that the visitors fell back from the grate, and the shed became unbearably warm. No smoke is caused by this process, and from an upper window it could be seen that nothing but dense waves of heat escaped from the chimney. At the end of twenty-six and a half minutes the wood-work near the grate was becoming dangerously hot. The engineer turned two handles and the fire was instantly extinguished.—*New York Tribune.*

BOILER EXPLOSIONS IN 1881.—The following summary of boiler explosions and statistics of killed and wounded by the same, we find in a late number of *The Locomotive*:

	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
Explosions.....	22	16	15	8	8	15	8	11	14	26	13	13	159
Number of persons killed.....	38	18	28	6	11	41	16	19	25	15	18	16	251
Number of persons injured.....	35	31	51	11	23	38	19	14	19	32	20	20	313

The usual high percentage of explosions occurred in saw-mills and other wood-working establishments—nearly one-fourth of the whole number being in this class. Doubtless the greater number of those reported simply as "mills" would prove on further inquiry to be in saw-mills or some allied industry. The question naturally arises—What causes so many destructive explosions in saw-mills and wood-working establishments? While we cannot wholly agree with the opinion expressed by some scientific journals that the greater number of them are caused by the use of light fuels, such as shavings, saw-dust, etc., we will admit that the frequent opening of the fire-doors, which is rendered necessary by the use of such fuels, tends to deteriorate the boiler and shorten its life. It would probably be found, if all the facts could always be obtained, that the frequent explosions among this class of boilers are mainly due to the carelessness and ignorance of those in charge of them. It may fairly be assumed, that very few of them are ever inspected by any one who is competent to discover faults and correct abuses in their management. They are neglected, safety-valves are allowed to corrode and stick fast, and they are nearly always run at higher pressure than would be considered safe by careful engineers.

THE PROPER ENJOYMENT OF WATER PRIVILEGES IN VERMONT.—A decision interesting to mill owners has just been made by the Vermont Supreme Court in the case of Zadock H. Canfield and others vs. Caleb Andrew and others, in chancery, Bennington County, which is of importance to mill owners and riparian proprietors. The court decides that a mill owner or manufacturer has no right to dump into the stream upon which his mill or manufactory is situated, saw-dust or any kind of waste except what is absolutely and indispensably necessary in the beneficial enjoyment of his water privilege, to the injury of other mill owners, manufacturers, or riparian proprietors below him on the same stream. That it is much more convenient or economical to throw such saw-dust or waste into the stream constitutes no justification; if it is possible to dispose of it in any other manner without an entire sacrifice of the beneficial and lawful use of the water, the maxim that one must so use his own property as not to injure that of another applies. A perpetual injunction and decree for the ascertainment of damages are granted against the defendants in this case. The opinion of the court is delivered by Chief Justice Royce, and causes much consternation among the owners of wood-working manufactories on the mountain streams of Vermont, who have always been in the habit of dumping their saw-dust and refuse into the streams, regardless of the damage and annoyance caused thereby to parties below. Numerous suits for damages are likely to result from the decision.—*Boston Transcript.*

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.]

- 254,109. **SPRING-HINGE**.—Theodore Butler, Cleveland, O.
 254,126. **CORE FOR SASH-WEIGHTS**.—P. Henry Griffin, Detroit, Mich.
 254,178. **PERSPECTIVE DELINEATOR**.—Gerard M. Perk van Lith, New York, N. Y.
 254,184. **AUGER-BIT**.—Thomas Wood and James Morris, Birmingham, Conn.
 254,210. **ADJUSTABLE WRENCH**.—William R. Godfrey, Sidney, Neb.
 254,216. **FIREPLACE**.—John W. Horn, Rhea's Mills, Tex.
 254,232. **SASH-FASTENER**.—Thomas Orton, Chicago, Ill.
 254,235. **BLIND-SLAT ADJUSTER**.—Charles H. Phillips, and Edward C. Greene, East New York, N. Y.
 254,237. **DOOR CHECK**.—Jeremiah Pickering, Leon, Io.
 254,242. **HOIST**.—William F. Sexton, Sr., and William F. Sexton, Jr., Toronto, Ontario, Canada.
 254,245. **DOOR HANGER**.—Albert L. Swett and William H. Samson, Medina, N. Y.
 254,247. **MANUFACTURE OF ARTIFICIAL STONE**.—Stephen Trone, Avoca, Ill.
 254,253. **AUTOMATIC FIRE-EXTINGUISHER**.—Edward H. Ashcroft, Lynn, Mass.
 254,271. **FIRE-EXTINGUISHER**.—Albert M. Burritt, and Angelo C. Burritt, Waterbury, Conn.
 254,273. **PRESERVING WOOD**.—Joseph P. Card, St. Louis, Mo.
 254,275. **ADJUSTABLE SOCKET-WRENCH**.—Felix Chantrell, Bridgeport, Conn.
 254,286. **HOLLOW-AUGER**.—Frederick S. Dellenbaugh, New York, N. Y.
 254,291. **ELEVATOR**.—Robert Dunbar, Buffalo, N. Y.
 254,314. **COWL**.—Charles S. Hempstead, Masontown, Pa.
 254,342. **ARTIFICIAL STONE**.—Carl F. Leidholt, Neilsville, Wis.
 254,360. **VENTILATOR**.—Willis E. Moore, Thornstown, Ind.
 254,364. **SEWER-TRAP**.—James F. O'Grady, Chicago, Ill.
 254,365. **ARTIFICIAL-STONE COMPOSITION**.—William W. Patterson, Corning, Io.
 254,366. **PAVING AND BUILDING MATERIAL**.—Antonio Pelletier, Washington, D. C.
 254,396. **FLOOR-TILE**.—John Siebel, Oskaloosa, Io.
 254,398. **HOLLOW GRATE**.—James G. Smith, Cleveland, O.
 254,402. **MORTISE LOCK**.—Solomon P. Stoddard, New York, N. Y.
 254,409. **COLOR-GLASS WINDOW**.—Louis C. Tiffany, Morristown, N. J.
 254,411. **SPRICE-EXTRACTOR**.—William B. Turner, Long Island City, and Albert P. Prout, Woodhaven, N. Y.
 254,413. **FIRE-ESCAPE**.—Thomas J. Vinton, Holly, Mich.
 254,419. **WOOD-TURNING LATHE**.—Charles W. Wilder, Fitchburg, Mass.
 254,432. **SPRING-HINGE**.—Ira S. Davis, Detroit, Mich.

SUMMARY OF THE WEEK.

Baltimore.

BUILDING PERMITS.—Since our last report twenty-seven permits have been granted of which the more important are as follows:—
 J. J. Underhill, three-sty brick building, No. 178 Hanover St., s w cor. of York St.
 Daniel Singleton, two-sty brick building, 18' x 45', adjoining s e cor. Ridgely and West Sts.
 Henry Schamburg, 3 three-sty brick buildings, Lee St., bet. Eutaw and Warner Sts.
 G. M. Gill, 2 two-sty brick buildings, Wilmer Alley, s of Smith St.
 L. H. Robinson, 5 three-sty brick buildings, Mount St., bet. Harlan Ave. and Lanvale St.
 E. H. Robinson, 6 two-sty brick buildings, Vincent Alley, bet. Harlan Ave. and Lanvale St.
 J. H. Thieme, two-sty brick building, No. 306 Caroline St., bet. Lancaster and Block Sts.
 Samuel Wyman, four-sty brick building, n e cor. Park Ave. and Eager St.
 Matthew Hietzman, three-sty brick building, in rear of n e cor. Franklin and Paca Sts.
 Charles Deineau, 4 two-sty brick buildings, Clifford Alley, bet. Scott and Poppleton Sts.
 Wm. Dashiield, two-sty brick building, Grindall St., bet. Riverside Ave. and Covington St.
 Robert R. Rennett, 3 three-sty brick buildings, 20' front each, Eutaw Pl., and 3 three-sty brick buildings, 17' front each, McMechen St., in rear of above.

Boston.

BUILDING PERMITS.—*Brick*.—Don St., near Earl St., Ward 15, for S. A. Woods' Machine Company, storage building, 38' x 70'.
 254 to 260 *Newbury St.*, Ward 11, for Silas W. Merrill, block of 4 houses, 22' x 52' each, three-sty and mansard; Silas W. Merrill, builder.

Albany St., No. 573, cor. East Dedham St., Ward 17, for Wm. H. Leatherbee & Son, dry-house, 24' and 80' x 80', two-sty; Cressey & Noyes, builders.
Wood.—*Harford St.*, near Howard St., Ward 20, for Guy A. Clifford, dwell., 22' x 32'; ell, 16' x 19', two-sty, hip; J. F. Ferguson, builder.
Spring St., near Cypress St., Ward 23, for Edward Morrill, dwell., 21' x 29'; ell, 13' x 18', two-sty; Wm. S. Mitchell, builder.
Garden St., rear of, near Linden St., Ward 25, for Wm. H. Brown, stable, 16' x 20'; W. B. Cameron, builder.
Maywood St., near Blue Hill Ave., Ward 21, dwell., for Hugh Nawn, 23' 6" and 29' 6" x 32'; ell, 17' x 19', two-sty; N. B. Quigley, builder.
Gilbert St., nearly opposite Hoffmann St., Ward 23, for Caroline Rabel, dwell., 24' x 34', two-sty; John L. Dakin, builder.
Chamney St., near Lowland St., Ward 15, for James D. Sim, boiler shop, 40' x 40'.
Woodward Ave., near George St., Ward 20, Maximilian Kaiser, dwell., 23' x 40', four-sty; F. J. Fortunato, builder.
M St., near East Seventh St., Ward 14, for Wm. T. Eaton, 2 dwells., 19' x 32', two-sty, mansard; Wm. T. Eaton, builder.

JANUARY REPORT.

The following permits were granted at the Office of Inspector of Buildings during January: Brick, 8; Wood, 47; Special 1; Repairs and Alterations, 163; Boilers and Engines, 20; Heating Apparatus, 21.

Brooklyn.

HOUSE.—A residence to cost about \$14,000, first sty to be brick, above frame with brick filling, is to be built for C. A. Robinson, from designs of Messrs. D. & J. Jardine, of New York.
BUILDING PERMITS.—*Ten Eyck St.*, s s, 650' e Waterbury St., one-sty brick factory; owners, L. Waterbury & Co., on premises; architect, E. F. Gaylor; builders, Jno. McQuade and Jenkins & Gillies.
Broadway, e s, about 50' from junction with s s Cook St., two-sty frame warehouse; cost, \$3,500; owner, E. Bunce, Broadway and Myrtle Ave.; builder, Jno. Rueger.
Lafayette Ave., n s, 200' e Lewis Ave., two-sty frame dwell.; cost, \$2,500; owner, J. Weaver, 364 Clifton Pl.; architect and carpenter, Robert Ford; masons, Van Pelt & Pearce.
Flushing Ave., s w cor. Stuben St., two-sty brick factory; cost, \$5,000; owner, James H. Gilbert, 166 Remsen St.; architect, Chas. Werner; builders, J. Ashfield & Son and W. Zang.
Washington St., n e cor. Front St., three-sty brick factory; cost, \$12,000; owners, Brooklyn White Lead Co., on premises; architect, D. B. Provost; builder, John Allen.
Willoughby St., No. 113, being 20' w Duffield St.; two-sty brick school-house; cost, \$9,000; owner, St. Boniface Church; architect, C. Werner; builders, Frank J. Kelly and C. Dietrick.
Willoughby St., n s, 60' w Duffield St., two-sty brick dwell.; cost, \$4,000; owner, architect and builder, same as last.
State St., s s, about 50' w Boerum Pl., four-sty brick factory, etc.; cost, \$14,000; owner, J. Carley, on premises; architects, Parfitt Bros.; builders, T. B. Rutan and C. M. White.
Magnolia St., n s, 300' w Irving Ave., three-sty frame tenement; cost, \$3,000; owner, Thomas Pitt, 69 Sixth Ave.; architect, Chas. Werner.
Verona St., n s, 90' e Van Brunt St., two-sty brick packing-room; cost, \$3,450; owner, estate F. B. Cutting, 68 Beaver St., New York; architect, H. C. Franklin; builders, R. P. Carr and C. E. King.
Washington Ave., w s, 100' n Park Ave., one-sty brick shop and stable; cost, \$4,500; owner, John Seton, 329 Myrtle Ave.; builders, Long & Barnes.
Park Ave., n s, 40' e Franklin Ave., three-sty brick dwell.; cost, \$5,500; owner, John Feltmann, Park Ave., between Franklin and Kent Aves.; architect, S. Harbison; builders, A. Rutan and W. Zang.
Park Ave., n s, 20' e Franklin Ave., three-sty brick store and dwell.; cost, \$4,500; owner, A. E. Hodder, Park Ave., n e cor. Franklin Ave.; architect, S. Harbison; builders, A. Rutan and W. Zang.
Carlton Ave., e s, 70' n Myrtle Ave., three-sty brick storehouse and stable; cost, \$5,000; owner, John Flynn; builders, Long & Barnes.
Willoughby Ave., n w cor. Grand Ave., two-sty brick mission chapel; cost, \$15,000; owner, Clinton Ave. Congregational Church, Clinton and Lafayette Aves.; architect, R. B. Eastmann; builders, C. Cameron and Wright & Brook.

ALTERATIONS.—*Congress St.*, No. 42, s s, 192' w Columbia St., addition of one-sty, also four-sty brick extension; cost, \$5,000; owner, Thomas Gefaney, on premises; architect and carpenter, Geo. Damsen; mason, P. McGuinn.

Fulton St., Nos. 42 and 44, and Nos. 35 and 37 *Doughty St.*, raised one-sty, and damage by fire repaired, cost, \$20,000; owner, Wm. M. Ducker; architect, Fred. H. Coles.
North Fourth St., n w cor. Fifth St., one-sty brick extension; cost, \$4,000; owners, J. I. & J. F. Healey, North Fifth St. and Fifth St.; architect, W. H. Gaylor; builders, W. L. Langridge, Jr., and Jno. Fallon.

Buffalo.

HOUSE.—D. D. Benson, frame dwell., on the "Circle," cost, \$3,500; architect, Geo. J. Metzger; builder, Fred. Scott.
LIBRARY BUILDING.—Plans are now being prepared for a "Library Building" for the Young Men's Christian Association, the building to be fire-proof, and situated at the junction of Pearl, Mohawk and Genesee Sts.

HOTEL.—It is reported that Mr. C. S. Hamlin will build a large hotel on the cor. of Michigan and Seneca Sts.

LOUR-MILL.—Plans are now being prepared for a large "flour-mill," to be erected on the "Ohio Basin," for Messrs. Esser, Ogden & Zimmermann.

Chicago.

BUILDING PERMITS.—D. Oskette, two-sty and cellar brick dwell., 22' x 30', Twenty-Ninth St. and Shurtleiff Ave.; cost, \$2,400.

E. Frankenthal, five-sty and basement store, 22' x 72', Fifth Ave. and Adams St.; cost, \$20,000.
 Mrs. E. Fitzgerald, five-sty and basement store, 24' x 72', 205 Fifth Ave.; cost, \$20,000.
 Robert Woods, two-sty and basement dwell., 22' x 45', 227 North Market St.; cost, \$3,200.
 S. L. Campbell, 6 two-sty and basement dwells., 36' x 120', Dekalb and Polk Sts.; cost, \$18,000.
 H. Bailey, two-sty cottage, 20' x 50', 330 Main St.; cost, \$2,800.
 Toolen & Maloney, 4 one-sty cottages, 20' x 32' each, Butterfield St. near Thirty-sixth St.; cost, \$4,000.
 Wildner & Frank, four-sty and basement store, 25' x 80', 323 Clark St.; cost, \$14,000.
 O. S. Meacham, five-sty and basement store and flats, 30' x 80', 73 Vanburen St.; cost, \$15,000.
 Frank Amman, three-sty and basement dwell., 25' x 52', North Clark St. and Belden Ave.; cost, \$8,000.
 T. H. Troust, 2 three-sty dwells., 60' x 72', 38, 40, and 42 Pierson St.; cost, \$30,000.

Cincinnati.

HOUSES.—Mr. Geo. W. Rapp, architect, has prepared plans for two-sty brick dwell., for Mr. Edw. Hill, to be erected on Clifton Ave.; cost, \$5,000.

Also for a three-sty brick residence, for Mr. C. Motch, Covington, Ky.; to cost about \$7,000.

Mr. Rapp has just completed a dwell. for himself on West Chapel St. Walnut Hills; cost, \$11,000.

ART MUSEUM.—Mr. Jas. W. McLaughlin has been appointed architect of the new West Art Museum Building, and work is to be commenced on the same immediately.

THE EMERY BUILDING ACCIDENT.—The accident to the Emery Building, cor. of Sixth and Vine Sts., cannot be laid to the absence of the templates, as they were found on the pilasters in their proper place.

BUILDING PERMITS.—Since our last report the following building permits have been issued:—

C. S. Smith, to rebuild the Vine St. Opera-House, which was lately injured by fire; cost, \$4,000.

Moses Vehr, three-sty brick, Longworth St., near Park St.; cost, \$6,000.

G. Kilchie, three-sty brick, s w cor. Third and Sycamore Sts.; cost, \$3,000.

George Schumaker, three-sty brick, Woodburn Ave.; cost, \$9,000.

Thos. Meier, repair two-sty brick, 522 Vine St.; cost, \$4,500.

M. B. Daniels, two-sty frame, Ringgold St., bet. Young and Price Sts.; cost, \$2,500.

M. B. Daniels, two-sty frame, Slack St., between Young and Price Sts.; cost, \$2,000.

G. and H. Muhlhauer, three-sty brick, n e cor. Court and Walnut Sts.; cost, \$6,000.

John O. Moore, three-sty brick, George St., bet. Elm and Plum Sts.; cost, \$5,000.

C. Groth, two-sty brick, n e cor. Madison and Corry Sts.; cost, \$2,000.

S. H. Taft, 4 one-sty frames, State St.; cost, \$2,000.

A. Johnson, two-sty brick, Kenton St., near De-call St.; cost, \$6,000.

M. Voss, two-sty brick, Liberty St., near Pendleton St.; cost, \$5,000.

A. B. Cassidy, three-sty brick, 227 West Sixth St., cost, \$3,500.

21 permits for repairs; cost, \$6,000.

Detroit.

BUILDING PERMITS.—Sixty-eight permits have been granted since our last report. They are all for a cheap class of buildings. The following are those costing \$2,000 or more:—

Hubbard & King, additions to brick dwell., 112 and 114 Griswold St.; cost, \$5,000.

Nuppenan & Clark, additions to brick dwell., 404 Jefferson Ave.; cost, \$5,000.

H. Carew, brick dwell., 706 East Congress St.; cost, \$3,000.

Candler Brothers, frame dwell., 618 La Fayette St.; cost, \$2,000.

D. H. Osgood, frame dwell., 33 Fulton St.; cost, \$2,100.

New York.

STORES.—Nos. 384 and 386 Broadway is to be built on for Mr. R. T. Wilson. The building will be six-sty, with basement and sub-cellar. The front is to be of brick with freestone finish. The cost will be about \$85,000; Mr. J. Morgan Slade, architect.

The same gentleman has prepared plans for an iron front store, 25' x 100', six-sty, to be built at No. 45 Greene St., at a cost of \$25,000.

Also a store, 50' x 95', seven-sty, with brick and granite front, to be built for Mr. Norman L. Munro. On West Broadway a store, 35' x 50', five-sty, first sty iron, above brick and stone, is to be built at a cost of about \$23,000, from designs of Mr. Wm. Kuhles.

THEATRE.—A new theatre is to be built on Eighth Ave., in the neighborhood of the one lately erected by Harry Miner.

APARTMENT-HOUSE.—On Madison Ave., adjoining the church on the cor. of Sixty-sixth St., an apartment-house, 28' 6" x 100', is to be built, four-sty with attic. The front will be of brick, stone and terra-cotta; cost, about \$50,000; Messrs. D. & J. Jardine, architects and owners.

FLATS.—Three five-sty flats, to cost about \$15,000 each, are to be built on One Hundred and Ninth St., between Third and Lexington Aves. They will be 25' x 82' each; fronts brick, with Dorchester stone trimmings; Mr. Jos. M. Dunn, architect.

RUMORS.—That Booth's Theatre is to be changed into stores.

That J. M. Mackay is to build a palatial residence on Fifth Ave., between Fifty-fourth and Fifty-fifth Sts.

That a large bank-building is to be erected on the site facing the Grand Central Depot.

ALTERATIONS.—No. 23 West Twenty-third St. is to be altered for the Madison Bank, at a cost of about \$8,000.

No. 60 same street is to be altered and improved for