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THE question of rapid transit has assumed a new shape in Boston. By the general railroad law of Massachusetts any twenty-five persons are authorized to associate for the purpose of building a railroad, and can apply to the selectmen of the town or the mayor and aldermen of cities on their route for the grant of a location, and if unable to agree upon a line with the local officials, they may appeal to the Railroad Commissioners, who, in the words of the statute, "shall hear the parties and fix the route in said town or city." The Railroad Commissioners, in their last annual report, point out that the law does not give them any discretion in approving or rejecting the proposed scheme; all they can do is to prescribe the line which the road shall follow, and the way in which highways shall be crossed. As there is no discrimination in the statute between the capital and the smaller towns, it follows that a railroad may be built, under the general law, across the city of Boston, by any twenty-five associates who can command the money needed, and neither the Railroad Commissioners nor, as they say, any other tribunal, can prevent it. They can control the route, and by ordering that all streets shall be traversed above the grade, they can turn it into an elevated road, but further than this their authority does not extend. It has long been thought possible that the promoters of the elevated railway lines, who have attempted unsuccessfully the past two years to obtain a special charter, might fall back upon the opportunity which this statute gives, and the prospect of this has now approached so near as to give some of the Boston papers much distress. The *Transcript*, for instance, accuses parties interested in "speculative real estate in Dorchester" of conspiring to build an elevated road, or roads, across a city which "desires and needs none of them," for the sake of improving its value, and demands the creation of some tribunal "which shall pass upon the proof that the public good demands a railroad before that railroad can condemn private property" under the dictates of "roving speculation."

THIS kind of talk strikes us as not being very sensible. Whatever may be said as to the comparative merits and demerits of elevated railways, — and we are by no means inclined to underrate the latter, — the notion that a small number of land-owners in a sparsely settled suburb of Boston propose to spend between three and four millions of dollars in building such a road across the city, against the will of the citizens, for the sake of increasing the value of their own stubble-fields and pastures, is a little absurd. But if these conspirators, as is much more probable, expect to earn a return on their investment by carrying the inhabitants of Boston about, this shows that they, at least, judge that a public want will be supplied by their road, and the success of their speculation would go far to prove that they were right, and that the *Transcript's* opinion was wrong. The other assumption by which the opponents of the scheme try to discredit it, that the new road, if built, is going to destroy private property without compensation, is purely gratuitous. Neither the Railroad Commissioners nor any one else can give the incorporators such a right. By an unfortunate oversight, the New York roads have been enabled to avoid paying the damages decreed against them, but no one expects that future lines will

enjoy such privileges, and the injury to city property is quite as easily assessed as in the case of railways through country districts. To our mind the arguments against elevated roads in the capital of New England which we have hitherto met with do not show extraordinary wisdom. As the counsel for one of the associations showed last winter, the very same were used in opposing the introduction of the horse railroads which have done so much for the prosperity of the city and its suburbs, and they have not gained in strength by their previous refutation. It would be far better, we think, to look the question of rapid transit fairly in the face, and, assuming that provision must, as the city grows, be made for it sooner or later, endeavor, while there is yet time, to devise a really satisfactory system. Certainly, American genius has not reached its climax in the New York elevated roads, and if those good people of Boston who justly dread the introduction of similar contrivances in their beautiful town would turn their attention, not to trying to persuade capitalists that its citizens do not wish to travel swiftly and easily, but to the promotion of a far-sighted and comprehensive scheme for affording them that luxury without inconveniencing their neighbors, there is quite enough ability and public spirit among them to insure success.

A SUPPLEMENT to the first annual report of the Massachusetts combined Board of Health, Lunacy and Charity forms the substitute for the admirable collections of papers to which we had been accustomed in the regular reports of the former famous Board of Health. The portion of this one which we find most interesting is decidedly Mr. E. W. Bowditch's paper on the Drainage of Summer Hotels and Boarding-Houses, containing some results of detailed investigations among such places which are startling to the ordinary reader, though the experience of most professional men will fully confirm them. The spot selected for most thorough inquiry was the summer settlement of Oak Bluffs, on the island of Martha's Vineyard, to whose sanitary, or rather insanitary condition the attention of the Board had been previously directed. The soil of the place is a loose sand, in which liquids soak instantly away, and vaults and cesspools never get full. Of these there are a great number, the summer population sometimes reaching thirty thousand, and they are very closely huddled together, particularly within the grove devoted to the camp-meetings which originally formed the great attraction of the place. The water-supply is derived almost exclusively from driven wells, consisting of lengths of plain or galvanized iron pipe, screwed together, with a pierced strainer to form a point, and pushed down through the sand to the water level, fifteen or twenty-five feet below the surface. In the crowded portions of the town this water is found by analysis to be badly contaminated, as might be expected from the porous nature of the soil. In one case a well situated within fifteen feet of a large cesspool was reported to yield water perceptibly salt whenever the waste from the ice-cream freezers of a neighboring saloon was poured into the cesspool, a circumstance which, in view of the fact that four vaults were situated within twenty-five feet of the same well, gives rise to inferences upon which one does not care to dwell. Multitudes of families obtain water from sources as badly situated, and it is not surprising to find that typhoid fever is common in these portions of the town. But if Oak Bluffs, or Cottage City, as it is now called, is exceptional in its crowded condition, it contains a great deal of public spirit, and the evil once known, energetic steps have been taken to remedy it, while many other places, or even isolated hotels and boarding-houses show conditions quite as bad. Mr. Bowditch closes his paper by some useful hints to the proprietors of such resorts, whom, he says, he has invariably found ready to adopt the best methods, but usually ignorant of them, and he thinks that the architects who direct such constructions should be better able or more ready than they now are to supply the requisite knowledge.

THE workmen employed on the Rockaway Beach Hotel have had their certificates cashed at par, and the building is again in progress. As we predicted, the security which these certificates represented was so ample that there was no difficulty in getting them accepted by bankers at their face value, notwithstanding the efforts of the men themselves to discredit and injure the owners of the property, and deprive them, by their wanton delays, of the profits of a whole season's business profits, which

would in a few weeks have paid their debt to the men many times over; so that those who suffered themselves to be fleeced out of half the amount of their certificates by sharpers simply threw away their money. The new lien law of New York is extremely favorable to workmen,—more so than that of most states, and it is hardly possible under it for mechanics of ordinary intelligence to fail of collecting their wages if the amount due does not bear a much larger proportion to the value of the property than was the case at Rockaway, so that they can afford, even if their sense of decency does not impel them, to refrain from inflicting ruinous losses upon their employers without the smallest advantage to themselves, or indeed any result except to waste in idleness the precious weeks of a season in which they were sure of profitable employment, and to render the collection of the money due them for work already done more difficult.

MR. HOLMAN HUNT has, it is well known, been at work for some years in manufacturing a large picture, which, it seems from an item in the *Portfolio*, is likely to be completed within six months. The picture will contain, so it is said, the portrait of a very select donkey, chosen with great care from the finest variety of the animal; also, a portrait of a "lovely Jewish maiden," at present residing in the neighborhood of Bethlehem. These, with other choice and correct elements, are so combined as to suggest, perhaps, to those who have previously read the title of the picture, the Flight of Joseph and Mary with the infant Christ into Egypt. One extreme novelty has been added to the picture, in the shape of a procession of infant spirits,—the souls of the slaughtered Innocents. We are somewhat at a loss to understand how Mr. Hunt could have obtained the models for these little objects; but the happy inspiration,—not to say enterprise,—with which they are, by a graceful anachronism, brought in to add interest to a theme perhaps somewhat dull in itself, is worthy of the highest praise. What with this new feature, and the portrait of the donkey, we may be sure that the painting, when ready for exhibition, will excite the attention which genius,—and especially genius so well advertised,—should always command. On the whole, however, we are rather glad to know that, notwithstanding the title of the picture, it is the portrait of a Hebrew young lady of the period, and not of the Rose of Heaven, which is to come into competition with the other attractions; we have, perhaps, some prejudices on the subject, but we should hardly like, if the latter had been the case, to run the risk of hearing that the donkey had carried off the palm.

THE editor of the *Metal Worker* has been authorized to offer prizes amounting to one hundred and seventy-five dollars, in competition for the best three designs for the exterior of ordinary stoves, the coal "base-burner," so generally used, being the subject of one design, and a wood-burning stove of the second, while a special prize is offered for an ornament for the top of the base-burner pattern, to take the place of the usual urn. We take pleasure in calling the attention of our readers to the matter, and trust that the anticipations of the gentlemen who have arranged the trial will be realized. No one needs to be told how obtrusively vulgar, ugly and pretentious in design our so-called "parlor stoves" have become, in comparison with the cooking-stoves, which, as usual with American products intended for utility alone, are, as a rule, almost beautiful in their simplicity, neatness and the perfection of their castings. To such a height has the merely mechanical art of making stove castings been carried here, that one firm, the Magee Company, of Boston, has, if we are not mistaken, successfully reproduced in iron Flaxman's Shield of Achilles, a subject quite delicate enough for bronze. There is therefore no difficulty in reproducing in metal the modelling which the artist's hand may give to the pattern, but unfortunately the patterns are generally quite unworthy of the material. The English, whose processes are far inferior, yet send out stoves and grate fronts of high artistic value. With them a kind of Japanese treatment is common, medallions, slightly concave, and filled with sprays of flowers or animals in low relief, being placed at random on a ground covered with wavy lines, or sometimes the wave lines, with their soft and pleasant play of light, form the sole decoration of the surfaces. Diaper patterns also, and "powderings" of fleurs-de-lis or other devices are often seen, but all is kept flat and delicate,—as different a style of ornament as possible from the "seven-horned dragons" and gigantic name-plates which bristle over the works of our manufacturers. There

can be no question that a better taste can soon be formed if the initiative is once taken, and we hope that this new enterprise may serve as the beginning of a better state of things.

SINCE the work of remodeling and improving the water supply of Paris has been fairly entered upon, some ingenious and useful devices for making use of the unlimited quantity of water which, by the new arrangement, will be furnished, have been proposed, and are now under consideration. One of the best of these, which has already been definitely adopted, is the provision of private hydrants for use in case of fire. On the application of any private owner or lessee of a house, a fire hydrant will be placed inside the building, with hose and nozzle, but the stop-cock by which the supply is turned on is placed under the sidewalk, and is, after closing, sealed with the seal of the company, to prevent the use of the water for any other purpose than that of extinguishing fires. If one should occur, however, the licensee, or *permissionnaire*, is authorized to break the seal and turn the water on, using it until the flames are extinguished, after which he must turn off the supply and notify the company, whose agent immediately comes and makes note of the circumstances, and if he is satisfied that the water has not been used for any purpose but that for which it was intended he seals it up again. It is proposed even to extend the same privilege to occupants of apartments or single rooms, by placing fire stop-cocks with hose and nozzle on each story, connected with the main rising-pipe, and the whole enclosed in a sealed cupboard. On the occurrence of a fire, any lodger runs to his cupboard, breaks the seal and turns on the water as long as necessary, afterwards notifying the company of what he has done. The principle is familiar enough to us in the stand-pipes and coils of hose ready for use with which our stores and public buildings are provided, but its extension to private dwelling houses is an innovation which would be of great value.

ANOTHER Revolutionary Monument is likely soon to be erected—that at Saratoga. A meeting of the Trustees last week was attended by a number of prominent gentlemen, and assurances were given of the disposition of Congress to aid the enterprise by appropriations of public money, in addition to that given by the New York Legislature. Under these circumstances it seemed advisable to proceed at once at least to the preliminary work of construction, and it was voted to adopt the design submitted at the meeting by Mr. J. C. Markham, the architect to the Association, subject to such modification as the Association should hereafter make. The sum to be expended on the monument will probably be not less than sixty thousand dollars, so that, when done, it will constitute one of the most important works of the kind in the country. We have already (*American Architect* for Nov. 3, 1877) spoken of the original design as represented in the illustrated newspapers of the time, and hope the opportunity has been, or will be taken to modify it before its actual execution. There can be but one opinion as to the importance of making the principal public monument of Northern New York as worthy a representative of the artistic culture of the people who erected it as of their patriotism, and the Trustees and their architect now hold in their hands not only the reputation which they will themselves bear among future and more critical generations, but that of the people for whom they act. It is not too much to say that a large proportion of the memorials which have been erected within a few years will serve for ages to excite contempt and disgust for the race which could have designed and tolerated them, and we can do no less than urge that artistic considerations should in this instance receive their proper place. We willingly believe that Mr. Markham is quite capable of fulfilling his duties with the requisite ability, but we may be allowed to remind him that he has chosen a very difficult and unpromising *parti*, which can be brought to a successful result only by the help of earnest study and enlightened criticism, and that if he and his clients neglect these, their enterprise will, in an artistic sense, end in failure as signal as we hope their success will be by following a wise course. The architect will doubtless recollect the solicitude with which the best European artists court the criticisms and comments of the cultivated public upon their designs before carrying them into execution; if he is willing to emulate their modesty and desire for a perfect result, at the cost, perhaps, of their private self-conceit, he will set a good example to his successors, and will certainly benefit his own reputation.

THE OPEN VENTILATING FIRE-PLACE.¹—VIII.

WHERE open fires are not used, if it were possible to maintain the walls of the room at a temperature higher than that of the fresh air from the furnace flues, a greater degree of healthfulness and comfort might be attained, and the problem of the positions of supply and exhaust registers would be greatly simplified. Both registers would be near the ceiling as well in winter as in summer, and all movement of foul air, from occupants and gas-burners alike would be simultaneously upwards. The fresh air entering would fall first to the ground, and the movement of the strata would thence be upward instead of downward. Direct radiation would be enjoyed from the surrounding walls. Although less heat would be required to warm the fresh-air supply, it does not necessarily follow that, on this account the action of the heater need be the less automatic, for by using smaller hot-air flues and mixing cold air with the hot near the registers of delivery, the same heat and velocity in them could be maintained if desired, while the exhaust-flues would be warmer. The consequent general velocity of the ventilating current would then be greater in proportion to the amount of heat supplied by an exterior source to maintain the outer walls at the required temperature. For office buildings, apartment-houses, etc., or any buildings of many stories in height where open fire-places may be used and rooms over each other are constantly occupied, the principle of the use of simple metal flues side by side, as illustrated by the model, may be employed most advantageously. Fig. 220 gives a section of such a chimney for a library building designed by the writer. The plans show janitor's quarters in the basement, two mezzanine stories thereover by the side of a lecture hall, two more corresponding to the library above, and an attic over all. All these small apartments have open fire-places except that in the basement, in which is the range.

The flues of the range, first, second, third, and fourth story fire-places are shown constructed of sheet-iron, standing free in the fresh-air chamber formed by the walls of the chimney as in the model. This air-chamber is in each story entirely independent of the others, being separated by horizontal platforms of brick or flagging through which the iron flues pass. These platforms bind the front and rear walls of the chimney together, and prevent the warm air from rising immediately to the top of the chimney. They also serve to prevent the passage of sound from one story to another. Each fresh-air chamber is supplied with fresh air by an independent flue, which draws its air from an air-box of brick in the basement. These supply-flues are shown at the left-hand side of the stack. They do not increase the width of the stack because they diminish in number in each story as the smoke-flues increase, and therefore, occupy only waste space, and are actually necessary to serve as withes to strengthen the lower half of the chimney. In short, they take the place of the lower ends of the ordinary brick smoke-flues.

In summer the valve shown at the top of the fourth story is opened, and the fresh-air box at the bottom is closed. The range heat then passes off without heating the walls, and produces a ventilating current through the entire stack. The exhaust then takes place at the top of the rooms through the register used in winter for supply, and the fresh air is furnished through the open fire-places, or window openings to take its place, every current being thus reversed throughout the entire series of rooms, by the turning of a single register in the attic once in the spring.

Where the iron smoke-flues pass through the platforms of masonry shown in the figure, at the level of each floor, short pieces of tin pipe slightly larger than the flues, are encased in the masonry to make the joint, as shown in Fig. 221.

In this manner but little air escapes. What passes up from one air-chamber to another, is utilized in the latter, and the loss is confined to that which escapes through the upper junctions. This may be made inappreciable. There is no object in connecting the super-imposed air-chambers one with another with valves to allow the whole, or part of the air warmed against the lower halves of the flues, to pass up to the chambers above, when not required below, because the heat which would have been abstracted by the fresh air below is carried up in the smoke, and given out to the fresh air above instead, and the first cost and complication in management of the several dampers is avoided. Moreover, less heat is lost by absorption in the masonry.

By this arrangement no communication of sound from story to story is possible, as is often the case with furnace flues. The sound passing from one room down the flue to the furnace, and up again

through other flues to other rooms so that to those standing near the registers, sounds from all over the house are repeated.

Nevertheless, if for any purpose it is found desirable to connect the air-chambers together, a valve like that shown in Fig. 222 may be used to best advantage. The three flues at the right, are fresh-air supply-flues, and on the left are the fresh-air chambers containing the iron smoke-flues, or distributors, not shown in the drawing. Supposing the lower register to be for the hot-air supply of the dining-room, and the one above for the parlor, upon leaving the dining-room for the parlor, the hole in the platform forming the passage between the lower and upper air-chamber may be opened, more or less, by sliding the valve to the right. The warm air then passes up into the upper air-chamber and thence into the parlor, or into rooms above if desired. This damper is also used to temper the incoming fresh air.

With an ordinary register, if the incoming air be too warm or too cold, the only way is to close it, in whole, or in part. But by this method the ventilation is at the same time in whole or in part cut off. The valve under consideration, however, enables the temperature to be regulated without affecting the ventilation. Should the air from the fresh-air chamber be too warm, the valve is moved part way to the right. Part of the hot air then rises into the chamber above, while exactly the same amount of cool air enters from the cold-air flue, and mixes with the remainder of the hot air, as it enters the room through one and the same register face. The register face is shown in Fig. 223. The handle of the sliding damper is shown in the upper part. That of the register proper below. If cold air only is wanted the damper is moved entirely to the right, and all the hot air passes up above. When the room is left empty as in the case of a dining-room after the feast, and neither heat nor ventilation is wanted, the valve is pushed entirely to the right, and the register proper is closed. When but little ventilation is wanted, the register is closed partially, more or less according to the amount.

The various iron flues above described may be constructed of short pieces, the upper pieces always fitting inside the next below. Cement is hardly necessary, as the joints will soon cement themselves with iron oxide and soot. Any section may be removed, and replaced through the hinged panels by hammering and cutting the joints with shears.

The top of the chimney should be protected from the rain by flagging, or by ventilating caps where it is desirable that the wind should be made to improve the draught. These ventilators should not be made of metal which is rapidly destroyed by dampness, but rather of terra-cotta. The most effective, and simplest form is the ordinary Emerson chimney-cap, or the Van Noorden, Fig. 224, which is similar to the Emerson, except that the under side of the cover is formed of an inverted cone, instead of a plane. When the wind strikes the top of these caps an upward current, strong in proportion to the strength and direction of the wind, is induced in the flues with unerring certainty. No chimney-cap yet invented is able to do more than these, or to prevent the chimney from smoking under certain conditions, as when the top is surrounded by air condensed by pressure, while the air below is in its normal condition. This happens when a chimney stands near an object higher than itself. A strong gust of

wind may without touching the chimney itself strike this

object, and by its pressure, so condense the air below as to drive it down the mouth of the chimney and in every other direction where no resistance is offered. The simple Emerson or Van Noorden ventilator, especially when constructed of a durable material, unlike the complicated and ungainly patent chimney-tops of uncertain parentage and design, forms a permanent ornament to the edifice. Nor is a chimney-cap able to prevent a chimney from smoking under the conditions illustrated by the Fig. 225. The upper room is closed tight and no provision is made for the supply of air to take the place of that ascend-



Fig. 222.

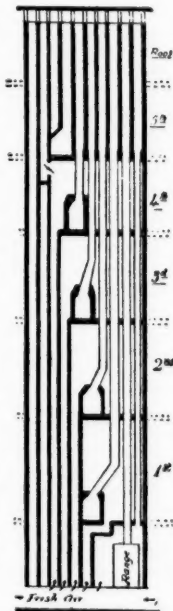


Fig. 220.



Fig. 223.



Fig. 224.



Fig. 221.

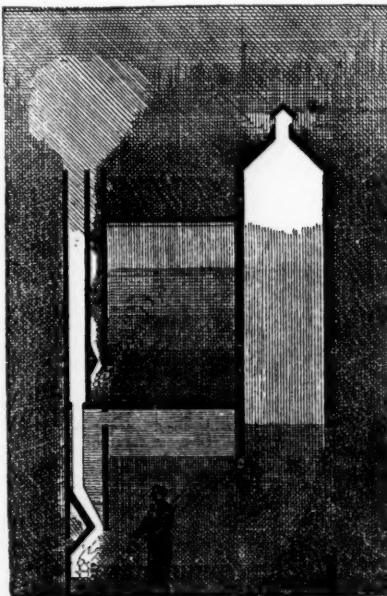


Fig. 225.

¹ This paper, by the writer of the Open Fire-Place articles, will be incorporated with them in their separate form.

ing the chimney. The cold-air supply will therefore descend the chimney in waves, as shown, in spite of the "ventilator" at the top "warranted to cure smoking in every case," and will puff into the room and bring smoke along with it. Nor will any chimney-cap prevent smoking under the conditions illustrated by the lower part of the figure. The lower room is connected with a hall or tower with ventilator at the top. When the sun beats on this tower and not on the chimney, or when the tower is in any way made warmer than the chimney, the column of air in the former will be lighter than that in the latter, so that, if there be no independent air-supply for the room or tower and no wind at the top of the chimney to act as motive power on the cap, the air will descend in the chimney-flue and cause it to smoke when a fire is first lighted and as long after as the want of equilibrium continues.

If sufficient cold air be supplied directly from the window through intentional openings and unintentional cracks the evil will be cured at once, but at the peril of the occupants whose legs will be bathed in a frigid zone.

The ventilating fire-place provides against this by warming the air-supplies, as shown in the left-hand side of the lower room, through an opening behind its back. The fresh warm air is here, as usual, represented as entering the room at the ceiling. The movement of the air in strata of various degrees of warmth is represented by various degrees of shading.

THE SCHEMES FOR THE DECORATION OF THE DOME OF ST. PAUL'S CATHEDRAL.

THE decoration in color of the interior of St. Paul's Cathedral ought to be a subject of so much interest to every Englishman, especially to every English architect, that I may perhaps be excused for committing to paper a few thoughts thereon, more particularly as regards the cupola. It is well at once to make it plain that I have no latent idea of submitting a scheme of decoration according to my own lights, but only intend to glance at the schemes prepared by Messrs. Penrose, Stevens, Burges, Pullan, and Heath Wilson. Notwithstanding the number of articles published in various quarters on the decoration, I do not remember any one giving a *résumé* of the principal plans proposed by the several artists named above. The want of such a description made me think it worth while to jot down these few notes.

The design for the decoration of the dome, prepared some years since by Mr. Penrose, the architect to the Dean and Chapter, does not altogether ignore the architectural treatment of the lines adopted by Sir James Thornhill. At the base of the dome Mr. Penrose places the colossal figures of the Prophets. Above them are semi-circular panels and lunettes, thus separating the dome into several parts. There is a horizontal band dividing the height of the dome (and it is worth noting that this is placed much higher than a somewhat similar feature in Messrs. Pullan & Wilson's design, to be presently commented upon), above which we see the company of the Blessed massed together, standing. The design is thus clearly architectural, for there are architectural frames to the pictures, but it is so arranged as to be perfectly "flat," without emulating real and substantial construction. It has been remarked that Sir James Thornhill's treatment is wrong in principle, and that the proper thing to do is to obliterate his "sham" architectural details on the face of the dome, and consider the whole space as given up to painting, pure and simple. But to describe Mr. Penrose's design more particularly. The dome is divided into eight parts on plan. The richness and elaboration, as well as the number of figures, increase as the height from the floor becomes greater. We know what Mr. Ruskin's opinion is on this point, and it has been said to be a mistake to put elaborate work at such a distance from the eye that it cannot be seen properly. But nevertheless there can be no doubt this architectural principle is the correct one. Mr. Penrose has introduced a frieze with rectangular ornamental panels under each window, all executed in color and gilding, but this is done so quietly and with such repressed feeling, that the proper degree of force and vigor is given to the upper and richer portions of the design. Under each pier and between the windows is a figure of an Apostle set in a niche. Above the cornice of the drum of the dome the architectural painting commences. Separating each of the eight arched compartments (which latter are in two ranges) are piers, with panels in them, the lower ones containing arabesques, the upper, figures of angels blowing trumpets.

The lower arched recesses contain, each, three seated figures—one, for example, the Blessed Virgin robed in the traditional blue with a figure on each side, showing forth the Annunciation. In the arched compartment over this is represented the Holy Dove, and the tympanum is adorned with *grisaille* enrichment. Above, in one continuous frieze, as I have before mentioned, stand the company of the saints, martyrs, and the happy ones bearing various musical instruments, and still further above, the heavenly hosts of angels holding scrolls.

Thus at the summit terminates this carefully wrought composition the key-note of which is evidently the "Te Deum Laudamus." The whole of the coloring and architectural treatment is harmonious, and quite in accordance with the style of the building. All the figures have gold backgrounds. No other is so successful, and yet withal so quiet in tone, though rich in general effect. I cannot but think that the triple division (vertically) of the dome gives apparently increased

height to the composition. This design (shown in several perspective drawings ably colored by Mr. Michael) is hung up in the Chapter House, St. Paul's Churchyard, as is also that of Mr. Burges.

In the late Mr. Stevens's very clear design there is a manifest absence of architectural lines—the lines are those of a painter or sculptor. Though Sir James Thornhill may have too closely made painting an imitation of architectural details, giving light and shade where a flatter treatment would have been more suitable, yet the general effect is good. We ought to be assured that we are going to look at something better before it is abolished. Let us examine what Mr. Stevens proposes. At the base of the dome are figures of Prophets, and above them large circular medallions intended to be filled with figure subjects. The dome is arranged in eight divisions separated by piers or pilasters, treated in so sculptural a style that the eye does not detect any severe vertical lines.

The details are imitative of actual architectural forms; there is no attempt to make them look like paintings on the flat. On the other hand, the composition has the merit of well filling up the space and connecting all the painted subjects together in frames, so to speak. I can appreciate the great versatility of Stevens, having had the privilege of examining some of his masterly original sketches. He appears to have been able to find pleasure and profit in designing humble details (such as a fire-dog), as well as in greater matters. There was great refinement in his works, and also abundance of vigor—two qualities not often combined. During his long residence in Italy he had studied the best examples there, and was not imbued with the feeling of the French Renaissance—a style inferior to the Italian.

In Mr. Burges's scheme the feeling is widely different in style and in other respects. His mediæval proclivities had to be repressed. The result has been, not a design executed in the Italian Renaissance, but in a style supposed to blend with that of Wren's work—the Byzantine. Under the windows of the drum of the dome are represented winged angels, or rather cherubs with bare legs and feet. Some are blowing trumpets, and depicted standing under little trees, apparently on grass. Although the majority are standing, some are sitting in different positions. This is poetically conceived, but is it not rather a return to the quaintness of the middle ages and inconsistent with modern notions, and, moreover, out of harmony with Wren's building?

It should be observed that none of the figures have any connection as regards their centering with the architectural divisions above them. This is perhaps as well, the frieze being cut off thus from the rest of the composition. In the niches between the windows are figures of winged archangels holding shields and swords. Under them are panels containing arabesques, and the same feature occurs above. In each bay are three windows, the central one containing the figure of an angel, the remaining two windows executed in *grisaille* glass. But these angels in transparent colored glass scarcely harmonize with the opaquely-tinted angels in the divisions between each bay. Above the windows really begins the colored decoration of the dome, which, unlike Mr. Penrose's scheme, is in two stages instead of three. Mr. Burges, however, follows the same plan as Mr. Penrose, dividing the dome into eight parts on plan, further subdividing the lower panels into two compartments each, containing two figures of apostles and saints. The piers separating the eight divisions are panelled with arabesques. Above the panels with figures of apostles and saints is a series of single panels, the principal one representing our Saviour seated, with a gold nimbus, and the evangelistic symbols at His feet. He holds His right hand in the act of benediction, and His left has the Book of Life. In the flanking compartments are the Elders with their golden crowns, turning towards Him, and with the clouds beneath them. Surmounting these subjects is a series of octagonal sunk panels.

In the designs both of Mr. Penrose and Mr. Burges, it will be noticed that the horizontal lines, though frequently employed, are not so marked, as in Messrs. Pullan & Heath Wilson's scheme. No doubt many of my readers may have examined the drawing representing one-eighth part of the dome to one-sixth full size, which was on view at the Egyptian Hall last autumn. It was a joint design of Messrs. Pullan & Heath Wilson for the decoration of the cupola, the subject being the "Court of Heaven," as described in the Te Deum. I do not think the artists could have taken a better, nobler, or more effective theme (as far as decoration is concerned)—a theme, too, which has the advantage of mediæval precedent without the disadvantage of being unsuited to modern views. The meaning can be grasped by any one who is quite unacquainted with abstruse symbolism.

The grand and mysterious imagery of the Apocalypse would scarcely have been so appropriate as that of the Te Deum. The majority of people will not crane their aching necks to puzzle out the meaning of subjects which are not plain. When the subject is in a *redundant* or a wall-painting near the eye, or in painted glass, it is easy as well as interesting to exercise one's ingenuity and find out what it all means. The Te Deum, to use the words of Mr. Wilson, presents "pleasing images only, and is free from all of a monstrous nature, which, however frequent in mediæval art, are unsuited to present taste. We prefer the expression of prayer, praise and thanksgiving, and the subjects which we have selected appear to us to be sufficiently comprehensive, for in them the best traditions of the practice of ancient art may be combined with the spirit of modern ideas."

Although my studies and education have been in the mediæval

school almost exclusively, I cannot help deprecating the servile copyism in so-called Gothic art, of mediæval quaintness and ugliness, or perhaps superstition. I need not further particularize. Common sense will at once guide the artist in using such imagery as is appropriate to the feelings of the present day. I could scarcely give a better illustration of my meaning than by referring to the two frescoes of Heaven and Hell, painted respectively by Andrea and Bernardo Orcagna on either side of the Strozzi Chapel at the Church of St. Maria Novella, Florence. In the former all the beautiful idealization of the artists of the middle ages is shown (for what modern could paint an angel or saintly personage like some of the old masters?), while in the latter all the terrible imagery and repulsive grotesqueness (though the grotesqueness is not intended) is displayed.

Messrs. Pullan & Wilson, like Mr. Penrose and Mr. Burges, adopt Sir James Thornhill's principle of dividing the cupola into eight equal parts, which they propose to effect by means of strongly emphasized ribs decorated with flowing ornamentation on a neutral-colored ground. At the feet of these ribs are the statuesque figures of prophets seated on thrones, forming the lower portion of the composition. Let me here say a word in commendation of the common-sense mediæval practice of conventionally lifting up poor humanity by these architectural accessories. Both for reverent and for artistic motives this is the right feeling.

I remember reading how Mr. George Edmund Street almost lamented the scrupulously accurate and chronological correctness of all the details in Mr. Holman Hunt's celebrated picture of The Shadow of the Cross. Much as one may admire the wonderful execution and study of such a production as this, a feeling of regret must have been felt by many that it did not possess greater idealism. Though the "dignity of labor" may have been inculcated, the realism was not pleasing. At the present day such "realism" is little better than a sham. For how can the wisest and most learned among us pretend to say our realism is quite accurate, when so many centuries have passed away? Let us not unwittingly degrade the mystery enveloping these scenes—rather let us cast a religious halo around them. Go into the National Gallery and note the absolute disregard of chronology as regards architectural surroundings and costumes in many of the finest pictures. For how continually in the best period of the middle ages, as I have before remarked, is architecture conventionally represented.

Look, for example, at the painting of The Nativity, by Paul Veronese in the National Gallery, where the stable of Bethlehem is in the Italian style and with architectural features which must be entirely fanciful, even although Palestine was in Roman occupation. Some people smile at this childishness, as they call it, but why? Surely the sacred character of the subject represented warrants the ennobling of the architectural surroundings, and the painter has shown a very proper feeling of reverence. In the nineteenth century the rush after "realism" is no proof that we are wiser than our forefathers—perhaps rather the reverse. In old glass, it is almost needless to add, the pinnacled and crocketed canopy-work is one of the most valuable accessories to the artist. If used with due restraint this delineation of architectural forms in such subjects is not only permissible but advisable. It often helps to bind the whole together, while at other times it has another object, *i. e.*, the necessary separation of one portion of the design from the other.

In the celebrated picture by Raphael at the Vatican of The Transfiguration, the composition is so ingeniously managed that the upper portion, as has been often stated, has been imagined by some to be a separate subject from the lower. Yet how well both harmonize, so that the painting may be considered one or two subjects as the spectator elects. Though there are no architectural details in this picture, the principle I have alluded to is the same. Generally in such matters we cannot do better than follow the example of the old masters.

In a decorative painting the canopy or other architectural work should, of course, be treated in a conventional and flat manner. A painted balustrade in the cove of a ceiling, as in the large hall at Willis's Rooms, is quite indefensible. It appears to be tumbling forward, and is a distraction to those who wish to do justice to what is put before them.

The painted horizontal band representing an entablature is in Messrs. Pullan & Wilson's scheme an architecturally treated feature. But its tones are delicate, and the flat ribs dividing the dome into eight parts are strongly emphasized with flowing scroll-work ornamentation on a dark neutral ground. But we may ask, would not the long interval between the cornice of the drum of the dome and the circular upper portion of the cupola be very difficult to treat without some tangible horizontal break? The statuesque figures of prophets and apostles, it has been remarked, seem to require an architectural background, even though it be a flat one. Above, well separated by the entablature, a different treatment comes in naturally enough. Here is plenty of movement, angel after angel soaring upwards, while the tone of color is delicately softened off up to the highest point of the cupola. These adoring celestial figures form a part of the composition, yet are distinct. Just for a moment compare this design with some of the late Renaissance or Baroque work (particularly as appertaining to domes) in France or Italy—the apotheosis of some monarch for example. Frequently this is quite a jumble, and Louis XIV, or some other king, leaping angels, and cherubs looking like Cupids, seem to be all much mixed up together—earth with heaven!

It has been suggested by some critics that the whole of the surface of the dome above the stone entablature should be treated as one hemispherical space for decoration without any architectural lines whatever, like an *apsis concha* in a Roman Basilican church. I venture to submit that the junction between the real architecture and the painting would be too abrupt. It is true that there are no projections in the entablature to suggest the carrying up of the ribs forming the proposed eight compartments, but, to my mind, a few marked lines there are desirable, as the harmonious assimilation and blending together of the architectural and painted portions of the composition would be thus attained.

The colors in Messrs. Pullan & Wilson's design were rather strong and vivid, but in a model to a small scale it was difficult to avoid this. In execution the colors would, no doubt, be toned down. Some gauze (such as one sees for *tableaux vivants*) would help to give a little more of the real atmospheric effect. A plan of the dome showing what one-eighth really is would enable people more readily to realize the actual scale, or, better still, a small wood model with the general scheme sketched on would have made it more easy for the spectator to grasp the design. Should Messrs. Pullan & Wilson bring forward their scheme again at a future time, perhaps they may not consider these suggestions unworthy of notice. They say that their design could be executed in *fresco tempera* or mosaic, and that the ribs with figures and ornaments on them might be executed in stucco in low relief. To quote from Mr. Wilson's descriptive account: "Thus great richness of effect would be obtained, and the constructional idea of the design thoroughly carried out."

Having thus glanced through the schemes as yet submitted for this important work, let me make a few general observations. One of the critics has expressed a doubt whether it is worth while to place "figure subjects of the highest class of pictorial design" in such a situation as the ceiling of a dome. In the case of a complicated abstruse subject I should agree with him. But any ordinary individual ought to appreciate the glorious purpose of the *Te Deum* either as represented in painting or sculpture. The suggested introduction of figures merely to contribute a general effect and give a style of architectural decoration is not to be commended. I fear the bitterness of polemical feeling has in some cases carried away the critics to such an extent, that they are always afraid of something "sectarian" being introduced. I would venture to remind these good gentlemen that any scheme of colored decoration which would satisfy *everybody* would be very tame and feeble.

It is inevitable that in any great scheme of colored decoration to the interior of the cathedral, the pavements will also have to be considered, but as I have limited my observations to the dome, I will not further pursue that point. There will be also that important question of the treatment of the Portland stone, which Mr. Burges proposed to veneer with marbles to a considerable extent. It is clear that something would have to be done to make this agree in tone and character with the coloring of the vaults and dome.

It is to be sincerely hoped that the Decoration Committee may shortly come to some decision on this important matter. The subject is no new one, and has certainly had a great amount of thought and consideration devoted to it during the last seven or eight years. The number of those who are believers in the "chaste simplicity" of bare uncolored surfaces of walls cannot be large. How they can reconcile the congruity of these impoverished-looking spaces with the wealth of architectural lines, mouldings, etc., around, it is difficult to understand. The "breadth" of effect need not be lost if these surfaces are skilfully treated, and it is idle to speak of all color applied to churches as meretricious.—*The Architect*.

THE CLERK OF WORKS: A VADE MECUM.¹

THIS is a little book much of which has already appeared in the form of papers contributed to the *Building News*, while some of that which is new is not particularly valuable. However, so far as the limit of forty small 16mo pages of text will allow, the information given is useful, and certain hints are particularly valuable, while there is a noticeable absence of the antiquated padding which forms a large part of the bulk of some of the books in Weale's Series. A few of the suggestions are perhaps even too advanced, as the one which recommends that plastering lime should always be slaked at least two months before using. Friendly as we are to the practice of having lime well slaked and cooled before mixing, we should hesitate to insist upon a rule which would require the preliminary steps for plastering most of our houses to be taken before the signing of the contract. Some very judicious cautions are given in regard to the laying of drains. The author asserts, what we can confirm, that unless the clerk of works or superintendent "stands over" the men himself, the drainage will be a failure, and gives minute and sensible directions as to the mode in which the work should be done; the only point to which we can take exception being the casual reference to jointing pipes with clay, a practice, which to our mind, should never be countenanced. We forbear making extended quotations from the work, for fear of leaving too small a residuum, but our readers may take our word for it that the most experienced of them will find suggestions enough in it to repay its trifling cost.

¹ *The Clerk of Works; a Vade Mecum* for all engaged in the superintendence of building operations, by George Gordon Hoskins, F. R. S. E. London: E. & F. N. Spon, 46 Charing Cross. New York, 446 Broome St. 1878. 60 cents.

MODELLING IN CLAY.¹

ANY one who could have seen the group of a dozen or fifteen children who last summer gave up a portion of their vacation play-time to gather regularly round a long bench in an old barn not far from this city, as with busy intentness they followed the instructions of their teacher in the use of clay and modelling tools, would have had small doubt of the efficiency of kindergarten teaching. And had such an observer turned from this sight to the little book before us he would have had small need to question the truth of Mr. Vago's own statement "that one practical lesson in an artist's studio is more useful to the learner than a dozen books full of theory."

With the kindergarten system of object-teaching we have decided sympathy, particularly where an attempt is made to waken early in life in all the children submitted to its working, those faculties of head and hand to which the hard practicalities of after life or the unbeautiful surroundings and practices of individual homes might otherwise deny their possible development; for as our author says in his preface, "Although as a fact no kind of training will produce faculties, yet, on this account, we may not claim the excuse of being deficient, for, except in cases of idiocy, it is as unusual for a person to lack any one of the natural faculties as it is to see a face without a nose." How far the faculty for modelling in clay is natural and universal, and consequently in most individuals a wholly dormant and wasted power, we do not know; nor do we know to what degree its development would have an elevating and refining influence on those who cultivated it; but we do believe that the endeavor to develop it could hardly fail of producing an intellectual gain, even if the attempt were a failure, — although as much might be said of any mental effort.

To a large class of craftsmen and others, amongst whom are architectural students and draughtsmen, the power of modelling in clay the details of decoration which they now have to design with pencil and brush, might be of incalculable benefit, but we fear that they will not be able to obtain much real instruction from the little work before us, interesting as it is in some ways. As a practical treatise on modelling it is incomplete in many ways, although as an amateur treatise on phrenology it is quite entertaining, in spite of the author's sometimes confused and inappropriate choice of words, as for instance where, in speaking of modelling busts, he says: "The geography of the head, as furnished by the phrenological divisions, supplies landmarks whereby the ground can be reconnoitred with precision."

To such remarks as "A person need not be a Royal Academician to be able to make suggestions which may be of advantage to the artist," or this, "But this branch of the art (modelling bas-reliefs) in some cases conjoins that of the painter, wherein it is necessary to observe the rules of perspective," we entirely agree. Other remarks it would have been more judicious to have left out, as for instance where the writer confesses that he does not know "whether any rule is recognized among painters which may direct the pupil with regard to perspective other than that of watching his work at such a distance as it is intended to be viewed from by the spectators."

Instruction in taking casts from the completed model is almost as necessary as that for making the model itself, and it is disappointing to find only the method of "waste moulding," — in which both model and mould are destroyed in making a single cast, — is described at length. That it is possible to make the mould in detachable pieces, so that from it may be secured an indeterminate number of casts, is barely hinted, while the very useful accomplishment of taking "squeezes," the use of wax and gelatine in making moulds for casts where the model is much undercut, and the large amount of practical information and instruction in modelling for commercial rather than for artistic purposes, are quite neglected.

On the whole it seems that Mr. Vago's portion of the book is more interesting as a discussion of some bearings of the art than instructive in it. Mr. Pitman's appendix — only ten pages long — might, almost without loss, have been condensed into some such single sentence as this: "Do not use for your first model the old boot Mr. Vago advises, but rather copy a large leaf."

THE ILLUSTRATIONS.

INTERIOR OF THE DINING-ROOM IN THE HOUSE OF J. Q. A. WARD, ESQ. MESSRS. KIMBALL & WISEDELL, ARCHITECTS, NEW YORK, N. Y.

The remodelling of this room was carried out in 1878.

AN ESSAY IN STONE AND WOOD, BY MR. LOUIS COWLES, CLEVELAND, O.

ORANGE MUSIC HALL, ORANGE, N. J. MESSRS. SILLIMAN & FARNSWORTH, ARCHITECTS, NEW YORK, N. Y.

This building, 60 by 135 feet, was lately completed at Orange for the Music Hall Association of that place. The main hall seats one thousand persons in a space 57 by 59 feet, with one gallery. The stage is 36 feet wide by 28 feet deep and is arranged so that the hall can be used either for theatrical purposes or solely for music. There are two doors of egress, the main entrance opening on an iron staircase with slate treads, at the front, and a rear entrance door connecting with rear staircases at either side of stage. The main ticket-office

lobby is tiled. The ceiling is panelled in heavy panels with octagonal dome in centre, under which hangs a large "sun" light. The dome is used as a ventilator and the escape of the air is controlled by dampers. The ceiling is of canvas painted in appropriate designs. The hall is heated by indirect radiation from steam-coils in the cellar, and ample means are provided to carry off the foul air in all parts of the house. Acoustically the hall has been pronounced a success by Thomas and others. The walls are of New Jersey brick faced with Trenton pressed brick, relieved with terra-cotta (red), Belleville stone, and moulded brick. The roofs are slated with purple and red slate. Cost, \$45,000.

A LEGEND OF SAN DONATO.

OF the many grand old buildings that adorn the fair city of Florence, two of the most remarkable for architectural excellence and artistic decorations are undoubtedly the palaces that bear the names of the ancient and noble families of Strozzi and Riccardi. The honorable descent, the great actions, the former vast wealth and power and magnificence of these two illustrious Florentine houses are matter of history. In the Riccardi palace my good old friend, now, alas! no more, the Marchese Carlo Riccardi-Strozzi was born, on the 15th of June, 1801, son of the Marchese Vincenzo, who was the son of the Marchese Giuseppe Riccardi and of the Marchesa Anna, who was the daughter of Count Amerigo Strozzi. In this great palace till the age of fourteen he passed a part of every year. He must have looked often with wonder and admiration at the marvellous frescoes by Benozzo Gozzoli in the old Medicean chapel, at the gorgeous ceiling in the great gallery painted by Luca Giordano, at the Latin inscriptions and busts and sarcophagi that adorn the court, at the old books and MSS. of the famous library, which it is a pleasure to enter and a regret to leave. He must have heard that the old palace built by Cosimo Pater Patrie, where popes, emperors, kings, princes, illustrious statesmen, scholars, and artists had been honorably received, had been almost doubled in size and restored and enriched by his ancestors the Riccardis. He must have seen the pomp of his family, the festive meetings, the ceremonious receptions, and the thirty servants in the Riccardi livery who carried torches in the procession of Corpus Domini. He must have been told and felt that he was heir to all this wealth and splendor. It may easily be imagined what were his feelings and sufferings when the crash of ruin came upon his family in the year 1814. The ruin was almost complete. The palace, including the library, passed into the possession of the State. The effect of that sudden change upon the boy of fourteen was seen to the last in the man. The Marchese Carlo Riccardi-Strozzi led a retired and studious life, dividing his time between the administration of the estates which came to him from his mother and his literary occupations. Fortunately for him in his great misfortune, the property which he inherited from his mother was considerable. It consisted of a great palace, famous for its grand staircase, at the corner of the Piazza del Duomo, purchased from the Gaudagni family; of an estate at Campi, comprising the old tower or fortress of Campi, and a little castle at Santa Maria di Monte Morello, like my castle of Vincigliata, but smaller; of the villa and estate at La Panieretta, a few miles from Poggibonsi; of the villa and estate of San Donato in Perano, in the province of Chianti; and of the great villa and estate of Querceto, in the parish of San Martino a Mensola, near Florence. These estates he visited yearly in regular routine, and at stated seasons. To the magnificent villa and estate of Saletta, near Pontedera, the last remnant of the Riccardi property, he rarely went, and only for very brief visits, as he possessed only one-half of it. It was chiefly owing to the vicinity of the villa of Querceto to my villa of Majano that I became acquainted with the Marchese Carlo Riccardi-Strozzi. The acquaintance became intimate and ripened into friendship. Ever since the year 1827, and perhaps earlier, Querceto has been a favorite villa of the Strozzi. In the chapel there is a most beautiful work of art, a Madonna and child, by Luca della Robbia. In the great saloon are many portraits of the family, not a few of officers and generals in the service of the Holy Roman Empire, this branch of the Strozzi, having adhered to that empire, as the elder branch adhered to the kings of France. My friend Marchese Carlo, amongst other accomplishments, was a good German scholar, and translated into Italian the life of Bianca Capello by Siebenkees, which he had the kindness to dedicate to me. As to the Holy Roman Empire, I remember an old *contadino* at Majano who would not hear of the French emperor or any other modern emperor; he always said with grave emphasis, "There is one God, one Pope, one Emperor." After many pleasant visits to Querceto and Campi and La Panieretta, I had the pleasure many years ago of staying for some days at San Donato, in Chianti. I have seldom passed a week with more satisfaction. There were pure keen air, good country fare, something new worth seeing every day, pleasant, well-informed companions, and the old-fashioned cordiality of the master of the house, that made every one feel at home and at his ease.

One day an old priest who held one of the Marchese's benefices, and often acted as chaplain at San Donato, and who seemed to know everything about everybody, told me, amongst other things relating to the Strozzi of San Donato, that many years ago, in making some internal alterations which required an opening in a very thick wall, the workmen suddenly came upon the skeleton of a man in a standing position, built into the wall. He was dressed in the costume of about 1620-40, well known from descriptions, and better from the

¹ *Instructions in the Art of Modelling in Clay.* By A. L. Vago, with an Appendix on Modelling Foliage, etc. By Benn Pitman, of Cincinnati School of Design, Cincinnati: Robert Clarke & Co. 1880. Price \$1.00.

portraits by Van Dyck, Sustermans, and other painters of the time. The dress had partly mouldered away, the skeleton had become a parched-up mummy, and only from the well-preserved teeth and light-brown hair could it be conjectured that he had died young. On the head was a broad-brimmed felt hat, like that in the well-known pictures of King Charles I. of England. One of the workmen took the hat and wore it till it was worn out. There was no judicial investigation. Who he was, whence he came, and how and why he had been built into the wall, became for a time the evening talk of the priests and *contadini* in the neighborhood, and was soon forgotten for newer subjects of village conversation. The old priest said there was a tradition of a lover surprised by a jealous husband, a Strozzi, who had married a Genoese beauty about two hundred years ago or more, and who suddenly disappeared, and was never seen or heard of afterwards. He cautioned me not to ask the Marchese about it as he disliked any mention of that part of his family history.

After some fine weather and pleasant excursions there came a day of continual heavy rain, so, not being able to go out of doors, we went, most of us, on a tour through the house. There are more than one hundred rooms, some modernized, and with modern furniture, some gloomy, but interesting, from being in appearance and in furniture much as they were in the seventeenth century. In one of them, having on the stone architrave of the door the date 1620 and the letters "O. S.," we found a number of old pictures resting on the floor and turned to the wall, mostly saints, landscapes, and portraits of little merit and in bad condition. One of them was, however, a really good picture, and, though damaged and torn, and dark with age and neglect, made a great impression on me. It was a full-length portrait of a beautiful young woman in the picturesque dress of the seventeenth century, and from what could be distinguished of the figure, the fine features, and the singularly bright and expressive eyes reminded me instantly of a charming portrait by Van Dyck in a Durazzo palace at Genoa. Round the fair, graceful neck was a very thin silk or plaited hair chain, supporting a very small medallion of a reddish color. The name of the lady depicted, the date, and the name of the painter had been carefully and thoroughly erased. When I called the Marchese's attention to it, he looked at it with an embarrassed air, remarked that it was probably a fancy portrait of some stranger, and immediately turned it to the wall. In a moment after he opened a cupboard full of books, and kindly told me that, as I had a liking for old books, I might examine them, and take those which I thought worth taking. Collectors and lovers of old books may imagine with what eagerness and curiosity I began my search in the cupboard. There were many volumes of theology and lives of Saints and books of travels. Amongst them was the collection of voyages, in three volumes, folio, published at Venice by Ramusio, 1559-1565; also a book on cookery by Bartolomeo Scappi, cook to Pope Paul V. (Camillo Burghese), printed at Venice 1610, with a number of most interesting illustrations of every object relating to the kitchen and carving and the service of the table; also, "Tractatus de Venenis a Magistro Petro de Abbano editus, Padue, Anno Domini MCCCCLXXII. Deo Gratias." When I had arrived at this point I was called away to dinner; the time occupied by that meal and the evening conversation seemed to me much longer than usual. As soon as possible, when it was about eleven, I rushed back to my book cupboard, and carried most of the books to my bed-room. The operation of glancing at the title-pages, selecting, and carrying the books in packets from the lumber-room to my bed-room occupied more than an hour. I then seated myself on the floor, with a couple of candles and my books, and proceeded with my inspection. Among them was "Les Voyages de Jean Struys en Moscovie, en Tartarie, aux Indes, et en d'autres Pays Etrangers, à Amsterdam, 1681." This was the most modern of the books in the cupboard. On the title-page is written "Chardin," and on the margin in several pages there are notes in Chardin's small, clear, delicate handwriting, commenting on Jean Struys's marvellous narratives. One of the engravings in the book is frightful and sickening; it is in two parts. In one a Persian husband, assisted by two servants is flaying alive his wife, who is fastened naked to a St. Andrew's cross. In the other he is exhibiting to his friends the skin nailed to the wall. Jean Struys says he was near the house, and heard the wretched woman's shrieks, but no one dared to interfere.

As I was thinking over the tortures of the victim, the detestable cruelty of the monster in human shape who inflicted them, and the cowardly indifference of his neighbors, I was surprised by a very slight sound, as of rustling silk, and looking up from my books, I distinctly saw a female figure in a white dress slowly gliding round the room, feeling the wall with her hands, as if searching for some particular spot. My first impression was that it was a trick to try my nerves, invented by some one of the guests. I remembered a secret passage in my villa at Majana, commanding a bed-room where tricks were practised in former times to frighten visitors, especially those coming from a distance. But then I had, according to my custom, carefully examined every part of the room, one of the great old-fashioned rooms of the house. The floor was of bricks, painted like granite, the ceiling of beams in the Venetian style; there was no fireplace, according to the old fashion which, allowed generally only two fire-places to a house, one in the great hall and one in the kitchen. There was very little furniture, and the only suspicious looking objects were two great cupboards, not movable or projecting from the side of the room, but let into the wall which was unusually thick, the depth of

the cupboards alone being at least a yard. As usual I had locked the door. All this flashed through my mind in an instant. Then, I confess it, there came over me that peculiar sensation called creeping of the flesh — "arrectæque horrore comæ, et vox faucibus hæsit." I felt my hair standing on end, and my voice stuck in my throat. I tried to speak and could not. At last I moved. At that moment the figure turned towards me, and I saw at once the image of the portrait in the old room, the same white figured silk dress, the same lace, the medallion, the brown hair, and the strange bright eyes with a feverish and melancholy expression. I started to my feet, and in so doing overturned and extinguished the candles. I had not closed either the outer or inner shutters; there was no moon, but a very dim twilight, partly, I suppose, from the stars. Unluckily I had no matches to strike a light. There was the figure, which appeared to move in a light of its own, a sort of halo, as it seemed to me. Slowly it left the wall and disappeared in the bed — a great bed of the seventeenth century, with a carved walnut-wood canopy and red damask silk hangings, of the size and form of a bed I have at the villa of Majano except that mine is more modern, being of the last century, and having the canopy of carved wood gilt and the hangings of figured blue silk. I remained for a time I know not how long, standing bewildered in the middle of the room, straining my eyes towards the bed. The semi-darkness and the silence became oppressive; I felt stupefied — an irresistible fascination fixed my thoughts. I undressed hurriedly and almost unconsciously climbed into bed. I must have fallen into a trance or a deep sleep — so deep that I was only awakened by a loud knocking at my door. I jumped out of bed. It was late — so late that breakfast was ready; so the servant told me, and he had been sent by the Marchese to see if I was ill or had gone out. As I was dressing I saw something on the floor; it was a little medallion — a garnet or very red amethyst, or a carbuncle or a ruby, I cannot say positively which, — with an exquisite ancient Greek engraving of a sphinx, with a very thin gold setting and a very small chain, either of silk or plaited hair, with a tiny gold clasp. I send you an impression of it. When I appeared in the breakfast-room every one looked at me with a peculiar expression — at least I thought so — especially the Marchese, who, however, asked very kindly as to my health, observing that I looked pale and haggard. I thanked him, merely remarking that I had sat up too long over the books and had not been able to sleep till early in the morning. I put into his hand the medallion, telling him where I had found it. He looked at it curiously and nervously, turning very pale. He gave it back to me, saying that it had probably fallen out of one of the books; that as he had given me the books, he begged me to accept the medallion also, and to keep it carefully, as a slight remembrance of my visit to San Donato. Shortly after breakfast the party broke up, as had been previously arranged, and I returned to Florence.

I make no attempt at an explanation. A quarter of a century or more has elapsed since that night. The vision haunts me to this day. Often at night I seem to be in that old bed with the apparition looking steadfastly at me with radiant eyes, and I wake with a start and in a fever, to wonder at the mysteries which perplex human reason.

J. Temple Leader in the Athenæum.

A NEW METHOD OF ASCERTAINING AND RECORDING THE VELOCITY OF LIGHT.

PROFESSOR SIMON NEWCOMB, astronomer, and superintendent of the *Nautical Almanac*, has finished his new apparatus for ascertaining the velocity of light, and is making a series of preliminary experiments to test its parts.

He was delayed several weeks in the work of construction by the difficulty experienced in getting a small cog-wheel of material possessing both strength and elasticity sufficient to receive a power giving two and even three hundred revolutions a second. Brass, steel, and other metals were tried in vain, and success was only reached when, upon the suggestion of Alvan Clark, of Cambridge, Mass., rawhide was adopted. The wheel is about an inch and a half in diameter, and a little thicker than a silver dollar.

Professor Newcomb has selected for his base of operations a point at Fort Whipple, on the Virginia side of the Potomac, opposite Washington, where his apparatus has been set up in buildings erected for the purpose. Recently a correspondent of the *New York Tribune* had an opportunity to see the apparatus in operation, and of hearing from the lips of Professor Newcomb an explanation of the principles upon which its results are to be worked out.

Its most conspicuous parts are two brass tubes, eight feet in length by about two inches in diameter, placed horizontally at right angles to each other, like the two branches of the letter L, and resting at the angle and at the outer ends upon low solid columns of brick and stone. These tubes are telescopes, differing from ordinary instruments only in respect to their great length and small diameter. One of them is immovably fixed upon its bed of masonry, while the other — being laid in a plane about two inches lower, with its "object" end upon a pivot — swings by means of a delicate screw to the right or left through a radius of one or two degrees.

At the angle formed by the line of the two telescopes, and placed so as to be in the line of vision of both, stands a small mirror of peculiar construction. It is a square column of steel, five inches in length by two in diameter, and plated upon its four sides with nickel. It is mounted top and bottom upon pivots, so as to revolve horizon-

tally, and it is to this mirror that the raw-hide cog-wheel conveys its power. Affixed to one of the wheels which gives motion to the mirror is a device for breaking an electric current, connected with a recording clock, so that the number of revolutions of the mirror each second is automatically recorded. The power to give the mirror its revolutions is furnished by a steam-engine built for the purpose and placed in an adjoining building.

A few feet distant from the eye-glass of the fixed telescope, and in a direct line with the instrument, is placed a helioscope—an apparatus consisting of a mirror mounted upon complicated bearings and moved by clock-work, so that when wound up and adjusted it will follow the apparent motion of the sun, reflecting its rays for any desired length of time upon a given point. The rays, or to speak scientifically, the waves, of sunlight thrown from this instrument are brought to a focus by an intermediate lens upon the eye-glass of the fixed telescope, through which they pass to the surface of the revolving mirror at the other end.

At the Naval Observatory in Washington, some 8,000 feet distant from Fort Whipple, across the Potomac (its exact distance will be ascertained by the Coast Survey before actual work is commenced), is placed a fixed mirror, circular in form, three feet in diameter, and of such a delicate degree of concavity that light thrown upon it—as from the revolving mirror at the fort—is returned again and brought to a focus as near may be upon its starting-point. In other words, this mirror is a section of a shell, which, if complete, would be three miles or more in diameter. Of course, to all appearance it is perfectly flat.

Now, to understand the working of the apparatus, let it first be supposed that the revolving mirror is at rest. The course of the sun's rays will be as follows: Striking the mirror of the helioscope, they will be reflected through the intermediate lens upon the eye-glass of the fixed telescope, through the instrument to one side of the revolving mirror, thence to the concave mirror across the Potomac, by which they are returned to the revolving mirror, and are finally reflected through the movable telescope to the eye of the observer placed at the eye-glass. The point at which this telescope rests to receive the sun's rays after they have made their tortuous journey, the revolving mirror being at rest, is marked zero. Now apply the steam and set the revolving mirror in motion. It sounds like the concentrated shriek of a hundred terrified children. Give it 200 revolutions a second, and its four sides will throw 800 reflections of the sun's rays across the Potomac to the mirror at the Observatory. Nothing but the shriek indicates that the mirror is in motion; it looks like a small polished cylinder. The observer no longer catches the sun's reflected rays through the movable telescope at zero, but swings his instrument to the right or left, according to the direction in which the mirror is made to revolve, until they again reach his eye. Reflections, following each other with such enormous rapidity, appear as a single reflection.

This, then, is the whole process. It remains only to note the number of revolutions per second, as indicated by the recording clock, and the degree of deflection from its normal position at zero given to the movable telescope, and work out the result as a sum in arithmetic. It will be seen that, while a ray of sunlight is making its journey across the Potomac and back, between the revolving mirror and the fixed concave mirror, the former will have made some portion of one of its revolutions. This portion is represented by the degree of deflection which it is necessary to give to the movable telescope to catch the rays upon their return and second reflection from the revolving mirror.

The following propositions, penciled by Professor Newcomb, illustrate more accurately the results to be attained from given hypotheses: Speed of mirror, 200 turns per second; deviation of reflecting ray, $2\frac{1}{2}^\circ$; distance, 1.6 mile. Results:—Motion of mirror in 1 second, $360^\circ \times 200 = 72,000^\circ$; observed motion of mirror while light is going and coming, $1\frac{1}{4}^\circ$, is $72,000$ divided by $1\frac{1}{4} = 57,600$. Then velocity of light = $2 \times 1.6 \times 57,600 = 184,320$ miles per second.

THE UNDERWRITERS AND FIRE-PROOF BUILDING.¹

THERE is no doubt that the destruction of property in the United States is about twice what it ought to be, if our buildings were constructed as a common-sense man would construct a building after giving the matter careful thought. We have burned up about \$75,000,000 worth of property during the year. This is an enormous destruction of property—of the material wealth of the world; for the destruction of property by fire is not like losing by the purchase or sale of commodities, where what is lost by one is made by another, and the substance remains somewhere, but these losses that come to us by fire consume the wealth of the country, and the destruction of it is a loss to the world. It is within the power of individual property-holders so to construct buildings in this country, without any material increase of expense, that the loss can be diminished from 20 to 50 per cent. People build here so as to afford facilities for ready combustion. That is stating the thing in a very few words. Practical experience will, we venture to remark, bear us out in saying that so long as such a state of affairs exists, the insurance companies of the United States must be prepared to pay out at least twice the amount of losses proportionable to that which is paid in

the older countries of the world, where more solidity in the construction of buildings is resorted to. . . . The power is with the property-holders of the country; and the power ought to be with the National Board of Fire Underwriters to enforce suggestions and recommendations. Probably there will be some remedy when the National Board again comes to its senses and when those who have the power, will consent to apply it. When that time arrives we may be able to offer further suggestions and recommendations, the carrying out of which will be of value.

"New York is a city built to burn; Paris is built to resist fire, and to last for generations. The results, from the standpoint of fire losses, of this difference in construction, is shown by the reports of fires in the two cities. Paris last year had 2,744 fires, New York 1,655; Paris having the greater number of buildings would naturally have more fires. The losses by the 2,744 fires in Paris are stated at \$835,000, while the losses by 1,655 fires in New York were \$1,883,052. That is to say, New York gives Paris the advantage of over 1,000 fires, and then beats her in the amount of losses. In Paris a fire seldom spreads beyond the building in which it originates, but is more frequently confined to one or two rooms in that building. Here, when a fire occurs, the building in which it originates may be set down as doomed to destruction, and if the flames do not spread to half a dozen more, the city is fortunate. This is a matter of architectural construction. The Paris system of fire extinction is a mere burlesque compared to that of New York, and the cost of its maintenance a mere bagatelle beside it. Paris has double the population of New York, and nearly, if not quite, twice as many buildings. Yet by the enforcement of sensible building laws, and the avoidance of incendiary structures, the fire losses in Paris are less than one-half those of New York. Had New York's fire losses and the cost of fire departments last year been proportionate to those of Paris, New York would have saved upwards of \$2,000,000. There is certainly a profit in fire-proof buildings."²

Perhaps we cannot expect in our comparatively new cities and towns all of the security and substantiality which belong to older cities which are richer in experience, as well as in means, and where the need of buildings for immediate occupancy is seldom so urgent as it frequently is in our own country. But we have had warnings severe and frequent enough to have learned that hasty construction of buildings is a means to faulty construction, and faulty or imperfect construction, however much it may save the builder in the beginning, is liable to become the most costly to him in the end. One of our daily papers said recently, that, "judged by the rate of insurance in England and in continental cities, the destruction by fire here is five times as great as it is abroad. Four-fifths of this great waste might be saved by better methods of building and more general precautions against fire. It is time that this matter should have serious attention from the public and from civil authorities, and that means should be devised and laws enforced to check this enormous waste. As a nation we cannot afford it."

The erection of a single building imperfectly constructed even in some of the minor details, may be the cause of the destruction of a whole town or city, and, therefore, the warning of the underwriter, though given in a business way, and without, if the public please, a trace of the philanthropic spirit, should be heeded in every community caring for the property or cherishing the lives of its citizens. It is true the insurance companies might take other views upon the subject; they might say that it is not their province to trouble about the character of buildings which may be erected, except for the purpose of ascertaining for themselves the extra risk hazarded where bad construction prevails, with a view of making such charges as would fully offset the greater hazard involved. This position might be defended from a business point of view, and we have heard of its advocacy by companies of respectable standing. But by whomsoever held we cannot but regard such a view as evidencing a low appreciation of the practice of underwriting. It is the hope of the best minds in our vocation that the selection, classification, and systematization of the business may be carried forward until an approximately correct basis shall be reached in respect to the price of insurance. It may be thought rightly that such a result is still far in the future, yet we submit that one of the approaches to it is by a proper consideration and treatment of the subject of this report. It is unnecessary to repeat here what has been so often and so well said in reference to the important part which insurance plays in the manifold industries as well as throughout the wide field of trade and commerce in the modern world. The greater its importance to the merchant, the manufacturer and the owner of property of whatever kind, the more pressing becomes the necessity of guarding against all avoidable uncertainties incident to its transaction; and as embracing not a few of such uncertainties your Committee deem the subject of a proper construction of buildings as one of leading importance, and worthy of closer attention and more careful consideration than has heretofore been given to it.

Your Committee feel that there might properly find a place in this report a warning in reference to the cheap and unsafe methods too often employed in the putting up of summer hotels. The immense size of many of these structures at our popular watering-places is, of itself, a sufficient cause for well-grounded fears of disastrous conflagration; but when we consider, also, their flimsy construction; the lack of any adequate provision for fire protection, and the many and

¹ Extracts from the report of the Committee on the Construction of Buildings to the National Board of Fire-Underwriters.

² Extract from the *Spectator*.

varied hazards inherent in risks of this character, there is no room for surprise at the examples which last season furnished of the burning of several of these "caravansaries." This is not a matter in which insurance capital, or the security of property only, is concerned. There are hotels of this class in which hundreds of lives are in imminent danger every night during the season. Fortunately, we have not been called upon to note what would be the result if one of these buildings, hundreds of feet in length and many stories in height, should burn in the night. Beyond the reach of fire departments, with no adequate means for the control or extinguishment of the flames, the loss of life would, in all probability, be very large. In a matter so nearly concerning them, the public should join the underwriters in demanding the fullest protection against fire hazard in the class of property to which we refer. It is not to be expected that all dangerously constructed hotels can be remodeled, but it is not too much to require that all new ones shall be constructed upon the best plans, and that every possible safeguard for the prevention and control of fire shall be insisted upon in the case of hotels already existing.

The practice of putting up very high buildings, becoming general in large cities since the introduction of elevators, so as to make all stories accessible, has often been referred to as one carrying with it increased dangers. Streets are no wider, and it is doubtful whether the improvement of appliances for the control of fires keeps pace with increasing hazards inherent in many of the modern specimens of architecture, leaving occupancy altogether out of the question. While our best engines will not throw an effective stream continuously above perhaps 75 feet, we have buildings whose roofs are 25 to 50 feet beyond that, and in these the most ample provision should be made for fire extinguishment, both in respect to their construction and such appliances as the best skill can devise. The importance of this will be realized in some fire yet to take place, perhaps, in the large up-town "flats," in New York, in many of which escape for the inmates near the roof might readily be cut off by flame and smoke, and appalling disaster be the consequence.

These are subjects to which too great attention cannot be given. The great number of fires caused by defective construction in respect of flues alone, may be partially appreciated by the table of the causes of fires prepared by your Statistical Committee and embodied in its report. And this is a cause of fire which is so easy to be avoided by every builder, that it might be considered uncalled for that we should suggest modes of prevention. Nor do we intend to do so. Like the placing of swinging gas-fixtures in too near proximity to casings, or running steam-pipes too close to wood, the exercise of common sense and a very little forethought would eliminate the danger.

And so the long list of fires arising from improperly built furnaces might be avoided by the bestowal of like attention. This subject was referred to in the last report of your Committee, but we consider it of such importance as to merit further mention here. Many churches are yearly burned by their furnaces. One great mistake is in having the furnace of insufficient size, or barely large enough to furnish the required heat. In such case the heating apparatus must be forced to its utmost capacity, and the building be constantly imperiled until the inevitable fire finally destroys it. Let every such heating apparatus be of such ample capacity that there will be no temptation to heat it to anything near the danger point.

Your Committee has corresponded, through the Secretary of your Executive Committee, with the leading cities of the country, and obtained, so far as possible, copies of their Building Laws, which are now on file at the rooms of the Board. In many places the only legislation on the subject is of the nature of ordinances defining certain limits within which frame buildings cannot be erected. Complete and excellent as are the laws of some of our large cities—notably New York, Chicago and Boston—there are others in which scarcely any legal restraint is opposed to the erection of buildings which, so far as their ability to resist fire from within or without is concerned, are mere tinder boxes.

A weak point in the Building Law of New York city is the fact that it gives certain discretionary powers to the Superintendent of the Building Department in cases where, in the opinion of your Committee, there ought to be no discretion allowed. In Sec. 40 of the said law on "Removal of Violations," we read:

"In case any of the notices directed to be issued by this Act are not complied with within ten days after the service thereof, the Superintendent of Buildings may, in his discretion, apply to the Supreme Court for the City and County of New York, at a special term thereof at Chambers, for an order directing him to proceed to make the alterations or remove the violation or violations, as the same may be specified in said notice," etc.

The point your Committee desire to emphasize is, that where palpable violations of the law have been made, and duly proven, there ought to be no discretionary power anywhere to escape the fines and penalties imposed by the law. If a building is unsafe it should be removed in the way provided. If any part of it endangers the building itself, or adjoining property, the operation of the law should be imperative, and if the modes of construction laid down in the law for the erection of new buildings are not complied with in every particular, it should never be discretionary with, but always obligatory upon the Superintendent to protect the city by enforcing the law to the letter.

But when the best of buildings laws shall have been secured,

it remains to have them properly enforced, and in this it is necessary for the public to co-operate with the underwriters. In a matter so intimately affecting the interests of the people as that of the safe construction of their habitations, and of the buildings for storing their wealth, in its varied forms, there ought to be offered every safeguard in the law itself, and then on the part of every citizen the closest watchfulness to see that there is no neglect, no evasion of the law. And in respect to the integrity and competency of the officers charged with the duty of enforcing the law there should be no question. Men appointed to such trusts on account of their political influence, are seldom the ones we need; instead, we should demand the appointment of those whose fitness for the position is their only claim to it. The greater the danger to which our cities and towns are exposed, by many of the faults of modern styles of architecture, the more necessity there seems to be for a resort to the provisions of law to protect property from needless waste. But law can only be a guarantee of safety when enforced by efficient officers of the strictest integrity. Let the people choose only such, and then, with good laws behind them, we may look for better and safer buildings in the future.

The following are extracts from letters received from cities in different parts of the Union, indicating a want of attention to the need of good and sufficient building laws:

CINCINNATI, OHIO.

"Unfortunately this city has no building law. The only thing of the kind existing here is that certain squares are what is termed 'Blocked,' by which is meant that no frame buildings can thereafter be built of a height greater than twelve feet. Nearly the whole city, with the exception of some suburbs, is thus blocked. Frames already in existence may be repaired, but no new ones erected of over that height."

COLUMBUS, O.

There is no State law upon the subject. The ordinance for Columbus only relates to fire districts, within which no frame buildings are permitted.

ST. PAUL, MINN.

"There are no building laws in this city, nor any legislative enactments on the subject. The city has fire limits in which no frame buildings are (supposed to be) erected. . . . I have for some time thought that our city has now reached a size where there should be a system of inspection for all buildings going up in the business centres, and permission to build only after approval of plans; and I will, at first opportunity, bring the matter up and have it pressed to a favorable conclusion."

MILWAUKEE, WIS.

We have no regular building laws; the ordinance regulating the construction of buildings in fire limits is very brief, and embraces the following points:

"Outside and party-walls in buildings of 24 or more feet high, to be no less than 12 inches if brick, and 18 inches if stone. Joists or beams in party-walls must be separated by at least 4 inches of brick. Roofs, gutters, and cornices must be covered with tin, copper, or iron. Buildings wider than 30 feet must have iron columns to support inside. Side, end, or party-walls must rise 2½ feet above the roof. Party-walls to have iron doors. Fire limits cover all business part of the city."

GALVESTON, TEX.

The State authorizes cities to prescribe regulations as to fire limits and the erection of frame buildings or repairs thereto within such limits—and there are certain fire limits defined by ordinance with above features; there is no building law enacted by State, and nothing in the shape of enactment of any nature in such connection. Attention may be given this subject next Session of the Legislature (one year hence), though it is quite doubtful if one at all satisfactory would meet with favor. Members generally (all to be elected next November) in Texas are disposed to regard anything of this character as an interference with the "rights" of the people—it may be attempted, however.

KANSAS CITY, MO.

"We have no city ordinances with reference to the construction of buildings except those defining the fire limits, within which frame buildings are prohibited. We have no State law upon the subject."

MADISON, WIS.

"The only provision given in our city charter is a supervision and discretion vested in the fire wards, whose duty it is to see the renovation or removal of any defective chimney or pipe, or any other thing endangering property. There are no definite requirements, but the services of the fire wardens have been brought into frequent requisition. We, of course, have fire limits within which a frame building cannot be erected or repaired."

WILMINGTON, N. C.

The city ordinance is very brief, and simply prohibits the erection of wooden buildings within the fire limits, except by permission of the Board of Aldermen. There is no State enactment in North Carolina upon the subject.

CLEVELAND, O.

The Secretary of the Board at Cleveland, Ohio, writes that the city ordinances make it unlawful to place wood in connection or contact with any chimney, flue, pipe, etc., and making it the duty of the Fire Marshal to see the law enforced. Fire limits are fixed, within which no wooden building can be erected.

TOLEDO, O.

No building law has yet been enacted, though there is a fire ordinance. A copy of a proposed law is in the hands of the President of the Board of Aldermen.

SAN FRANCISCO, CAL.

"Up to this time the efforts of the underwriters to induce the Legislature of this State to pass a general building law for our principal cities, have not been successful. The San Francisco fire ordinances have been principally compiled from the New York Building Law, and I doubt whether you will obtain much new light therefrom."

PORTLAND, ME.

There is no State enactment on the subject, and the only law or ordinance here is as follows: "No building or buildings, the exterior wall of which shall be in part or wholly of wood, exceeding 10 feet in height, shall hereafter be erected in this city, without permission in each case from the Mayor and Aldermen. It shall be the duty of the City Marshal to cause to be removed at once, as nuisances, all buildings erected in violation of this ordinance."

This ordinance was passed in 1867, and for a short time was observed, but has been a dead letter for some years.

NEW ORLEANS, LA.

There is no State enactment upon the subject, other than one authorizing municipal authorities to adopt such regulations as may be deemed desirable at any particular place. The ordinance for New Orleans, as sent us, is very meagre, simply defining the fire limits within which no buildings can be erected unless the walls be of brick, or other non-combustible material; the roofs, also to be of non-combustible material.

THE MOVEMENT TO MAKE GOOD PROFESSOR MOMMSEN'S LOSSES.

PROFESSOR MOMMSEN has written to Professor Nettleship of Oxford University the following letter:

"BERLIN, August 3.

"Sir: The advertisement regarding the loss of my library, which has appeared in the papers signed by you and some of your friends, requires my deep and heartfelt thanks. You may rest assured that if there is some consolation for the disaster I have undergone and the crippling of my literary work, it is to be found in the sympathy, to which I did not think myself entitled, of so many good and distinguished men.

"But it is not only in order to thank you that I write. I think you and your friends are not fully aware of the facts, and I feel myself obliged to inform you of the true state of the case. I shall not dwell on the irreparable losses I have sustained. Several valuable manuscripts confided to my care have perished, and I can only say, with regard to this accident, that not one of them came into my dwelling by breach of faith, but that I had them all, or at least thought to have them, confided to me personally.

"My own collections of thirty years' standing, to me can never be replaced. Still I am thankful for the preservation of the materials prepared for our great epigraphical work. They have been heavily damaged, and the restitution will cost much labor already got over and now to be repeated, but I hope and trust still to be able to finish that part of the *corpus* which has been confided to my care, and of which I thought to have written the last page the very night of the disaster. These losses must be borne somehow.

"My library has been destroyed too, and if I am to continue my work, which I have resolved to try, it must be renewed. I have begun to replace it, and am sincerely thankful to those who want to assist me in this task, as many of my German friends have done, and as you are about to do. But it seems that the importance and the value of my library has been considerably overrated. I am neither a rich man nor a collector; my books were selected only for my different works, and I miss them as the disarmed soldier misses his weapon. But I was, perhaps not fully, but very fairly insured, and the restitution of my loss, as far as possible, is in a fair way. This was the answer I gave privately to my German friends when they proposed to me something similar immediately after the accident, and I beg leave to repeat it now before the English public, to which your noble appeal is directed. I have been touched by it to the heart's core, and I shall never forget it; but permit me respectfully and gratefully to decline it. Yours, very truly,

MOMMSEN."

NOTES AND CLIPPINGS.

FRENCH GOVERNMENT PRIZES.—The committee appointed by the French Government has recommended that the prize of \$10,000 be awarded to Prof. Graham Bell for his invention of the telephone, and that a prize of \$3,000 be given to M. Gramme for his magneto-electric machine.

PROFESSOR MOMMSEN'S LOSS.—The consequences of the burning of Professor MommSEN's library are decidedly unpleasant. It is now stated that the valuable MSS. destroyed were not lent to him at all, but had been borrowed by the Royal Library of Berlin, that the Professor might consult them there. Their presence in the Professor's private dwelling against all established rules relating to the loan of rare MSS., which should never be taken to a private house is the breach of faith which Professor MommSEN denies above. The Rector of the University of Vienna will claim compensation for the loss.

A NEW DISCOVERY IN ART.—An Austrian savant, M. Winter, of Vienna, has just discovered and patented a very curious process by which pictures may be produced upon artists' canvas by the aid of photography. He has named the process "Linography," and it is just now attracting considerable attention in Parisian art circles. By the aid of a stereotype plate, M. Winter has succeeded in fixing upon canvas whatever image he desired to reproduce. The results are striking, and the pictures closely resemble such as are produced by the brush. It is expected that the discovery will effect quite a revolution in the photographic art.

CONTRACTS FOR GOVERNMENT BUILDINGS.—On the 26th of July Superintendent Gilbert, in charge of the new post-office building, advertised for proposals for furnishing the materials and building the brick floor arches in the edifice. About three hundred thousand brick were required, and this, with the additional amount for the work, would make up a very respectable figure. Yesterday was the day fixed for opening the proposals and awarding the contracts, but at the appointed hour only two bidders had been heard from. Two reasons are assigned for this: One that the builders are busy at present; and another, that while government pay is as certain to come as death or taxes, there is so much red tape and delay about getting payments that contractors prefer to deal with private parties. Both of the bids received were informal, and therefore the contracts were not awarded. One bidder, a Hartford man, stipulated that he should not be required to give bonds; and the other, a Springfield man, made a proposal to furnish iron floor arches instead of brick. — *Hartford (Conn.) Courant*, August 14.

ROOF VARNISH.—A varnish for roofs has been recently patented in Germany which is composed of 35 parts of clay-slate, 30 parts mica-slate and 35 parts rosin, all finely powdered and heated with 50 parts of tar.

THE LATEST DEATH RATES OF LARGE CITIES.—A statistician in London made a month ago a comparison of the sanitary condition of the principal cities of the globe from their weekly death lists. First, as might have been expected, in the roll of honor came The Hague, clean and beautiful, giving only 15 deaths per 1,000 of population; but amazingly enough, second came Calcutta and Dresden, with 18; Christiania in Norway followed with 19; Amsterdam, 20; Geneva, 21; while New York, Brussels, Rotterdam and Stockholm marched together with 24. Last on the list came the foul streets of Buda-Pesth, Alexandria in Egypt, and lowest of all, St. Petersburg. The fact that the well-to-do classes, among which disease is opposed by knowledge and ease of living, are, as a rule, absent from American cities at this season, gave us probably a higher record than we deserve. — *New York Tribune*.

THE TEXAS HYDRAULIC MINERAL BELT.—A correspondent of the *Scientific American* writing from Round Rock, Texas, announces the recent discovery of a valuable and very extensive deposit of hydraulic earth, which crops out along a belt many miles in length. At Del Valle, on the Colorado River, eight or ten miles from Austin, it shows a stratum from sixty to eighty feet thick, above the river. At Round Rock, twenty miles northeast of Austin, it lies two feet below the surface, and is of unknown depth. At this point it is easily converted into quicklime by burning. Mixed with from two to four parts of sand it produces an hydraulic building mortar or artificial stone, said to be equal to that made with the best English Portland cement. By similar treatment with three parts fine sand through one-eighth mesh sieve, and three parts coarse gravel through one-fourth sieve, it produces a concrete which, when moulded and pressed, gives a hydraulic stone brick of superior quality, suitable for all common building uses.

THE ST. LAWRENCE RIVER TUNNEL.—It is stated that the line now fixed on for the tunnel under the St. Lawrence is from Longueuil wharf on the south side to the city side of the Huron cotton factory at Hochelaga. The depth of the water at the deepest place is 42 feet, and the tunnel will require to be 40 feet below the river bed. This depth will allow 20 feet for the tunnel roof, and 20 feet for the tunnel itself, which is the depth necessary. To make the borings the diamond drill will be used, but Mr. Shanly states that the boring process will have to be deferred until winter when the ice makes, as the constant passing to and fro of vessels would render the rock-boring process very impracticable. The borings at either side of the river will, however, be made at once, and other things done necessary to render the survey a thorough and satisfactory one. Mr. Shanly estimates that it will cost \$15,000 to \$20,000 to make the survey alone. From borings made on the Hochelaga side, it has been demonstrated that the borings will be through rock of the best quality for tunnelling.

AYLESBURY SEWAGE WORKS.—At the drainage works of the town of Aylesbury, at which place the A B C process of disinfection is in operation, the purification is effected by making the whole sewage of the town, as it enters the works, turbid, by running into it a mixture of blood, charcoal and clay, each of which exercises its own particular action upon the dissolved, as well as the suspended impurities. This turbid stream is then treated with a salt of alumina just as it enters the tank, the action of which is instantly to precipitate the whole of these impurities to the bottom. The sewage was seen from its first admission to the tanks till it ran out sufficiently pure to be passed into the river. All offensive odor is arrested by the addition of purifying agents. The deposit or sewage sludge is pumped into a reservoir, from which it descends into a press. The water is then squeezed out, and solid cakes of manure, containing about 40 per cent of moisture, are produced. These are afterwards dried and prepared for the market. The output is about 10 tons a week of powdered guano, which sells for £3 10s. per ton. The amount of impurity in the effluent water is stated to be considerably below the standard demanded by the Rivers Pollution Commission. Some of this water was sent to the Berlin International Fishery Exhibition in competition for the prize offered by the King of Saxony for the best practical scheme for rendering harmless to fish in rivers and lakes, the refuse from factories and sewage of towns falling into them. The award of this prize, however, was postponed on account of the small number of entries for it. — *Journal of the Society of Arts*.

THE SIZE AND VALUATION OF PARIS.—A line drawn around the outer glacis of Paris, says the *Boston Advertiser*, would measure 34,530 metres, while the military highway around the city measures 33,330 metres or less than twenty-one miles. The space thus enclosed has a diameter of 8,830 metres, or a little above five miles, from north to south, and of 11,800 metres from northeast to southwest, and covers a surface of but 7,802 hectares, or very nearly thirty square miles. There are probably ten American cities which cover as much space or more. Over one-fifth of the ground called Paris is devoted to public highways and squares; the streets have a total length of 876,855 metres, or about 545 miles, and nearly one-fourth of these are avenues with a double row of trees and an average width of 194 metres. Of 74,740 private buildings, but 22,455 or about 30 per cent are directly connected with the sewers. The squares and public gardens cover but 177 hectares, the cemeteries 74 hectares, while the Seine in the city covers 222 hectares. The whole space available for public and private buildings is 5,858 hectares, or about three-quarters of the municipal area. The average price of real property is very nearly \$120,000 per acre, but differs between \$1 per square foot in the twentieth precinct and \$14 in the second. The 5,858 hectares available for buildings are supposed to have a marketable value of 8,774 million francs. These estimates are based upon actual sales. If the buildings be added, the total value of real property in Paris is \$4,610,000,000, and would probably bring that amount at auction. Roughly speaking, in Paris the ground represents one-third, while the buildings represent two-thirds, of an average estate.

BUILDING INTELLIGENCE.

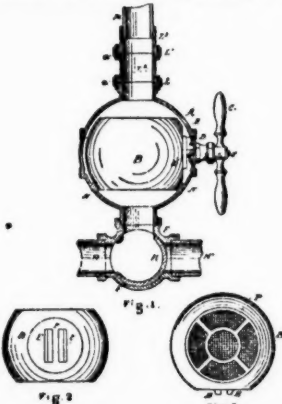
[Reported for The American Architect and Building News.]

[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.]

229,384. REVERSIBLE FILTER. — James A. Crocker, Boston, Mass. The invention consists in attaching the handle to the filter proper by means of a loose joint, so that the part that holds the filtering material is free to adjust itself to its seat. In the drawings, Figure 1 is a vertical section of the invention. Fig. 2 is an elevation of the case for holding the filter. Fig. 3 is a plan of the same. A is a spherical case which incloses the case B, which holds the filtering material. This case B is made spherical, having three of its sides flattened, as shown, and rests on an annular seat, N, Fig. 1, the seat being ground concave and provided with an elastic packing. This case B is filled with filtering material, which is held in place by two diaphragms, one of which is shown at P. This case B revolves on the seat N. Upon the end of this case B are formed two parallel ridges, E E, Fig. 2, with the



channel F between them. This channel F receives the arms d d of the shank D. This shank D passes through the case A, and is fastened to the handle C by screws c. The arms d d fit loosely in the channel F, so that the case B may be free to adjust itself to the seat N, their only function being to assist in reversing the filtering casing B. Fig. 1 shows a two-way cock, F F, in combination with a filter. The valve K is formed so that by turning it it may send the water to the pipe H for general distribution, or after the filter has been reversed it may be turned so as to throw the filth into the waste-pipe H'. A detachable coupling consisting of a short pipe, L, is employed for connecting the supply-pipe with the filter, by which construction the short pipe L may be readily removed when the filter is to be refilled without disturbing the line of piping.

231,139. VENTILATING AND DAMPER ATTACHMENT. — William H. Allen, Camden, N. J.

231,151. WEATHER-STRIP. — William H. Cosper, Chicago, Ill.

231,152. DOOR-GONG AND ALARM. — Freeman N. Cottle, Chelsea, Mass.

231,163. STOVE. — Charles A. Hamlin, Greenbush, N. Y.

231,168. DRYING-KILN. — E. and B. Holmes, Buffalo, N. Y.

231,171. REVERSIBLE LATCH. — Charles S. Jennings, New Haven, Conn.

231,181. PIPE-GRIPE. — Mortimer G. Lewis, Lowville, N. Y.

231,190. FIRE-EXTINGUISHER. — Duane T. Perkins, Springfield, Mass.

231,195. CHAIN-BOLT. — Henry E. Russell, New Britain, Conn.

231,203. LIGHTNING-ROD COUPLING. — James H. Weston, Cincinnati, O.

231,206. FIREPLACE GRATE. — J. Brown and P. Miller, Springfield, Mass.

231,223. KNOB-ATTACHMENT. — Silas Harris, San Francisco, Cal.

231,225. GLAZIER'S TOOL. — Isaac W. Heysinger, Philadelphia, Pa.

231,232. APPARATUS FOR PROMOTING COMBUSTION IN FURNACES. — James Mahony, Newport, R. I.

231,233. ORNAMENTATION OF WOOD. — Frederick W. Martin, Norwich, Conn.

231,246. FAUCET. — Robert W. Tavenor, West Bay City, Mich.

231,259. LUMBER-POLISHING MACHINE. — Benedict Beeher, St. Louis, Mo.

231,260. LATCH. — Clark E. Billings, Warren, Vt.

231,279. CURTAIN-FIXTURE. — Alice Cosand, Kokomo, Ind.

231,286. GRATE. — James B. Faris, Glenfield, Pa.

231,300. COVERING FOR STEAM AND HOT-AIR PIPES. — Henry M. Fitzhugh, Bay City, Mich.

231,303. WRENCH. — Theodore P. Franke, Buffalo, N. Y.

231,310. TENONING-MACHINE. — Gorham O. Hall, St. Louis, Mo.

231,317. METALLIC ROOFING. — John M. Hess, Philadelphia, Pa.

231,319. DEVICE FOR ADJUSTING WINDOWS. — Joseph Holbrook, Lebanon, O.

231,321. LIME-KILN. — William Hughes, Avondale, and J. L. Foulke, Strasburg, Pa.

231,331. BENCH-PLANE. — Frederic Kraengel, Buffalo, N. Y.

231,332. NAIL-EXTRACTOR. — The same.

231,351. FIRE-PROOF CEILING. — John D. Ottiwell, New York, N. Y.

231,352. SASH-FASTENER. — William S. Owen, Washington, D. C.

231,361. RATCHET-DRILL. — William H. Richardson, Pittsburgh, Pa.

231,369. COMBINED REFRIGERATOR AND DUMP-WAITER. — Charles E. Stewart, Baltimore, Md.

SUMMARY OF THE WEEK.

Baltimore.

BUILDING PERMITS. — The following building permits have been issued since the last report:

E. M. Gorman, three two-story brick buildings on Burk St., north of Canton Ave.

St. Joseph Church, three-story brick building on Barre St., between Howard and Sharp Sts., used for school-room.

Louis P. Hennichhausen, three-story brick building in rear of 42 Hill St., between Charles and Light Sts.

Conrad Roemer, three-story brick building on Belair Ave., north of Northern Ave. 16' x 54'.

John Murray, three-story brick building on Fayette St., near Vincent Alley.

Baltimore City P. W. Co., two-story stable on Thames St., between Broadway and Ann St., 20' x 190'.

HOUSE. — Messrs. Wyatt & Sperry, architects, are preparing drawings for a frame house to be built in Baltimore County, Md., at a cost of \$4,000.

Boston.

BUILDING PERMITS. — Brick. — Unnamed Place, off Spruce St., for Eben D. Jordan, 1 stable, 30' x 40', three stories; Holmes Bros., builders.

West Chester Park, No. 159, for W. R. Harding, 1 family hotel, 25' x 71' 6", four stories; W. R. Harding, builder.

Washington and Aron Sts., for Jordan, Marsh & Co., 1 store, 58' x 84' 6", six stories; Timothy E. Steward, builder.

Wood. — Four buildings for Boston & Albany Railroad, Albert H. Glover, builder, as follows:

Marginal St., near Cottage St., 1 storage of freight, 38' x 300', two stories.

Grand Junction Wharf, Pier No. 7, 1 transfer freight-house, 63' x 420'.

Marginal St., near Clyde St., 1 coal-shed, 36' x 130'.

Marginal St., near Cottage St., 1 storage freight, 38' x 300'.

Dorchester Ave., Nos. 326 and 328, for Norway Iron Works, 1 bonded warehouse, 20' x 110'; Geo. Hamer, builder.

National Dock & Warehouse Wharf, for National Dock & Warehouse Co., 1 warehouse, 40' x 200'.

Delle Ave., near Parker St., for John W. Day, 1 dwell., 20' x 30', two stories; John H. Gigie, builder.

Brooklyn.

BUILDING PERMITS. — Willoughby Ave., 2 two-story brown-stone dwells., 18' x 42'; owner and carpenter, Jno. K. Bulmer, 213 Adelphi St.

Forrest St., 1 two-story brick office, 55' x 20'; cost, \$3,300; owners, S. Liebmann's Sons, Forrest St., architects, W. Wolf and Th. Engelhardt; builder, P. Sullivan.

Waterbury St., cor. Ten Eyck St., 1 one-story brick office, 32' x 28'; cost, \$2,000; owners, L. Waterbury & Co.; architect, W. H. Gaylor; builders, J. McQuade and R. B. Ferguson.

Eltery St., 1 three-story frame tenement, 25' x 55'; cost, \$4,000; owner, E. C. Reinhardt, 756 Flushing Ave.; architect, Th. Engelhardt; builders, W. Daffeldecker and M. Metzner.

John St., cor. Pearl St., 4 three-story brick warehouses, one 52' x 75', one 26' 9" x 75', and two each 26' x 75'; cost, \$19,000; owner, Estate Samuel Mitchell, 30 Broadway; architect, J. W. Ritch; builders, F. Lyons, Jr., and Edward Smith.

Conselyea St., No. 17, 1 three-story frame tenement, 25' x 50'; cost, \$3,000; owner, F. Frei, North Second St., near Union Ave.; architect, W. B. Ditmars; builders, A. Vath and Jno. Rueger.

Himrod St., No. 19, 1 two-story frame dwell., 22' x 32'; cost, \$2,000; owner, Emil C. Bauer, 22 Stanhope St.

Sixth Ave., cor. Lincoln Place, 6 three-story brown-stone dwells., 100' x 48'; owner, John T. Rockwell; architect, G. L. Morse; builder, S. F. Eveleth.

Third Ave., 2 three-story brick tenements, 19' 10" x 75'; cost, each, \$3,000; owner and carpenter, Edward Hughes, 456 Third Ave.

Hooper St., 3 two-story dwells., 19' 6" x 45'; cost, each, \$3,500.

Sackett St., 5 three-story brown-stone flats, 20' x 62'; owner, T. H. Brush, 330 St. Mark's Place; builder, J. M. Brown; carpenter, T. H. Brush.

India St., 2 two-story frame dwells., 25' x 40'; cost, each, \$2,800; owners, M. McKellip and H. Gillen; architect, J. Meilhard; builders, J. Rooney and J. Fallon.

Chicago.

BUILDING PERMITS. — C. Tarnow, two-story brick dwell., 20' x 60', 473 West Fourteenth St.; cost, \$2,500.

F. Rosenberg, two-story brick dwell., 22' x 49', Hoyne Ave.; cost, \$4,000.

E. Brown, two-story brick dwell., 22' x 30', 367 Dayton St.; cost, \$2,600.

F. S. Ramien, two-story brick dwell., 20' x 40'; 221 Rush St.; cost, \$3,000.

R. R. Cherry, two-story brick store and dwell., 22' x 65', 136 Fourth Ave.; cost, \$2,000.

Antonio Kubin, three-story brick store and dwell., 22' x 68', 207 Twelfth St.; cost, \$4,700.

A. Greiner, four-story brick malt-house, 50' x 30', Superior Street, cor. Rucker; cost, \$15,000.

Samuel Beers, two-story brick dwell., 20' x 32', Bloom St., near Thirty-Fourth; cost, \$4,000.

F. Green, two-story brick addition, 20' 8" x 24', 429 Elston Road; cost, \$2,000.

Joseph Kowalsky, two-story brick store and dwell., 25' x 100', 340 North Carpenter St.; cost, \$5,600.

Nellie C. Beye, three-story brick dwell., 25' x 65', 489 Dearborn Ave.; cost, \$8,000.

J. E. Morse, two-story brick dwells., 24' x 60', 3,672 Indiana Ave.; cost, \$5,500.

R. Wildner, two-story brick dwell., 20' x 50', 23 Eugenie St.; cost, \$2,000.

APARTMENT-HOUSE. — The heir of the Dodge estate, of Boston, is building a large four-story stone-front building, designed for stores and flats, on North Clarke St., between Illinois and Indiana Sts. The structure, which has been designed by Treat & Foltz, architects, will cost \$20,000.

Houses. — Mr. G. Knecht is building a stone-front house on Wisconsin St., between Clark and Franklin Sts. The building, which will be three stories high, will cost \$9,500.

For Mr. G. Schwartz, is building on Illinois St., near Clark, a dwelling, 20' x 60', three stories; cost, \$6,500.

STORES. — Two stores on the southwest corner of Division and State Sts., three stories and basement each, are being built by Charles Keefer. The cost of the two will be about \$8,000.

Ex-Alderman Frank Linsenbath is building a brick structure on Lake St., between Ada and Sheldon Sts., for stores and dwelling purposes, to cost \$6,000.

Cincinnati.

THE CUSTOM-HOUSE. — Work on the custom-house has begun again, as a portion of the iron joists for the floor of what is now the upper story has arrived. After these joists are laid, six courses more of stone-work are to follow, after which the mansard roof will complete the building. The appropriation of \$350,000, made by Congress during the last session for this custom-house and post-office is not enough to finish the building.

New York.

BUILDING PERMITS. — One Hundred and Forty-Sixth St., 2 two-story frame dwells., 20' x 40'; cost, each \$3,000; owner, David Tompkins, One Hundred and Sixty-Fourth St., near College Ave.; architect, H. S. Baker; builders, C. L. La Cort and H. S. Baker.

One Hundred and Eighteenth St., 4 four-story brown-stone flats, 18' 9" x 60'; cost, each, \$12,000; owner, S. C. Hinman, Second Ave., cor. One Hundred and Eighteenth St.; architect, J. H. Valentine.

One Hundred and Twenty-Fourth St., 4 four-story brown-stone flats, 18' 9" x 60'; cost, each, \$13,000; owner, M. J. Moore, One Hundred and Eighteenth St.; architect, J. H. Valentine; builder, H. Moore.

One Hundred and Fourth St., 1 four-story brown-stone flat, 20' x 65'; cost, \$13,000; owners and builders, Christie & Walker, 100 East One Hundred and Fifth St.; architect, J. H. Valentine.

One Hundred and Fourth St., 1 four-story brown-stone flat, 30' x 56'; cost, \$16,000; owners and builders, Christie & Walker; architect, J. H. Valentine.

Eighty-Ninth St., 1 four-story brick tenement, 25' 6" x 60'; cost, \$12,000; owner, C. S. Saunders; architect, A. D. Seaman; builders, Thornton & McGrath and T. A. Squires.

Sedgwick Ave., 1 one-story brick engine-house, 66' x 66'; cost, \$9,000; owners, West Side & Yonkers Railway, 71 Broadway; architect, A. P. Heller.

Sedgwick Ave., 1 one-story wood and iron car-house, 40' x 405'; cost, \$8,000; owner, etc., same as last.

Seventy-Seventh St., 3 four-story brown-stone dwells., 16' 8" x 56' and 67'; cost, each, \$18,000; owner, Hiram Sigler; architect, J. G. Prange.

Forty-Sixth St., 6 three-story brown-stone dwells., 16' 8" x 55'; cost, each, \$8,000; owners, Trustees for Henry Astor, 147 Broadway; architect, John Sexton; builders, Thompson & Mickens and W. H. & C. Gedney.

Fifty-Eighth St., 5 five-story apartment-houses, 20' and 20' and 11' x 60' and 74'; cost, each, \$13,000; owner, James Meagher, 232 East One Hundred and Twenty-Sixth St.; architect, T. H. McAvoy; builder, J. McLoughlin and T. Dougher.

One Hundred and Fifteenth St., 2 four-story brick flats, 30' and 20' x 55' 6"; cost, \$8,000 and \$12,000; owner and builder, P. Gallagher, 407 West Fifty-Fifth St.; architect, James Stroud.

Forty-First St. to Forty-Second St., 1 two-story brick stage stable, 90' x 197' 6"; cost, \$28,000; owners, Marshall & Wilkins, 145 East Fortieth St.; architects, D. & J. Jardine; builder, J. W. Hogenkamp & Son.

Sixty-Fourth St., 7 three-story brown-stone dwells., 14' 4", 14' 3" and 14' 5" x 50'; cost, each, \$5,200; owner, James Rutherford, Kingston, N. Y.; architects, D. & J. Jardine; builders, J. W. Hogenkamp & Son and Jas. Elgar.

Courtlandt Ave., 1 two-story brick store and dwell., 25' x 40'; cost, \$3,800; owner, Mr. Frey, Courtlandt Ave., near One Hundred and Fifty-First St.; architect, W. Kusche; mason, John Fries; carpenter, not selected.

West Twentieth St., No. 237, 1 five-story brick tenement, 23' 3" x 52'; cost, \$10,000; owner, Jas. Mooney, 237 West Twentieth St.; architect, J. I. Howard; builder, Jas. Mooney.

Eighty-First St., 1 four-story brown-stone tenement, 25' 5" x 63' 6"; cost, \$14,000; owners, Correll & Keays, 221 East Forty-Ninth St.; architect, J. C. Burne.

Ave. A, cor. Fifty-Sixth St., 1 four-story brick tenement, 25' x 82'; cost, \$14,000; owner, Peter Doelger; architect, Wm. Jose.

Ave. A, 1 four-story brick tenement, 25' x 82'; cost, \$13,000; owner and architect, same as last.

Ave. A, two four-story brick tenements, 25' x 82'; cost, each \$13,000; same owner and architect.

One Hundred and Twenty-First St., Nos. 124 and 126, 1 two-story brick factory, 40' x 60'; cost, \$2,500; owner, J. H. Polhamus, on premises.

Seventy-Third St., 8 four-story Connecticut brown-

stone dwells., 18' 7" x 50'; owners and builders, D. & E. Herbert; architect, H. J. Hardenburgh.
One Hundred and Eighteenth St., 3 three-sty' Connecticut brown-stone dwells., 16' 8" x 45'; cost, each, \$6,300; owner, Jas. Gault, 210 West Fifty-Third St.; architect, Emil Schultze.

West Fifty-First St., No. 531, five-sty' brick tenement, 25' x 53'; estimated cost, \$12,000; owner, Caspar Forsch; architect, John M. Forster.

One Hundred and Thirtieth St., near Fifth Ave., 8 three-sty' brown-stone front dwells., 20' x 56'; estimated cost of each, \$7,500; owner, estate of William Astor; architect, Charles Buck.

ALTERATIONS.—*Sixth Ave.*, No. 745, raised two stories, and extension, 25' x 15'; cost, \$5,000; owner, Thomas Lewis, 6 Lexington Ave.; architect, J. B. Snook; builder not selected.

West Thirty-Seventh St., No. 14, raised one story; cost, \$2,785; owner, D. J. Ripley, on premises; architects, McKim, Mead & Bigelow; builders, Robinson & Wallace.

Sixth Ave., cor. Twenty-Seventh St., new iron column and patent lights; cost, \$2,500; owner, H. P. Stewart, 449 Sixth Ave.; architect and carpenter, D. Mitchell; mason, N. L. Weeks.

West Twenty-Third St., No. 109, mansard roof, raised one story; also raise extension one story; cost, 5,000; owner, Joseph Morette, on premises; architects, D. & J. Jardine.

Park Ave., cor. Forty-Second St., extension Grand Union Hotel; cost, \$2,500; owner, J. A. Shaw, Grand Union Hotel; architect, J. Rodgers; builder, C. McClosky.

Fourth and Third Aves., Eighth and Ninth Sts., interior alterations; cost, \$7,000; owner, American Bible Society; architect, G. E. Harney; builder, D. H. King, Jr.

East Thirteenth St., No. 707, three-sty' brick extension, 25' x 103'; cost, \$3,000; owner, G. A. Goldsmith, 705 East Thirteenth St.; architect, A. B. Merrill; builders, List & Lennon and G. & J. A. Schaeckerbecker.

West Twentieth St., No. 49, raised 4' 6", interior and front alterations; cost, \$3,100; owners, Trustees Church Holy Communion, on premises; architects, McKim, Mead & Bigelow; builders, G. D. Hilliard and J. V. Mettler.

East Thirty-Eighth St., No. 11, interior alterations; cost, \$22,000; owner, — Fuller; architects, Tribbit & Berger; builder, M. Magrath.

East Thirty-Ninth St., No. 16, raised one story; cost, \$3,000; owner, — Fuller; architects, Tribbit & Berger; builder, M. Magrath.

First Ave., raised one story, repair damages by fire; cost, \$10,500; owner, Herman Koehler, Twenty-Ninth St. and First Ave.; architect, W. H. Holmes; builders, H. J. Van Riper and Holmes Bros.

CHURCHES.—Mr. Arthur Crooks has prepared designs for the church and parsonage of St. John the Evangelist, to be built on Fifty-Fifth St., corner of First Ave. The church will be 80' x 125', and will seat 1,500 people; it will have a spire 214 feet high. Materials to be used will be brick, with Ohio and blue-stone finish. The style is fourteenth century Gothic; cost, about \$70,000.

At West Farms, N. Y. City, a Catholic church, 70' x 36', to seat 300 persons, is to be built from designs of same architect. It will be of brick, and have an open timber roof with tracery windows. The front gable is to be surmounted by a bell turret, 70 feet high; cost, about \$6,000.

Mr. Crooks is also preparing plans for the church and parsonage of the Sacred Heart, to be erected on Fifty-First St., between Ninth and Tenth Aves., at a cost of about \$100,000; materials to be used not yet decided on.

HOUSES.—Messrs. Strymer & James are excavating on Fifty-Seventh St., corner Park Ave., and will have two first-class houses built from designs of Mr. Stephen D. Hatch.

OPERA HOUSE.—The directors of the new Opera House Company have wisely decided to obtain the plans for the opera-house, through the medium of a limited paid competition. Mr. J. C. Cady, Mr. Geo. E. Harney, Messrs. Potter & Robertson, and Mr. Geo. B. Post are the selected competitors.

PICTURE-GALLERY AND LIBRARY.—On the corner of Madison Ave. and Thirty-Ninth St. a picture-gallery and library is to be built for Mr. Wm. E. Dodge, Jr. The building will be of brick and stone; the interior finish is to be of oak, in the old English style; cost, about \$25,000.

PRODUCE EXCHANGE.—The special committee of the Produce Exchange has selected a site for its new building between Beaver and Stone Sts., with a frontage on Broadway of 300 feet, and extending in the rear 170 feet. The cost of property taken is nearly \$600,000, and the building to be erected is to cost \$450,000, making a total of \$1,050,000. All who wish to send in plans for the new building are requested to send their names to Franklin Edson, chairman of the Building Committee.

THE BUILDING BUREAU.—Inspector of Buildings Esterbrook has informed the Fire Commissioners that it would be best for the interests of the Department to have the Building Bureau remain where it is, at 21 Fourth Ave., for another month, as plans for new buildings will soon be coming in for the Fall, and any changes made in transferring the business of the Department to Firemen's Hall at the present time would subject himself and his employees to great inconvenience. The Board has appointed eleven "examiners" of buildings, and in a short time will appoint four more.

Indianapolis.

SCHOOL.—Messrs. Huebner & Mueller are the architects of St. Bridget's School building, which will cost \$8,000.

STORES.—Mr. R. P. Daggett, architect, is building a three-sty' store, at a cost of \$20,000. He is also building a store for A. D. Comstock; cost, \$8,000.

COLLEGE BUILDING.—Mr. W. H. Brown, architect, is making an addition to Wabash College, which will cost \$15,000.

STATE-HOUSE.—The Indiana State-house will be ready for iron beams, basement story, the 1st of November. Brickwork is progressing rapidly.

OPERA-HOUSE.—The English opera-house will be opened on the 10th of September.

Philadelphia.

HEBREW HOSPITAL.—By the will of Abraham S. Wolf, lately admitted to probate, provision is made for the founding of a Home for Aged and Infirm Poor Israelites, to be known as the Abraham S. Wolf Home. The building is to accommodate fifty people; to be built at a cost of \$10,000 or \$15,000, and will be erected on the grounds of the Jewish Hospital. He also gives \$5,000 for the erection of an additional wing to the Jewish Hospital, to be used as a hospital for incurables.

St. Louis.

BUILDING PERMITS.—Forty-two permits have been issued since our last report, of which six are for frame structures of slight importance. Of the rest, those worth \$2,500 or over are as follows:—

OWNERS' NAME.	USE.	STREETS.		COST.
		St.	Fin.	
J. Roemer,	Dwell.	212	5	\$2,800
J. C. Murphy,	Store.	5	5	17,000
G. Guenther,	Dwell.	212	2	2,900
W. Rime,	Dwell.	212	5	5,000
Malcolm Kretschmar,	Dwell.	310	7	7,000

General Notes.

ANDERSON, IND.—B. V. Enos & Son, architects, of Indianapolis, are building a store for Bosing & Ham; cost, \$6,000.

ATCHISON, KANSAS.—A Presbyterian church is being built, of native blue lime-stone in rock face broken Ashlar work, finished with Cottonwood Falls limestone; cost, \$18,000; B. J. Bartlett, of Des Moines, Iowa, architect; Rockwell & Gordon, mason contractors.

ALLEGHANY CITY, PA.—Block of three dwellings, on Ridge Ave.; cost, \$18,000; Mrs. McGary, owner; T. D. Evans, architect.

BRIDGEPORT, CONN.—P. T. Barnum will build here the winter quarters for his greatest show, the buildings to be done November 1st.

BINGHAMTON, N. Y.—Stone & Goff have the foundation completed for a manufactory, at the corner of Water and Dwight Sts., to be built of brick, four stories, 45' x 110'; T. I. Lacey, architect. The building is to be completed Jan. 1st, 1881.

CHURCH HILL, MD.—Messrs. Wyatt & Sperry, of Baltimore, are preparing drawings for addition to the church; cost, \$4,000.

COLD SPRING, N. Y.—A parsonage for St. Mary's Church is to be built from designs of Mr. Arthur Crooks, of New York.

EAGLE, PA.—A new station will be built here by the Pennsylvania R. R.

EASTON, PA.—Mr. J. F. Thompson will have a house, 27' x 95', built from designs of Mr. Arthur Crooks, of New York. It will be in the Queen Anne style, somewhat modified. The front is to be entirely of brick, the ornamentation being carved and moulded brick; cost, about \$12,000.

FLOYD CO., IOWA.—A jail is being built, of brick, with steel cells; cost, \$7,000; R. J. Bartlett, of Des Moines, Io., architect; Clements & Co., Cincinnati, contractors.

GARRISON FOREST, MD.—Messrs. Wyatt & Sperry, of Baltimore, are preparing drawings for a tower for a church; cost, \$2,500.

GREENSBURG, PA.—Messrs. Drum & Steen, of Pittsburgh, Pa., are the architects of the new Westmoreland County Home. It will be three stories high, and will measure 226 feet in length; cost, \$63,000.

HOLMESBURG, PA.—The Pennsylvania R. R. is to replace the present wooden station by one of stone. Louisville, Ky.—C. L. Gordon is to build a three-sty' brick four-mill, on the corner of Fourteenth St. and Broadway; cost, \$2,500.

Mrs. E. E. White is to build a three-story brick and stone dwelling on Ormsby Ave., between Fourth and Fifth Sts.; cost, \$15,500.

LAFAYETTE, IND.—Mr. C. A. Wallingford, architect, of Indianapolis, has on hand in this place a school-house, which will cost \$10,000; a house, for W. F. Reynolds, which will cost only \$1,200; and a house for J. Levesing; cost, \$6,000.

MERCE, PA.—A three-story almshouse, 175' x 200', is building here at a cost of \$50,000. Messrs. Drum & Steen, of Pittsburgh, architects.

PENDELTON, IND.—Mr. R. P. Daggett, of Indianapolis, is the architect of a house for M. Parker; cost, \$5,500.

ROXBURY, MASS.—Geo. B. Faunce is building a house on Circuit St., Boston Highlands; cost, about \$10,000; Simpson & Son, contractors; Allen Frink, of Boston, architect.

SALEM, IND.—A jail will be built this season; cost, \$15,000.

WILLIAMSPORT, PA.—Mr. I. Hodgson, architect, of Indianapolis, is building a house here.

WORCESTER, MASS.—Mr. Knowles is having a picture-gallery added to his residence, at an expense of \$2,000; Mr. S. C. Earle, of Boston, architect.

WATERBURY, CONN.—The New York and New England Railroad Company has completed plans and specifications for twelve new depots to be built west of Hartford. The best of these will be erected at Waterbury. At Plainville a substantial building, for use both as a passenger and freight depot, will be put up. The total cost is estimated at about 30,000.

St. Patrick church, 160' x 76', is to be built from designs of Mr. Arthur Crooks, of New York. The church will seat 1,500. It will be of brick and stone, and will cost \$50,000. Style, middle-pointed Gothic. The tower and spire will be built independent of the church; the latter will be 200 feet high.

Indianapolis.

CHICAGO, ILL.—The McCormick Harvesting Company is to add 1,200 feet to its extensive manufactory.

EAST ALBANY, N. Y.—The Boston & Albany Railroad Company are building a new car repair-shop, 300' x 60'.

HARRISON SQUARE, MASS.—J. H. Bufford's Sons are building on Clayton St., a brick building, three stories high, 125' x 70', to be used as a lithograph printing establishment.

LYNN, MASS.—Mower & Bros. are to build a new shoe factory, of five stories.

It is said that Keene Bros., shoe manufacturers, will lay 1,000,000 bricks this fall in their new factories.

Bids and Contracts.

INDIANAPOLIS, IND.—Messrs. McHenry & Co., of Cincinnati, have received the contract for the new gas-fixture for the English opera-house.

NEW YORK, N. Y.—The contract for supplying two thousand barrels of English Portland Cement, for Municipal Gas Company's new tank, New York, was awarded to J. B. White & Bros., 23 Liberty St., N. Y.

PHILADELPHIA, PA.—The Exeter Machine Works, of Exeter, N. H., have been awarded the contract for putting a steam-heating and ventilating apparatus into the new Union Insurance Company's block.

Publishers' Department.

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New Advertisements.

HOOK & HASTINGS (Boston), Church Organs. vii.
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JOHNSON & WILSON (New York), Portland Cement. Page xii.

T. M. CLARK (Glens Falls, N. Y.), Brick. Page x.
JAMES R. OSGOOD & CO. (Boston), Books. Page xii.

PORTLAND CEMENT.

By reference to our report of prices current for building materials, it will be noticed that the price for Saylor's Portland Cement has been reduced to a figure which should insure to the makers a large return through the larger sales which this low price of a building material which is constantly growing in favor must bring about. We do not remember that Portland Cement was ever offered in the New York market at \$2.25 per cask. Messrs. Johnson & Wilson, 93 Liberty street, New York, are the general agents.

SILICATE PAINTS.

THESE paints continue in active demand, and among other places to which they have been supplied lately, are U. S. Patent Offices, Light-houses at New Orleans and Key West, U. S. Hospital, Willard Asylum, Syracuse Asylum, etc.
Howard Fleming, 23 Liberty street, N. Y., is sole agent for United States.

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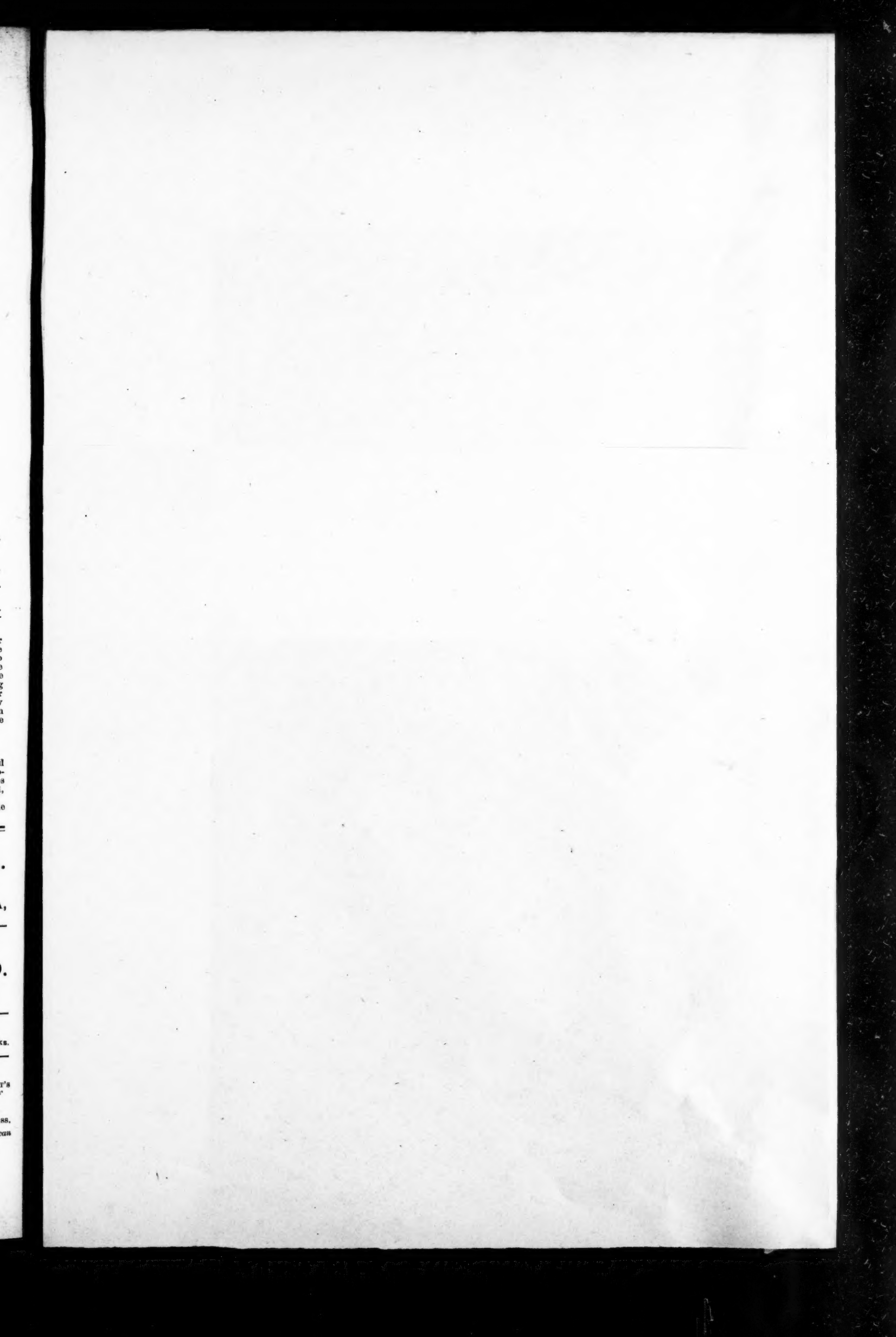
PERSPECTIVES

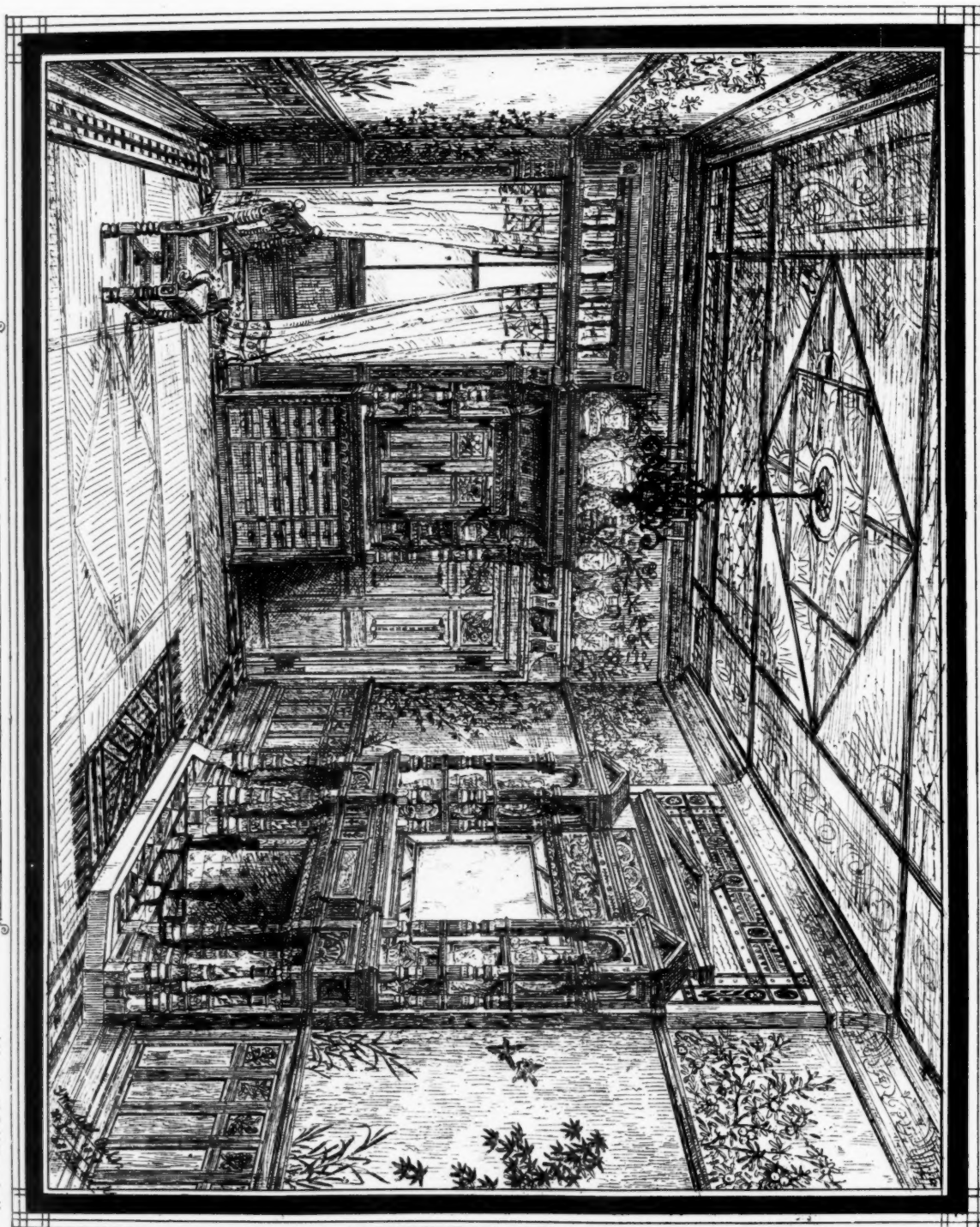
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By D. A. GREGG, 211 TREMONT ST., BOSTON, MASS.

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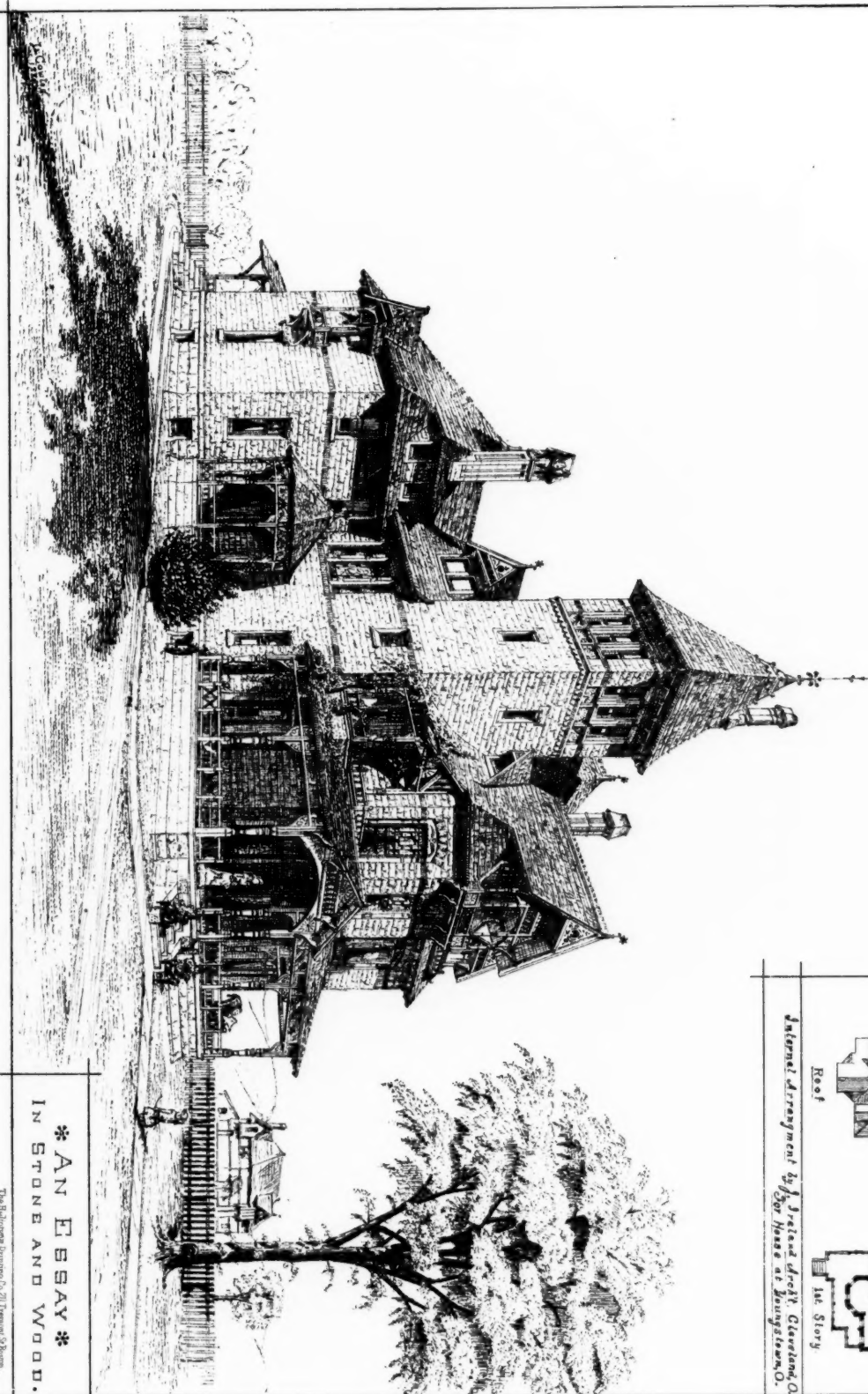




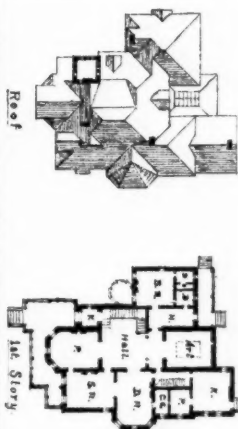
RENDERING OF DINING ROOM. FOR J. S. A. WARE, ESQ.

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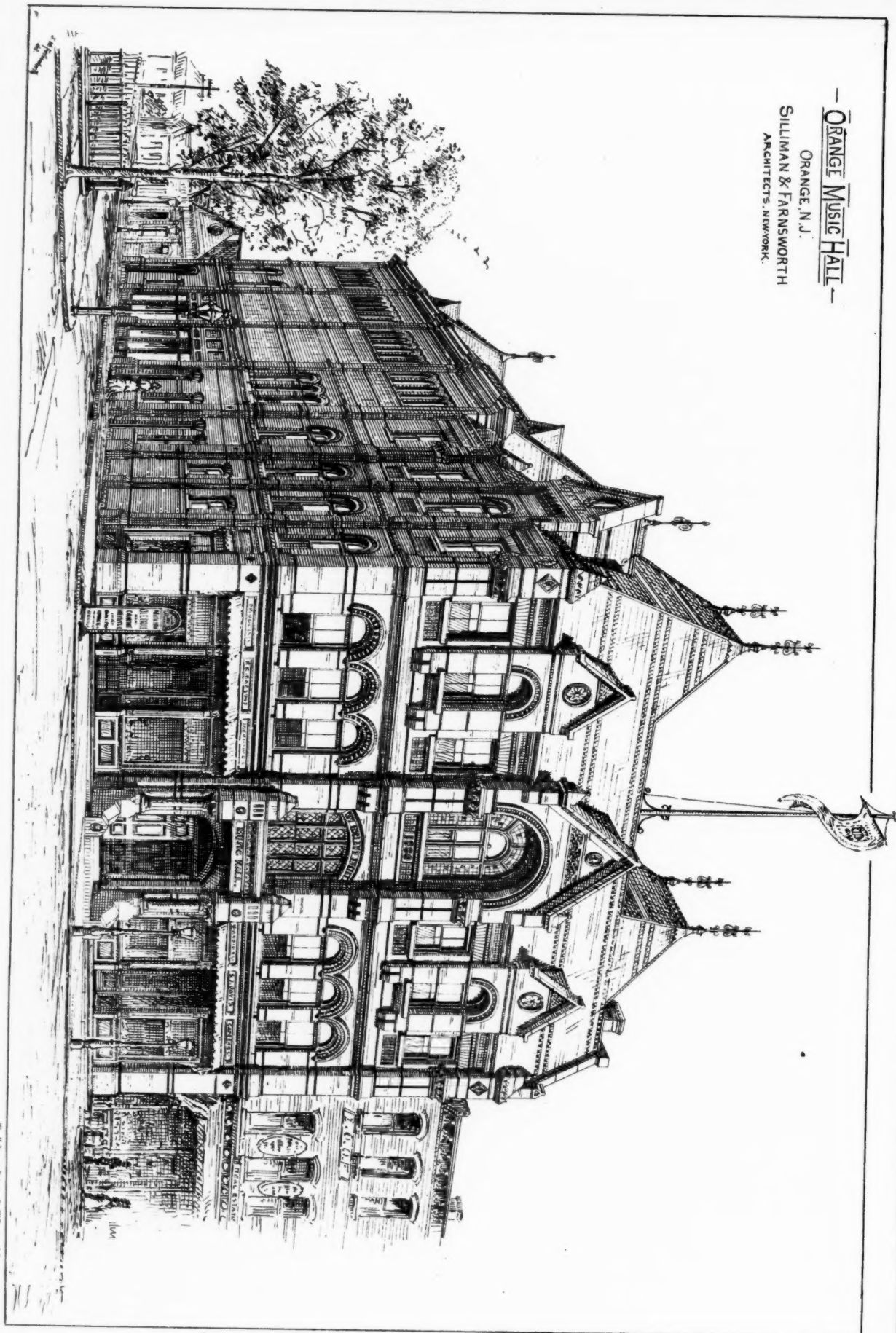
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IN STONE AND WOOD.

The Helio-type Printing Co 211 Fremont St. Boston

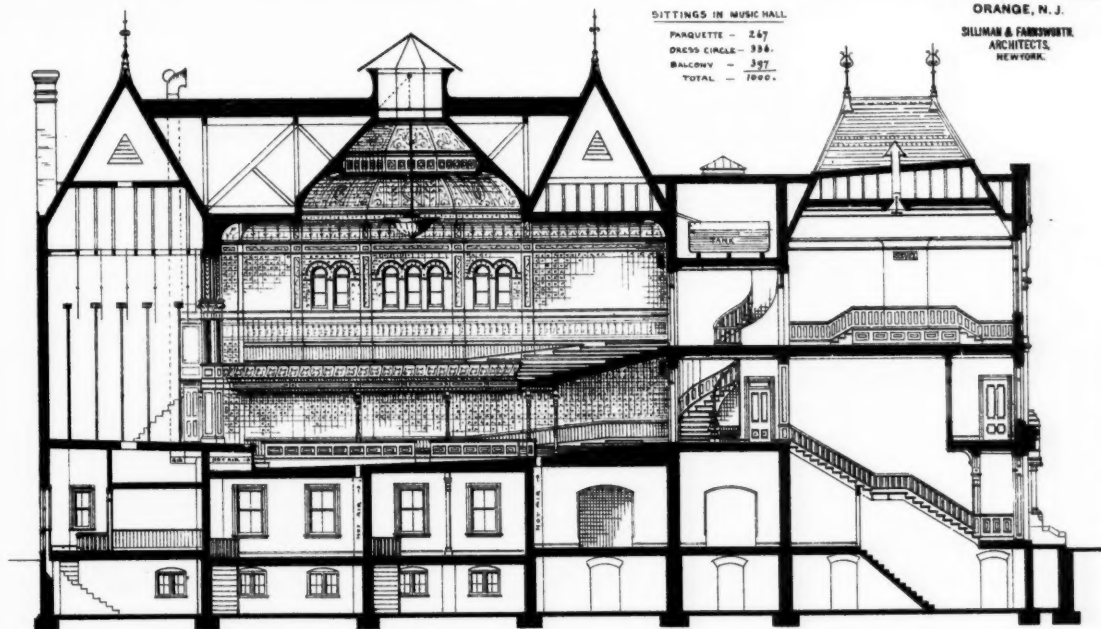
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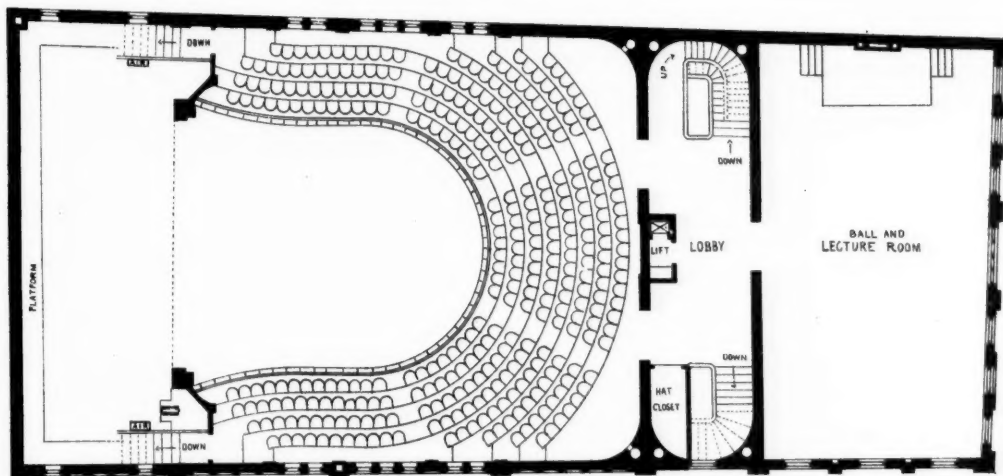
ORANGE MUSIC HALL.

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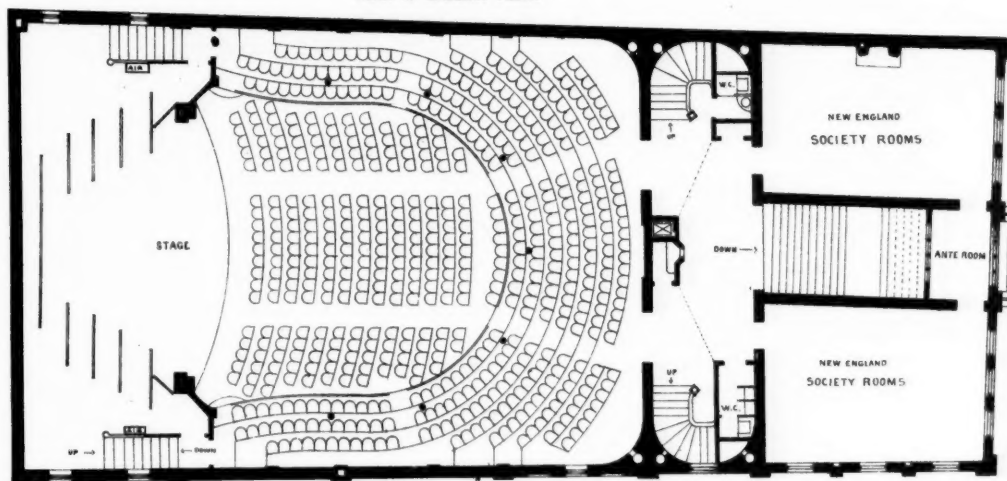
SITTINGS IN MUSIC HALL.
PARQUETTE - 247
DRESS CIRCLE - 934
BALCONY - 397
TOTAL - 1580.



LONGITUDINAL SECTION.



PLAN OF GALLERY FLOOR



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