THE AMERICAN ARCHITECT AND BUILDING NEWS.

VOL. XI. Copyright, 1882, JAMES R. OSGOOD & CO. NO. 319.

FEBRUARY 4, 1882.

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

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A CORRESPONDENT encloses to us a copy of the terms of a competition for a court-house in Texas, to which architects were invited to contribute. In substance, contract drawings, specifications and detailed estimates were required, for a structure to cost not more than fifty thousand dollars, and to the successful competitor was promised a premium of one hundred dollars "in payment for the plan adopted." Our correspondent, although he makes no comment upon the paper, evidently thinks that there is something strange, or even amusing, in the idea of inviting architects to undertake two or three months hard labor for a very slight chance of being rewarded with a sum equal to less than a fifteenth part of what any respectable member of the profession would earn by the same outlay of time and trouble in legitimate business. We can assure those who have had the same thoughts upon similar occasions that there is less reason for their surprise than they imagine, and we confidently predict that the projectors of the court-house in question will obtain in answer to their invitation a considerable assortment of designs, which, although perhaps open to the criticism of experts, will be quite adapted to the simple notions of those who are to use and pay for the building. The ambitious architect, anxious to merit in all things, not the praise of the vulgar, but the applause of his equals in his own art, soon forgets how easy it is to satisfy the tastes of those to whom plans and elevations, Palladin motives, and flying buttresses, are alike incomprehensible and indistinguishable, and is moved with sentiments of uncalled-for indignation on the receipt of invitations not meant for him, or his fellows, but for a much humbler class in the professional world.

THE Fire Department of the city of New York has drawn up a set of simple rules for the construction and regulation of theatres which are already adopted and in force, and merit attention. The first and most important regulation is that the stage and auditorium must be kept free from all unnecessary combustible material, scenery, properties, furniture or anything else not needed for the play or exhibition actually in progress. Paint-shops, carpenters' shops, work-shops and storage rooms are prohibited within the walls of the theatre proper, and the heating apparatus must also be separated from the stage or auditorium by brick walls. The space between the proscenium arch and the roof of the building is to consist of masonry or a double partition of corrugated iron, with an air-space between, and the roof over the stage is to be constructed with glass sashes, arranged to slide open by their own weight on the burning of an inflammable cord which is to hold them. Each story or tier in the auditorium is to have direct avenues of egress to the street, independent of those from the other stories, and all avenues of exit are to be open and in use at every performance, since those designed for escape only in case of fire are generally found unserviceable when most needed. The whole document forms an intelligent and practical compendium of the precautions which the sad lessons of the last few years have shown to be most necessary and most reliable in guarding theatres and their occupants from the dangers of a conflagration, and it has the great merit of avoiding as far as possible any demands for the attendance of trained firemen for special inspections, or other burdensome requirements, which would soon be evaded or neglected.

THE practical inutility of regulations for compelling the employés of theatres, or other non-professional persons, to organize themselves and practice the functions of firemen, was well shown a few days ago at an official inspection of the Olympic Theatre in Chicago. The building had been found in comparatively good and safe condition, and the manager, to show still further the thoroughness of his precautions, requested his visitors to stay and witness a review of the fire-brigade which he had formed and drilled among the theatre company. The signal was given, and the employés assembled on the stage, where they received orders to put out an imaginary fire in one of the dressing-rooms. Immediately one man ran to the stand-pipe and attached the hose; another strapped on a Babcock fire-extinguisher; a third ran to the fire-alarm box, and the fourth pulled the cord that operated a ventilator over the stage to let out the smoke. Nothing could be more admirable than the way in which each person performed his part, but on the suggestion of the official inspectors, a further examination was made of the apparatus: the hose which was so quickly attached to the stand-pipe was found to lack a nozzle, the one belonging to it having been stolen some time previously; of the four Babcock extinguishers not one was charged, or in condition to work; while the ventilator over the stage turned out to be a little scuttle, too small to let any appreciable quantity of smoke escape. The "brigade" thus drilled, no doubt with much care and trouble, would therefore have been totally useless in case of a real fire, and it is even questioned by some whether such bodies are not worse than useless to the establishments which maintain them. The great Havermeyer sugar refinery, which was burned a few days ago, is said to have had an organization of the kind among its operatives, so well drilled and efficient that for some time it fought the flames alone, only yielding to necessity, and calling in the city department when the fire had gained such headway that no human power could resist—a conflagration which might have been checked if professional assistance had been summoned at the outset.

THE ordinance prohibiting the further defilement of the air of Cincinnati with smoke went into effect with the new year, and vigorous measures have been taken to secure its enforcement. It is very gratifying to find that the manufacturers, the chief offenders against the new regulation, are themselves found willing, and even pleased, to do their part toward this great and salutary reform. According to the report of the official inspector, "they all mean what is right," and "seem anxious to know what smoke consumer to get." "In every instance," this gentleman reports, he has "been met in the kindest manner" by the proprietors of steam boilers upon whom he called to give notice of the enforcement of the new law, and he believes that "everybody being interested in having the nuisance of soot abated, will do his best to that end, and the result will prove satisfactory to all concerned." No doubt a part of this good feeling is due to the tact of Mr. Olhaber himself, but the main portion must be attributed to that admirable public spirit so characteristic of Cincinnati, which seems to influence all citizens alike, and to take precedence in their minds over selfish interests of considerable importance.

A VERY simple device for securing the consumption of the smoke evolved by the coal used under ordinary steam-boilers is described in the Cincinnati *Gazette*. We must acknowledge that we have doubts as to the value of the invention in some other particulars, but it certainly seems to be effectual in preventing the escape of unconsumed carbon from the smoke-stack, and this alone will, we hope, lead to further experiments which any proprietor of a steam-boiler may make at the smallest possible expense. As most of our readers know, in setting the ordinary horizontal steam-boiler, a space is left beneath it, divided into two portions, of which one forms the fire-box, while the other consists simply of a chamber for the combustion of the heated gases from the coal. The two divisions are sep-

arated by a "bridge wall," which is built up nearly to the underside of the boiler, and concentric with it, in order to direct the flame and heat toward its under surface. The Cincinnati improvement, which is due to Mr. A. G. Moore, Superintendent of the city water-works, consists in the abolition of the low "bridge," and the substitution in its place of a brick wall built close up to the boiler, and pierced only with a vertical slit, extending from the bottom of the fire-box to a point a few inches below the boiler. The draught of the chimney, the size of the boiler, and the number of flues, must all be considered in determining the dimensions of the slit, but once correctly proportioned it seems to concentrate the smoke and gases of the furnace, with the air admitted through the grate, in such a way as to secure the perfect combustion of the carbon and inflammable matters evolved. All the furnaces in use at the water-works have been altered in accordance with this new principle, and an important economy in coal, amounting in one case to about twenty per cent, has been effected, in addition to the saving of annoyance by smoke.

The people of New York seem to have responded very freely to the suggestions made on the occasion of the Grand street catastrophe, and complaints of unsafe buildings pour in upon the Fire Department at the rate of about two hundred per week. During 1881, five thousand and thirty such complaints were made, of which the majority were ill-founded or trivial, and many simply malicious. The Building Bureau investigates all complaints, even anonymous ones, and if the inspectors report that there is ground for action upon any case, the owner of the building is notified, and furnished with a copy of the report of the inspector in regard to it, with his recommendations as to the best way for making the structure secure. About one owner out of nine whose property is reported to be in unsafe condition complies with the recommendations, and has his building put in proper order. If the advice of the Bureau is rejected by the owner, a survey by experts is called, and if the building is again pronounced dangerous, an application is made for an order of Court to compel the proprietor to make it safe. This takes a long time, so that the process of compelling a penurious landlord to provide for the safety of his tenants is a tedious one. More might be done if the Bureau or the Fire Commissioners could be clothed with a more summary power of enforcing the law, but under present circumstances this reform is not to be hoped for.

A case illustrating the difficulties which hamper the Building Bureau in its administration of the law is reported in the New York papers of last week. A certain individual in that city is the owner of two tenement-houses of the better class, each of which is occupied by eight families. A year ago he was notified to comply with the law by placing fire-escapes on the building, but paid no attention to the notice. The Bureau then put in operation the slow and cumbrous machinery by which its mandates are intended to be enforced, and applied to the Supreme Court for aid. A statute of 1881 provides that when a notice is served upon the owner of any building requiring the placing of fire-escapes upon it, and compliance is refused, or delayed beyond a certain time, the Fire Department may apply to the Supreme Court for an order requiring the building or buildings in question to be vacated, and prohibiting its use or occupation until the notice of the Bureau shall have been complied with. Under this provision the Court, in answer to the application of the Inspector, issued an order requiring the two tenement-houses to be vacated at once, and if this is not voluntarily obeyed by the occupants, the building will be cleared by the police. It seems rather hard to put the innocent tenants to such distress and annoyance to punish the faults of their landlord. but they will probably have a valid claim against him for all damages occurring from their enforced dislodgement which can be estimated in money.

A serious fire took place last week at Riverdale, a beautiful suburb of New York, by which a house so solidly built, and of such incombustible materials as to be considered practically fire-proof, was totally destroyed. The conflagration is attributed to some "defect in the heating apparatus," which is thought by the public in general to be equivalent to saying that its cause is inscrutable; but it seems quite as likely to have been occasoned by sparks from an open wood-fire in one of the rooms. About midnight a slight odor of smoke was observed. This increased, and it appeared prudent to remove the occupants to a place of safety. The owner, Mr. Bond, was even then confident that the flames could do no great damage, but attached a hose to the service-pipe, and summoned aid; but in spite of all efforts, the fire spread, and by five o'clock nothing was left of the house or its contents but a heap of ruins. A part of the furniture only was saved. We are not clearly informed as to the construction of the building, but it is reported that laths or other inflammable materials were used in it, and it was considered a model of a fire-proof dwelling.

An accident of a kind which has hitherto been regarded as impossible occurred last week in Philadelphia, resulting in the fall of an elevator and the death of one man, with the serious injury of two others. Two years ago the proprietors of a large building on Race Street discarded their old wire-rope elevator, and introduced one of the Thayer hydraulic machines manufactured at Worcester, Mass. These elevators are built with particular regard to safety, on what may be called the French system, the water being admitted at the bottom of a series of six tubes, moving within each other like the tubes of a telescope, and raising or lowering the car, which is sustained on the top of the upper tube, as the whole series is filled or emptied from the supply. So far as we know, no accident has ever before been recorded, either in this country or in Europe, with such an apparatus, and it is often regarded as the only kind of hydraulic lift which is perfectly safe. The tubes in the Philadelphia building had been tested to a pressure of seventeen hundred pounds per square inch, a strain many times exceeding that which they would have to sustain in hoisting any probable load, and at the time of the accident some four thousand pounds only of iron castings were on the platform. The elevator was resting at the upper floor, and the three men injured had just placed the cases in position, when the starter, who was standing on the first floor, waiting for the signal to lower the cage, felt a stream of water strike him in the face, nearly knocking him over. When he opened his eyes, the elevator platform lay before him in fragments, with the men bleeding among the ruins. The cause of the fall was undoubtedly the breaking of one of the tubes, possibly partially fractured by some violence, but an inquest will determine more definitely the circumstances.

It is proposed, probably by the proprietors of asbestos mines, to substitute curtains made of this material for the sheet-iron or wire-gauze screens now commonly adopted for use in theatres in case of fire. With their usual intelligent zeal, the New York Fire Commissioners have instituted a series of experiments to test the strength of the asbestos fabric, as well as its fire-resisting qualities. In regard to the latter, the Commissioners report their conviction that the material possesses the desired property, but it is still doubtful whether it can be woven into a cloth or canvas strong enough to sustain its own weight, especially when strongly heated. This is a very serious question, and we trust that no theatre-managers will risk the lives of their patrons on any uncertainty. The sudden parting of such a curtain, with a fire raging behind it, would be a horrible catastrophe, and treacherous as iron is, it would be best not to desert it for an untried and more than doubtful substitute. At the same time, there are perhaps methods by which the short and brittle fibres of asbestos may be combined with a stronger material in such a way as to protect it, while it is itself sustained. The modes in use for weaving the short fibres of silk waste might possibly afford a hint to the asbestos manufacturers. Many of the silk-waste fabrics consist of a strong tissue of cotton, into which the silk is woven after the manner of chenille, the ends of the fibres projecting on each side from the surface of the cloth. Such a material might easily be imitated, we should think, by a body of light woven wire, filled and concealed on both sides by a thick nap of asbestos, which would form an admirable protection to the metal. The real object to be aimed at is, we think, the production of a material tough and flexible enough to be used, not for a screen to be coiled away, accumulating rust and rot, for years together, but for the curtains and drop-scenes in daily use. Such a fabric as we imagine might be painted without much difficulty, and one would suppose that it could be made strong and flexible enough to bear the necessary coiling and uncoiling without injury for an indefinite period.

A CASE of some interest in relation to the effect of the proximity of elevated railroads upon property in real estate has just been decided on appeal in the highest court of the State of New York. Mr. Thomas Thacher of New York owned a building at the corner of Fifteenth street and Sixth avenue, on the line of the Metropolitan Elevated Railroad. The property had been acquired from the Trustees of the Columbia College, under a covenant that the building upon it should be used only as a dwelling-house. Mr. Thacher, finding it difficult to let his building for residence, desired to convert it into a store, but the Trustees of the College refused to countenance this violation of the restrictions in the conveyance, and brought suit to restrain him from doing so. The lower court sustained the claim of the Trustees, but its decision has now been reversed by the Court of Appeals, on the ground that although the Covenant was without restriction or limitation, and in law would be sustained, nevertheless, the construction of the railroad, one event not contemplated by any of the parties to the original conveyance, had frustrated the original scheme and made the property unsuitable for the use to which it was appropriated by the Covenant. In the words of the Court, "The original design of the parties to the Covenant has been broken up by acts for which neither the defendant nor his grantors are responsible, the object of the Covenant has been, so far as the defendant is concerned, defeated, and to enforce it would work oppression, and not equity."

MR. JAMES STEVENSON, the leader of an exploring expedition sent by the Smithsonian Institution to New Mexico and Arizona, sends an account of a vast city of caves which was found extending for *sixty miles* along the irregular escarpment of one of the table lands, or *mesas*, peculiar to that region. The caves were excavated in tiers, in some places four and even five rows being placed one above another, so that the population of the place must have much exceeded that of any similar one known, unless perhaps some of the hermit settlements in the Thebaid. In all respects the dwellings seem to have been of the simplest description. Fireplaces were found in them, but no escape was provided for the smoke except by the single aperture in the front which served for door and window. Many showed the remains of floors, dividing them into two stories, and recesses, apparently intended for cupboards, were found in some. The rock of which the cliff consists is volcanic tufa, which is soft and easily cut; and the work of excavation, as shown by the traces left on the roofs of the caves, seems to have been carried on by channelling the stone deeply with flint tools, and then breaking off the stone between the grooves. On the top of the mesa, above the caves, were found the remains of several large circular structures, built of squared stones, evidently cut from the cliff, and about twenty inches in length by six in breadth, with a thickness of four inches. One of these buildings measured two hundred feet in diameter, and another one hundred. Portions of the walls only remain, but they were evidently places of public assembly, and perhaps of worship. Very few portable objects were discovered during the short visit of the expedition, but animal forms were found carved in the stone, together with hieroglyphics resembling the picture-writing of the present Pueblo Indians. What is the age of this remarkable city, it is impossible at present to say, but the absence of any known traditions regarding it among the Indians of the present day is evidence of its great antiquity.

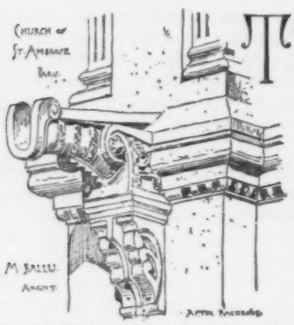
THE subject of aërostation has been taken up recently with renewed earnestness by various persons in England and France, and the coming decade will probably witness some signal advances in the art of constructing and managing balloons. Serious attempts at applying power for the purpose of propelling and steering them are already in progress, and some steam-engines have been built in London expressly for air navigation, which combine strength with economy of material to an extraordinary degree. One of them, just completed, develops a force of thirty horse-power, and weighs, including everything, one hundred and sixty-seven pounds. The boiler intended to accompany it weighs one hundred and forty-two pounds. Apparently the weight of the coal and water necessary to supply this engine for any but the shortest voyages would far exceed that of the apparatus itself, and one cannot avoid some surprise that so costly a machine should not have been made in the form of a gas-engine, which would be complete without any boiler, while its necessary store of fuel, instead of imposing a severe burden upon the balloon, would, even if carried in a compressed state, add considerably to its buoyancy. Moreover, about seven-eighths of the fuel expansive agent used in the gas-engine is atmospheric air, which would be drawn from the medium in which the balloon floated, thus effecting a very large further saving in the load to be transported.

A DEVICE has been invented by a fire-engineer in New York, to obviate the inconvenience attending the use of iron shutters on the outside of a building. Repeated occurrences have shown that in case of fire breaking out among the goods in a warehouse or similar structure, the strong iron shutters, which are tightly locked at night over every opening except those in the street fronts, resist effectually the efforts of the firemen to throw water into the building, and it is necessary either to break holes in the walls, a work of some time, or to leave the building and its contents to their fate. The suggestions of engineers that such shutters should be made to open from the outside does not meet with much favor from owners, who are quite as much afraid of thieves as of fire, and the dilemma seems as yet insoluble. The invention referred to provides a system of rods or levers so arranged that all the shutters in any building can be simultaneously opened by pulling a handle enclosed in a box on the street front, which is kept locked, and the key deposited at the nearest engine or station house. With all due respect to the high morality of firemen as a class, we venture to predict that this plan, which would put millions of dollars' worth of property at the mercy of any expert thieves who might succeed in entering the ranks of the service, will meet with no better reception from real estate owners than the other, and this field is still open to ingenious inventors.

MR. JAMES JACKSON JARVES has evidently not followed with the interest which true patriotism would dictate the progress of art in his native country. Writing from Florence to the New York *Times* not long ago, he gives an interesting description of the bas-reliefs which Mr. Larkin G. Mead is now modelling for the adornment of the Washington Monument, winding up with the remark that these works afford "an opportunity for vigorous form and action not often obtained in modern sculpture." It is true, indeed, that vigor is not always the most prominent characteristic of American sculpture, but no one can deny that our native school endows its works plentifully with action. In the standard pattern of Soldiers' monuments, for instance, as found in most of our large towns, the figures seem positively alive. The little sailors, with one leg longer than the other, who adorn the base of these constructions, and the little soldiers with their bronze muskets, appear on the point of stepping from their pedestals and walking away. Possibly the desire which most persons feel to have them do so may give the figures in their eyes a factitious appearance of animation, but it cannot be denied that so far as muscular contortion can express action, the stock goods of our "fine-art foundries" leave nothing to be desired.

ONE of the insurance journals reports the revival of an old invention for extinguishing fires by means of an inflammable substance, so composed as to emit, while burning, a smoke so dense as to be capable of stifling the combustion of other objects near by. A fire which had broken out inside a storehouse for naphtha and petroleum was extinguished by this means in a few hours. The fire-brigade, armed with the new weapon, on their arrival at the burning building, immediately closed all doors and windows, first throwing in a few boxes of the composition. After the lapse of two hours, the windows were reopened, and on the dissipation of the heavy fumes which issued from them, the fire was found to be completely extinguished. Such appliances as this must obviously be of very limited application, since the worst danger to human life in conflagrations, that of suffocation by smoke, would be increased tenfold by the presence of such a substance in the fire. The same, or a very similar composition, under the name of "Phillips's Fire Annihilator," was introduced into this country twenty or thirty years ago, but we think that it was never brought into any general use. We recollect seeing a piece of it, which was preserved as a curiosity. It was a black, dull lump, much resembling a piece of the largest-sized cannon-powder, and was probably composed of very similar ingredients.

BUILDING SUPERINTENDENCE. — XIV.



THE concreting of the cellar floor is generally done before the furnace is set, to avoid spattering the iron or brickwork with mortar, but all air conduits, ash-pits, and other work below the floor level should be completed, to avoid breaking into the concrete coating subsequently. The thickness of the stratum should be determined by circumstances. On very soft soil four to six inches may be necessary to prevent settlement and cracks, but under ordinary conditions it may with safety be made three inches thick. If less than this the falling of heavy weights upon it, or long-continued movement on it, may break it, and when once fractured it crumbles and deteriorates rapidly. Only the very best fresh cement should be used, otherwise the concrete will be weak, and attrition will reduce it easily into dust. The proper proportion of ingredients is one shovelful of cement to two of sand, first well mixed together, and then quickly stirred up with three shovelfuls of screened pebbles or broken stone, and immediately spread upon the floor. The country masons, to whom a cellar without water in it in spring would seem almost abnormal, generally give the concrete an inclination to some point from which it can be drained away to the outside, but we do not intend, and if our directions have been thoroughly enforced we need not fear, that any water will penetrate our walls, and no provision is therefore necessary for carrying it off.

Concrete.

Joinery.

After the furnace is set and the concreting finished, and while the plumber is completing his work, the joinery of the house will be going on. The first step is usually the setting of the door-frames, and the superintendent will need to refresh his memory in regard to the specified sizes and heights of the doors, and measure each frame as it is set, or risk finding, too late, that transpositions of the most annoying kind have been made in them. The frames are also very apt to be set out of square (Fig. 148), so that the door must be subsequently bevelled off to fit them, giving a slovenly appearance to the whole work. This should be provided against by rigid testing with the try-square and plumb-rule. Pocket-rules are sold at the hardware stores, containing a level, and a folding steel blade, which can be adjusted so as to form nearly a right angle, and although their usefulness would be much increased if they were more accurately made, the young architect will find them of service. In default of some such tool, the diagonals of the frame may be measured with a string, or a piece of wood: if they agree the frame is rectangular, though not necessarily plumb.

Door-Frame.

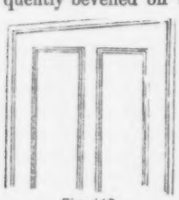


Fig. 148.

Fig. 149.

The height, width, and rectangularity of the frames once verified, the position of the rebates should be noted to make sure that the doors will be hung on the side intended. It is usual to mark the swinging of the doors on the plans, but workmen rarely trouble themselves to look at the drawings for information in regard to such matters, and after it is too late to change them the doors are very apt, especially in inferior rooms, to be found opening across stairs or passage-ways, against gas brackets, or in some other inconvenient manner. While considering this point the superintendent may make sure that the doors will be hung on the proper edge, as well as the right side of the partition, by marking the position of the hinges on the frames in accordance with the plans, or perhaps modifying these if circumstances render it advisable.

Swinging of Doors.

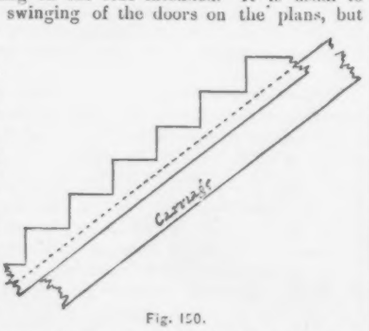


Fig. 150.

Next comes the application of the "standing finish,"— architraves, wainscotings, and bases. Modern moulded work is almost invariably cut with revolving knives, under which it is drawn by fluted cylinders, whose edges, in order to obtain a firm grip of the piece, press so strongly against it as to cause slight transverse indentations on the prominent portions, varying from a quarter to a third of an inch apart, which injure its appearance very seriously unless the marks are subsequently smoothed off with sand-paper. For hard wood even this will not be enough, and the flat surfaces should be dressed with an ordinary plane to prevent the reappearance of the ridges after polishing. Sheathing boards and mill-wrought stock of all kinds for good interior work should be smoothed with the plane in the same way. This adds considerably to the expense, and cheap contractors will shirk it if they can, but it should be insisted upon.

Standing Finish.

Another way in which the inferior class of builders often try to gain some advantage for themselves is by "splicing" architrave mouldings (Fig. 149), out of short pieces. As the mouldings come from the mill in lengths of ten to fourteen feet, there is considerable waste in cutting unless some mode is provided for utilizing the short pieces, but the appearance of a spliced architrave is so bad as to make it inadmissible in good work. Horizontal finish, such as bases, wainscots, wooden cornices, and chair-rails, must, however, be spliced, and care will be necessary to see that the adjoining pieces are properly matched, and that the joints do not come in conspicuous situations.

Splicing of Mouldings.

The stairs will need constant attention to secure a satisfactory result. Before any work is done upon them, the superintendent should examine the plans to make sure that none of the flights are too narrow or too steep, and that there is ample head-room where any passage is intended beneath them. The draughtsmen who prepare working plans from the architect's sketches sometimes fail to comprehend fully the structure which their drawings indicate, or forget to make the necessary allowance for thickness of floors, stair-timbers, and landings. Where a passage-way or flight of stairs is planned under another flight, the clear vertical height beneath the latter may be ascertained by counting the number of risers to the point where the head-room is to be calculated, multiplying this quantity by the height of each riser as found by dividing the total distance from floor to floor by the whole number of risers, and subtracting from the dimension so found at least eighteen inches, which will represent the vertical measurement from the top of the tread, just over the riser, to the under side of the plastering, in ordinary stairs. If the flight is steep, twenty inches, or even more, must be taken, while with long, straight flights it is often necessary to reinforce the strings with whole timbers, or "carriage timbers," (Fig. 150), set parallel with them, but at a sufficient distance below to clear the inner angle of the steps, which will increase the total vertical depth between top of tread and under side of plaster to thirty inches or more. It should be remembered also that a person in descending a flight of stairs usually leans forward, and that the headway under a trimmer beam which appears ample where the vertical height alone is taken may prove insufficient in execution.

Stairs.

Head-Room.

Inferior stairways often show defects of planning, independent of miscalculations in regard to head-room. It is not uncommon to see

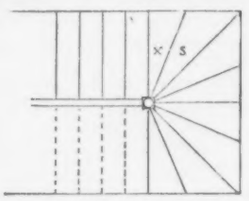


Fig. 151.

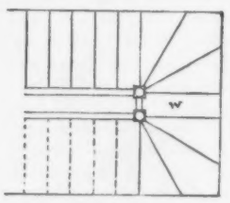


Fig. 152.

such stairs indicated as are shown in Figure 151, where a person descending in the dark might, with a single step, from S or X, fall three or four feet. The stair-builder would probably take upon himself the responsibility of changing the flight from the "dog-legged" form shown in Figure 151 to an "open newel," (Fig. 152), adding a square "step in the well" W, and putting two instead of three "winders" in each turn, thus making the stairs comparatively safe and convenient, though narrower than the first plan intended; but it is unsafe to depend upon his thoughtfulness to correct errors. Another fault often seen in back stairs is the filling up of the well on one floor by a closet, while the stairway below is left open. (Fig. 153.) The point of the floor, P, is in this case apt to project over the stairs in dangerous proximity to the heads of those passing up or down, and should be protected by sheathing, at least on one side, down to the rail.

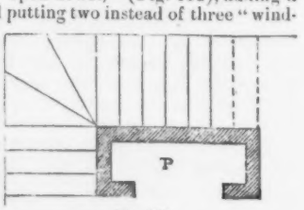


Fig. 153.

The steps should not be too steep. For inferior stairs the risers may be 8 inches and the treads 9 inches, to which the nosing will add 1½ inches more, making the whole width of the step 10½ inches; but this should be regarded as the limit. As the height of the risers is diminished, for superior staircases, the width of tread must be increased; the best rule being that the product obtained by multiplying the measure in inches of rise and tread together should not be less than 70, or more than 75. Seven and a half by ten inches is suitable for ordinary cases; seven by ten and a half is unusually easy, and six by twelve gives an air of old-fashioned luxury to a staircase. Some ancient mansions pos-

Height of Risers.

sess flights which rise only five or five and a half inches at each step, but these are hardly comfortable to our unaccustomed feet.

The greatest care should be taken to see that the staircase as executed will correspond with the plans, or, if mistakes in framing or miscalculations in regard to headway should have rendered this impossible, that the difficulty is remedied in the best way. It is a very common experience with young architects to be obliged to modify their designs on this account, and their ingenuity, as well as the patience of the stair-builder, will often be severely taxed to extricate themselves with credit from an unexpected difficulty. The stair-builder himself is liable to errors, and his work should be examined with particular care at the outset, in order, if necessary, to set him right before the progress of the building has made it difficult and expensive to remedy faults which would have been trifling if discovered earlier.

Even in putting up the rough "stringers" it is not uncommon to see mistakes made, which if passed over will spoil the effect of the finished structure.

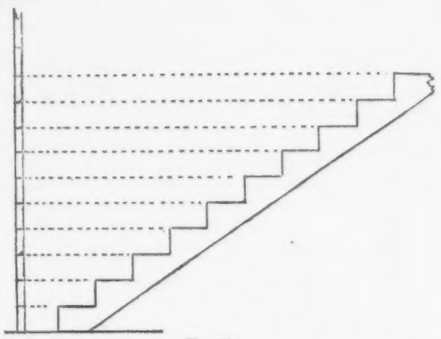


Fig. 154.

Although many architects mark the calculated height of the risers on their staircase plans, it seldom happens that the actual and theoretical distance from floor to floor agree exactly, and a pole should, in practice, always be cut to the exact length on the spot, and this divided into equal parts, corresponding to the number of risers required. From this measure the notches in the strings can be set out with accuracy. (Fig. 154.) Without such precaution, the strings may, on arrival at the building, be found a fraction of an inch too low, so that the top-most step must be blocked up to a greater height than the

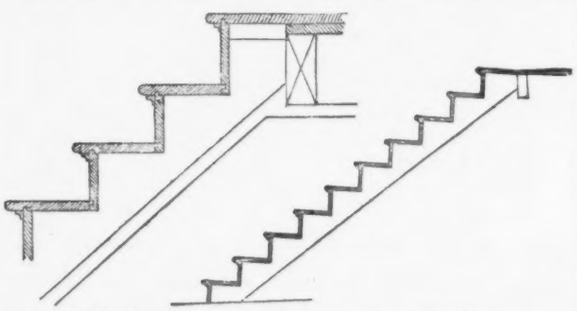


Fig 155. Fig. 156.

rest in order to gain the floor. (Fig. 155.) More frequently, the string will be found to have been cut too long, and one of the steps must be made shallower than the rest, or the strings must be allowed to lean backward. (Fig. 156.) Such misfits should be sharply looked out for, and condemned immediately if detected. The cutting of a new set of strings is a small matter, while stairs of varying height, or out of level, are dangerous as well as unsightly.

Stair-builders and carpenters often content themselves with very frail supports to their work, especially on landings, and this point should receive careful attention. After all is ready for the steps, the risers are sometimes first put on, the back edges of the treads inserted into grooves cut for them in the risers, and the nosings finally put in place (Fig. 157), and glued, securing the whole

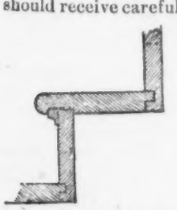


Fig. 157.

Fig. 158.

Fig. 159.

together. Generally, however, the risers and treads are put together, blocked and glued at the shop, and the steps brought complete to the building, ready for setting in place. In this case the nosings are not ploughed into the under side of the treads, but are simply nailed into the angle formed by the riser and the nosing. (Fig. 158.)

Whether the necessary connection between the steps themselves shall be made by grooving the inner edge of the tread into the face of the riser of the next step above, as shown in Figure 157, or by inverting the process, and ploughing the lower edge of the riser into the top of the tread below (Fig. 159), is a matter about which the practice of stair-builders varies. Those who choose the latter mode justify their preference on the ground that by the shrinkage of the timbers and settlement of the strings, the support may be taken away from the inner edge of the tread, throwing, if this is grooved into the riser, whatever weight may come upon it on the tongue, which is liable to split off (Fig. 160), while by the other method the tread is free to follow its supporting timber, the only result of the movement being the partial drawing out of the tongue in the riser. (Fig. 161.)

Fig. 160.

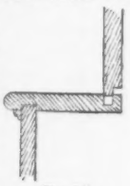


Fig. 161.

In practice, however, the first system is preferable for stairs over which the traffic is as light as is usual in dwelling-houses. When the risers are tongued down into the treads, the tongue necessarily escapes the painting or other finish, so that when it begins to draw out, a streak of a different color is exposed at the bottom of each, forming a very conspicuous defect.

The molded "nosing" of the steps should be formed as indicated on the sectional sketches, the front of the tread being rounded, and ploughed beneath for the insertion of the upper edge of the riser. In "open string" stairs (Fig. 162), where the level top of the tread

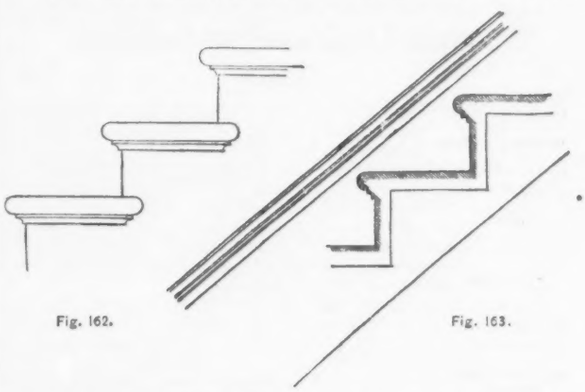


Fig. 162. Fig. 163.

appears at the end, the nosing is continued across it by means of a piece of wood moulded to the full shape, one end mitering into the angle left for the purpose at the front corner of the tread, while the other "returns on itself" at a point vertically under the edge of the next riser. Before these pieces are finally put on, the dovetails at the edge of the tread, intended to hold the balusters, should be cut out. The balusters may then be fitted in, and the nosing being nailed firmly in place holds all secure. The best stair-builders tack the pieces temporarily together, so as to insure a perfect fit, before the final nailing. Builders of the poorest class sometimes dispense with the dovetailing of the balusters, and simply fasten them in place by a nail driven diagonally through the foot into the tread after the nosing is finished: this gives a weak as well as uneven balustrade, and should never be permitted. The upper ends of the balusters are almost always secured with nails to the hand-rail, even in the best work.

Dovetailing Balusters.

With regard to the finish around the inner ends of the stairs, the practice of different localities varies somewhat. Whether it consists of a wainscot or a simple base, it is in many places customary to trace upon the lower portion the exact profile of the stairs (Fig. 163), including the nosings, and sink it to a depth of half an inch by means of chisels and gouges. This "wall string," base or wainscot is fixed to the walls before the stairs are put up, and the ends of the steps, as fast as put on, are "housed" into the grooves ready to receive them. If nicely done, this is a strong and handsome mode of fitting, but the workmanship must obviously be very careful and accurate.

In New England a different mode is adopted, rather easier in execution: for this, the treads and risers of the steps are grooved, before putting together, about $\frac{3}{4}$ of an inch from the inner end, and the base or lower member of the wainscot is roughly "scribed" to the profile of the upper surface of the steps, and the lower edge then cut away so as to form a tongue. After the steps are all secured in place, the base is applied and driven home with a mallet.

The proper termination of the rail at the top of a staircase, where, being no longer continued upward, it must be carried across to stop against the wall, is a matter not always considered when the drawings and specifications are made. The best finish is obtained by placing a half-post against the wall; but if this is not mentioned in the contract documents, a makeshift, consisting of a round cast-iron plate, with a socket to receive the rail, and screwed to the wall, is likely to be substituted for it.

Half-Posts.

As soon as the treads and landings are in place, the broken boards

of the under floor, and the places cut for the plumbers and gas-fitters should be repaired, and the laying of the upper floors may begin. This is usually commenced in the top-most story, in order that each floor, as completed and planed off, may be swept out and the rooms locked. For floors intended to be carpeted spruce forms the ordinary material north of New York. It is cheap, and has the advantage of being very free from knots and defects, so that a room laid with it looks clean and handsome. The adhesion of the annual rings is, however, very slight in spruce timber, and boards taken off the outside of the log (Fig. 164), which may be recognized by their grain or "figure," like Figure 165, are liable, after being dried by a winter's furnace heat, to splinter up in a most annoying manner; or if the rings do not separate, the boards are likely to curl up (Fig. 166), forming ridges which rapidly cut the carpets laid over them. Both these defects will be avoided by choosing spruce boards in which the figure consists rather of fine parallel lines, indicating that the annual

Upper Floors.

Spruce.

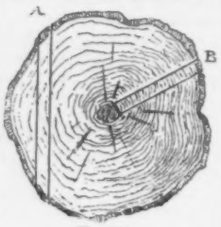


Fig. 164.

Fig. 165.

Fig. 166.

rings are divided in a direction nearly parallel to the radius of the trunk (B Fig. 164.) Very white, clear boards with no apparent figure are often cut from sapling trees, but are soft, and liable to excessive shrinkage. In the Middle States pine is the favorite flooring material. It is softer than spruce, and little liable to curl or splinter. Clear pine, however, is very costly, and the second quality, which is generally used, contains small knots and streaks of "blue sap," so that a floor finished with it is not quite so agreeable to the eye as one of good spruce.

Sapling Spruce.

Pine.

Blue Sap.

The mode of laying the boards varies with the locality. The New England carpenters, having a difficult material to deal with, have learned to treat it with great skill. Their upper floors of spruce, in the better rooms, are usually specified to be laid with boards not over four inches wide. Attics may have six-inch boards, but wider ones than these are only permissible in closets and store-rooms. The boards, whatever their width, are "jointed," or planed on the edges until these are made absolutely straight and parallel, then stacked in the kiln or "dry-house" until all moisture is evaporated from them, and brought directly from the dry-house to the building. Beginning at one side of the room, they are, or should be, laid in "courses," from end to end of the room, breaking joints as frequently as possible. Where all the boards are of exactly the same width, as should be the case in the best rooms, the joints may, and should be broken at every course, but as this involves some waste of stock, it is usually necessary to make "straight joints" through three or four courses, before the varying widths of the boards on each side of the joint will add up to an equal sum, so as to admit of its being crossed by the next course. A straight joint of more than four courses should not be allowed in rooms intended to be carpeted, for fear of causing a ridge; and it is hardly necessary to say that all heading joints should come upon a beam. "Flooring clamps" are used to force each board closely up to the side of its neighbor, and it is usual to tack the boards at first with a few nails only, and after all are in place to line them with a chalked string, or straight-edge and pencil, over the centre of the beams below, driving the nails to complete the work on the lines so marked.

Square Joint Floors.

Before laying the upper boarding, it is necessary in good houses to spread one, two, or three layers of felt over the under-boarding, in order to prevent air from passing through the joints, and also, by the interposition of a non-resonant material, to check the transmission of sound. Cane fibre makes a clean, dry material, which will not harbor moths, but a coarse felt of woollen rags is commonly used. Certain varieties are so prepared as to be incombustible, and, especially if used in several thicknesses, may prove valuable in preventing the spread of fire from one story of a house to another. The felt paper made for the purpose from asbestos is the best of these, but is very expensive; the Phœnix paper,

Felt Deafening.

Fig. 167.

made in New York, costs but little more than ordinary felt, and resists fire very effectually, which cannot be said of many so-called "fire-proof" sheathing papers.

In the Middle States, particularly where ordinary floors are laid with a single thickness of boards, it is customary to match the boards (Fig. 167), as otherwise currents of air would come up freely through the joints from the spaces between the beams; and the influence of this habit, more than any real necessity, has made it customary to match also the upper boarding of double floors, even in inferior rooms. The matching of spruce floors is, however, not to be recommended, as the thin edge of the grooved side of the boards (Fig. 168), is apt to curl up or split off. Pine is better in this respect, but stays in place well enough for an upper flooring without matching.

Matched Flooring.

Fig. 168.

Where hard woods are used for flooring, matching is, on the contrary, essential, since no nails must appear on the surface of such floors, and the only way of securing them to the beams is to drive the nails diagonally through the edges of the boards. This process can, however, be applied only to one edge of each board, since the other is applied firmly against the side of the one which preceded it; and in order to hold the inner edge down, it is necessary to connect it with the outer edge of the preceding board, by means either of tongue and groove, or of some equivalent device. Such floors are therefore laid in narrow strips, each with the tongue projecting forward into the room, and the nails are driven diagonally into the upper angle formed by the tongue and the edge of the board (Fig. 169), securing this edge firmly; and the groove of the next strip is forced over the tongue so secured, so as to retain in place its inner edge, while its outer edge, furnished with a tongue, is in its turn nailed.

Hard Wood.

Blind Nailing.

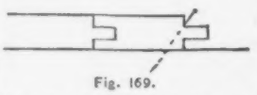


Fig. 169.

Parquetry work, such as we are to have in one room, is generally made with much more care than ordinary flooring, and requires special machinery, so that it is best to order it from a regular manufacturer. In some sorts the pieces of hard wood are but half an inch thick, and are dove-tailed and glued upon a backing of pine. The patterns are put together in the factory, and sent out in sections some two feet square, which are nailed down like single boards. Simpler hard-wood floors may be made and put down by the carpenter. The oak floor of our hall, in accordance with the wish of the owner, is put down in the French manner — short pieces laid at an angle

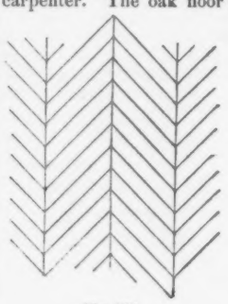


Fig. 170.

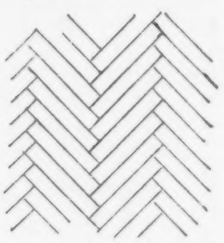


Fig. 171.

of 45° with the beams, and at right angles with each other. (Figs. 170 and 171.)

Figure 170 shows the most common method, the edges of the pieces being matched, but the heading joints plain. In Figure 171 the heading joints are tongued and grooved by hand as the pieces are laid, so as to fit into the matching upon the edges. We choose the former mode, as the least expensive, and the easiest to execute. All the other floors are simply laid with narrow parallel strips, 2¼ inches wide in the best room, 4 inches in the others.

It is of great importance that the under boarding, where a hard-wood upper floor is to be laid over it, should be also of narrow strips, not exceeding four inches at most; if wider boards are used, each one of them will in shrinking gather up, so to speak, a cluster of the narrow hard-wood pieces above it, and draw them tightly together, and although the shrinkage of each hard-wood strip, if well seasoned, is very slight, the movement of the wider board compresses all the joints over it, so as to transfer the total shrinkage to the joints immediately over its own edge. The adjoining wide board of the under flooring acts in the same way, but in the opposite direction, so that in a few months every board below will be exhibited by an inordinately wide separation between the hard-wood strips above, the other joints remaining perfectly close.

The stock for upper flooring will need close examination. Even with spruce it is necessary to see that waney pieces are not smuggled in, and to look out for knots and sap, while hard wood is liable to other defects. Oak for flooring, unless under severe wear, and, indeed, for all kinds of finish, should always be quartered, or "slashed," as some say—that is, sawed with two cuts at right-angles with each other, and through the centre of the log, all subsequent cuts being as nearly as possible on radial lines.

Flooring Stock.

As every one knows, oak is distinguished from all other woods by the "silver grain," or medullary rays, consisting of small bundles of

No. 519 American Architect and Building News Feb 4, 1882

Am. Arch't. Competition.
Sketch for Country Hotel.

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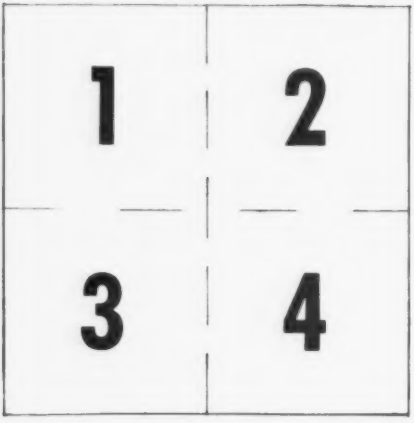

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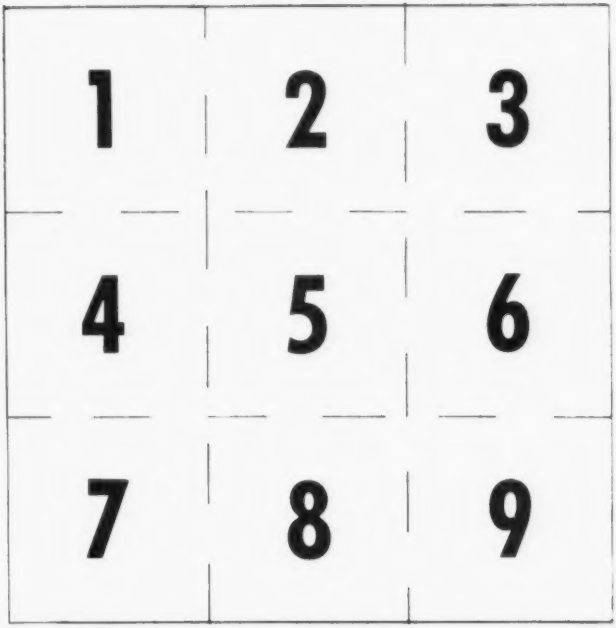


Detail on
NORTH
FRONT

Flower
pot

Veranda
Posts

Section.

Elevation

STAIRWAY
Details

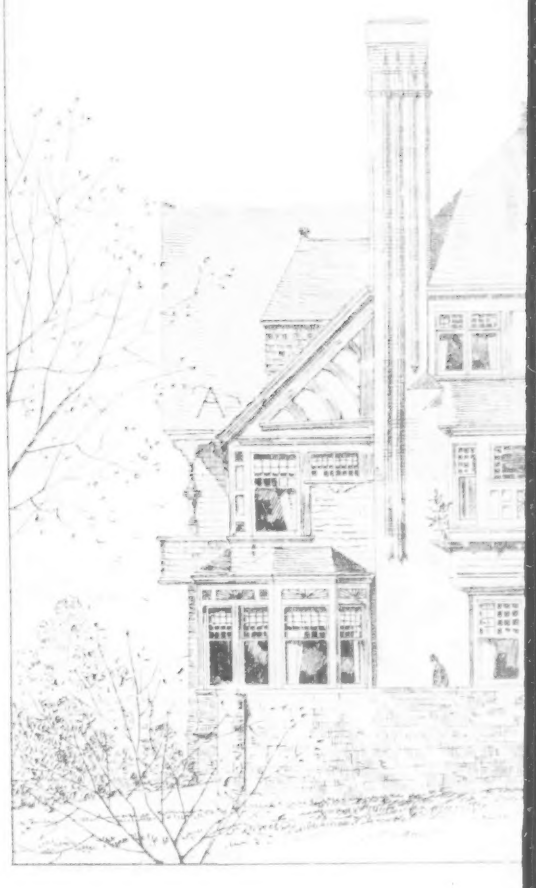
Shown
in Ele

SEAT IN

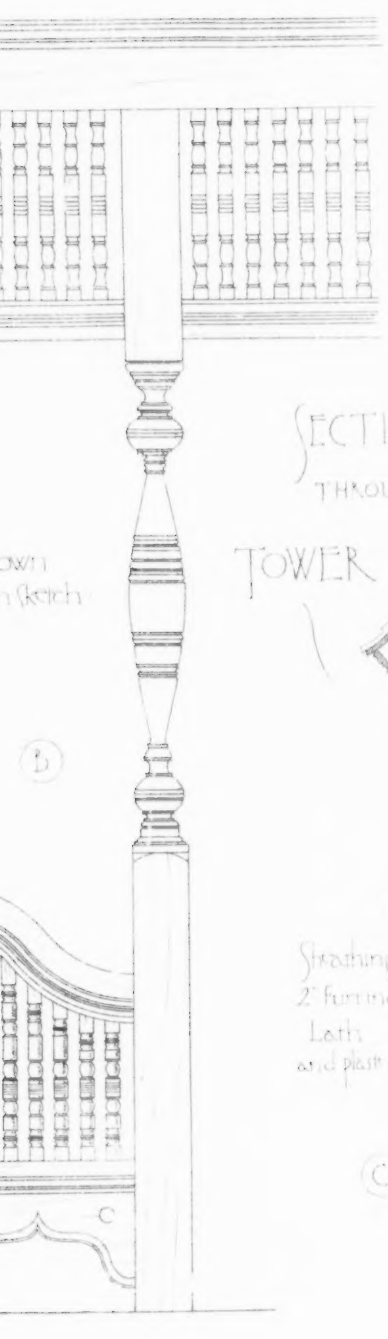
NORTH-WEST VIEW*

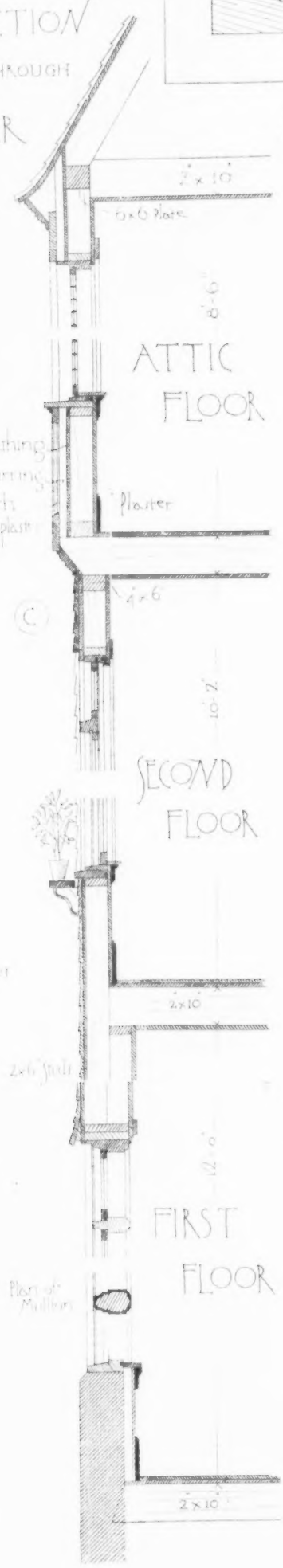
Detail at
A.
See East
Elevation

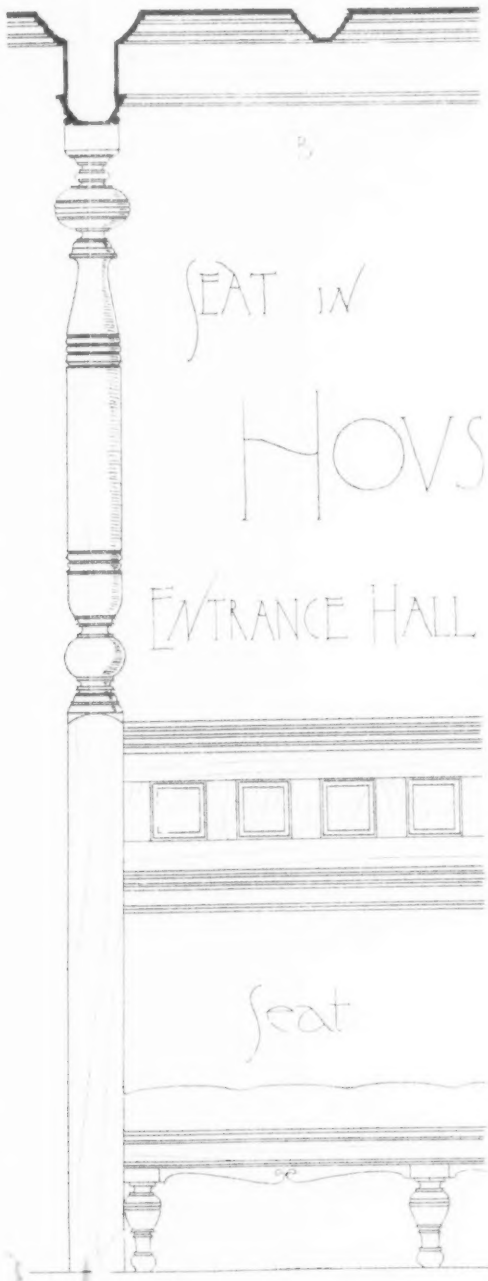
SKETCH IN VERANDA



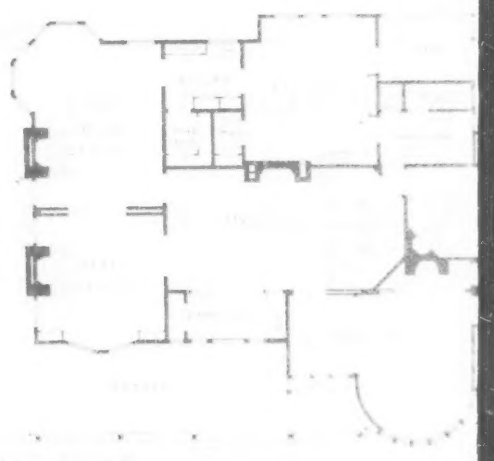
SECTION THROUGH TOWER







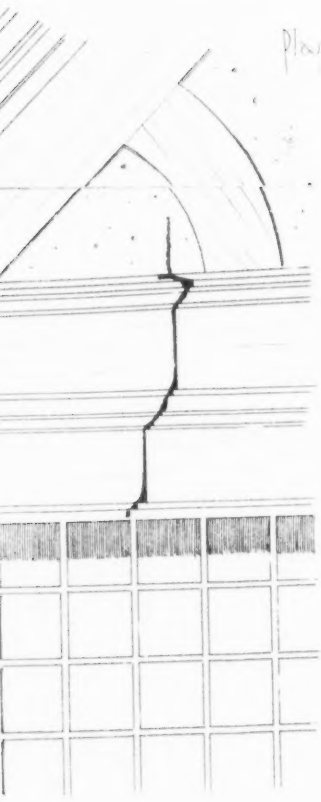
HOUSE FOR J.M.WAY

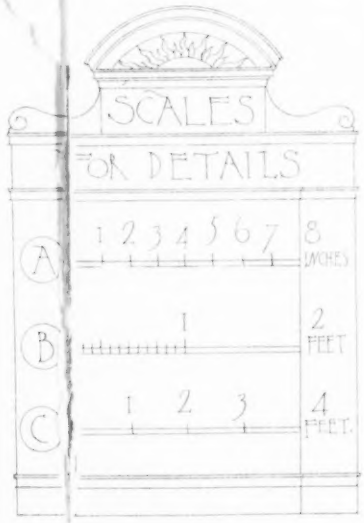


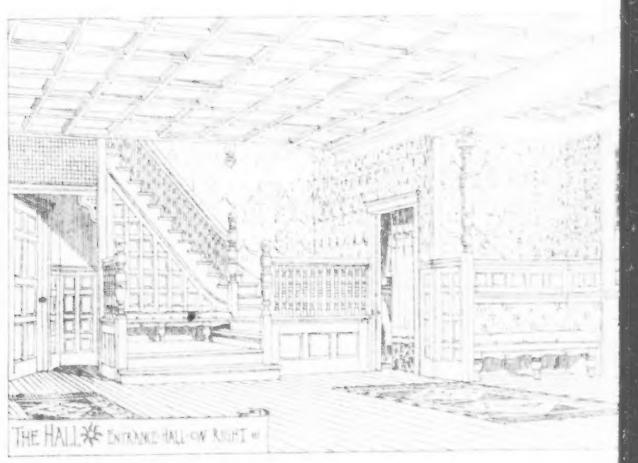
CINCINNATI

BUILDERS

VERANDA







STAIRWAY

Detail

SEAT IN VERANDA

SKETCH IN VERANDA

SECTION THROUGH TOWER

shown in Sketch

2×10

6×6 Plate

8'-0"

ATTIC FLOOR

Sheathing
2" furring
Lath
and plast

Plaster

4×6

10'-2"

SECOND FLOOR

2×10

2×6 Studs

9'-0"

FIRST FLOOR

Plan of Mullion

2×10

SEA

ENTR

SCALE FOR DET

A 1 2 3 4

B 1

C 1 2

Detail at A.

See Last Elevation

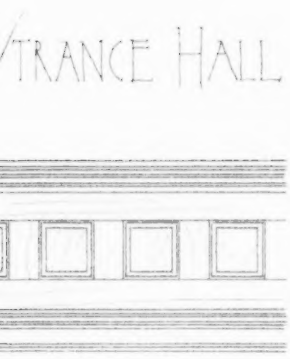
Plaster

No 519

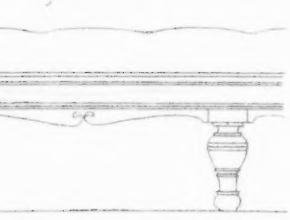
SEAT IN

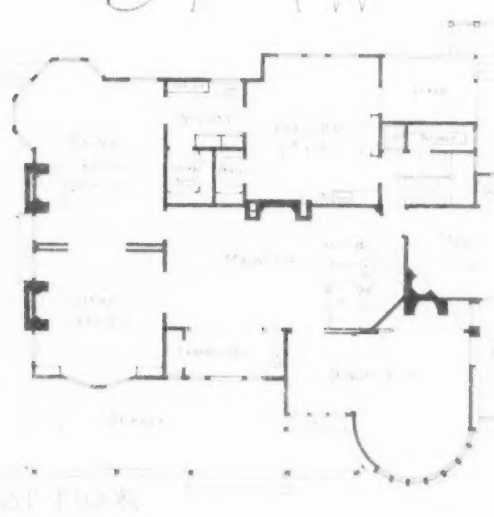
HOUSE FOR J M WAYNE NEFF ESQ

ENTRANCE HALL



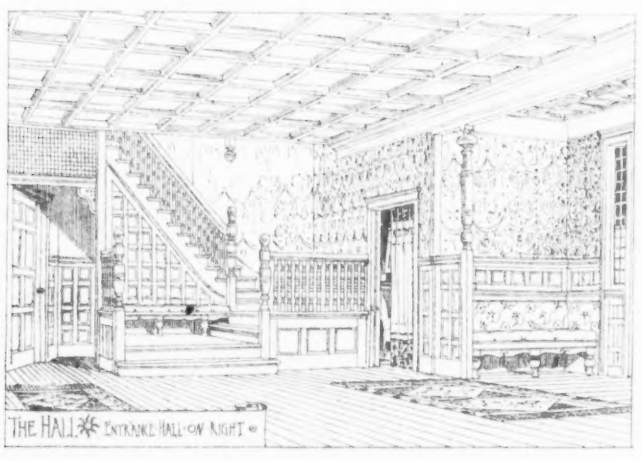
SEAT

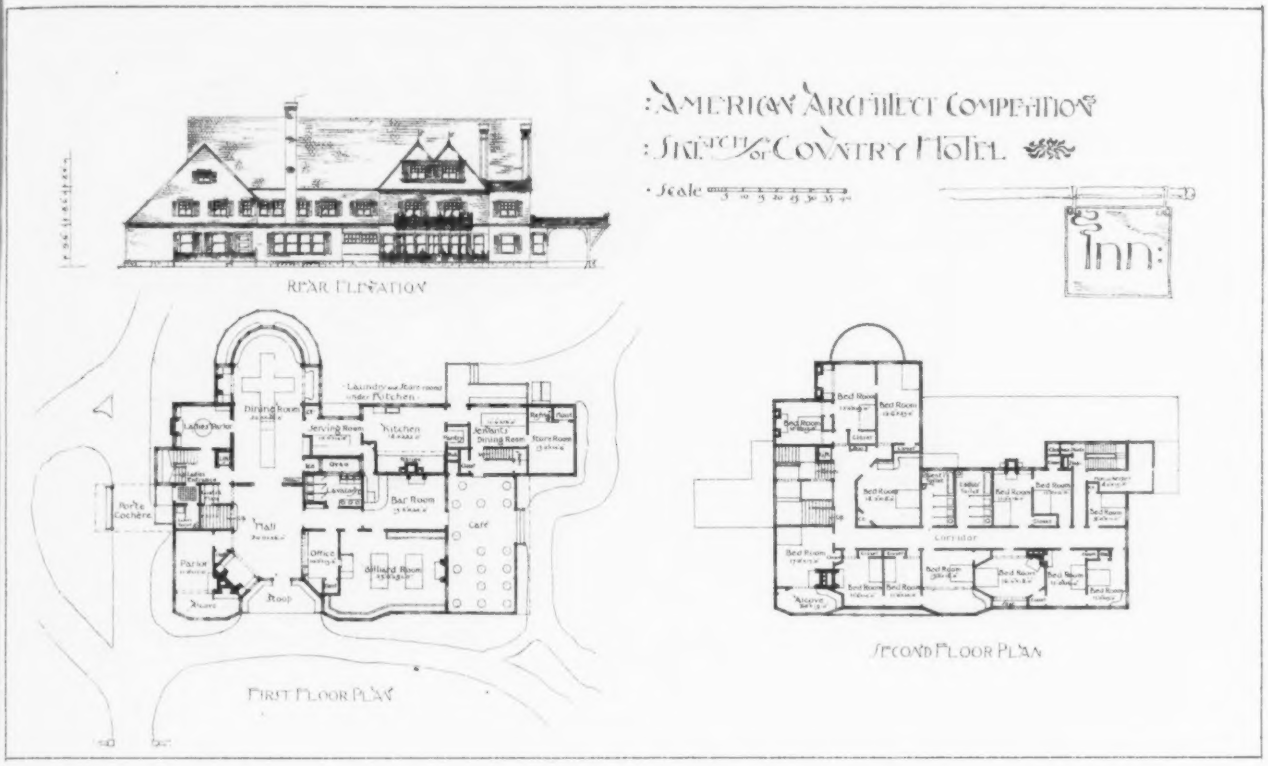




CINCINNATI · OHIO

BRUCE PRICE, ARCHITECT · NEW YORK





The Heliotype Printing Co. 211 Tremont St. Boston

fibres, which shoot out laterally from the centre of the trunk, passing through the annual rings toward the bark. By quartering the log, these fibres are divided nearly or quite in the direction of their course, and show on the surface of the boards as flecks or irregular silvery streaks, upon a ground of fine parallel lines, formed by the section of the annual rings. If, on the contrary, the log is sawed into parallel slices in the ordinary manner, the middle slice will exhibit the silver-grain, as will also one or two on each side of it. Further from the centre the medullary rays will be divided almost transversely, appearing on the cut surface as nearly imperceptible lines or dashes, while the section of the annual rings will grow broader and broader, showing itself, since the sap-tubes of oak are quite large, as a coarse, rough figure, completely different in appearance from the delicate and silky silver-grain, and liable to a dingy discoloration from the entrance of dust and dirt into the exposed pores. With some varieties, oak sawed in the ordinary way often appears "brashy," or of a very coarse texture, with short fibres which break away easily.

Quartered Oak.

The manner in which the log is sawn effects also its disposition to warp and curl, which in badly cut oak is very strong. The inner portions of the tree are compressed and hardened by age, so that there is a gradual diminution of density toward the circumference, which is occupied by the soft and spongy sap-wood. The less compact substance naturally shrinks more in drying than that which is nearer the interior of the log, but with boards whose surfaces follow the radial lines the movements caused by dryness or damp are all in the plane of these surfaces, and although the board varies in width, it has no tendency to warp. Those boards, on the contrary, which are cut in lines parallel with the diameter of the log, have one surface which looks toward the back of the tree, and the other toward the heart, and the fibres on one side are therefore slightly softer than on the other, and will shrink more, curling the piece outward with a force proportioned to its thickness.

By keeping constantly in mind these properties of oak, which belong in some degree to all kinds of timber, many annoying defects in hard-wood finish may be avoided. Following the same principle, the Georgia-pine floors for the inferior rooms should be specified of rift stock; that is, of boards cut like quartered oak, on radial lines. These may be recognized by the figure, consisting of fine parallel lines, in place of the broad mottlings produced by a cut tangent to the annual rings. Hard-pine boards of the latter kind are very liable to splinter, like spruce cut in a similar way, and must be rejected. Hard-pine boards containing large streaks of dark turpentine are also unfit for floors, the turpentine soon crumbling away.

Rift Hard-Pine.

There are one or two points about the hard-wood finish other than the floors, which may be noted. Whitewood, or poplar, is not usually ranked among the hard woods, although it is little inferior in this respect to black walnut or butternut. It has the advantage over them of being clear, dry, and very uniform in texture. The annual rings are almost imperceptible, and the wood is little subject to any warping or checking. For large, solid piazza posts and other heavy out-door work, it is superior to any other material, and inside finish made of it is usually durable and satisfactory. It has the peculiar property of swelling considerably in damp weather, even when perfectly seasoned, to retreat again to its original dimensions under the influence of furnace-heated air; so that doors made of it should not be too tightly fitted. In selecting the pieces care should be taken to exclude those streaked with white sap. The rest of the wood darkens very much after finishing, while the sappy streaks remain white, and soon, by contrast, appear as disfigurements. Black sap, which also occurs, is not generally looked upon as objectionable, but it forms too strong a figure to be admitted in delicately-moulded work.

Hard-wood doors, except those of white wood, are usually veneered upon a core of well-seasoned pine, to prevent warping, and it is necessary to examine them upon delivery, to see that the veneers are of the proper thickness. Those which cover the panels may be $\frac{1}{8}$ inch; over the framing they should be specified $\frac{1}{4}$ inch, although the final planing which such doors undergo generally reduces this thickness somewhat.

Veneered Doors.

BUILDING STONES.[1] — III.

HAVING written somewhat at length upon the Marble quarries of Rutland, Vt., it might perhaps be considered useless to say more, but the variety is so extended that volumes might fail to tell all their peculiarities.

The variety of marble is here almost endless. That beautiful white granular marble which so closely resembles the Carrara marble of Italy, the quarries of which were opened in the days of Julius Cæsar, and from that day have been celebrated the world over for the numerous valuable blocks for statuary purposes taken therefrom, is in such quantity that it is likely to make these Vermont quarries equally famous. Selected specimens of common grades under chemical analysis, gives: —

Carbonate of lime	98.72
Alumina	.47
Silica, mica, and other minerals	.81
	100.00

While the beautiful statuary marble of which I have spoken and given its microscopic appearance, by analysis shows its composition to be: —

Carbobate of lime	99.57
Silica	.26
Loss, alumina, and other impurities	.17
	100.00

T. Sterry Hunt says of it,—"It is a pure carbonate of lime, being free from magnesia and other foreign substances." Associated with this variety are also found varieties identical with the Pentelic Marble of the ancients, of which the Parthenon, Hippodrome, and other edifices of Athens, so famous in history, were built.

Mount Pentelicus furnished this marble, yet the greenish zones that begirt these ancient columns very closely resemble green-banded blocks raised from quarries here. Even the translucent white so highly prized by the ancients, a few specimens of which may be found in the sacred altars at Venice, has its almost exact duplicate layer in some of the quarries upon this marble belt.

But closely bordering these highly crystalline varieties are also those containing plain indications of stratification, as the quarries wrought by the "Columbia Marble Co.," as well as the "Mountain Quarry" before mentioned. This marble is much of it so plainly stratified that several "Cemetery Associations" have had under consideration the propriety of excluding it from their grounds as being unsuited for monumental purposes, and perhaps some have done so; yet while some of it may be faulty as some marble from every quarry is, the most rigid tests show that while it is not quite as free from foreign ingredients as some, it is not as defective on account of its stratified appearance as it is often supposed to be, and when subjected to the crushing-machine in two-inch cubes, on bed, it sustained a pressure of 1,375 pounds per square inch, and on side 1,305 pounds, thus showing a slight difference only in the bed and side pressure. It has a specific gravity of 2,635, and weighs 164.7 pounds, to the square foot. Its ratio of absorption is $1 + 180$.

Near this quarry a new company is starting into work, the exact style of which I am unable to obtain, and in addition to those mentioned already, and working in Rutland, are Sheldon & Slayson, Gilson & Woodfin, Sherman & Gleason, and Ripley & Sons, all of whom are doubtless able to supply good marble and in large quantities, yet some are not fully confident, as they were not willing to prepare test specimens. Should such specimens be furnished in the future the tests will be fully given.

The stratified varieties fail sooner in the fire test than the crystalline, doubtless because the purifying process, under the heat and pressure that destroyed the stratification in the ages that gave us the beautifully crystalline varieties, did not so perfectly compact them, yet the molecular adhesion is very firm, but as may be seen from their ratio of absorption the marble is not so compact: as a result of this that beautiful homogeneous and sugar-like fracture is not so perfect, yet its toughness may balance that desirable feature, and its peculiar beauty, to many eyes render it attractive. I am not of the opinion that the best varieties of this peculiar marble should be excluded from monumental work, yet the greatest caution should be used in selection, as is always done, even with the varieties that stand the highest in the ray of fashion, or in the estimation of the scientist. Extending northerly on this belt the quarries in Pittsford will furnish the subject of my next article.

[1] By H. A. Cutting, Ph. D., State Geologist, Vt.

THE ILLUSTRATIONS.

COMPETITIVE DESIGN FOR THE EXTERIOR OF A HOTEL IN A COUNTRY TOWN. BY "*Inn.*" — PERSPECTIVE AND DETAILS.

HOUSE FOR J. M. WAYNE NEFF, ESQ., CINCINNATI, O. MR. BRUCE PRICE, ARCHITECT, NEW YORK, N. Y.

COTTAGE AT SHORT HILLS, N. J. MR. L. B. WHEELER, ARCHITECT, NEW YORK, N. Y.

LEGAL NOTES AND CASES.

Nuisance.—Slaughter-House in City or Town.

THE Supreme Court of Appeals of Virginia, in November, in the case of *Pruner vs. Pendleton*, had under consideration the question whether or not a slaughter-house in a town or city was a nuisance *per se*, and came to the conclusion that it is not necessarily a nuisance, but that there is a presumption that it is offensive, which may be overcome by evidence. A bill for an injunction was filed to restrain, as being a nuisance, the use of a slaughter-house in the neigborhood of the residences of the plaintiffs in the town of Marion. An injunction was granted upon the ground that a slaughter-house in a town or city is *per se* a nuisance, and an appeal was taken. On the ap-

peal Judge Burks, in the opinion, said: Slaughter-houses in a city or town were once reckoned by the courts as nuisances *per se*, and they are still so classed in the opinion of the court in *Green vs. Lake*, 54 Miss. 540, decided as late as 1877, and much relied on by the learned counsel of the appellants; but it is said in a late work of merit, that the wonderful improvements wrought by science in all departments of life has shown that this position cannot now be upheld in reference to any trade, and that slaughter-houses are now regarded merely as *primâ facie* nuisances. Woods on Nuis. §§ 503, 504, and cases there cited. When erected and used in a city or town, the remark of Chancellor Walworth is the most that can be said in their defence, that "it is perhaps possible to carry on the business of slaughtering cattle, to a limited extent, in such a manner as not to be a nuisance." *Catlin vs. Valentine*, 9 Paige, 575, 576. From the doctrine that such a trade or business in a city or town or place thickly populated is *primâ facie* a nuisance, it results that the burden is upon those who engage in the business, when complaint is made, to show that it is not a nuisance; that it does not produce that which is offensive to the senses, and which renders the enjoyment of life and property in the neighborhood uncomfortable. The slaughter-house of the appellants is within the corporate limits of the town of Marion, near the residences of many citizens, and within full view of, and only one hundred and thirteen feet from, the dwelling-house of Mrs. Pendleton, in whose behalf principally the bill was filed. The complaint of Mrs. Pendleton, in substance, is, that the groans and cries of the animals when being slaughtered, and more especially the offensive odors which issue from the slaughter-house and its surroundings, render it impossible to live in her house with any sort of comfort; that the slaughter-house is an intolerable nuisance, and inflicts upon her an irreparable injury. All this the appellants deny, and introduce many witnesses to substantiate their defence. The evidence is not sufficient to overcome the case and testimony of the complainants; and we therefore cannot reverse the decree below. H. E.

Attorney and Client.—Purchase of Property by Attorney pending Litigation.

It is contrary to the policy of the law, and certainly contrary to the principles of equity, to permit an attorney at law to occupy at the same time in the same transaction the antagonistic and wholly incompatible position of adviser of his client concerning a pending litigation, threatening the client's title to the property, and that of purchaser of such property from the client. If an attorney can deal with his client concerning such property at all, he must, before doing so, for the time, at least, divest himself of the character of attorney, so that his former client may deal with him as a stranger. This is not the case when the attorney negotiates with the client as the purchaser of such property, and at the same time advises him as counsel concerning the title to it, or concerning its value, as affected by pending litigation. To sustain a sale from a client to his attorney, the burden is upon the latter, and he must show that he has done as much to protect the client's interests as he would have done of his client's dealing with a stranger. *Rogers vs. Lee Mining Co.*, United States Circuit Court, Dist. of Colorado, December, 1881. H. E.

Debt. — Statute of Limitations. — New Promise.

A debtor was asked to pay a debt after it was barred by the statute of limitations, and he replied, "I will pay it as soon as possible." In an action for the debt he pleaded the statute in bar of the demand, and the court gave him judgment; but on appeal he was held liable on the new promise. The court said that the language may be construed as an acknowledgment of the indebtedness, and as such clearly admits the continued existence of the debt, and shows a positive intention to pay it; and the words "as soon as possible," do not really restrict or limit the meaning and force of the acknowledgment. *Norton vs. Shepard*, Supreme Court of Errors of Connecticut, November, 1881. H. E.

Partnership.—Member appropriating Assets.—Creditors.

The denial of the right of one partner to appropriate partnership assets to his own use is for the protection of his partners, not of the firm creditors, and, therefore, when the other partners consent to such a use of the property, the latter has a full title to it. *Mayfield vs. Barbour*, Kentucky Court of Appeals, November, 1881. H. E.

Contract.—Verbal Acceptance of Order.

A verbal acceptance of a request or order to pay money when there is no money in the hands of the acceptor will not bind him. *Walter vs. Mandeville*, Supreme Court of Iowa, October, 1881. H. E.

The "Pratt Free Library."— Mr. Enoch Pratt, of Baltimore, has informed the Mayor and City Council that he has entered into a contract for the erection of a library building, capable of holding 200,000 volumes, his intention being to have four branches connected with the same, in different parts of the city. The excavation for the foundation has been commenced, and the building will be completed in the summer of 1883. The cost will be about $225,000. On its completion, the property is to be deeded to the city, and the title to all the books and property is to be vested in the same. In addition to the above, Mr. Pratt proposes to pay to the city the sum of $833,333,33 1-3, provided the city will pay $50,000 annually, forever, to the trustees, for the maintenance of the library and branches. The library building is to be erected on Mulberry Street. It will have a frontage of 81′ 10″, with a depth of 140′, and will be thoroughly fire-proof in construction. The design is bold Romanesque in character, and the façade will be constructed entirely of white marble.

F. H. CUSHING AT ZUNI.

THE accounts of Mr. F. H. Cushing's remarkable ethnological work at Zuñi have been received with such deep interest that I have frequently been asked for particulars concerning his experiences. I have felt a diffidence in giving these, since being simply a layman, with a sincere interest in the development of the rich field of American archæology, in which there is room for, and need of, many earnest workers, I feared that in repeating what I have learned, there might be some inaccuracy of expression caused by a lack of preparation in these studies; but since Mr. Cushing's investigations have upset many preconceived theories concerning the Pueblo Indians of the South-west and their institutions, all of us are, in a certain sense, unprepared: therefore, the little I have to say must necessarily be fragmentary; but I will try to be as straightforward and plain as possible. At most, it will be but a slight skimming of a small part of the surface, and we shall have to wait patiently for Mr. Cushing's report to reach the root of things. Upon parts of this report he is now hard at work. Among other things, he has in hand a monograph on the meanings of the ancient pictographic inscriptions on the rocks in the Zuñi country, and of the conventionalized decorative forms upon their pottery. It is unfortunate that one of his papers was lost in transmission to the Smithsonian Institution: it was an essay upon the numeral system of the Zuñis, and in the arrangement of data and conclusions, it showed rare scientific perception. In fact, I was struck by the remarkable scientific quality of Mr. Cushing's mind. His rank is far above that of a gatherer of facts: he arranges and weighs his facts, and extracts from them that which is the real essence of science, making ethnology a living thing, and not a skeleton or a mummy. This, too, without romancing or tracing fancy resemblances that enable one to find what he wishes to find — a temptation too strong for many archæologists and ethnologists. It must necessarily be some time before Mr. Cushing's report is ready for the world, for he is now in the very midst of collecting his material, and feels something of a despair of grasping the whole of the rich store at his disposal. The arrangement of his notes will naturally be a long and serious task, and I wish it were possible for him to have a phonographer at his service, so that the work might go on more speedily and be placed beyond the danger of destruction. The life of the Zuñis, which is to-day substantially what it was before the Spanish conquest, cannot fail soon to be modified by American civilization, and it must be recorded soon or never. The scope of Mr. Cushing's researches is so extensive that it would hardly be within the power of any one man to arrange the total result, and it is his intention to place much of his material at the disposal of scientific friends. This material includes elaborate philological, mythological, and historical notes, together with studies of institutions, manners, and customs. The cloud of incongruous myths which had been gathered about the Pueblo life by the old Spanish missionaries, who were both credulous and romancing, has been dispelled, but a new array has been revealed in their stead, more marvellous because of their truth and their origin.

Mr. Cushing's scientific method is an extremely simple one, yet extremely difficult to follow, and, in fact, could not have been successfully followed except by a man of his peculiar natural aptitude. It consists simply in making himself one with the people he is studying. It required a high degree of both fortitude and adaptability to attain the confidence of these people, and of pluck, tact, and diplomatic skill to maintain his standing with them.

His success seems still more remarkable when his youth is taken into consideration, for he is but twenty-four years of age. Of course, a degree of deceit has been necessary, for his true purpose could not be made known to the Zuñis, and if known could not be comprehended. They do know, however, that he was sent to them by "the Great Father at Washington," and is under orders from him. This kind of deceit cannot be called treachery, however, for the results will not bring harm to them; on the contrary, Mr. Cushing is their truest friend, and will do his best to be their benefactor, and whatever he does is done in the cause of science. The way in which he attained admission to their ancient order of "The Bearers of the Bow" (A-pith-lan-shi-wa-ni) is an illustration of the fertility of his resources and the persistency with which he follows his purpose. Admission to this order can be obtained only by one who has taken a scalp in warfare, and Mr. Cushing secured his trophy through the recent Apache outbreak. This order is the most important of the several which exist among the Zuñis, and which have a resemblance to the institution of Freemasonry. Is it not possible that the latter may be a remnant of a similar stage of culture among our own races? Mr. Cushing's membership has been of the greatest importance to his work, as may be judged by the following extract from a letter received from him recently: "I have been going through some of the pleasant (?) little duties incident to a membership of the A-pith-lan-shi-wa-ni, and writing night and day to keep my notes up. Four

successive nights, two of them entirely sleepless, last week, and two already this week, are too much for me, or I would n't be writing here to-night; for all the secret orders save mine are in session, and I have, through my membership — a privilege granted by none save it — admission to all of the others. I wish I had four constitutions, and two persons; I could then keep up with my opportunities. As I have but one, however, supplied with only half a constitution, I had to content myself with going around and saying my prayers before the altars, and taking a few hungry glances — even which has required until nearly midnight." Again he writes: "I have been busy day and night with religious exercises of my order, in which I am already getting very high rank. I had to learn a prayer of more than *two thousand words*, with various shorter exercises." At latest accounts Mr. Cushing was getting material for a collection of fairy lore, which promised to be as rich, imaginative, and full of strange conceptions, as the wonderful collection of the Brothers Grimm.

While I was in Zuñi, Mr. Cushing told of a tradition about a certain man of the tribe who, a long time ago, under Spanish rule, was for some reason taken down into Mexico. There he was allowed to go about the country at liberty. One day he met an Indian who, to his surprise, addressed him in Zuñi. "He looked, and behold he *was* a Zuñi; in dress, speech, and everything." He learned from him that there was a nation of Zuñis there, and, if I remember rightly, he went and dwelt among them for some time, coming away with greetings for the Zuñis in the north. And this was the first that these two families of the same stock knew of each other. At last, the Zuñi returned home, escorted by Spanish soldiers, who built him a house much larger and finer than any in Zuñi at that time. The foundations of the house are still pointed out, and prove it to have been on a grander scale than its contemporary structures.

It does not seem impossible that there may be some truth in this story. The Indians of Mexico have been very little studied, and in the remote wanderings of the Zuñis this branch may have become separated, just as the Apaches and Navajos, who speak the same language, became separated. Among the Pueblos of New Mexico, Taos, on the extreme north, and Isleta, on the extreme south, are of one family, speaking the same tongue, while Pueblos speaking various other languages separate them. Therefore, it is possible that these Mexican Zuñis may still exist, and it would be interesting indeed should Mr. Cushing find them out some time. S. B.

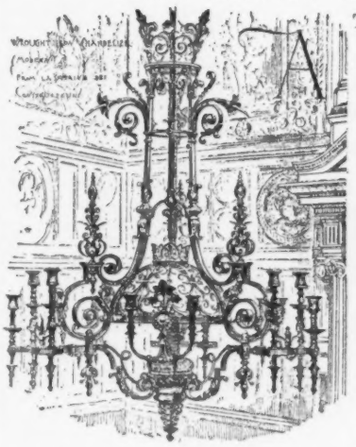
FLEXIBILITY OF MARBLE.

ELASTICITY is a general property of matter, but its manifestations are very variable according to the form of bodies and the nature of the stress exerted. Thus, a crystal ball will rebound to a great height from a pavement, and a thread of glass has all the flexibility of silk; but that does not prevent us from commonly saying, "As fragile as glass," because of the common accidents that we see in daily usage. The rigidity of marble has served as a subject from the remotest times for the metaphors of all poets; and I do not know that a single architect has ever foreseen that a slab of stone might bend and act like a fir plank without flying into fragments. This, however, is something that may at present be seen at the palace of the Alhambra, at Granada, as one detail lost among the thousands of wonders of that enchanting maze. One of the two doors that have been christened "La Mezquita" (probably because near by there is an old unfinished chapel of the time of Philip V.) exhibits an ancient facing of three slabs of marble, the upper resting as a lintel upon the two others, which form uprights 11 feet in height, 9 inches in width, and only 2½ inches thick. If we compare this door with that to the left, we at once remark that it is much smaller, having been diminished on every side, not only by the thickness of the white marble, but also by a thick layer of plaster beginning at the point where the old facing of tiles is set in.

Now, whoever has had an opportunity of admiring the mathematical precision of Arabic structure cannot possibly doubt that all this has evidently been added too late to remedy a subsidence, of which evidence is still to be seen in several cracks in the upper wall. But nothing resists certain stresses, and an enormous thrust upon the right must have been the sudden cause of the rising of this side as well as that of the upper slab. How comes it, then, that the marble, instead of breaking or of rupturing its casings, has simply bent and curved as if it were wood? How comes it that it has been able to remain thus, like a bent bow, from an epoch which is totally indeterminable, but which, it is quite likely, dates back to the explosion of a powder-mill on the other side of the Darro, which, in 1590, destroyed a large portion of Mezouar? What is certain is, that the prop-work of joists now to be seen was put up only at quite a recent date, and during the course of the restoration so fortunately undertaken, some few years ago, to bring to light that graceful stucco lacework and those superb mosaics of faience, and all those masterpieces of profane art which Christianity had so piously buried under thick layers of plaster-of-Paris. The setting of vitrified bricks, moreover, was found completely destroyed up to about 12 inches from the top of the door; and it is exactly at 18½ inches that the slab begins to curve and to detach itself from the wall, to attain its greatest distance therefrom of 3 inches at about 3 feet from the bottom.

We may ask what would happen if, by any means whatever, the stone bow should be unbent, or one of its extremities be set free and given play, or the other be unloaded of the weight which holds it in place? Would the stone be seen to straighten back like a spring, or would it remain permanently misshapen? Or, indeed, would it break in pieces on escaping from the slow and gradual cause which alone has produced in it so singular an effect? Might not there be found in the molecular homogeneousness to which it has evidently owed its resistance to fracture, curious crystalline modifications like those produced artificially by Mr. Walter Spring by means of great pressure? Unfortunately, we can only place here a series of interrogation points, and we shall esteem ourselves fortunate if some interested reader down there will keep us informed as to anything new that may happen. — *La Nature.*

RECENT RAILWAY DISASTERS.



A TOUCH of naïveté shines out with humorous grotesqueness in the public discussion of the horrible disaster at Spuyten Duyvil. The Governor of New York, in a message to his Senate, declares that "Trains should be required by law to be supplied with all available appliances for breaking into a wrecked car, and for the extinguishment of fire." Accordingly, a bill has been introduced in the Senate which requires that every passenger, mail, and express car shall have at each end one good fire-extinguisher, and a serviceable axe. Axes, indeed, would be likely to be useful, and the fact that they are never provided shows that railway superintendents do not give intelligent thought to means of relief in case of disaster. But the fire-extinguisher plan is one of a thousand, among devices for locking stable doors behind stolen horses. If a fire-extinguisher were found in good working order after the upsetting of a train, and if any one at hand were cool and skilful enough to apply it effectively, it might, perhaps, extinguish a fire, but it would certainly extinguish the lives of any passengers who might be pinioned in a close space beside the fire; for men and women cannot, any more than flame, live on carbonic acid. The danger of such an appliance would, it is true, be diminished by the likelihood of its being found out of order, or forgotten, or ineffectively used at the crisis — unless, indeed it worked automatically. This last thing would be only too likely to happen, irrespective of fire, whenever the end of a car, and with it the extinguisher, was crushed in among the passengers, who would, therefore, incur two dangers instead of one. This remedy is likely to turn out a mere obstacle in the way of better means for heating cars, by encouraging companies to retain their stoves, which, as they are commonly used, are so uncomfortable as well as dangerous, that it is a wonder that people endure them. The cold air which is constantly entering the ordinary car drives the heated air into the upper part of the car, so that in cold weather the passengers sit with their heads in air heated to eighty degrees or so, while their legs are perhaps in air at thirty degrees. It is not easy to imagine a more uncomfortable or more unwholesome condition. The discomfort is done away with when the stove is used merely to heat hot-water pipes at the bottom of the car; but the danger remains, and is horrible enough to need a more masterful treatment than what we may call the soda-water remedy, proposed to the New York legislature. We are reminded how, when some Western cities were horrified three or four years ago at the burning of the Southern Hotel, and other fatal fires in which many people were burned without a way to escape, instead of insisting that stairs should be provided that would not burn, and in sufficient number, State legislatures and city councils hastened to order rope and iron ladders, by which men, women, and children, frightened out of their sleep, should climb down, outside, from the fifth and sixth stories of burning buildings. This is the ever-recurring folly of shirking the cost of a radical cure, and contenting one's self with a plausible palliation because it is cheap. It is so much less trouble to provide a fire-extinguisher than to devise a way of heating a car without a stove, that the public, unless it insists, will probably, in spite of warning, still be forced to travel by rail at a risk of being burned alive.

The lessons of the accident on the Boston & Maine Railroad, which happened a little before, are different. The theory of a broken journal, which was brought forward, one which is always soothing to railway managers, because such a misfortune is not attributed to want of vigilance, hardly bears examination, and the likelihood is that the bridge gave way from some flaw in its material or construction. Unfortunately, when a railway bridge breaks, it is seldom that adequate examinations of the conditions are published, or even made. The wreckage is cleared away, and the traces of the acci-

dent obliterated as soon as possible. The railway officials themselves commonly take no trustworthy evidence, being more interested to get their trains running again, and divert public attention, than to find out just what led them into trouble. After such accidents, competent expert examiners in the service of the State ought to hurry at once to the place, and until they have made their examination, which might usually be done in two or three hours, nothing that throws any light on the cause or manner of the accident should be disturbed, except so far as is necessary for the rescue of the injured. All the evidences should be guarded as jealously from interference, until they are officially examined, as the scene of a murder. Until something like this becomes the rule, we are likely to go blindly on from one disaster to another, without intelligent study of their causes, and without even the consolation that the loss of our fellows' lives has taught us how to preserve our own. There are railroad commissioners in some states, and should be in all; we ought to furnish them with authority and means, and make it their duty to take possession of the scene of a fatal accident, and examine it thoroughly before any of its evidence is covered up or removed.

But the accident on the Boston & Maine road suggests another need. If it is important when a bridge has given way to find what its faults were, it is still more desirable before it gives way. Now, as railway bridges are commonly built in this country, no one knows whether they are properly built. It is hardly too much to say of the majority of iron bridges now standing in the United States, that neither the owners nor the constructors know whether they are fit for their work or not. They are built in great numbers, by companies who employ their own designers, who outbid each other in competition, and whose interest it is to build the cheapest thing that will stand. Some of the bridge companies employ engineers who are assumed to be fitly trained to the work, but very many bridges are designed by constructors who are called practical, because they are not theoretical; who do not know how to compute and provide for the strains that are to come upon their work, nor to use their material to the best effect. The inspections of railroad commissioners, where there are any, are of value, so far as they go, but they do not meet the difficulty. No inspection is adequate unless the dimensions, material, arrangement and fitting of all the pieces are carefully examined, and their fitness for their work computed. This requires special knowledge, and computations which are somewhat laborious. Nevertheless, such inspection is essential, and it ought to be made by an authority whose interest is the safety of the public, not the winning of a contract or the economical equipment of a road. Iron constructions are deceitful, and require the most careful oversight, because the material is one whose use is new, and its faults easily covered up; because the argument for its employment is in its slightness and in its economy; because a superstitious over-confidence in its strength is common; and because an iron structure, if it breaks, is apt to break without any warning. An iron construction, therefore, especially one that is subjected to so great and varying strains as a bridge, if its strength is not ascertained is a constant menace to the public. The safeguards which suggest themselves are two: First, no railroad should be allowed to build a bridge, just as nobody is allowed to put up a building in our great cities, without filing plans and description of it with official inspectors; the inspectors should be qualified engineers, and should be required to make a thorough examination of the designs, and forbid carrying them out if they are inadequate. The work again when in progress and when finished should be rigorously inspected. This might not make us absolutely safe, but it would unquestionably secure us from many disasters. Second, railroad companies ought not to have their bridges designed by competing companies, but should employ trained engineers, who, instead of being in the interest of contractors, should direct and supervise them, and whose first concern should be to design a bridge that can do its work properly. The great bridge companies have their own constructors, as some great builders have their own architectural designers, and doubtless there is use enough for both. But in both instances the client who has important work to do will do best to secure professional services in his own interest. Iron must be regarded as on its trial as a building material. The tendency of today is perhaps to push its use too far: if it is carelessly and unskilfully used, a reaction may follow which will discredit it beyond its deserts. L.

SOME DETAILS OF WESTERN CONSTRUCTION.

St. Louis, January 20, 1882.

To the Editors of the American Architect: —

YOUR correspondent again offers a few comments on the papers on Building Superintendence, now appearing in the *American Architect*, chiefly with a view to noting differences of practice as obtaining in this vicinity. Beginning with paper XI., it may be remarked that the X bridging is largely employed in preference to the single zig-zag or herring-bone bridging there illustrated. The strength of bridging is chiefly in the hold of the nails, and as the X bridging gives twice as many nailings as the other, the gain in stiffness is evident, though at some increase of cost. Horizontal bridging is sometimes favored by contractors, who use bits of 2″ x 4″ or 3″ x 4″ studding for that purpose, and fancy that it gives great stiffness. But, besides adding nothing to the vertical strength of a partition, it is of delusive value as a stiffener. The spaces between the studs cannot be made absolutely alike, since the studs themselves vary in thickness and are set by their centres. Hence, if the horizontal bridging is accurately cut to a pattern, some pieces will be too long, others too short. The long ones require a second cutting, which is apt to be in excess, — the short ones are nailed in any way. Thus, where work is done by contract, and with the average grade of men, there will hardly fail with horizontal bridging to be many a section where the braces have no proper bearing, and not a few where the nails are all that keep them from falling out of place entirely.

Since furnace-men differ, and furnaces also, it seems a prudent measure to consult the former, where practicable, before completing the arrangement of flues. Whether or not any real improvement be suggested by them, they will be prevented afterwards from blaming the architect for any failure of their apparatus to give satisfaction. A damper in each hot-air pipe would help regulate the heat, although at some risk to the furnace, perhaps, in the event of a considerable number of dampers being closed without drawing down the fire at the same time.

Wire lathing has not yet obtained an introduction here; therefore we use crimped strips of sheet-iron or slate where a hot-air tube is concealed by plastering. These expedients seem in every way satisfactory, and can be applied by the plasterers themselves without stopping for any other workmen.

Hot-air pipes in plain houses, with none but stud partitions inside, are embarrassing things to locate. If placed in the outside walls, there is a loss of heat by radiation and conduction, and they must often enter the room where they are not wanted, or a considerable length of pipe must be carried in a nearly horizontal direction between the floor joists. If carried up in the stud partitions, they cut through the sill, the bridging, and the plate, and thus destroy the stiffness and cohesion of the whole partition. Sometimes a chimney stack offers a convenient flue, not in use for the lower story, through which the hot-air pipe can be led, and sometimes there is a closet in which it may be run, and cased in slate and plaster, or even left exposed. But these are the exceptions. Generally, in small houses, sound construction is not cheaply reconcilable with the requirements of hot-air furnaces.

A caution is necessary in running lead pipes of any description concealed in partitions: they are liable to be eaten through by rats. If the pipes so injured are water or waste pipes, a leak will result which will call attention to them. If it should be a ventilating pipe, however, the damage might not be suspected till fatal consequences had followed. There was a case of this kind quite recently in one of our Eastern cities, where, within three years after a house was completed, a lead pipe intended to ventilate the soil-pipe was gnawed completely off. This fact was not discovered till severe sickness among nearly all the inmates of the house led to a thorough investigation.

Pipes of other metals may sometimes be used, and the lead pipes are sometimes enclosed in zinc tubing, but there are various objections to all such expedients apart from the expense and the difficulty of getting mechanics to spend time and thought in carrying out a new thing which adds nothing to the appearance of their work. If red lead is effectual in protecting putty from rats, it would seem probable that some adhesive and durable coating might be found which could be applied to lead pipes with a similar good effect.

The use of sheathing under the siding is the exception rather than the rule in ordinary frame houses. The studs at the sides of the windows, and to which the casings are nailed form the only closure of the continuous joint between the ends of the siding and the casings. With our comparatively dry climate, no inconvenience appears to result from this construction, and, indeed, it is probable that such a joint is quite as close as where sheathing is used.

Perhaps it is hardly worth while to refer to that class of frame dwellings in which both weights, outside casing and parting-bead are dispensed with, yet they far outnumber every other class of frame houses in the West and South-west, and when neatly painted make a prominent and attractive feature in our Western towns and cities. In some of these houses the inside casings, 3″ wide by $\frac{7}{8}$″ thick, are put on complete before the plastering is done, and barely project beyond its finished surface, the frames themselves being nearly two inches less in width than the wall or partition in which they stand. It need hardly be remarked that architects are seldom called to render their services for houses of this class.

It may be well to note in this connection a kind of *quasi* frame house which is very common in the city of Milwaukee, Wisconsin, but which the writer has never observed elsewhere. It is called there a "veneered house." The veneering is of brick, four inches thick, laid all stretchers, of course, and anchored to the outside of a frame building constructed in the usual way, and sheathed with common boards, between which and the brick veneer a layer of tarred felt or paper is interposed. To external appearance the result is a brick house, while the construction is in all essentials frame. This system of building has long been employed in Milwaukee for all classes of dwellings. It has proved so satisfactory there as to have supplanted all other systems, apparently, and it might undoubtedly be introduced with advantage in other localities were its merits generally known. Very respectfully,

C. E. Illsley.

[Angular bridging for partitions, if applied in two rows through the partition, with the direction of the bridging pieces *reversed* in the

two rows, as practised in New York and elsewhere, gives quite as substantial brace against the unequal settlement of the partition as a cross bridging; in fact, as the pieces are stouter, the total strength is probably greater. This sort of bridging is much used for partitions which stand over partitions below. In such cases the specifications generally require that the studs of the upper partition shall stand on the cap of the partition below, but it always happens that some of them unavoidably come on top of the beams, which shrinking under these particular studs will let them sink, to the detriment of the plastering, unless they are sustained by the bridging from the adjoining studs. Where the partitions simply run over the floors, no danger of this kind is to be apprehended, and the principal use of bridging is to keep the studs from warping, bulging on one side or the other from the general surface of the partition. For this use the horizontal bridging pieces, tightly cut in between the studs, and well nailed, are excellently adapted for this purpose, and hold the sticks in line much better than any diagonal bridging.

The veneered brick houses of which Mr. Illsley speaks are found in many other places besides Milwaukee. In Minnesota, for instance, they are very popular, and I have heard of examples in so conservative a district as the interior of New York State.—T. M. CLARK.]

MONTHLY CHRONICLE.

JANUARY 1, 1882. The dam above the Greenwich Print Works at East Greenwich, R. I., gives way. The dye-house, drying-house, and packing-house are wrecked. Loss about $20,000. No loss of life.

January 2, 1882. Passenger train wrecked by collapsing of an iron bridge on the Boston & Maine R. R., at Cole's Corner, Wells, Me. Two persons killed and seventy-five wounded.

January 2, 1882. Fall of the floor of a hall at Shanesville, O., during a festival of the Knights of Pythias. Five persons killed, many wounded and burned.

January 5, 1882. Five hundred kegs of powder belonging to A. L. Spencer & Co., at Oskaloosa, Io., are exploded by boys using the magazine as a rifle target. Three boys killed. Loss $20,000.

January 5, 1882. Panic in the Salem Evangelical Church at Quincy, Ill., caused by the breaking of a seat. Forty persons injured.

January 9, 1882. Walls of Hull's bakery, on West Genesee Street, Syracuse, N. Y., left standing since the building was burned, are blown over by a high wind and crush a neighboring restaurant. Three persons killed, fourteen wounded.

January 13, 1882. Telescoping of a train on the Hudson River Railroad, near Spuyten Duyvil Junction. Eight persons killed, several wounded.

January 16, 1882. Boston World's Fair Project abandoned.

January 17, 1882. Death of M. Charles Blanc at Paris.

January 17, 1882. A bridge building over the Rolling Fork at Lebanon, Ky., falls by reason of the undermining of temporary staging by water. One man killed, four injured.

January 25. Guiteau declared guilty.

NOTES AND CLIPPINGS.

A HISTORIC FLORIDA MANSION BURNED.—The old historical Murat Mansion, built in 1822, and long occupied by the widow of Prince Charles Louis Napoleon Achille Murat, son of the first Napoleon's favorite, the King of Naples, has been burned to the ground. It stood on a hill about one mile west of Tallahassee, on a large estate adjoining the plantation of Governor Bloxham, who, after the death of the Princess, became its owner.

NEW LIBRARY BUILDING AT WATERTOWN, MASS.—Mr. H. H. Hunnewell of Wellesley, whose ancestors lived in Watertown, has subscribed $10,000 toward building a new library building in Watertown. Mr. Gilbert Payson, also a non-resident, has subscribed $500 for the same purpose, and other gentlemen have added something toward the fund, while many stand ready to contribute when the matter assumes more definite form.

A THEATRE SAFETY SEAT.—Joseph D. Murphy, formerly the treasurer of the Arch Street Theatre, has invented and patented a new chair for theatres, which he calls Murphy's Universal Aisle Safety Seat. The seat is in the shape of an ordinary opera chair, and when not in use can be turned up flat; then, by means of a pivot, it can be turned in any direction, thus affording an aisle for prompt egress. The seat also has an automatic foot-rest that folds up when not in use. The chair occupies no more space than the ordinary seat, and in case of fire would afford a prompt means of escape. It will probably be adopted by several of the leading theatres of New York and this city.—*Philadelphia Paper.*

REMODELLED DRAINAGE OF THE WHITE HOUSE.—The fact that the alterations in the plumbing and drainage of the Executive Mansion at Washington are about completed is noted by *The Sanitary Engineer.* While the work is regarded as being safe from a sanitary point of view, it does not make that creditable appearance which it would have been possible to secure in a new building, or even in the present building if the fixtures could be differently located. The hope is expressed that a new Executive Mansion will be built in which it will be possible to secure every sanitary feature that our present knowledge makes available, or that, if this is not provided for by the present Congress, money may be appropriated to make further changes.

SAUVERN'S DEODORIZER AT LEIPSIC.—In the current number of *The Sanitarian,* Dr. H. G. Beyer, United States Navy, describes the method of treating excreta with Sauvern's deodorizer in one of the Leipsic hospitals. This deodorizer is a pasty mass with the following composition: In 100 parts there were water, 61.5; lime (CaO), 30.5; chloride of magnesia ($MgCl_2$), 1.5; tar, 1.2; foreign matter, 5.3. In manufacturing the deodorant, crude lime and magnesia being used, it is from this source that a great deal of foreign matter is introduced into it. A certain amount of the mass is dissolved in water and poured into the closets, where it is retained until the process of disinfection is completed. The resulting mixture is then allowed to run through the closet pipes into the drain pipes, and thence into a specially prepared reservoir where one part of it is precipitated, and the clear, supernatant liquid is then run off into the sewers. How thorough the action of this deodorant is, says Dr. Beyer, was seen by a specimen of the liquid taken out of the reservoir and reserved for analysis. This liquid was almost colorless, had only a faint smell of tar, and did not seem to decompose, even after long standing. It contained 0.353 parts of solid residue in one litre, consisting for the most part of chloride of ammonium and lime, and having an alkaline reaction. The precipitate is finally dried and carted away.

ASBESTOS PAINT.—Some interesting tests have recently been made in England of the value of asbestos paint applied to wood, canvas, and other combustible materials. Amongst other experiments a piece of light pine wood, about six inches long by four inches square, painted with five coats, was placed for upwards of half an hour in an ordinary grate fire, but, although the wood within was reduced to charcoal, there was no blaze whatever emitted during the charring. A small model theatre, built of wood, with set scenes and accessories, was sprinkled with turpentine and set on fire. Every portion ignited and the whole was consumed. A similar model, with the set scenes and the wood framing all painted with asbestos, was drenched with turpentine and set fire to, but the thin scenes were only partially charred at the lower ends with the turpentine flames, whilst the timbering was not even ignited. Similar illustrations were made with two models of larger size about four feet cube, built on a bed-plate of one-inch deal board, and set fire to by a bundle of shavings. The one was burned and the bed-plate set on fire. In the other case, where the framing scenes and bed-plate had been painted with asbestos, no ignition was effected, and, although the lower portions of the light scenes were destroyed by the fierce flames of the shavings, the rest remained intact.

HONEST PLUMBERS IN EDWARD III'S TIME.—What has become of the Plumbers' ordinances approved by Edward III in 1357, which ordain "that every one in the trade shall do his work well and lawfully?" How much pleasanter a world this would be if the plumbers had only continued to do their work "well and lawfully!" A legion of fevers would never have carried off their holocausts of victims; many of our finest and most historic mansions would not have been burned down through the careless leaving of lighted braziers, and untold sovereigns would have been saved to house-owners and occupiers. It is matter for serious consideration whether, considering the vital importance of plumbers' work, it should not be more strictly looked after. Certainly any system of house inspection, whether compulsory or voluntary, to be efficient, must comprise a more particular inspection of plumbing than is usual at present. It is one thing to inspect the drainage system of a house, and quite another to inspect the workmanship of pipes and joints. In the days of Edward III the plumbers—in theory, at any rate—were men of uncompromising honesty, for they were forbidden by their own ordinances to buy up lead "to the damage of the commonalty."—*Land.*

A BEAUTIFUL ARTISTIC WORK.—There is on exhibition at Messrs. Tiffany & Co.'s an intaglio, if it can be called one for want of a better name, which was the work of Miss Frazar, a young artist who died last year. It is a side view, in clear profile, of the head of a woman, almost life size. This is sunk on a square of plaster, and is in exact opposition to relief. The effect of this work, to even those with practised eyes, is to show how uncertain are our optical impressions, for instead of appearing to be depressed, the exact opposite to this seems to be, for the head stands out in boldest relief. But the mere illusion, as one of curious effect, is entirely subservient to the great merit of the work. The head is that of a thoughtful woman, without any special beauty, save that of youth, but this work has been carried out with the truest conception of what was graceful in form. A critic is often called upon to see prodigies, and his sympathies are excited by the fact that a picture or statue is the last that an artist produced before death closed a career. But this simple head, full of expression and elegance, has been executed with such originality of treatment that it merits the fullest praise. If it shows that exceeding delicacy of touch which a woman imparts to her work, there exists at the same time with an easy flow of line a profound knowledge of the effects of light and shade. Miss Frazar died in October. Had she lived, she would have assumed a distinguished position in American art.—*New York Times.*

ANOTHER SUBMARINE TUNNEL.—It is proposed that a submarine tunnel shall be constructed under the Straits of Messina, and the Italian Minister of Public Works has already authorized the surveys. Messina will be one of the termini, and Reggie, in Calabria, the other. The government has reserved the right to carry out the enterprise itself should it care so to do.

THE NEW BRIDGE AT ALBANY.—The great double-deck and double-track railway and highway bridge over the Hudson River at Albany was formally opened to the public, January 24, by Jose F. Navarro of New York, President A. Bleecker Banks, and Chief Engineer A. P. Boller. It is 1,400 feet long, has in it the largest draw-span in the world, and was built in the short time of eight months, at a cost of about one million dollars, exclusive of damages for land taken.

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.]

252,597. Screw-Wrench.—John H. Coes and Fred'k L. Coes, Worcester, Mass.

252,650. Countersink Attachment for Augurs.—Chas. W. Cutter, Erie, Pa., assignor of one-half to Uriah E. Lemon, same place.

252,704. Combined Drill and Countersink.—William H. Southwick, New Bedford, Mass.

252,705. Mill for Grinding and Reducing Grain, Etc.—John Stevens, Neenah, Wis.

252,707. Window-Glass Fastener.—Theophilus Tanner, Osage, Neb.

252,710. Safety Attachment for Elevators.—Frank T. Ward, New York, N. Y.

252,677. Automatic Fire-Alarm.—Isador Kitsee, Cincinnati, Ohio.

252,679. Metallic Lathing.—Abraham Knisely, Chicago, Ill.

252,682. Knob Attachment.—Byron H. Lockwood, Stamford, Conn.

252,747. Angle-Brick and Mold.—James F. Edwards, Washington, D. C.

252,749. Pipe-Cutter.—Charles Fenton, New York, N. Y.

252,725. Machinery for Dressing Stone.—John D. Brunton, and Frank H. J. Trier, Westminster, County of Middlesex, England.

252,734-735. Valve for Water-Closet Cisterns.—Clara E. Carr, and George D. Scott, New York, N. Y.

252,742. Curtain-Fixture.—Joseph Darling and Bradford H. Griswold, Fairview, Pa.

252,770. Spring-Hinge.—Henry Howson, Philadelphia, Pa.

252,784. Shutter-Worker.—Thomas H. Lupton, Winchester, Va.

252,790. Self-Closing Valves for Faucets.—Joseph E. Mooney, Baltimore, Md.

252,801. Elevator.—Henry Roberts, Hartford, Conn.

252,829. Fire-Escape.—George L. Williams and Henry Rundle, Edwardsville, Ill.

252,833. Inside Window-Blind.—Edward W. Bowslaugh, Grimbsy, Ontario, Canada.

252,839. Fire-Escape.—Geo. W. Levi, Louisville, Ky.

252,851. Curtain-Fixture.—Henry S. Wing Ashtabula, Ohio.

SUMMARY OF THE WEEK.

Baltimore.

The Pratt Free Library.—Excavations are being made for the foundation of a library capable of holding 200,000 volumes. The cost of the building will be about $225,000, and it is to be completed in the summer of 1883. It will have a frontage of 81′ 10″ with a depth of 140′, and thoroughly fire-proof. Mr. Chas. L. Carson, architect; Messrs. S. H. & T. F. Adams, builders.

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

Joseph Turner, 10 three-st'y brick buildings, Oliver St., bet. Lanvale and Dolphin Sts.

J. L. Crise, two-st'y brick stable, in rear of 228 Madison Ave., bet. Biddle and Rose Sts.

Conrad Ripple, two-st'y brick shop, in rear of s e cor. Columbia and Cross Sts.

Chas. Warrick, three-st'y brick building, 17′ x 68′ Broadway, bet. Chew and Madison Sts.

Mr. Wm. Ferguson, builder, is about to erect a four-st'y warehouse, 27′ x 148′, on the cor. of Clay and Howard Sts., for Mr. Jos. H. Rieman; the building is to be constructed of brick, with stone trimmings, and will cost $18,000.

Chas G. Summers and Co., factory and warehouse, four stories and basement, to be built of brick; cost $5,000; Little Paca St. and West Alley; Mr. Benj. B. Owens, architect.

Cambridge, Md., music hall, 43′ x 60′, brick and stone trimmings; cost, $10,000; Mr. Chas. L. Carson, Baltimore, architect.

Boston.

Building Permits.—*Brick.*—*Neponset St.*, r of, n South St., Ward 24, for Boston Gas Light Co., two Gasometers, 171 ft. diameter. Wm. C. Whyte, builder.

Hersey Place, n Essex St., Ward 10, for Joy, Langdon & Co. one storage building, 104′ 9″ and 128′ 6″ x 61′, 4 stories; M. C. Grant, builder.

Wood.—*Old Harbor Point Wharf*, Ward 24, for Richard A. Mallon, one blacksmith shop and storage, 16′ 6″ x 16′ and 24′ 6″; Robt. Montgomery, builder.

Old Harbor Point Wharf, for City of Boston, one storage of Bricks, 24′ 6″ and 22′ x 84′; Chas. R. Palmer, builder.

One ditto, 24′ x 50′.

Old Harbor Point, for Richard A. Mallon, one dwelling, 16″ x 32′ 6″; Robt. Montgomery builder.

One ditto, 32′ 6″ x 32′ 6″. Ell, 17′ x 40′.,

Longwood Ave., 15 to 17 Ward 22, for Joseph Moser, one coal shed 15′ x 70′ x 30′; Alex. Forbes, builder,

Clarendon St., cor. Augustus Ave., Ward 23, for Benj. T. Koran, one dwelling, 24′ x 24′, 2 stories; E. H. Farnum, builder.

Lamartine St., n Wyman St., Ward 23, for Martin Early, one dwelling, 22′ x 35′, 2 stories; C. W. Ward, builder.

West First St., r of 380, Ward 14, for J. C. Kittredge, one storage, 27′ x 35′, Woodberry L. Lewis, builder.

Roslin Ave., cor. Washington St., Ward 23, for E. Weiss, one dwelling, 21′ x 28′; ell, 14′ x 14′, 2 stories; John String, builder.

Howland St., Ward 21, for David H. McKay, one dwelling, 22′ x 32′; ell, 14′ x 18′, 2 stories hip; David H. McKay, builder.

1	ditto,	22′ x 32′,	ell,	14′ x 18′,	2 stories hip.
1	"	22′ x 30′,	"	14′ x 14′,	" "
1	"	26′ x 38′,			" "
1	"	22′ x 3 ′,	"	14′ x 14′,	" "
1	"	22′ x 30′,	"	14′ x 14′,	" "
1	"	26′ x 38′,			" "
1	"	26′ x 38′,			" "
1	"	30′ x 36′,			" "
1	"	26′ x 38′,			" "
1	"	22′ x 30′,	"	14′ x 14′,	" "
1	"	26′ x 38′,			" "
1	"	22′ x 32′,	"	14′ x 18′,	" "
1	"	22′ x 22′,	"	14′ x 18′,	" "

Prospect St., r n Baker St., Ward 23, one stable, 24′ x 34′; J. W. Wason, owner and builder.

Dix St., n cor. Dorchester Ave., Ward 24, for R. Gardner Chase, one stable 13′ 6″ x 15′; J. G. Allbright, builder

Swett St., n Marginal St., Ward 20, for Bradley Fertilizer Co., one office, 20′ x 22′, 2 stories; R. E. Sawtell, builder.

Carruth St., r cor. Van Winkle St., Ward 24, for Mrs. Elizabeth A. Beal, one stable, 21′ 4″ x 27′ 4″; Beal & Spear, builders.

Vaughan Ave., n Geneva Ave., Ward 24, for Michael McAndrews, one dwelling, 22′ x 28′, 2 stories; Geo. P. Beal, builder.

51 *Telegraph St.*, Ward 15, for John A. Allen, one dwelling, 22′ x 38′, 2 stories mansard; John A. Allen, builder.

Wyman St., n Curtis St., Ward 23, for Annie English, one dwell., 22′ x 30′; ell, 14′ x 18′, 2 stories; Wm. Frazer, builder.

Bearse Ave., n Butler St., Ward 24, for Dorson Parker, one dwelling, 22′ x 30′, 2 stories; Jas. Pope, builder.

Island St., r of, n Magazine St., Ward 23, for Master & Wells, one charging house, 24′ 6″ x 136′; Wm. Morse, builder.

Ditto, storage for fireworks, 9′ x 15′.

Howard Ave., n Sargent St., Ward 20, for A. P. Clifford, one dwelling, 22′ and 40′ x 31′, 2 stories; A. P. Clifford, builder.

Ditto, dwelling, 22′ x 30′ x 32′, 2 stories.

Milton Ave., n Rockwell St., Ward 24, for Hammond H. Haskell, one dwelling, 40′ x 90′; Cleveland & Young, builders.

Brooklyn.

Building Permits.—*Warren St., No.* 1720, being 100 w Schenectady Ave., one 2-st'y frame dwell., 16′ x 36′, tin roof; cost, $1,000; owner, Michael Dorsey, on premises; builder, Pat. Knowles.

Floyd St., n s, 325 e Yates Av., one 2-st'y frame tenement, 25′ x 55′, tin roof; cost, $4,500; owner, Julius Meisner, 63 Montrose Av.; architect, J. Platte; builder, J. Weinig.

Lawton St., n s, 150 e Broadway, one 2-st'y frame shop, 15′ x 50′, gravel roof; cost, $800; owner, Geo. C. Cardwell, 230 South 1st St.; builders, Jas. Doremus and Cardwell & Hawkins.

Bushwick Ave., e s, 82 n Jefferson St., one 3-st'y frame tenement; 27′ 6″ and 25′ x 29′ 1″ and 40′ 3″, tin roof; cost, $3,000; owner, A. Kiesel, 7 Bremen St.; architect, Th. Englehardt.

Jefferson St., n s, 150 e Evergreen Ave., one 2-st'y frame dwell., 25′ x 36′, gravel roof; cost, $2,730; owner, M. Gerard, Jefferson St., near Evergreen Ave.; architects, F. Johnson and Geo. Cuttler.

Kent Ave. No. 360, bet Park and Myrtle Ave., one 1-st'y frame shop, 12′ x 20′, tin or gravel roof; cost, $500; owner, Joseph Farrell, 40 Skillman St.; builder, John Connell.

Himrod St., n s, 100 e Evergreen Ave., four 2-st'y frame dwells., 18′ 9″ x 30′, tin roof; cost, $6,400; owner, architect and builder, H. C. Bauer, 28 Stanhope St.

Chicago.

Building Permits.—E. W. Blatchford, six-st'y and basement brick store, 63′ x 80′, 46 to 50 Jackson St., $35,000.

R. Arersberge", brick basement, 20′ x 42′, 585 Larrabee St.; cost, $1,200.

C. B. Eggleston, three-st'y and basement brick dwell., 25′ x 72′, Indiana Ave., n 33; $10,000.

E. A. Hartwell, one-st'y brick cotta e, 20′ x 32′, Peterson n Hogue Ave.; cost, $2,000.

E. A. Hartwell, one-st'y brick cottage, 20′ x 46′, Walnut St. n Hogue Ave.; cost, $1,200.

Mrs. S. Gould, 3 three-st'y and basement brick dwells. 38′ x 82′, 48 to 52 Peck Court; cost, $29,000.

S. Curtiss, two-st'y brick dwell., 22′ x 54′, 761 Van Buren St.; cost, $4,000.

Eugene S. Pike, 7 one-st'y brick stores, 33′ x 60′, Dearborn and Jackson Sts; cost, $14,000.

Dearborn Manufacturing Co., two-st'y and basement brick candle factory, 50′ x 100′, cor. Logan St. C. & A. R. R. track; cost, $9,000.

Aug. Nick, one-st'y basement brick cottage, 20′ x 30′, 26 Julien St.; cost, $1,400.

C. & N. W. Ry. Co., one-st'y brick depot, 20′ x 56′, Fullerton Ave., w of Clybourn Ave.; cost, $2,000.

M. Michalsky, one-st'y brick cottage, 21′ x 50′, 18th St. n Paulina; cost, $1,000.

Nelson & Jungren, three-st'y brick factory, 23′ x 53′, 118 Wisson St.; cost, $4,000.

C. F. Buckley, one-st'y brick kitchen, 16′ x 22′, 414 Park Ave.; cost, $1,000.

John Blecko, two-st'y brick store and dwell., 22′ x 70′, 709 Alport St.; cost, $4,500.

Mrs. N. Gallatin, three-st'y brick flats, 40′ x 45′, s w cor. Ewing and Clinton Sts.; cost, $7,000.

John Fesler, one-st'y brick cottage, 23′ x 32′, Emerald Ave. n Kossuth St.; cost, $1,000.

Dr. Merckle, 5 three-st'y and basement brick dwells., 20′ x 42′ each, Groveland Park Ave. n 30th St.; cost, $25,000.

Frank Lensey, one-st'y brick cottage, 20′ x 40′, 458 Nineteenth St.; cost, $1,000.

Cincinnati.

Wages.—The "jour" carpenters have notified the bosses that from and after March 1st they will demand fifty cents advance on their wages.

Building Permits.—During the past two weeks the following building permits have been issued:

Wm. Beck, repair three-st'y brick, n w corner of Seventh and Vine Sts.; cost, $1,200.

Shaller's Sons, two-st'y brick brewery, No. 658 Main St; cost, $10,000.

T. Horsman, three-st'y brick, No. 692 Main St.; cost, $1,100.

Dr. P. M. Bigney, four-st'y brick, Davidson St. near Bank St.; cost, $10,000.

M. Braam, three-st'y brick, Betts St., bet. John St. and Central Ave.; cost, $4,500.

C. Lingo, repair two-st'y frame; cost, $1,000.

F. J. Jones, four-st'y brick, Fifth St., bet. Plum St. and Central Ave.; cost, $17,000.

Thomas Emery's Sons, block of two-st'y brick dwells., n e cor. of Fourth and Culvert Sts.; S. Hannaford, architect; cost, $10,000.

F. Franzmeyer, one-st'y brick, Liberty St., near Western Ave.; cost, $1,700.

Three permits for repairs; cost, $1,400.

Total permits to date, 24.

Total cost to date, $92,000.

Cleveland.

Maching Shop, on Madison Avenue, for Lake Erie Iron Co., brick, slate roof, 50′ x 110′; cost, $4,000; John F. Watterson, builder.

Forge, on Case Ave., for the Lake Erie Iron Co., frame covered with slate 80′ x 710′; cost $32,000; John F. Watterson, builder.

Rolling Mill, on Madison Ave., for the Lake Erie Iron Co., frame covered with slate, 100′ x 186′; cost, $7,500; John F. Watterson, builder.

Factory, on Scranton Ave., for Lamson & Sessons, frame, 50′ x 520′; cost, $28,000; John F. Watterson, builder.

Factory, on Case Ave., for the Cleveland City Forge, frame covered with slate, 60′ x 200′; cost, $6,000. Frame office for the same; cost, $2,500; John F. Watterson, builder.

New York.

Hotel.—For Messrs. Robert & Ogden Goelet. Mr. Hugo Kafka has designed an 11-st'y hotel to cover lots Nos. 1250 to 1258 Broadway and Nos. 48 to 52 West 32d St. It is to be built of Philadelphia face brick with terra-cotta and Belleville stone trimmings.

Apartment-House.—An apartment-house to occupy a lot about 100′ x 150′, cor. 50th St. and Madison Ave., is contemplated to be built on the Hubert Home Association Plan, from designs of Messrs. Hubert, Pirsson & Co.

Factory.—For the estate of Wm. F. Beekman, a 5-st'y factory, 50′ x 105′, the first floor to be used as stores, is to be erected of brick with Wyoming Valley Blue stone and terra-cotta trimmings on 3d Ave. bet. 62d and 63d Sts., at a cost of about $30,000; Messrs. D. & J. Jardine, architects.

Flats.—Nos. 3 and 5 Baxter St., 36′ x 90′, are to be built on, and a building of brick and stone, the first floor to be used for stores, above flats, is to be erected, 5 stories high, for Mr. Thomas Foulke, at a cost of about $22,000, from designs of Messrs. D. & J. Jardine. For Mr. Geo. Shephard, a flat No. 25 West 44th St., 25′ x 75′, 5 stories, of Philadelphia brick with Ohio stone trimmings, is to be erected at a cost of $15,000; and for the same owner, six 2-st'y buildings, first floor to be used as store, and tenements above, are to be built on the corner of 165th St. and Third Ave., to cost $25,000. The building will be built of Brick with Ohio stone trimmings; Mr. Jos. M. Dunn, architect. At Nos. 34 and 36 Greenwich St., two buildings, 25′ x 65′ each, 5 stories, brick with brown stone trimmings, are to be erected for Mr. M. Halpin, at a cost of $30,000; Mr. Jos. M. Dunn, architect. Mr. W. J. Fitzpatrick will have built at No. 264 Broome St., a building 25′ x 50′, first story to be used for stores, above tenements. The front will be brick with brownstone trimmings; cost, $13,000; Mr. Jos. M. Dunn, architect. On the corner of One Hundred and Fourth St. and Madison Ave., a first-class apartment-house, 25′ x 60′, 4 stories, brown stone front, to cost $25,000, is to be built for Mr. Dennis McGrath; Mr. Jos. M. Dunn, architect.

Residences.—On 54th St., bet. 5th and 6th Aves., for Mr. James W. Alexander, a residence 36′ 6″ x 55′ is to be erected. Up to the second-story beams the front will be Carlisle stone; above that a small red brick with trimmings of the same stone will be used. On the corner of Sixty-seventh St. and Madison Ave., two houses are being designed, one 30 feet frontage on the Ave., the other with 20 feet frontage on Sixty-seventh St. They are for Mr. W. L. Skidmore, and will cost $90,000. The first stories will be Belleville stone and above brick, with stone dressing. The contract is not yet awarded Mr. R. H. Robertson is the architect for the three houses.

Mr. George Chase has requested Mr. Dunn to prepare plans for a brown-stone residence, three stories and basement, 20′ x 50′, which he proposes to erect on One Hundred and Seventh St., bet. First and Second Aves., at a cost of $15,000.

Church.—Mr. R. H. Robertson has designed the church and Sunday-school for The Central Methodist Church, which will cover a lot 90′ x 100′, on the corner of Sixtieth St., and Madison Ave. The church will be built of Long Meadow stone; the tower, which will be 150 feet high, is quite unique in design.

Club House.—For the Knickerbocker Club, Mr. Robertson has been requested to prepare designs for remodeling the building on the northeast corner of Thirty-second St. and Fifth Ave., at present occupied by Mr. Cornelius Vanderbilt, The stables in