

THE AMERICAN ARCHITECT AND BUILDING NEWS.

VOL. X.

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No. 307.

NOVEMBER 12, 1881.

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

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THE *American Art Review*, one of the best periodicals of its class, and conspicuous for the scholarly character of its contributed and editorial articles as well as for the variety and beauty of the illustrations which accompanied them, has, we are sorry to say, closed its second year with a farewell to the public, circumstances not appearing to warrant its continuance. We have the more reason to regret the disappearance of the *Review* from American periodical literature in that, although pursuing in the main a somewhat different path, we kept, so to speak, always within hail of our contemporary, sharing with it several of our own best contributors, and receiving from it repeated courtesies which we endeavored to return. Among the admirable articles which did so much to commend it to cultivated and thoughtful persons should be particularly mentioned those of Mr. Charles C. Perkins on Grecian Archaeology; on Painting in Relation to Architecture, by Mr. Charles Eliot Norton, originally read before the Convention of the American Institute of Architects, and subsequently published in the *Review*; and the descriptive notices of important American pictures and collections. For illustration, the managers had the courage and good taste to secure etchings of the highest class. Messrs. R. Swain Gifford, Foxcroft Cole, Henry Farrer, Bellows, James D. Smillie, Schoff, and many others among American artists, and Forberg, Unger, Rajon, Flameng, and other Europeans, contributed plates which alone give a high permanent value to the twenty-four numbers of the magazine. It will be long before the vacancy left by its discontinuance can be filled, and the best we can hope from whatever may succeed it is that its standard may be as high, and its course directed with as much discrimination and good taste as has been the case with its predecessor.

FRIEDRICH HITZIG, one of the most distinguished of modern German architects, President of the Royal Academy of Art, and Vice-President of the Academy of Architecture in Berlin, died on the morning of October 11, aged seventy years, mourned by the whole artistic community, not of Germany only, but of Europe. Almost to the last he continued the active practice of the profession, and his latest work, the Polytechnic High School, although not completed, is so far advanced that no difficulty will be found in completing it in strict accordance with the designer's intentions. Since Schinkel, to quote the feeling and appreciative words of the *Deutsche Bauzeitung*, no one has exercised so great an influence in the German art-world, and no one's influence could have been more good and healthful. While he lived, the great school of German classicism seemed still vigorous, although its younger rivals pressed it daily more and more; but now that he is gone, there is no one to inherit the mantle which he received from Schinkel, and the epoch to which their genius gave character and direction is closed, passing away, not at the moment of its greatest brilliancy, but with a lustre hardly diminished, to be succeeded by

another, different in many ways, but perhaps in the future to be not less distinguished.

THE committee which was appointed at the last Convention of the American Institute of Architects to deliberate and make report to the next Convention upon the question "What are the duties and obligations of an architect to his client?" has issued a circular letter to the profession, inviting the views of architects generally on the subject. Most of our professional readers have probably received copies of this letter, but there may be some who have not, and would like to join the discussion during the meeting of the Convention at Washington next week. Undoubtedly the debate will be an interesting one, and while we can hardly anticipate, in view of the widely varying relations which architects necessarily hold to different clients, that definite rules can be laid down, or standard established, in regard to many of the points which still remain doubtful or disputed, still, from the wide experience of the gentlemen who constitute the committee we may expect to derive much that will be instructive and useful to the whole profession. It is the desire of the committee that the material which they shall have been able to collect and digest may serve to promote a better understanding between architects and the public which employs them, and if their labors are so fortunate as to accomplish this most desirable result, the public as well as the profession will have reason to thank both them and the Institute, one of whose most important functions it is to foster the discussion of such questions of general interest, and to lend its aid in the authoritative promulgation of the principles which are found to offer the best solution of them.

THANKS to the energy of its citizens, Cincinnati is to be delivered from the smoke nuisance which has so long threatened the public health and prosperity. After a given period, the length of which we do not yet know, the defilement of the atmosphere by coal-smoke from any locomotive, boiler, furnace, or other source, will be regarded as a misdemeanor, and will subject the persons responsible for it to a penalty. A long and interesting discussion preceded the final action of the City Government, but it is to the credit of the aldermen that, having once convinced themselves of the importance of the object to be gained, they adopted the enactment intended to secure it by a vote nearly unanimous. The manufacturers, who will for a time regard the new restriction as an unnecessary burden, argue that no smoke-consumer at present in use is perfectly adapted to their wants, but it is to be remembered that the demand for improvement, once created, will soon be answered, and that the long years of darkness and dirt which the people of Cincinnati have endured may properly be weighed against the temporary inconvenience of a few individuals. Now that Chicago and Cincinnati have by a determined effort put an end for the future to the grievance from which they have so long suffered, it is to be hoped that other communities will take courage to emulate their example, in the interest, not only of health and comfort, but, in the end, of economy also.

AN international trades-union congress is announced to open at Pittsburgh, November 15, the object of which, aside from advertising the demagogues who take the principal part in such affairs, is said to be "the discussion and examination of all questions affecting the national interests of each and every trade, and by a combination of forces secure that justice which isolated and separated trade and labor unions can never command." The "combination of forces to secure justice," of which the call thus darkly speaks, probably means the universal strike to which professional labor-reformers look forward as to the millennium, and, judging from the example of similar conventions, this is very likely to form the staple topic of debate. The present prosperous condition of the country is certainly unfavorable to any effort at exciting thoughtless workmen to silly or violent demonstrations, so that no important result is to be anticipated from empty deliberations of this kind, and, so far as appears, the meeting has awakened no special interest in the community. The International Association of Cigar-makers, the National Granite-cutters, the National Mule-spinners, and several other local unions, propose to send delegates, and the Amalgamated Association of Iron and Steel Workers, whose principal seat is in Pittsburgh, will, out of courtesy, if nothing else, take part.

THE *Fireman's Journal* joins energetically in the demand for a public salt-water supply in New York for the purpose of extinguishing fires, and has already prepared a plan by which fire hydrants could be established throughout the city south of Thirty-fourth Street, so near together, and supplied at so high a pressure, as to permit the concentration of sixty large streams at any given point, under head enough to carry them over the roofs of the highest buildings, with an expenditure of about ten million dollars. Such a provision would, the *Journal* believes, secure for New York absolute immunity from serious fires. Under the present system many of the street mains which supply Croton water are but four inches in diameter, while the available capacity is still further diminished by accumulations of sediment and rust, so that they can hardly be depended upon to furnish more than a sufficient supply for one first-class steam fire-engine, and if other engines are called into service they must draw from hydrants at long distances, wasting their power and diminishing their efficiency very materially. Moreover, the present Croton hydrants furnish water under a very small pressure at the best, and when the gates are nearly closed at the reservoir, as has been the case throughout the recent time of drought, a supply can be obtained from them only by suction. At the great Morrell fire seventeen engines were present on the ground, but the street mains in the vicinity are six inches or less in diameter, and the hydrants are few, and separated by long distances, the nearest, except one which stood close to the burning building, being seven hundred feet away, so that but a small fraction of their extinguishing power was made available. In addition to this, the pressure during the early part of the conflagration was so small that water could be thrown upon the roofs only from the upper part of the neighboring houses, after being forced by the engine pump through nearly a quarter of a mile of hose, and its force was so exhausted by friction that but a few scanty jets actually reached the fire, in place of the thirty or forty solid two-inch streams which could have been delivered from the same engines under more favorable circumstances.

A REMEDY is said to have been found for the chief objection to the laying of telegraph wires underground, — the induction by each wire in operation of reversed currents in all the neighboring wires, which retard and interfere with their action to a serious degree. Telephone lines are so sensitive as to be affected by the induced currents from ordinary telegraph wires at a distance of fifty or sixty feet, and this trouble would naturally be much increased by laying them almost in contact with others in subterranean tubes. The interposition of an insulating substance gives, within ordinary limits, no great relief; on the contrary, a certain degree of insulation is favorable to the induction of reversed currents upon neighboring objects. In Philadelphia, where the conduits of the Underground Electric Company are ready to receive the wires of such telegraph or telephone companies as may be disposed to use them, the question whether the efficiency of the lines can be maintained in such close juxtaposition is a very important one, and the test recently made of a so-called "solenoid" cable, intended to provide against the mutual influence of the wires upon each other, attracted much attention. The experimental cable was carried through one of the underground conduits from the Public Buildings to the corner of Ninth and Market Streets, a distance of half a mile, and contained seven wires, two of which were connected with telephones, and the others with Morse telegraphic instruments. Even in the telephones no trace of induced currents could be perceived, while an ordinary telephone line in a neighboring conduit was distinctly affected by induction from wires suspended from poles sixty feet above the level of the street. If this experiment should be successfully repeated, a great advance in electrical science will have been made.

THE San Francisco papers, which for some reason look with little favor on the Panama Canal enterprise, make very discouraging reports of the progress of the work on the Isthmus. According to one, the excavations near the mouth of the Chagres River have proved difficult and costly. A steam shovel brought from Belgium was found inefficient, and the climate affected the energy as well as the health of the men, so that earthwork which was valued in the engineers' estimates at three cents per cubic yard actually cost a dollar and a quarter. So many considerations enter into such estimates that this cannot

be considered as anything more than an indication of the difficulties which will inevitably occur at various points in the prosecution of the work, and not as proving that the actual and estimated expense of the remainder will show a similar discrepancy. Meanwhile, a good deal of discussion has been aroused by a somewhat unintelligible manifesto from the government of the United States, issued six months ago to the American representatives in foreign countries, but now for the first time made public, regarding the political condition of the Canal. It appears that the foreign governments, being unanimously of opinion that a highway so important to commerce should remain forever neutral to all nations, whatever their relations between themselves, had proposed, in case the enterprise should be successfully carried out, to enter into a joint treaty, by which each party should agree with all the others not to violate its neutrality in any way. This would seem to accomplish the end in a satisfactory manner, but the United States is unwilling to share the care and responsibility of preserving neutrality with any other country, and insists on assuming the guaranty for itself, to the exclusion of the rest. Practically, there will be ample time to discuss the point before the completion of the canal, and a rational solution of the difficulty would seem by no means impossible.

THE theft of paintings from the Athenæum of Providence, R. I., which excited so much attention some weeks ago, has been followed by the arrest of a jeweller named Phillips, who, although hitherto of fair reputation, has been shown to have planned this robbery, as well as one or more previous ones. The stolen pictures were found in New York, where an ineffectual attempt had been made to dispose of them, and have been restored to the Athenæum. A somewhat similar enterprise, with very much the same result, was still more recently undertaken in New York. The new wing of the Astor Library is decorated with a number of portrait busts, not, if we may believe the newspaper critics, of the highest order of artistic excellence, but apparently of sufficient commercial value to tempt some injudicious thief, who took advantage of the unguarded situation in which they stood to carry off one. The robbery, which involved a good deal of physical exertion on the part of the criminal if not a remarkable degree of intelligence, proved quite unsuccessful, no customer being found for the stolen property at any price whatever; so that in the course of a few days the sculpture was returned as quietly as it had been taken away, and replaced upon its pedestal.

La Semaine des Constructeurs gives a detailed description of the scheme proposed for an elevated electric railway in Paris, which has many interesting points, although the prospect of the actual construction of the road seems very remote. The design of the viaduct is lighter than that of the New York elevated lines. Instead of a double range of posts through the streets, supporting two lines of lattice girders which hold the double track enclosed between them, the Paris plan proposes a single row of stout pillars having wide bracketed caps and supporting a single line of lattice trusses some eight feet in depth. The lower chord of the lattices carries short transverse girders, overhanging on each side, and on these the tracks are laid. The traffic would be very light, single cars only being intended to pass over the road, and locomotives would be dispensed with, as each car would contain a small electro-motor of its own; so that this mode of supporting the rails might perhaps be perfectly safe, and the obstruction of the streets is reduced to a minimum. The stations are intended to be arranged on the New York plan, and to be reached in the same manner by stairways from the sidewalk. Three lines are projected, one extending through the principal Boulevards, from the Madeleine to the Place de la Bastille, a distance of some three miles; the second through the Boulevard Haussman to the Arc de Triomphe, continuing through the Avenue Friedland to the fortifications; and third, through the Boulevard Voltaire, from the Place de la République to the Place des Nations, or according to the nomenclature of a few years ago, through the Boulevard Prince Eugène from the Place du Château d'Eau to the Place du Trône. This last line is intended to be constructed as an experiment, to be followed, if successful, by that passing through the Grand Boulevards, and lastly, by the westerly line to the Bois de Boulogne. A project for an elevated railway in Vienna is also discussed, and seems likely to be carried out.

A BRIEF OBJECT-LESSON IN SPRINGFIELD ARCHITECTURE.¹

I owe an apology for presenting myself with a paper which is precisely what its title indicates, a "Brief Object-Lesson in Springfield Architecture." I do not intend to criticise, in the usual sense, the buildings of the city. Questions of material and construction, of style and fitness, I pass by. Of all criticism and opinion in art lay criticism and lay opinions in architecture are least valuable, because in architecture, more than in any other art, technical and historical considerations are of predominant importance. My sole object is to give certain facts and relations in regard to our buildings,—to expound a part of their open lesson. To those of you who have given the slightest attention to the subject most of my facts and all of my conclusions will be familiar, and if I seem elementary and somewhat trite to all of you, pray remember that my only object is to add a new and passing interest to our streets. Few American cities have fairer. I know of none.



Court House.²

There are, as you will at once see, two methods in which the buildings of even a provincial town teach. Every place, however small, shares in the wide and general current of architecture and bears marks of its eddies, and, in addition, special buildings may be of signal importance on their own account. We are rich in the last respect. No competent critic would be likely to make out a list of the ten most satisfactory civic buildings in the United States out of several thousand built in the last eighty years, without including the Court-House, and it would be a poorly selected list of the twenty or thirty best parish churches in this country which failed to include the Church of the Unity. If it were not for the unfortunate fact that the length of the main building is short in proportion to its height and width, the building would rank even higher. But my main purpose is first to say something of the way in which our streets reflect the past history of the art, in a shadowy way and with distorted images, but still of teaching value. Farther back than one hundred or one hundred and twenty-five years or so our building does not go. There are older buildings, but our samples mark about this line in American architecture, the point at which the colonial style of domestic architecture began to give way to the new Greek. The colonial style itself was in a mild way the last survival of the influence of the building just coming into vogue again, which was in use in England across the middle of the sixteen hundreds, under the last Tudor and the earlier Stuarts. Just as the English of Shakespeare and Cromwell still lingers in our daily speech, and its words and phrases are called Americanisms because they do not tally with the English of Tennyson and Gladstone, so the better building of the sixteen hundreds lingered here after England itself had gone over hopelessly to the Greek shams of the seventeen hundreds. You can catch the last gasp of the colonial style in the mouldings of the doors on the old tavern at the lower end of Court Street. If you look at them closely, you will see that there is no attempt to imitate the solidity and massiveness of stone, the vice of the new Greek invasion which swallowed up colonial taste; but that you have in the moulding a simple and rather pleasing use of wood; not in the best way, but in a comprehensible way. The broad, simple roofs, of which Chandler's hotel is an instance, are also last remnants of building in wood without something else in stone in mind. A few years later such roofs would have been hidden by a mock entablature, braced against the real roof with an arrangement of iron rods used much like the hair-pins which hold on a false front. Just as in our river view the long, low, and speaking line of the old roofed bridge is the

most satisfactory sweep across the river, so when you see on a street or in the country a roof which is a roof, as Chandler's is, your eye rests on something which harmonizes better with trees which are trees than the presence of a roof which is not a roof, but a carved board set edgewise.

By the time of the Revolution and immediately after, when Springfield building really began, it was well settled here and in England that the only way to build was to build after the Greek fashion. At the close of the sixteen hundreds, Sir Christopher Wren had settled the question of the trend of the current in this direction—the trend, I say, because Wren, the first architect who built in England a Renaissance cathedral, was also almost the last for a century to build a true, if debased Gothic church. His successors made the matter worse, and by the time the United States began to house a great nation, the current barbarism, known in each generation as "good taste," required everything to be Greek. Of the results of this, which have lasted down to our own day, I need hardly point



First Church.

out instances. One of our oldest houses on Crescent Hill is a stately, if misconceived instance of it. In this valley, the current was made stronger by the fact that two generations ago Federalism and Greek architecture were closely allied. Just as now you girdle your house with clipped shingles, and dip your roof till it bumps your head, if you want to be correct, so for the first thirty or forty years of this century you made your house look like a Greek temple, if you were respectable, or wanted to be thought so. The anti-democratic executors of the Girard bequest (it is plain from the newspaper comment of the day) felt they had done much to protest against Girard's democracy when they had housed his college in a Greek temple, perched on a high flight of steps and ringed about with pillars, or, to be at once accurate and unintelligible, in a peripteral Corinthian temple surmounting a classic stylobate. Aside from the notorious inconvenience of adopting the Greek style at all for modern purposes, for a place like Springfield there was the special harm that we built in wood,—had to build in wood,—and the fashion saddled builders with a style which can by no possibility be adopted or adapted in wood. The straining effort in all houses over thirty years ago, and some later, is to make something which looks like something else and doesn't. Nor is it in the least surprising that this fiction lingered here and elsewhere when we find that it was the accepted doctrine of architects twenty-five years ago. "This design," says Mr. Field, the author of "City Architecture," published in 1853, in introducing sham pillars, sham pediments and a sham balustrade, "this design shows at what little extra expense two carpenter's sheds, four square posts, and a flat roof may be converted into a piece of architecture." Thanks to Mr. Gardiner, we have all learned better than the architect of a quarter of a century ago, and our streets are filling with his examples of brick and wood, built like brick and wood, and having not only the free and frank sweep of roof which I have already mentioned in our earlier colonial architecture, but a picturesque grouping of masses, which is always good, because it speaks what is below and inside, and this is all any building can do, from the Parthenon down. There are of course imitations and imitations of the new fashion, some open to objection; but as you look at the worst, I trust you will remember that even they are doing in brick and wood what can be done in brick and wood, and not attempting in lath, plaster and paint what can only be done in marble.

Two of our churches and the old Court House carry out this Greek tradition as applied to public buildings. As buildings, these wooden imitations have no value; but they have historical interest. As to the First Church, its form can be traced back to an architectural example which stands in London to-day—St. Martin's in the Fields. The links which connect our old-fashioned church on Court Square

¹ Read at the annual exhibition and reception of the Springfield (Mass.) Art Association, June 13, 1881, by Mr. Talcott Williams.
² The cuts used in illustrating this paper are drawn from photographs made for the purpose by Mr. E. J. Layelle, of Springfield.

with the stately London edifice of the last century which Johnson admired, and where, to quote Savage,

"God delights to dwell and man to praise,"

cannot all be clearly traced. But people interested in such things will tell you that while it is not always possible to run back the pedigree of every American race-horse which springs from imported stock of the last century, it is easy to trace the influence of the importation to America of Diomedes, the winner of the first English Derby, so, while the steps are not all clear, we do know that the shape of our old church is due to the importation to this country of the



Spire of Baptist Church on Main Street.

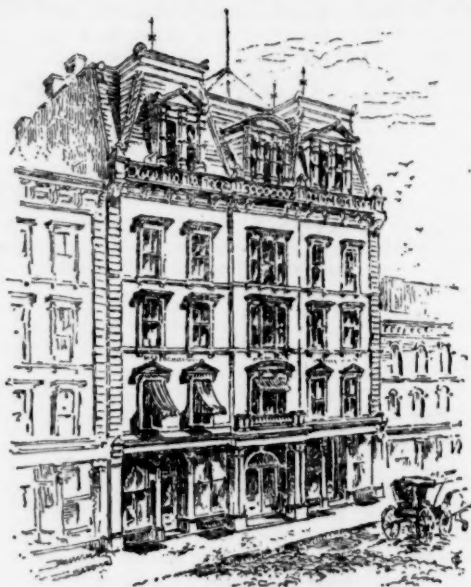
design of the first English church built after this fashion. This was St. Martin's, put up by Gibbs, Wren's pupil and successor, and built in 1726, three years after Wren had died a weary, worn, and broken-hearted old man. Within the next generation, this church with its spire rising from behind a portico and made up of two stories of encircling columns was imitated in St. Paul's in New York, and later in a church in Boston. Both in this country and in England this model became the accepted plan of church-building for a century, the last great edifice built after this fashion before the Gothic protest set in being St. Pancras, in 1822, a London church costing \$380,000. Incidentally, many, perhaps most of American churches put up after this model, including our own, show that they



Episcopal Church.

imitate the imitation by setting the first ornamented story of the spire directly on the pediment as the New York church does and Gibbs's did not. I must not be understood as saying that of the three, Gibbs's St. Martin's in the Fields, St. Paul's in New York, and the First Church in Springfield, the last two are successive and direct imitations. Not at all, but we can feel certain that St. Paul's would not have taken its shape if fine people in the London of Goldsmith and Johnson had not thought Gibbs's church very fine indeed, and the church built here would have taken a different shape you may be sure if fine people in the New York of Irving and Drake had not

thought St. Paul's altogether admirable. The church here shows, however, that in the long interval people had learned more about Greek architecture than Gibbs knew. In the close of the last century Stuart and Revett, among others, had showed that the Greeks hung the frieze of their temples with shields, and strung along on the old church between the wooden triglyphs you will find queerly correct mock shields borrowed from the Theseum. So in the steeple of the Baptist church on Main Street you have in the circular temple with which it starts, and the inverted consoles above distinct imitations of the later development of the style which Wren and Gibbs began. Like most American cities, we have also a wooden Gothic church,



Massachusetts Mutual Insurance Co.'s Building.

the first Episcopal church edifice built here which comes in as an echo of the Gothic revival in England, and like that, is connected with a revival of interest in Episcopalianism. As we had been building Greek temples out of wood in this country for nearly a century, it was perfectly natural to resort to the architecture of the back-saw and the jack-plane when we caught the Gothic fever, of which the old Episcopal church on State Street is a fair sample; so fair that as you will see it was repeated, with a few additions nearly 20 years later by Edward Shaw in a book of his, called "Every Carpenter his own Master," published in 1859.

Our business street reflects in a small way, as these three churches do, the successive changes in street architecture in this country. Sketching the changes in the most general way, and not insisting on the precise technical application of my terms, one may say that we began by turning the dwelling-houses already on the streets into business blocks, next that American cities, New York in particular, took to copying the street front of the Italian palace, of which the most significant relic in New York is the Academy of Design. Then, finding that the flat roof lost space and was inconvenient in a snowy country, and wanting a somewhat sharper show for the money, the French Renaissance came in, and that was succeeded by brick, as a sense of color and a practical desire for convenience and cheapness got the better of so-called, and miscalled, "architecture," with results to be desired on all accounts. Better dark and red brick piers and simplicity therewith than a dinner of zinc cornices and French pavilions and a nightmare strife of all past architecture.

If you will run over the buildings on Main Street in about the order of their building, I think you will see that these steps are reflected there. Of the simple changes by which dwelling-houses have been turned into business blocks, I need not speak. They will at once occur to you. But the first attempts to do something more, where anything beyond a brick box with windows is tried, look towards Italy. So simple, cheap, and trumpery a thing as the cast-iron wreaths about the upper windows of the brick front south of the Foot Block are after — by a long, long ways, — the windows in an Italian palace. The shapes of the lower circular-headed windows in the dry-goods block on the corner of Main and Court Streets are Italian in their distant suggestion. So the rope, *guilloche*, ornament over each window in the same block and the rows of masks under the cornice are echoes — distant, very distant — from the same source. Farther up the street, the entrance and the pedimented windows of the Union Block, and those of Haynes's Hotel opposite, all reflect the influence, confused, obscure, and distorted, but still reasonably probable, of the Italian street front, whose sharp characteristic lies, among other things, in the individual treatment of the windows on a uniform and general plan, instead of grouping the front in solid masses, as was done subsequently in the French Renaissance, which came among us later. In the Mutual Insurance Building there is an instance, owing to the fire, of an edifice that marks off this change distinctly. The lower stories are Italian in a

general way, and the old pediment with its scrolls which used to top the building was after the same fashion; but the new roof is modelled after the French Renaissance, with its big pavilions. Now, however ignorant one may be of terms and turns in these matters, could this difference between the look of the newer and older portions of this building escape one. I am not to be understood as saying that the buildings I have mentioned are modelled or built after Italian palaces—far from it—nor that they convey the same impression; this would be ridiculous; but they mark the influence of Italian street architecture in guiding the choice of details, ornaments and general treatment. A few weeks ago one met scores of women whose dresses were hung with cord and tassels like an old-fashioned bell-pull or a window-curtain. Not all these dresses were fashionable—even to the gross masculine eye—but there could be no doubt as to their origin, that they were due to a fashion which sprang up six months or so ago in London and Paris. Of the buildings I have mentioned one may venture to say with great certainty that if Sir Charles Barry and his predecessors had not built as they did, directly following the models furnished by Italian palaces, and adapting them to modern business fronts, and if his and their example had not been the ruling fashion in the building of New York city in the 1850's and 1860's, these buildings on our streets would have been widely different.

I have already said that the next fashion which set in was the French Renaissance, the cumbrous and showy style of the last century, a fashion which probably gives more show for the money than any other ever put together. You have it in its high and somewhat muddy tide in the bank-building to which we go for our mail, and you have another phase of it in the perpendicular front, the pilasters, the roof of the building in which we now are. Incidentally the bank-building on the corner of Main and Court Streets illustrates how much this style depends on accessories and surroundings. Without criticising its massive granite and effective outlines as they stand, it is fair to say that this entrance and these solid piers would in a building of the period have been capped by a heavy and voluminous roof, and have had on each side long wings. If this building looks in the least chunky, you must remember that it presents only one side of a style, and stands a good deal by itself. Viollet-le-Duc, the great French architect, notes that the rush of French building under the Renaissance, coming when the old cathedral-builders were gone and none new had been trained, it came to be fashionable to leave great faces of stone rough and uncut. The drums of which the pillars are made were left untrimmed, making an effect like putting one spool on another, of which you may see the ignorant imitation in the monoliths of Mullett's Boston post-office, and which, as you have probably already remembered, is imitated to better purpose in the granite of the Five Cent Savings Bank. Our City Library is a lighter use of the French Renaissance, with the steep roofs of the French château, and modified in some of its stone-work, I think one may say, by Mr. Hathorne's Gothic studies. Even eddies in the course of architectural progress usually leave their mark, and I do not suppose we should find the Egyptian capitals on each side of the entrance of the brick building on the corner of Main Street and Hampden, if

berry Hill in the last century was a wholesale copy of all sorts of bits of ecclesiastical architecture, and even so great a man as Sir Walter Scott, a sincere lover of Gothic shapes and forms, sixty years ago at Abbotsford had no compunction at bringing together the most heterogeneous things in his house, taking the piscina, for instance, from an abbey church and turning it into a fireplace. The same course was naturally taken when people in general began to use Gothic forms; ecclesiastical details were applied hap-hazard at first, and later, secular Gothic was used with some sense and thought of its purpose. Now the ripple of this change, which has left its mark on Main Street, is to be seen on the business block just above



The "Republican" Building.

The Five Cent Savings Bank.

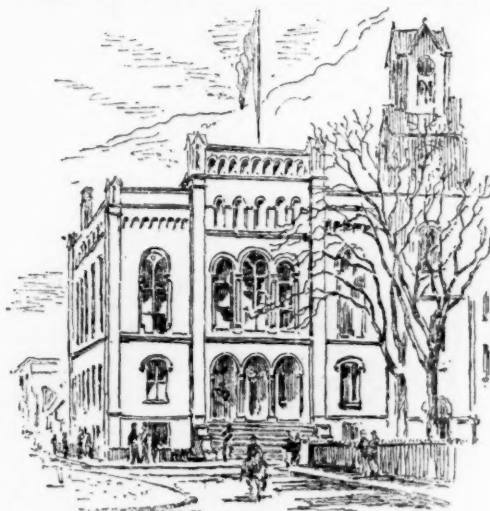
Bridge Street, whose lancet windows and attempts at tracery are, as you have doubtless noticed, plastered bodily against a brick wall, which is like any other brick wall, to make a so-called Gothic building; but when you turn to a later building, the *Republican* building, in which Gothic details are employed, using the term Gothic in its wide popular sense, you see at once that the forms and details, the mouldings and the ornaments are wrought out for the place in which they stand so as to make, as far as may be, a homogeneous whole which has about it no ecclesiastical suggestion.

Of the new reign of brick in the United States we have one of the earlier instances in the Adams Express building, with its simple square-headed windows, the stories marked off by string-courses and the gabled roof happily treated in short "steps," to use a colloquial term; a form which Mr. Fergusson in his *History of Architecture* gives as a characteristic of brick architecture in North Europe and



City Library.

the Tombs in New York City had not for a few years drawn general attention in this country to Egyptian forms. So the successive steps in which Gothic forms have been applied to civic buildings in the modern Gothic revival have their passing illustration on Main Street. As you are well aware, the earlier application of Gothic forms to secular buildings, houses, business blocks and so on, was carried out by taking church forms and applying them bodily. At first, no one appears to have had any idea that anything but churches were built in the Middle Ages. Walpole's lath-and-plaster Gothic at Straw-



City Hall.

which has reappeared elsewhere in the full use of brick in England, for instance. It would perhaps be not too fanciful to say that this breaking the straight lines of the roof is the natural expression of a building made of small but regular bricks and not blocks of stone. But Springfield has passed far beyond this building in the free use of brick. We are all of us I think, conscious, whether we have thought it out or not, that our later brick buildings show a regular advance in speaking out for themselves what is inside and telling how they are built. The superiority, to pass farther down Court

Street towards the river, of the brick block hidden behind the trees — with its clear marking of the inner forms, its accentuation of the stories by string-courses, its marking of the stairs by the windows and its outlines, — to any attempt to build a block with zinc cornices, I think, must be clear to any one. Another simple grouping of brick is to be found in the stables a short distance off North Main Street and all of us in looking at the building next Gills's block must have felt a certain satisfaction with the strength of the long flat brick arch which supports the stories above, as compared with a straight iron beam.

Aside from the interest which attaches to buildings on their own temporal account, because they mark the current of architecture at



Church of the Unity.

the time they went up, buildings may also have an interest as object-lessons without reference to their own time because they display some past style. I take it for granted, for instance, that every educated person here is familiar with the changes in the use of the arch from the three hundreds of our era to the fourteen hundreds. How it began round and strong, then was stilted, as the brick arches in the front of our City Hall are, then by one change and another became pointed, took new double curves, assumed fresh outlines and at last went out in the flickering shapes of the last and most florid Gothic. But even one who has read a good deal in hand-books on these changes of the arch, the characters in which architectural history was written for a thousand years, will I think get fresh ideas of their effect by passing in succession from one to the other of three of the churches on our river terrace. There is Christ Church in the Norman style — say 1100 to 1200 or so, the Church of the Unity in the Early English pointed, say 1200 on, and the South Church in the Decorated and Perpendicular a century later. I do not propose to



South Church.

draw fast and hard lines in this matter. You must not understand me as defining these churches as each being all in the style of each period, but what I mean is this: — Any one with eyes must see the widely different effect as you begin with the round arches, the square lower openings, flat buttresses, little markings of an arch over entrances, narrow lights and plain mouldings and heavy interior in Christ Church; and then pass to the slender spire, the easy broach or

gores, to use a term the ladies are familiar with, by which the spire rises out of the tower, the lancet-shaped windows, their simple grouping, the sloping buttresses, and their spring, of the church of the Unity. Note next the many curves in South Church; the flat Tudor arches in the basement, — at Christ's they are square, — the row of obtuse, pointed arches, the pointed and the flat-headed trefoil arches, the way in which all the openings are curved and ornamented, while the simple cross on the roof-tree has become a carved, curved ornament, the deep-set door, the square and windowed tower, the abundance of carving, which a great cathedral would carry off well enough, but which on a parish church produces an impression, beautiful, but not widely unlike that of a very richly embroidered dress on a very young lady. I am sure that as you run over the changes in your mind you must see that there is here a growth, a development and then an over growth, a successive passage from one generation to



North Church.

another along the same ideas, but increasing at each step in complexity, the best outcome being presented in the beautiful wooden screens in the pulpit end of the South Church in the full luxuriance of the Perpendicular style. So, to go back and run the three churches again, take the large round windows in each. Christ Church is made in the simplest way by fastening round flat-capped columns at the base and joining them with a ring. In the Church of the Unity you get a step farther in the curves of the arches united in the western end of the church to make a window and in circles and triangles united in the same way in the chapel. In the South Church, I need not remind you, there has ceased to be any one general outline, but a complex grouping of many. The shape of the South Church itself, when you compare it with the simpler forms of the other two, has the same lesson and in its varied use of the irregular forms of the same period strikingly resembles the Church of S. Philip and S. James, at Oxford, built by Mr. G. E. Street.

I have made no effort in this brief sketch to deal with all the buildings in our city which have a lesson. Much might be said of many which I have omitted. Our Court House above might give the material for a chapter, with the round arches at its entrance, its typical ornaments, the countersunk trefoil on its balcony, its battlemented walls and its well proportioned windows. From the slight batter or slope of its foundation, which gives even this small building a singular look of solidity, up to the corbelling of the tower, which carries out the same idea, and the tall, narrow arches of the belfry with their light look of perfect poise, there is no fragment of the building which has not a purpose. As mere matter of association, one cannot count it a small thing that this tower which caps our leading civic building reminds every gazer who has seen or studied both of that other tower which caps the Florentine Palazzo Vecchio. The Court House is an exceptional instance, but there is scarcely an important building in the city which has not some lesson to repay intelligent observation. The Roman Catholic Church of St. Michael is, I trust I shall offend no one by saying it, an instance of what has been wittily called the purest Peorian architecture and yet, even in this church, it is of interest to note in the four open pillared "baldachins" which surround the spire a sign of the Italian influence which is sure somewhere to crop out in the edifices of a church whose inspiration and education are Italian. It is a trifling thing, not to be pressed rigorously nor accepted absolutely, but I think one might safely say of these open, airy, chilly, niches that as things like them appeared in Italian architecture as a result of Saracenic influence, their appearance here in an alien climate is perhaps the only thing on our streets which is the last fading wave of the architecture of Sicily, Spain and the Mediterranean. But at the best this is mere conjecture. I call it up only as a passing illustration. No building stands by itself. It is wherever and however built the last of a long architectural term which has modified, changed, and suggested it. It has relations and analogies worth knowing even of Springfield buildings. We compass sea and land to see famous buildings to small purpose, making them the children of our own ignorance, if we have not first

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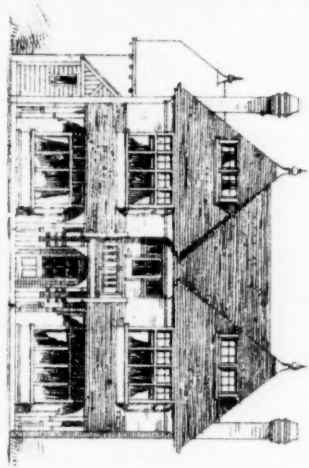
CHORAGIC COLUMNS - S.E. SIDE OF ACROPOLIS
ABOVE THEATRE OF DIONYSUS
ATHENS AUG 17, 1879.



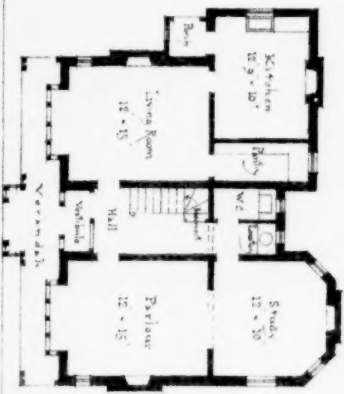


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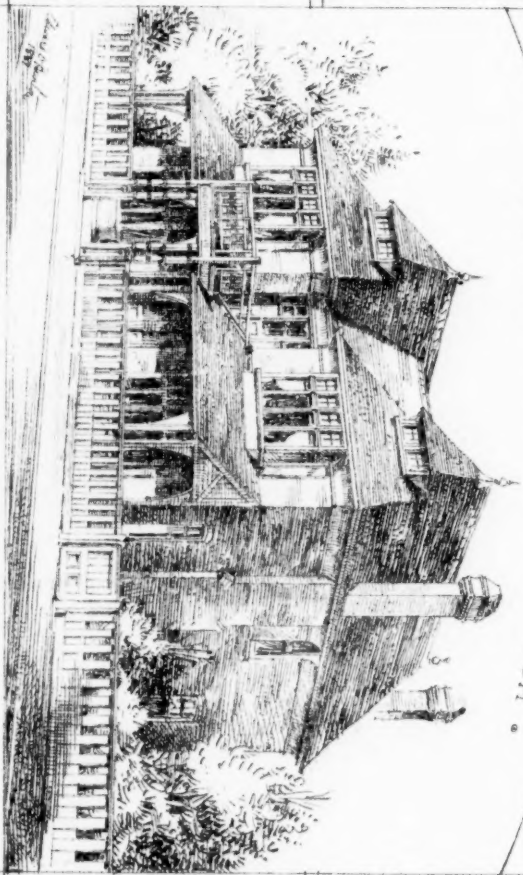
Front Elevation.



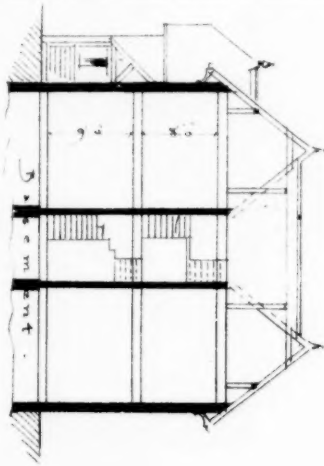
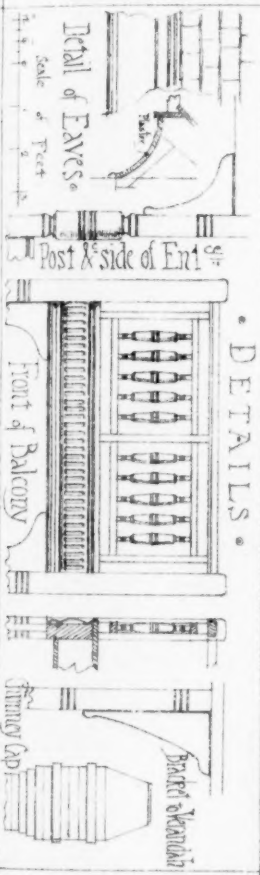
Ground Plan.

DESIGN for a RESIDENCE for M^r JACOB NORTH Lincoln Neb. Edward O. Burton. Architect.

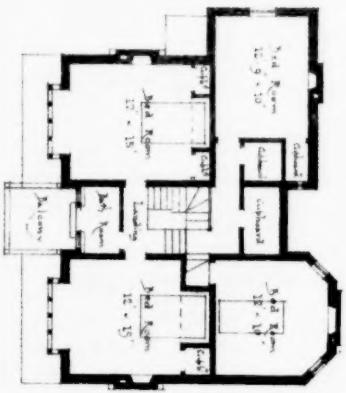
PERSPECTIVE SKETCH.



DETAILS.



Section.



Bedroom Plan.

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The Publisher's Office, 111 Nassau St. N. Y.

A STREET IN BRUGES.

DRAWN BY A. H. HALL.

The Architect.

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mastered the simple teaching of the buildings we daily see. The principle underlies all art, great and small. The seeing eye, the trained hand and the stored mind are of importance, not merely for what they produce, but for what they can appreciate, and this power must be tested by its application to the ordinary and the accustomed. This, I take it, is one great branch of the work of this Association. To make the beautiful useful and the useful instructive these are its twin objects. The exhibition of the year's work about us to-night has its own value for the share which can be here seen and admired; but when we remember that all here registers the more important fact that a few more eyes have been opened to new sight, a few more hands trained to new skill, that the boundaries of knowledge and beauty have been widened and the capacity for instruction which lies in common things increased for the members of the Association, I think you will agree with me that the work of its second year is its own Object-Lesson.

THE ILLUSTRATIONS.

HOUSE FOR W. F. LYON, ESQ., SYRACUSE, N. Y. MESSRS. KIRBY & BATES, ARCHITECTS, SYRACUSE, N. Y.

THE CHORAGIC COLUMNS ON THE ACROPOLIS AT ATHENS. SKETCHED BY MR. F. H. BACON.

DESIGN FOR THE HOUSE OF MR. JACOB NORTH, LINCOLN, NEB. MR. E. O. BURTON, ARCHITECT, LINCOLN, NEB.

A STREET IN BRUGES, BELGIUM. SKETCHED BY MR. A. H. HAIG.

The church shown in this drawing, which is reproduced from the *Architect*, is St. Jacques, and dates back to the fifteenth century, having been consecrated in 1469.

THE FAIR OF THE MASSACHUSETTS CHARITABLE MECHANIC ASSOCIATION. — V.

THE announcement that the Mechanic Charitable Association's fair is about to close reminds us that there are many exhibits which we have not seen, and still more that we have not mentioned in these columns, and we make a hasty visit to the immense building which is in itself one of the most interesting things that the Association has prepared for the entertainment of its visitors. It is an unusually good building in design and in its adaptation to its purpose, and has the happy quality of being better in execution than it promised on paper. It is regrettable that lack of funds forbade a proper architectural treatment of the rear of the building, which is really the part most visible to those who approach it from the city. The success of this building, added to that which attended the erection of the Mason Building, marks their architect, Mr. Preston, as one who is more than ordinarily capable of handling the problems of mercantile architecture in a peculiarly frank and common-sense way. Much could be done, perhaps, to improve this exhibition-building, with more time and money at the architect's command, but considering the circumstances the chief criticism one feels like making upon the outside of the building is the wonder that an architect capable of designing so good a bit as the octagonal pavilion at the east end should have consented to spoil it by adding an impracticable portecochere, so-called, which is poor in design, almost useless as a structure, and as an architectural feature seriously detracts from the dignity of the composition. The color of the building is unusually good, and the terra-cotta details made by the Boston Terra-Cotta Company are judiciously used and are well designed, if we except the roundel at the right of the main entrance, which contains the head of Oakes Ames, we believe, in a thoroughly uncomfortable position, so that he looks like a cross between a modern Atlas and a malefactor in the grasp of a Spanish garrotte. We notice, too, near the eastern entrance, a little terra-cotta panel which bears the name of the architect and the date of the erection of the building. We have often wondered why the "signing" of buildings, which has the sanction of the best French usage, is not more often adopted in this country. Artists and sculptors invariably sign their artistic creations, and why should architects shrink from letting the public and posterity know who is responsible for the successes and failures of the buildings they design? The reason may very possibly be that an architect, unlike a painter or a sculptor, is rarely a free agent, and he may well stand excused for an unwillingness to mortgage his reputation by fathering the whimsies of his employers, or to accept unfavorable criticism for results which are directly chargeable to circumstances over which he has had no control. Inside there is much about the building, especially the construction of the Main Hall, which will repay careful examination.

The object of this visit is to discover what articles used in the construction and decoration of the interior of our buildings are contained in the Department of Building Materials. As we enter the Main Hall we notice that the Vermont Marble Company has sent in two small cubes of their marble since our last visit, presumably for test; while just beside it is another new exhibit of stone made by the Verde-Antique Marble Company, which we are pleased to think intends to develop its quarry in Lynnfield, Mass. The stone is a very dark green-veined marble, we suppose it must be, seeing that the owners of the quarry take the style of Marble Company, though we had imagined it to be a sort of cross between a true serpentine stone and steatite or soapstone. Large pieces can be got out of the

quarry, and as it can be easily carved, it will doubtless find extended use in interior work. Near by we came upon the exhibit of the Boston Marquetry Flooring Company, who manufacture an excellent and enduring marquetry floor under Dill's patents. The peculiarity of this flooring is that it is made of a seven-eighths inch base, into which the inlay of fine woods is dove-tailed, while the exposed edges are tongued and grooved into the adjacent strips, so that it is held in position as immovably as anything can be in our steam-heated houses. The solidity and good workmanship of these floors contrast more than favorably with the wood carpeting of J. W. Boughton, of New York, which after all is, as its name indicates, merely a carpet, and not true marquetry, although when it is in place it doubtless looks as well for a time as its more substantial neighbor. How it actually wears we do not know, but we should think that the thin strips—only three-eighths of an inch thick—would soon separate from the canvas backing to which they are glued.

Another article in which cloth backing is used to good purpose is the "fibrous plaster-work" exhibited by John Borden, of New York, though here the cloth seems to be used not only as a backing, but to be forced up into the substance of the plaster in a rather miscellaneous way. The specimens here shown are panels of various sizes and shapes, moulded in Moorish and other patterns in low relief and richly colored, the essence of the invention being that all the decorative work on them can be done before the panels are fixed in position in the walls and ceilings. How they are to be held in place is not apparent, but if they are fastened only at the edges we should expect some of the larger panels to bend and sag away from the ceiling-beams in a very unpleasant way. But if they are to be held up by screws through the body of the panels wherever necessary, the material will prove a very useful one to employ at times.

If we include the carpets of the Bigelow Carpet Mills, of Clinton, Mass., which are not as satisfactory in design and color as many we have seen from that mill, these are all the Fair has to show for the furnishing of floors and ceilings. Of wall-coverings there is not much more. Fr. Beck & Co., of New York, show some specimens of embossed and gilded wall-paper in imitation of embossed leather hangings, which are not up to the standard of work one expects from this firm. We are puzzled by the covering on one of the walls of the room in which these papers are shown: if it is really a plush or velvet hanging used as a wall-paper, the explanation is apparent, but if it is really a wall-paper, it is one of the marvels of modern mechanical skill. The only other exhibits of wall-paper are by a firm whose name we have fortunately for them forgotten, and the exhibit of cartridge paper or "patent ingrain paper" made by the Monroe Felt-Paper Company, of Boston, which makes as satisfactory wall-covering as can be found for a room in which pictures are to be hung. In the room where Messrs. Beck & Co.'s papers are shown is an exhibit consisting of busts and statues made by the Belvedere Metal Company. What Belvedere metal may be we do not know, but it is evidently capable of making a good casting, although the product looks suspiciously like the bronze-colored plaster casts we have spoken of before. Indeed, we supposed that Belvedere metal was a euphemism for plaster-of-Paris, until in the basement we came across another and more useful application of this substance, where it was used instead of lead for jointing soil-pipes, while by the side of the pipe lay a fragment of an ingot which puzzled us quite as much as the busts and statue up-stairs. It might have been taken for a chunk of the plumbago-blackened beeswax that one sees in the work-room of an electrotyper, so little like a metal does it look.

Another instance of art metal-work is formed by the *repoussé* panels made by John P. Treat, which are more delicate and less cumbersome than the somewhat similar product of the Magee Furnace Company. They are exhibited by Messrs. Noyes & Blakeslee, of Boston, agents for Mr. Treat.

As we pass over to the other side of the hall, we pass the exhibit of the Household Art Company and its allies, and notice that what new articles have been added since the opening, and some changes made in their arrangement and grouping, do but increase the pleasure with which we first beheld it.

Here on this side is a case which contains samples of the ornaments of pressed wood made by W. B. Gleason & Co., of Boston, and as we examine it we wonder that architects do not make more frequent use of the articles here shown, for they can unquestionably be used to great advantage where it is impossible to obtain either money or skilled workmen for hand-carved ornament.

Near by, a group of billiard-tables, made by the H. W. Collender Company, of New York, reads a useful lesson to the tyro on the folly of misapplying ornament. Excellent tables for play they doubtless are, but what folly to waste time, labor, and money in inlaying parts of the table which cannot be seen. Indeed, a neighboring exhibitor, the J. M. Brunswick & Blake Company, has realized this, and has mounted one of its tables upon another, so that its decorated parts may be on a level with the eye. We trust that those who are taking part in our competition for a design for a billiard-room complete will bear this in mind, and when they begin to design their billiard-tables will remember that if such ornament as is usually put on billiard-tables is to be seen at all, it can only be seen by the spectators, and by them only if the table is raised on a platform above the level of their own seats, in which case their eyes would be below the level of the table-bed, and they would no longer be spectators of the game.

There are various specimens of stained glass in different parts of the building, but our mental eye is still so possessed by the glory of

the wonderful glass designed and manufactured by John La Farge, of New York, lately on exhibition at the Museum of Fine Arts, that our physical eye refuses to take in the good points of what is here shown.

PAINTING AND SCULPTURE IN RELATION TO ARCHITECTURE.

ONE of the subjects proposed for discussion at the Social Science Congress was "What should be the Relations of Painting and Sculpture to Architecture?" A paper by Mr. H. H. Statham was read. The author was of opinion that the real art of architecture was quite sufficient to occupy one man, and quite worthy of his best attention, and he should leave the sculpture and painting to the professed students of those arts. In employing sculpture and painting in connection with architecture, it must not be supposed that those arts were necessarily raised and intensified by such connection; on the contrary, it would be found that in order to harmonize them with architecture as decorative parts of a whole, it was necessary to reduce their style and expression to a more or less conventional standard, to take some of the life out of them, in order that they might not disturb the repose of the architecture. The arts of sculpture and painting in their highest and most elaborate form claimed undivided attention on their own merits, and would not bend into subordination to an architectural scheme. Hence the idea of giving a new impulse to those arts, and evoking a higher order of genius in their production, by connecting them more closely with architecture, was probably an illusion; but the practice would, no doubt, give more employment to artists, and familiarize the public more with art, and thus indirectly exercise a stimulus. In the use of decorative painting in interiors the whole color scheme should be designed so as to lead up to the painting, which should be the "high light" of the whole; and hence nothing lent itself so well to this object as mosaic, with its brilliant surfaces, which would harmonize with the richest decoration, and which was the most architectural style of pictorial design, being in fact a kind of building process on a minute scale. It was essential that all decorative painting and sculpture should have a distinct aim, and illustrate some definite idea, and that both the subjects and the arrangement of the whole should be thought out along with the architecture from the beginning, and the whole appear as the work of one directing mind—that of the architect. But to do this well required much more time and thought than were generally bestowed by the architect or allowed for by the proprietor, who commonly cared less to have his building perfect than to have it finished as soon as possible.

A paper on the same subject by Mr. W. Cave Thomas was next read. Painting and sculpture to architecture were analogous to the relation of the Corinthian capital to the column. The column in its totality represented the one art, of which painting, sculpture, and architecture were different phases. The basic portion of the column represented architecture, and the capital the crowning mercies of painting and sculpture. This analogy, he said, might be considered too simple to elicit all the instruction designed in putting the question. He therefore took another motive for discourse, and said that the true function of architecture was the designing of the house, not only as the dwelling of man, but also, in its metaphorical sense, as the dwelling of an idea. The metaphor of the house was used in the Scriptures, and also by Spenser in his "House of Temperance," under which figure of speech he described, by architectural analogies, the human frame. In the contrivance of the house, from the hut to the gorgeous palace, the capital of the column should be regarded as undergoing progressive development; in the hut and ordinary home the capital was necessarily but rudimentary; but in the palace and in the shrine it should attain its full development and magnificence. It might be said, indeed, that in some cases the house should be absolutely designed as the home of painting and sculpture, as these arts became the direct representatives and exponents in the shrine and the temple of the indwelling idea, so that the highest aim of the architect was that of designing an appropriate setting for painting and sculpture. To illustrate his meaning, Mr. Thomas referred to the Parthenon, which was designed *ab initio* to be the House of Minerva. Its constructive and solid framework was predestined to be the basic portion or pedestal of the column, which was to be surmounted by the colossal statue of Minerva, the pediments, the frieze and the metopes, as its capital. And it is now known as an historical fact that the artist of the capital had control over the artist of the shaft; all the tektones, from the tapestry-workers to the architect himself, were in fact under the supervision of Phidias. Mr. Thomas then proceeded to show that our modern procedure was in direct contravention of all that history taught us was the right and direct means of developing national art; and that if we were really desirous of attaining to an equivalent position in painting, sculpture, architecture, and the art-manufactures as in the two grand art epochs—the Grecian and the Italian—we must revert to those means. But he regretted to have to say that these were persistently opposed in this country. If we should ever happily revert to them, there would be no further occasion to discuss the question in hand; for, as in former times, the three sister arts would be indissolubly associated, and their true relations would be once more perfectly understood.

Lord Powerscourt said that in modern times painting had been more employed in connection with architecture in France than in any other country. There was a fine specimen of such work in the

Church of St. Vincent de Paul, Paris. True, some of their modern English artists had, in the Houses of Parliament and at South Kensington, gone in for frescoes; but he did not think this branch of art was sufficiently employed. There was a specimen of that art in a church at Cabra, not far distant, the authorship of which was due to the director of the Irish National Gallery, Mr. Doyle. It always struck him to be a great mistake in all the public buildings and architectural elevations that there were so many buildings filled with niches and places where statues might with advantage be placed, but were only conspicuous by their absence. The French did these things in a much more complete way. They did not see in their public buildings the baldness and absence of sculpture so remarkable at home. When they undertook a public building, they went through with it and decorated it both with sculpture and painting. Take, for example, the great quadrangle of the Louvre. How bare and desolate that great square of buildings would look if not for the enormous statues which decorated it and added to its dignity and beauty. He (Lord Powerscourt) had some little experience himself of sculpture in connection with architecture. Some years ago he became the possessor of two very fine bronze statues of the *cinquecento* period; and Mr. Penrose, the well-known architect of the Chapter of St. Paul's, London, designed an architectural flight of steps—which might be seen by any visitor who came to Powerscourt—to enshrine them.

Mr. Thomas drew said to them the practical question was mainly the relations of British architecture to British painting and sculpture, and the weak point in the past had been the lack of harmonious working between sculptors, painters, and architects. There were faults on both sides; but while frequently the architect demanded too much, his brother artist was inclined to yield too little. In his opinion, the architect should have some—nay, considerable—training in figure-drawing and in the business of the sculptor, otherwise he would not be competent to advise where sculpture and painting should be used. On the other hand, the architect should not undertake the entire work himself.—*The Architect.*

AN ELEVATED RAILWAY FOR VIENNA.

A PROJECT for constructing a circular inter-urban railway for Vienna, which for the last fifteen months has found employment for a large staff of English and Austrian engineers, seems now to be in a fair way to overcome the opposition with which the scheme, although approved by the Government, has been received by a portion of the municipality of Vienna. The proposal is to make in that city a circular railway which, wherever it may be possible, shall be carried above ground on iron columns, with such improvements in the method of construction as may have been suggested to the engineers by their experience of railways of this kind already in operation in New York and Berlin, and one of more recent construction in Rotterdam. The proposed girdle railway for Vienna would skirt the old town on the northeast along the banks of the Donau Canal, to the southwest along the Wien Fluss as far as the Schiachthaus, and then turn abruptly almost due north, running along the Gürtel Strasse and the line and boulevard where the outer fortifications formerly stood until the Währinger Linie is reached, when there would be a bend to the east and by the Nussdorfer Strasse the railway would return to the bank of the Donau Canal. In its way it would pass near but would not disturb the house in which Schubert was born. While the greater part of the railway would be elevated on iron pillars, yet owing to the rise of the ground, it would have to pass along the Gürtel Strasse in a cutting, the cross streets being carried over it on bridges. Before reaching the Währinger Linie, a length of tunnel, about twelve hundred feet, would have to be made under the space in front of the grounds of the asylum for idiots. The length of the circular railroad as projected is about eight and a half miles (English), but it is proposed to make six branches, which would give a total length of about twenty-eight miles. These branch lines diverging in various directions would connect with the circular line (and so with one another) the termini of the other railway systems, the Government arsenal and storehouses to the southeast, and a system of tramways which it is proposed to lay down to serve the rapidly growing suburbs to the southwest of the city.

One objection raised to the project has been that the railway would afford facilities for a migration of the population, who, by moving from the city beyond the octroi boundary to the suburbs, would escape the payment of the heavy octroi duties. To meet the not unreasonable objections of the Viennese to anything which might destroy the beauty of their city, great attention has been paid to the appearance of the stations, viaduct and other works by Mr. Joseph Fogarty, the engineer of the scheme, under whose direction the details of construction and designs for stations, etc., have been prepared. It is proposed to erect a large central station in the Franz Josef Park on the right bank of the Donau Canal and near the Bourse. The building, to be seven hundred and fifty feet long by two hundred and fifty feet in width, would be of an ornate character, and to compensate the people for the loss of some of the public park, it is proposed to use the space under the railway platforms and offices of the station for a fish, vegetable, and flower market, while the extension of the station at each end used for sidings, etc., would be converted into a covered children's playground, or devoted to other public purposes. An ingenious device is suggested for lighting the space beneath the station, by forming the vertical faces of

the platforms of reflecting lenses. At this point, too, wharfe accommodation would be provided for the steamboat traffic. There would be one other large junction station and sixteen smaller stations on the circular railway. The roadway of the elevated portion of the line would be of open or gridiron pattern, formed of large balks of timber on which would be laid heavy steel rails. It is believed that by adopting this method of construction the noise from the passing trains would be reduced to a minimum. This part of the line would be carried at an average height of sixteen feet from the ground on cast-iron columns of eleven inches diameter, placed in clusters of three. They would be bound together in the centre and connected at the cap and base in such a way as to render the use of "lugs" unnecessary, a point to which attention was specially directed by the Tay Bridge catastrophe. These groups of columns would be sixty feet to eighty feet apart, the lattice-girders on which the roadway would be borne being surmounted by a light ornamental railing. The width of the elevated portion is designed to be twenty-seven feet over all. The principal streets would be crossed by arched bridges. For seventy thousand tons of the iron-work which would be required, the custom duties being practically prohibitory of its importation, a provisional contract has already been made with the Witkowitz Iron Company of Austria, represented by Messrs. Rothschild and Guttman of Vienna. The locomotives, weighing twenty-five tons, would be of the kind introduced by Messrs. Lamme and Franck—fireless and charged with steam from a stationary boiler. The cost of carrying out the schemes is estimated at from four to five millions sterling. The population of Vienna and its suburbs, according to late returns, is 1,400,000.—*London Times*.

NEWGATE.

THE precise reasons which induce the City authorities to demolish Newgate have not yet been made public. To the outsider it would sometimes appear as if every municipality and corporation, religious or lay, was subject to periodical fits of destructiveness. As a prison, Newgate, no doubt, is antiquated; but we shall probably see the present building succeeded by a smaller one for the safe custody of prisoners during the sessions, and may ask without impertinence why the old prison could not have been a little altered and made suitable without absolute destruction. Many of the arguments against the removal of Temple Bar apply with greater force here. We were told, for instance, by innumerable writers that Temple Bar was the last of the City gates. They forgot, or never knew, that it never had been a City gate; but Newgate is unquestionably one wing of a real City gate, having been built on the site of the southern portion of the ancient arched entrance to the City from Holborn. As to associations, also, Newgate is far more interesting than Temple Bar. It vies, in fact, with the Tower in the eminence of its involuntary inhabitants. Though it would be a mockery to say of the present edifice that it is ornamental, it is undoubtedly one of the most satisfactory public buildings in London—gloomy, strong, impressive, and with its object as plainly marked on it as if the word "prison" was stamped on every stone. Dance, its architect, deserves the credit of having designed a perfectly simple, but perfectly suitable, façade, the more so as, though it is three hundred feet long, it has no windows, except in the central portion, only thirty feet in width. Although the height is only fifty feet, the effect produced by the mere mass and outline is comparable to that of a Norman keep. The central lodge, with its numerous arched windows in five stories, has been severely criticised; but, without some such feature, the plainness of the rest of the front might have failed of its due effect. The earlier design consisted of only three stories with an entablature, but the present arrangement is very preferable. The statues removed from the old Gate, and now set up in two niches on the front and two at the south side, are somewhat incongruous, and the festoons of fetters form a very lugubrious kind of ornament. The hundred years of its existence have seen many alterations and improvements of the interior, but have left the exterior substantially as it was when the new building was completed in 1782.

The name of Newgate may be compared with that of Newport at Lincoln. Both belong to the entrances of Roman cities. It may be too much to say that Newgate is the oldest of the London City gates, but it would be difficult to prove the greater antiquity of its rival, Bishopsgate. As a Roman gate it has the advantage, for the northern entrance to Roman London was some distance to the east of the site of the mediæval Bishopsgate, while Newgate is very near the place where the Watling Street reached the City wall. When the Romans had diverted the old road at what is now the Marble Arch, so that it no longer pursued the course of the modern Park Lane to the ford at Westminster, but turned towards what was then the newly-constructed bridge at London, the place of the gate on the hill was determined by the place in the valley below of the bridge over the Fleet. The Holebourn in later times took an English name from its course among the high clay banks of Coldbath Fields; here it became a tidal estuary wide enough for ships probably as large as any then built. A water gate may have existed at Ludgate, though there are certain indications to the contrary; but the principal entrance to the later Roman London must have been by Newgate. A fragment of the road which crossed the City diagonally from Newgate towards the great bridge over the Thames still bears its ancient name; but even here the Watling Street is not quite on the original site. The exact date of the alteration to which Newgate owes its existence

will now, in all probability, never be known. It must have been after the Roman occupation of Britain, but that is all we can say with certainty. Of Newgate itself, however, it will be safe to assert that it was first built when the Romans made their new wall to take in not only the ancient city, but also its suburbs. Even here, too, the exact date eludes us, but it must have been between the time of Julian the Apostate and that of Valentinian, or in the ten years between A. D. 360 and 370.

To account for the name "New" as applied to this ancient gate we must come nearly a millenium further down the stream of history. A mistake of Stow's on this head has been repeated again and again. He asserts that the enlargement of St. Paul's so obstructed the highway that passengers had to go round by Paternoster Row to reach Ludgate. In reality the enlargement eastward of St. Paul's did obstruct the Watling Street and cut it off from its western extremity, now Newgate Street. But though this synchronises very well with the rebuilding of the old gate towards Holborn in the reign of Henry I, or Stephen, it by no means follows that it was caused by it. The road through Newgate existed before St. Paul's itself. But Stow and many other writers since his time believed that Ludgate was called after King Lud; and if any one nowadays is of this opinion, all the other improbabilities and inconsistencies of the story are as nothing. It is curious to observe that, if the "New" gate is one of the two oldest, the "Ald" gate is absolutely the newest of all. Newgate was called "new" with reference to Aldgate, which was built at the time when a bridge over the Lea at Stratford made an exit necessary to the eastward of Bishopsgate. Shortly after, within the lifetime of one generation, the Chamberlain's Gate was rebuilt, and, the Chamberlain himself having been forgotten, his gate usurped the then waning newness of Aldgate. This Chamberlain was, of course, the same William who held of the King at the time of the Domesday survey a vineyard at "Holeburne," probably on or close to the site of the Charterhouse, and therefore not very far from the gate.

The Roman fashion of making goals of gates was imported into Britain from the East, and in the present case has probably, with little intermission, prevailed ever since. Ludgate was also a prison—a "free prison," says Stow, referring, of course, to its use for the freemen of the City. Newgate was to some extent appropriated to the use of the inhabitants of the adjoining county of Middlesex, which about the time of the first rebuilding had been granted in farm to the citizens. The inconvenience of the goal as population increased caused the many complaints which appear in the pages of every London historian. So far back as 1419 there is an entry in the letter-book of the Corporation, quoted by Riley, in which mention is made of the fetid and corrupt atmosphere of "the heynoise goal of Newgate." Ludgate had been abolished as a prison, and the result was that many "citizens and other reputable persons" were committed to Newgate, and died, "who might have been living, it is said, if they had remained in Ludgate, abiding in peace there." Sir Richard Whittington was mayor at this time, and three years later at his death left money for the improvement of Newgate, "seeing that every person is sovereignly bound to support, and be tender of, the lives of men." There is a view of the gatehouse so improved in the Grace collection. It is taken from Boyley's rare *Herba Parietis*, 1650. The wall-flower is represented growing over two of the windows. The whole building was afterwards "improved" by the introduction of classical features and statues. This prison subsisted until it was burnt by the Gordon rioters—the present prison, which had been founded a few years before, being already in part completed on the south side of the gate. The Surgeon's Hall, so celebrated for alleged resuscitations, stood a little farther to the south in the Old Bailey, but it was now removed, and a part of the Sessions House stands on the site. A portion, however, of the older building long survived, being the "condemned cells." They had in several senses a right to the name; but, though every humane person, and many besides, spoke or wrote of them with horror, the practice of hanging for felony declined before they were removed or improved. One writer discloses a state of things hardly creditable even "sixty years since." The convicts were crowded like sheep in a pen. That these "unhappy beings were not victims to the most malignant diseases" he attributes to the kindness of a late keeper, "who frequently assisted their wants at his own expense." This last sentence reveals conditions horrible to think of, even now. "When Mr. Nield visited this prison, one-half of the prisoners, particularly the women, were miserably poor, and covered (scarcely covered) with rags. This does not appear to be so much the case just at this time." Such was the state of Newgate so lately as 1815. After several even more shocking details, the writer goes on to say that, in order not to hurry poor wretches out of the world, in strict conformity to the letter of the law, after twenty-four hours, the trials for capital crimes took place on Fridays, as Sunday was not counted a legal day. There is a curious plate in the *Microcosm* of Pugin and Rowlandson, which represents the interior of the chapel in Newgate on the Sunday intervening between trial Friday and execution Monday. It shows eleven felons, two of them women, in a kind of central pew painted black. In the middle of the pew is a table. On the table is a coffin. This was in 1809. There is an account of the burning of the old gatehouse prison in one of Johnson's letters. There were not above a hundred protestants at work, but they were left unmolested. There were no guards to prevent their carrying out their design, "without trepidation, as men lawfully employed in full day. Such," reflects Dr. Johnson, "is the cowardice of a commercial place." Had he

lived in Land League times he might have made the same reflection on the cowardice of an agricultural place. It was in the older building, then destroyed, that goal fever made such terrible ravages. In 1750 the Lord Mayor and two of the judges, and others to the number of sixty, died of it after the sessions. This is the less wonderful, as we read that the prison was inadequately supplied with water. The new prison was at first little better in this respect. Lord George Gordon himself died in it of goal fever thirteen years after his followers had destroyed the older buildings. Much improvement took place in Newgate shortly after the date of Rowlandson and Pugin's picture, yet in 1828 a visitor notes that thirty condemned persons might be seen in the two wards connected with the Press Yard, and congratulates humanity on the fact that none of them wore irons. It was not until 1817 that any classification of the prisoners was attempted. The coffin at the "condemned sermon" was disused about the same time. Mrs. Fry's exertions on behalf of the female prisoners resulted in great improvements in their condition. She taught them to make stockings and other articles, that by selling them they might improve their prison fare. What that was may be guessed, when it is mentioned as a matter for satisfaction by a visitor in 1825 that a regular allowance of food is "now" made out of City funds. — *The Saturday Review*.

MEETING OF THE BOARD OF TRUSTEES, A. I. A.

NEW YORK, November 2, 1881.

TO THE EDITORS OF THE AMERICAN ARCHITECT: —

Dear Sirs, — Below please find extracts from minutes of Board of Trustees, A. I. A.

Yours respectfully,

A. J. BLOOR, Secretary.

Quarterly Meeting, Oct. 25, 1881.

After the usual formalities the following gentlemen were declared elected:

Mr. August Bauer, Chicago,	Fellow.
Mr. Samuel Huckel, Jr., Philadelphia,	Associate.
Mr. Edward Hazlehurst,	"
Mr. W. L. B. Jenney, Chicago, Ill.,	"
Mr. R. P. Southard, Charleston, S. C.,	"
Mr. N. W. Wall, Trinidad, Col.,	"
Mr. H. G. Knapp, N. Y. City,	"
Mr. C. F. Driscoll, Omaha, Neb.,	"
Mr. Wm. C. Smith, Nashville, Tenn.,	"
Mr. F. E. Davis, Baltimore, Md.,	"

The Secretary presented a communication from Mr. George Keller, A. A. I. A., apropos of his recent transactions with a monument committee, giving various reasons why, in the interest of the maximum of the artistic rendering of such work, the architect should sometimes combine the functions of designer and contractor for its execution.

The Secretary read a letter from the Society "Architectura et Amicitia" of Amsterdam, Holland, enclosing a series of questions to elicit information as to the American Institute of Architects and its components.

A vote of thanks was passed to Mr. Robert Briggs, Corresponding Member, for copies of his pamphlet on "The Properties of Air Relating to Ventilation and Heating."

THE OLDEST GERMAN TOWN-HALL.

THE oldest town-hall, or "Rathhaus," of Germany appears to have been discovered at Gelnhausen, in Hessen. Not far from the Romanesque church restored for Protestant worship by Dombaumeister Schmidt, of Vienna, an undoubtedly Romanesque building has lately been disclosed. It is still disfigured and quite hidden by a flat building of framework with lean-to roof, and looks, in its present state, like a large dilapidated barn, which is partly used for stacking hay and corn, partly left to ruin. We hear that it is intended to free the building from its encumbrances, and restore it as far as possible. There is still in existence a basement with vaults of fir, a large hall over it, as well as another hall in the first story, reached by a small winding staircase. The large hall on the ground-floor is approached by a portal, still preserved, in the centre of the principal front, the left corner pillar of which stands clear, while only so much of the right-hand pillar is uncovered as enables the Romanesque capital, as richly ornamented, but differently formed, to be seen. The archivolt, half of which is disclosed, shows simply a plain thick bead in a rectangular band. The large hall, which is 43 feet long and 29 feet wide, and on the longest side of which is the entrance, has a ceiling of timbers resting upon wooden bearers. The latter are supported by two square and bevelled stays of oak resting upon carved brackets, the hall being thus divided into three equal portions. Traces of window railings appear to be still existing at the left gable, but at present examination is difficult.

The hall in the first story corresponds to the lower one in size, as well as regards the construction of the ceiling and the wooden bearers and stays; but here three well-preserved windows of three round-arched openings each may be noticed in the facade. As usual in buildings of that period, there are no rebates. Each window shows right and left plain rectangular soffits; the round arches are also entirely without decoration, although each is turned very regularly, and consists of three very correctly-worked arch-stones. The intermediate supports of the different windows are formed in the case of the two to the left each by two round, in that of the one to the left by two octagonal chamfered pillars. The latter are very slender, a symmetrical stone corbel jutting out on both sides, forming the con-

nection with the rather thick walls. The profile of the corbels consists, over the Romanesque foliage capitals variously worked, of a hollow, small perpendicular slab, and round bead with slab over it. The thickness of the wall is flush with the latter. The capitals of the columns and octagonal pillars end below in angular filets; the bases show the attic profile, with plinth underneath. On the wall opposite to the window-front may be seen also plain sandstone slabs let in, which were probably intended as a support for a fireplace, not completed.

Great hopes are entertained that, after completely uncovering the building, more discoveries of architectural interest will be made. The ground-plan, as well as the position of the building in the centre of the old free-town of Gelnhausen, close to the church and the market-place, and the style itself, are said to justify the supposition that we have to deal here with the principal remains of its former town-hall, which would, in that case, probably form the oldest municipal building still in existence in Germany. The Romanesque forms of the building point to the conclusion that it was erected at about the same time as the celebrated palace of the Emperor Frederick Barbarossa. The latter edifice, on an island in the Kinzig, near Gelnhausen, must have been completed about the year 1146.

The romantic ruins of the palace, surrounded by pretty gardens, and overgrown by luxuriant ivy, are not esteemed and visited by archaeologists and tourists as they deserve. Perhaps the recently discovered interesting remains of the building which form the subject of this note will draw renewed attention to the venerable town of Gelnhausen, once the scene of much imperial splendor. — *The Builder*.

THE SUNKEN FORESTS OF NEW JERSEY.

THE following is a description of these sunken forests taken from the *Northwestern Lumberman*: —

Dennisville, four miles south of Woodbine, the latter on the West Jersey Railway, is a sprawling, dingy township of 3,000 inhabitants, with its central group of houses on a causeway between two great swamps. The wet lands around are covered partly by solid growths of white cedar, partly by thick water weeds, and partly by stumps and fallen logs of immense size. These are only the surface indications of the wealth below. The swamps, covering ten square miles, are underlaid with sunken forests, which grew hundreds, and perhaps thousands of years ago. This seeming worse than barren waste, for which the sharpest of Yankee farmers would deem fifty cents an acre a swindling price, have been worth by the acre their hundreds of dollars. They have turned their own desolation into a hive of industry, built up a lively village, and made an addition, as legitimate as it is unique, to the wealth of the country.

The huge trees which lie under the swamp to unknown depths are of the white cedar variety, an evergreen, known scientifically as the *Cupressus Thyoides*. They grew years ago in the fresh water, which is necessary for their sustenance, and when, in time, either by a subsidence of the land or a rise of the seas, the salt water reached them, they died in great numbers. But many of them, ere they died, fell over as living trees, and were covered slowly by the deposits of muck and peat which fill the swamp. These trees that fell over by the roots are known as windfalls to distinguish them from the break-downs. The trees which broke off are the ones most sought for commercial uses, and they are found and worked as follows: The log-digger enters the swamp with a sharpened iron rod. He probes in the soft soil until he strikes a tree, probably two or three feet below the surface. In a few minutes he finds the length of the trunk, how much still remains firm wood, and at what place the first knots, which will stop the straight split necessary for shingles, begin. Still using his prod like the divining-rod of a magician he manages to secure a chip, and by the smell knows whether the tree is a windfall or break-down. Then he inserts in the mud a saw, like that used by ice-cutters, and saws through the roots and muck until the log is reached. The top and roots are thus sawn off, a ditch dug over the tree, the trunk loosened, and soon the great stick, sometimes 5 or 6 feet thick, rises and floats on the water, which quickly fills the ditch almost to the surface. The log is next sawn into lengths 2 feet long, which are split by hand and worked into shingles, as well as into the staves used for pails and tubs. The wood has a coarse grain, and splits straight as an arrow. The shingles made from it last from sixty to seventy years, are eagerly sought for by builders in southern New Jersey, and command in the market a much higher price than the ordinary shingles made of pine or chestnut. In color the wood of the white cedar is a delicate pink, and it has a strong flavor, resembling that of the red cedar used in making lead pencils. The trees once fairly buried under the swamp never become waterlogged, as is shown by their floating in the ditches as soon as they are pried up, and, what is more singular, as soon as they rise they turn invariably underside uppermost. These two facts are mysteries which science has thus far left so. The men who dig the logs up and split them earn their money. The work is hard, exacting, requiring lusty manual labor, skill, and experience.

Owing to the fact that the swamps are soft and treacherous, no machinery can be used, and long stretches of mud and water must be covered with boughs and bark before the shingles can reach the village and civilization. The number of the trees which lie below the surface of the ten square miles of swamp is almost countless. In many places the probe will be sunk many times before it fails to strike a log. As the workmen only dig for those near the surface,

and none but the best trees are selected, it is certain that only a small fraction of the logs have been exhumed since 1812, when the industry first sprang up. The sunken forests lie in all shapes. Sometimes the trees are found parallel, as though a wind blowing from one quarter had felled them, but usually they lie pointing in every direction, and when, as occasionally happens, the wet soil sinks or dries, the mighty trunks are seen piled upon each other as in a Maine log jam. What are seen too are but the uppermost strata of piles upon piles unseen below.

THE VAULT OF THE ALBANY CAPITOL.

NEW YORK, November 3, 1881.

TO THE EDITORS OF THE AMERICAN ARCHITECT:

Dear Sirs,—Referring to an article published in your paper of the 29th ultimo, entitled "The Large Groined Vault in the Assembly Chamber of the Capitol at Albany, N. Y.," I desire to say: That the line of the arch and the quantity and distribution of the load, as there represented, are not in accordance with the facts, and that the line of pressures is therefore not the true line, for this reason as well as for reasons involved in the theory advanced by the author of that paper. Most respectfully yours, LEOPOLD EIDLITZ.

QUANTITY SURVEYING.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Gentlemen,—I have read with more than usual interest the series of articles on "Building Superintendence," and wish to render due acknowledgment to their author and yourselves for the profit received from their perusal, and to request that if convenient there may follow at least a brief chapter on the "Best Methods of American Quantity Surveying and Estimating."

In the meantime, which of the English books that you have from time to time mentioned (Laxton's, Clough's, and Fletcher's) would most nearly meet the requirements of a

STUDENT.

[Possibly we may be able to carry out some such plan as "Student" speaks of. At least, we should be glad of information and suggestions from our readers on the subject. Clough's Price Book is an American work, and although antiquated in many ways is useful to any one who wishes merely to gain a general view of the way in which such books are made up. Vodge's Pocket Companion is more modern, and contains a great deal of valuable matter in addition to the price lists. Laxton is the great English authority, and also contains much information on other subjects than prices. Banister Fletcher's "Quantities" says nothing about prices, but treats simply of the customs of measuring work, with the allowances for angles, reveals, openings, etc., all of which vary materially from those in use here.—EDS. AMERICAN ARCHITECT.]

NOTES AND CLIPPINGS.

NEW PINE FORESTS.—The recent exploration party of Colonel Mercer up the Spanish River, in the Province of Ontario, is said to have discovered vast pine forests containing upwards of 24,000,000,000 of feet of a superior quality of pine timber, with facilities for getting it to the market equal to the best.

HOW TO PILE FIREWOOD.—A wood dealer writes to a Detroit paper as follows: I have sold wood for over forty years in Michigan, and I find that when split wood is corded bark up it remains on until I sell and measure up the wood, and all that is piled bark down, the bark falls off, and measures nothing; besides, there is more heat in the bark than in the sap of the log. The most and best ashes are also in the bark. I have on my place now some maple wood that was chopped nine years ago and corded bark up, and the bark would hold on if I were to draw the wood to Saginaw, a distance of eighteen miles. Where the bark is piled down the water runs in around the wood and makes it dozy, wet, and heavy. Railroad companies would save thousands of dollars by piling their wood bark up.

SOLOMON'S TEMPLE.—The ruins of the Temple of Solomon in Jerusalem are to be restored by special order of the Sultan, without further delay. They have long been in an extremely neglected condition, and almost buried from sight beneath all manner of debris and refuse. Directions to put them into as presentable a shape as practicable were given by the late Abdul Aziz at the time of the Austrian emperor's visit, and the work was actually begun; but it was soon abandoned again. The immediate cause for its renewal at the present time is the recent visit of the Austrian crown prince.

SILICATE OF SODA AS A FIRE-EXTINGUISHING MATERIAL.—Some experiments have lately been made in London in extinguishing fires with water and sodium silicate. Two piles of lumber, each nine feet long, seven feet high and four feet deep, were filled in with straw, well saturated with petroleum and benzine in equal quantities, and ignited. After burning for five minutes, operations were commenced by throwing water on one and sodium silicate on the other. In the course of about one minute the fire treated with the silicate was extinguished, while that treated with water did not give in till about four minutes. And it was further found that about twelve gallons of the silicate and twenty-two gallons of water had been used.—*The Fireman's Journal*.

A QUESTION OF WAGES.—A case has just been decided in the Rhode Island courts involving the right of the employer to refuse payment of wages due a workman who leaves without notice. A workman had applied for a day "off" which was refused, whereupon he took it, regardless of the refusal. He was discharged the following morning, and was refused two weeks' wages which were due on the ground that he had not worked his notice to quit. Suit was entered and judgment given in his favor. An appeal was taken by the employer company, and the decision was affirmed.—*Iron Age*.

THE EXPENDITURE OF ENERGY IN INCANDESCENT ELECTRIC LIGHTING.—At the York meeting of the British Association, Sir W. Thomson and Mr. Bottomley gave the results of some experiments carried out by them in order to determine the illuminating power of incandescent vacuum electric lamps with various strengths of current. Every lamp was tried with higher and higher potentials until the carbon broke. The electricity was obtained from a number of Faure's cells, of which 26 were first put in circuit, developing 0.093 horse power, and others were added until the lamp was destroyed. Three lamps only were tried, the first of which broke down after fourteen experiments; the second lasted through fifteen tests; and the third broke before the third reading could be completed. With 26 cells the first lamp gave the illuminating power of 11.6 candles; 4 more cells then brought it up to 25 candles; with 32 cells it showed 42 candle power; and successive additions of cells forced the light up through a very irregular scale until, when giving the maximum of 114 candle power, the carbon gave way. The next lamp was first tried with 40 cells, affording 0.27 horse-power, and giving the light of 49 candles; and the lamp broke when connected with 70 cells, when the light would have been over 200 candles. The irregularity of all the records is very striking, the power of the batteries and the light given by the lamps being very uncertain and by no means increasing in any common ratio. For example, the first lamp gave the light of 84 candles, with the expenditure of 0.247 horse-power, from 40 cells. The next lamp, with the same number of cells, gave only 49 candle power in one instance and 35 candles in another, although the energy of 0.27 horse-power was recorded, or nearly the same as before. Again, the second lamp gave 186 candle power with 56 cells, while the addition of 6 more cells, instead of increasing the light, brought it down to 180 candles. Much of this variation is said to be caused by the blackening of the interior surface of the globes by the deposition of volatilized carbon, when high powers were applied. The photometric method employed by the authors consisted of directly comparing the depth of shadows thrown by a pencil on a piece of white paper, and the candle employed was the usual standard sperm article, assumed to burn at the normal rate, but not weighed, as the object of the experiments was simply comparative.—*Journal of Gas Lighting*.

COMPRESSED AIR ON THE ELEVATED RAILROADS.—A successful experiment with an engine propelled by compressed air was made on the 25th ult., on the Second Avenue Elevated Railroad in New York. The engine was built at the Baldwin Locomotive Works, Philadelphia, under the supervision of Mr. Robert Hardie, a Scotch engineer. There are four tubular boilers or tanks in which the compressed air is stored. The machinery resembles that of an ordinary steam engine. The locomotive on trial has many devices for economizing the air. The reservoirs are connected by pipes, so as to virtually form one large reservoir. The tanks were charged shortly before the trip, and the locomotive started from One Hundred and Twenty-seventh Street, having behind it four cars with passengers. Mr. Hardie ran the train to Forty-second Street and back to One Hundred and Twenty-seventh Street, stopping at all the stations. The train went at the rate of twelve miles an hour. It is believed that the engine can be run to South Ferry with a single charge of air. According to the present plans, if the system were adopted, there would be tanks from which the engines can be charged at both ends of the route. It is claimed that compressed air will be fifty per cent cheaper than steam. Further experiments with the engine will be made. Mr. Hardie is the inventor of the system.—*Iron Age*.

A BRAND-NEW ARTEMIS.—Between the very ancient Delian images of Artemis of the seventh century B.C., and the statuettes of Artemis recently presented to the Patissia Museum from Megara, there is a gap of not less than thirty miles of sea and twenty-five centuries, for the new Diana is a genuine Patissia Artemis of our own day. It was made quite recently, at first as a model in a sculptor's studio, not far from the Patissia Museum. One of the artist's pupils made a copy of it in marble at the request of a countryman, who took it into his head to cheat dilettanti. A report was spread about some ancient statue being concealed in Megara, and the police made use both of weapons and cunning to discover it. The statue was brought to Athens, and its arrival announced with élat by the newspapers, without, however, its ever having been seen, for the press had done nothing except blazon forth the zeal displayed by the police. Mischievous tongues even maintained that the assembled ministers were affected by the enthusiasm. In short, there was much ado about nothing. Archaeologists at once recognized the swindle. Yet it does seem odd that the statue should have been taken to the Patissia Museum. By its side was placed the original plaster-cast model of the sculptor Philippiotis, from which his ignorant pupil had made a hybrid form, half an Artemis, half an Amazon; but a description of it cannot, of course, be of any interest to lovers of ancient art.—*The Athenæum*.

MARVELOUS TREE GROWTHS.—We quote as follows from the proceedings of a meeting of a committee of the Agri-Horticultural Society of Madras held last month: "The rain-tree (*Pitheco obium saman*) in the gardens, the measurements of which were given in the proceedings of 7th of August, 1878, and then believed to be under six years from the seed, continues, in spite of its having been necessary to amputate some of the largest limbs, to grow enormously. Measured on the 30th of July last it gave in girth 9 feet 4 inches at the ground, 6 feet 3 inches at three feet high, and 5 feet 9 inches at five feet high; in spread about 85 feet from north to south, and a total height of about 46 feet. A reference to the former measurements shows that the girth at three feet from the ground has increased in the last three years 2 feet 2 inches. The age of the tree is, if anything, overestimated; but search is being made for traces of the receipt of the seed, which it is believed came from Ceylon about 1872. A casuarina tree standing alongside, which was the specimen of its order when that part of the ground was laid out at the Botanical Garden, and is therefore known to be about ten years old, now measures at five feet from the ground only 2 feet 8 1-2 inches, though it is about 82 feet high."—*Madras Native Public Opinion*.

BUILDING INTELLIGENCE.

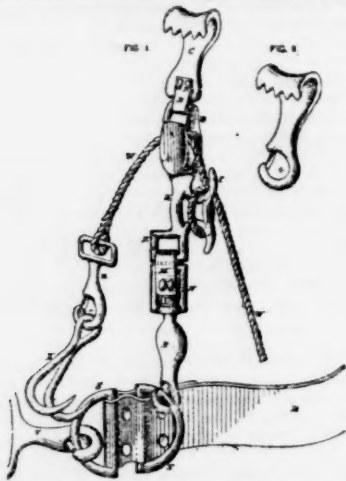
(Reported for The American Architect and Building News.)

[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.]

246,658. FIRE-ESCAPE.—Robert Bustin, St. John, Canada. This invention relates to an improvement upon the fire-escape devices shown and described in Letters Patent No. 179,515, granted on the 4th day of July, 1876. The object of the present improvement is to facilitate the attachment and detachment of the main supporting part of the apparatus to and from a portion of a burning building, the round of a ladder or other fixed point, the main object of the original invention being to produce an apparatus of such size that it can be conveniently carried about the person or packed into a small space for transportation, and by means of which any number of persons may be successfully and safely lowered from a burning building, and by which the operator may descend from the building and save his apparatus after his descent without the aid of any other person. The letter A designates a metal tackle-block with a loop-extension, B, at its upper end, to serve as a means of connecting the grapple-hook C and its leather attaching-band D. From the lower end of the block projects a shank, H, provided with a cleat, I, on one side, the block, shank, and cleat being cast in one and the same piece of metal. At the lower end of the shank is formed a loop or eye, K, to which is connected by a leather band, M, the swivelled head N of a snap-hook, P. The letter R designates a belt of leather, to one end of which are secured half-rings S and T, the body of the belt being passed through the eye of a snap-hook, V, and its other end secured to a slide arranged upon the



belt. The letter W indicates a rope passed over the pulley in the block A, and having secured to one end a snap-hook, Z, to which is connected a grapple-hook, X. The operation of the apparatus is as follows: If a fire has broken out in a building and a person in one of the rooms is provided with this fire-escape, the grapple-hook C is first to be engaged with the edge of a window-sill or any other suitable purchase. Then, if more than one person is to descend, the snap Z or the grapple-hook X is to be engaged with the half-ring T of the belt, which has been placed about the body of the person to be lowered first. The person who remains and is to operate the rope now gives the said rope a turn around the cleat I, so as to be able to easily control it, and the person to descend is then placed outside the building and lowered in safety. The belt may be drawn up and other persons saved in a similar manner. When but one person is to descend or save himself the grapple-hook X, attached to the rope, is engaged with the window-sill or other convenient support. The snap-hook P is to be engaged with the half-ring of the belt placed about his person, and a proper turn of the rope taken around the cleat. He then seizes the rope below the cleat, swings himself out the window or other opening, and pays out the rope as required to lower himself. When he alights the apparatus is with him, except that the grapple-hook attached to the rope is engaged above. It can be easily detached, however, by wabbling the rope with the hand briskly after it is slackened, and thus the entire apparatus is saved.

248,847. BOLT.—John C. Clime, Philadelphia, Pa.
248,851. ELEVATOR.—Gustaf Falk, Peru, Ill.
248,854. AUGER.—Porter A. Gladwin, Boston, Mass.

248,858. METALLIC SKYLIGHT.—George Hayes, New York, N. Y.

248,862. AUTOMATIC VALVE FOR WATER-CLOSETS.—Matthew Hogan, Hartford, Conn.

248,875. GAS-STOVE OR HEATER.—A. W. Morton, Brooklyn, N. Y.

248,896. STEAM ROCK-DRILL.—Lawson B. Stone, Marblehead, Mass.

248,908. HYDRAULIC ELEVATOR.—Cyrus W. Baldwin, London, England.

248,911. METALLIC LATH.—Philip Cadue, San Francisco, Cal.

248,913. DRILLING-MACHINE.—Hiram H. Chapman, South Rockwood, Mich.

248,914. WASH-STAND AND WATER-CLOSET.—John Christiansen, Chicago, Ill.

248,938. HYDRAULIC DERRICK.—Orange M. Loveridge, Weaverville, Cal.

248,948. APPARATUS FOR HEATING BUILDINGS.—John F. Pease, Syracuse, N. Y.

248,949. WOOD-WORKER'S CLAMP.—John L. Pope, Cleveland, O.

248,962. PLANING AND GROOVING MACHINE.—Jno. R. Thomas, Springfield, O.

248,963. SAW-ARBOR.—John R. Thomas, Springfield, and Henry J. Cordesman, Jr., Cincinnati, O.

248,974. MEANS OF JOINING STEAM, GAS, AND WATER PIPES AND FITTINGS.—Adam N. Winner, Brooklyn, N. Y.

248,978. FAN-BLOWER.—John W. Anderson, Lancaster, Pa.

248,985. ELEVATOR.—Gustav Berhns and Gustav Unruh, Lubbeck, Germany.

248,989. ROCK-DRILL.—John E. Booth, Bangor, Me.

248,997. SAW-SET.—Jacob Burkhart, Lock Haven, Pa.

249,001. CAP FOR COVERING SINK-STRAINERS.—Jotham Carpenter, Jersey City, N. J.

249,003. WRENCH.—Robert N. Cherry, Jersey City, N. J.

249,025. BELL-JOINT FOR COUPLING PIPES.—H. G. Dennis, New Bedford, Mass.

249,031. WATER-TRAP.—William J. English, Cohoes, N. Y.

249,076. ELEVATOR-STOP.—David Moulton, Boston, Mass.

249,087. SHUTTER-FASTENER.—Thomas S. Pike, Woodbury, N. J.

249,095. SCAFFOLD-TRESTLE.—Thos. S. Reynburn, Kansas City, Mo., and Jerome B. Sweetland, Pontiac, Mich.

249,097. SHAVE.—Henry P. Roberts, Jamestown, N. Y.

249,099. SAFETY SHOW-WINDOW.—Wm. H. Rushforth, Camden, N. J.

249,101. SCREW-DRIVER.—Henry A. Sawtell, Shirley, Mass.

249,103. STOVE-PIPE THIMBLE.—Theo. Schafer, Maroa, Ill.

249,107. WINDOW-SCREEN.—Eugene H. Schofield, Bridgeport, Conn.

249,119. SAW.—Silas Toles, St. Thomas, Ontario, Canada.

249,128. APPARATUS FOR ELEVATING AND PURIFYING WATER.—Richard P. Zimmerman, Atlanta, Ga.

SUMMARY OF THE WEEK.

Baltimore.

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

Merchants' and Mechanics' Permanent Building and Land Society, 3 two-story brick buildings, Nos. 130, 132, and 134, Calvert St., between Franklin and Centre Sts.

J. F. Smith, three-story brick building, Chew St., 80' east of Bond St.

Robt. Kennert, 3 three-story brick buildings, St. Paul St., between Centre and Monument Sts.

Marine Oakum Co., two-story brick building, 30' x 80', n e cor. Covington and Montgomery Sts.

HOUSE.—A suburban residence for Chas. J. Baker, Esq., located on the Frederick Road, about two and a half miles from Baltimore, is being rapidly pushed to completion. The building is 70' x 100', built of local bluestone, with Hummelstown brownstone finish, three-story, and finished in pine, in imitation of walnut; cost, about \$35,000; Messrs. Henry Smith & Son, contractors; Mr. T. Buckler Ghequier, architect.

Brooklyn.

BUILDING PERMITS.—Myrtle Ave., n w cor. Schenck St., three-story store and dwell.; cost, \$4,500; owner, Joseph Wurzel, 477 Lafayette Ave.; architect, M. J. Morrell; builders, Hanlon & Son.

Manhattan Ave., No. 295, three-story frame store and dwell.; cost, \$5,000; owner, architect and carpenter, Thomas Repple; masons, J. & T. Vaniper.

Montague St., ferry at foot of, one-story frame ferry-house; cost, \$38,000; owner, Union Ferry Co.; architect and builder, Geo. W. Wright.

Fayette St., Nos. 18 and 20, two-story framedwells; cost, each \$2,000; owner and architect, S. Engelhardt, 14 Fayette St.; builders, Sachs & Armendinger; carpenter, T. Engelhardt.

Putnam Ave., s s, 26' w Marcy Ave., 3 two-story brownstone dwells.; cost, each \$3,500; owner, M. L. Swimm, 389 Putnam Ave.; carpenter, T. W. Swimm.

Penn St., s s, 80' n e Harrison Ave., four-story brick factory; cost, \$2,500; owner, J. B. Jones, 267 Hewes St.; architect, W. B. Ditmars; mason, John Auer.

Beaver St., w s, 50' s Park St., two-story frame stable; cost, \$2,500; owner, H. Minck, Beaver St., cor. Park St.; builders, Wm. Auth and F. Hilkemeier.

Nyckoff St., s s, 220' w Third Ave., 3 three-story brick flats; owner, J. H. Whoolley, Baltic St., near Fourth Ave.; architect, R. Dixon; builder, E. H. Whoolley.

Dupont St., No. 134, s s, 150' e Manhattan Ave., three-story frame store and tenement; cost, \$2,800; owner, John Faulkner, on premises; architect, J. R. H. Jenkins; builder, M. Crowley; carpenter, not selected.

Verona Pl., e s, 80' n Fulton St., 12 dwells.; cost, each \$6,000; owner, T. B. Jackson, 424 Clinton Ave. ALTERATIONS.—Myrtle Ave., s e cor. Tompkins Ave., add one-story, also three-story frame extension; cost, \$3,000; owner, P. Krieger, on premises; builders, A. Sachs and S. J. Rueger.

Ash St., s s, 200' w Oakland Ave., add one-story; cost, \$7,500; owners, Church & Co., 36 Ash St.

Ash St., s s, 80' w Oakland Ave., two-story brick extension; cost, \$6,000; owners, Church & Co., 36 Ash St.

Twenty-seventh St., s s, 80' e Third Ave., three buildings altered internally for dwell.; total cost, \$3,000; owner, Martin V. Wood, Norwood, Hempstead, L. I.; builder, C. Gillen.

CHURCH.—Lots have been purchased at Grand Ave. and Lincoln Place upon which to build a new edifice for the Universalist Church of Our Father.

Buffalo.

ICE-HOUSE.—Ice-house, 35' x 100', cor. of Best and Jefferson Sts.; cost, \$7,000; owner, Gerhard Lang; architect, C. B. Cook.

STORES.—Brick building, 50' x 84', containing 3 stores and apartments; South Division St., cor. of Elm St.; cost, \$18,000; architect, C. B. Cook.

INSTITUTE.—The plans of Jas. G. Cutler, architect, of Rochester, offered in competition for the "Fitch Institute," have been accepted by the trustees; building to be fire-proof; cost, \$65,000; work to be commenced immediately.

Chicago.

BUILDING PERMITS.—John Gorman, three-story and basement brick dwell., 24' x 75', Thirteenth St., near Centre Ave.; cost, \$7,000.

Union Iron and Steel Co., two-story brick fan building, 33' x 50', Ashland Ave., near Thirty-first St.; cost, \$3,200.

J. Gatchow, two-story brick dwell., 20' x 40', Rumsey St., near Clarinda St.; cost, \$1,800.

Joseph Berndt, brick basement and rear addition, 20' x 30', 532 Noble St.; cost, \$3,000.

City of Chicago, two-story and basement brick police-station, 82' x 141, Desplains St. and Waldo Pl.; cost, \$35,000.

N. Tapp, two-story and basement brick dwell., 22' x 34', 57 Howe St.; cost, \$1,800.

W. A. Marr, 9 one-and-a-half-story cottages, 48' x 155', Lyman St., near Haines St.; cost, \$29,000.

H. J. Wallingford, three-story and basement brick dwell., 22' x 64', 218 Illinois St.; cost, \$6,300.

Aug. Cook, one-story brick cottage, 22' x 60', Chicago Ave., near Leavitt St.; cost, \$1,500.

Jacob Lauer, three-story brick planing-mill, 75' x 100', 689 to 693 North Halsted St.; cost, \$7,000.

Jacob Becker, three-story brick flat, 22' x 62', 228 Huriburt St.; cost, \$4,000.

Bartholomae & Leicht, two-story brick addition to ice-house, 50' x 60', Sophia and Sedgwick Sts.; cost, \$10,000.

R. C. Knox, two-story and basement brick dwell., 22' x 65', 650 Twelfth St.; cost, \$4,800.

John B. Mallers, seven-story brick store, 55' x 114', n e cor. Quincy St. and Fifth Ave.; cost, \$50,000.

F. Kuehl, two-story brick dwell., 22' x 60', Fullerton Ave., near Ashland Ave.; cost, \$3,500.

Cincinnati.

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

Ezra Greenald, three-story brick, 438 West Fourth St.; cost, \$7,000.

Niehau & Klinkamer, three-story brick, Elm St., near Twelfth St.; cost, \$2,700.

John E. Kail, four-story brick, Walnut St., near Twelfth St.; cost, \$5,300.

Chas. Duvel, three-story brick factory, Kenner St., near Dalton Ave.; cost, \$4,000.

Henry Ortmann, two-story brick, Poplar St., near Western Ave.; cost, \$2,000.

Wm. Nye, two-story frames, Chapel St., near Woodburn Ave.; cost, \$5,500.

R. Rogers, two-story brick, Price Ave., near Summit St.; cost, \$2,500.

Mary Stakerker, four-story brick, Walnut St., near Twelfth St.; cost, \$10,000.

Eight permits for repairs; cost, \$3,300.

Total permits, 22.

Total cost, \$48,500.

Total cost to date, \$1,684,150.

Total permits to date, 551.

CHAPEL.—The corner-stone of the new McKendree Chapel was laid last week.

New York.

BUILDING PERMITS.—West Fifty-second St., No. 662, four-story brick glue factory; cost, \$7,000; owner, H. F. Deike, 603 West Fifty-second St.; architect, C. F. Ridder, Jr.

East Forty-third St., Nos. 138, 140 and 112, 2 five-story brick and stone tenements; cost, \$30,000; owners, Mrs. Louisa Williams, Clara A. Helm and Helen Tracy, 49 Park Ave.; architect, S. D. Hatch.

Sixty-third St., n s, 150' w First Ave., two-story brick stable and dwell.; cost, \$2,500; owners, M. & Jas. Baird, 306 East Fifty-seventh St.; architect, A. B. Ogden.

Washington Ave., w s, 200' n One Hundred and Sixty-ninth St., 4 two-story frame dwells.; cost, each \$2,800; owner, Louis Schneider, Fulton Ave., s w cor. One Hundred and Sixty-seventh St.; architect, J. Kastner.

Seventy-sixth St., n s, 323' e Ave. A., five-story brick and brownstone tenement; cost, \$13,000; owner and builder, William S. Farrand, No. 214 West One Hundred and Twenty-fourth St.; architect, E. D. Howes.

One Hundred and Fifty-ninth St., s s, 75' w Elton Ave., two-story frame dwell.; cost, \$2,100; owner, Peter Leckler, 86 East Broadway; architect and builder, J. C. Stichler.

East Fifty-fourth St., No. 159, four-story brick and Ohio stone shop; cost, \$8,000; owner and builder, R. W. Buckley, 810 Fourth Ave.

Tenth Ave., w s, 25' e One Hundred and Thirty-eighth St., three and four story brick asylum; cost, about \$250,000; owners, Hebrew Benevolent Orphan Asylum Soc., New York; architect, Wm. H. Hume.

Thirty-seventh St., s s, 80' e Lexington Ave., 6 four-story brick and brownstone dwells.; cost, total, \$120,000; owners and builders, Chas. Graham & Sons, 305 and 307 East Forty-third St.; architect, T. Graham.

Roosevelt St., No. 8, 2 five-story brick store and tenements; cost, \$14,000; owner, Michael Riordan, 10 Roosevelt St.; architect, B. McGurk.

(Continued on next page.)