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ONE may see from the progress of building laws and public opinion concerning them how rapidly we are taught by disaster. The authorities of Boston are learning from the fires of this winter that the building laws which they passed after the fire of 1872, and under which the "burnt district" was rebuilt, are by no means strict enough to secure them from serious fires. That they should be so was not to be expected, indeed, inasmuch as the precautions against fire at that time introduced were aimed rather at interrupting the spread of it from building to building than at making buildings which should not themselves burn readily. Rules that buildings should be encased in brick or stone or iron walls, with iron doors and shutters, and that roofs or outside finish, above certain heights from the ground, should be of incombustible material, with some restrictions on setting wood-work against chimneys, were thought to be all that could be insisted on in the way of protection against fires, leaving people to make the interiors of their buildings, even those which were intended for public uses and assemblies, as combustible as they would. That the buildings of the business part of Boston are on the whole a decided improvement on those they replaced, in solidity of construction and in workmanship as well as in architectural effect, no one will deny. But the time had not come for taking any special care, under pressure either of laws or of private enterprise, whether they were built to burn or not. The excitement into which the burning of three or four theatres threw the country led to making, under authority of the inspector of buildings, various improvements in the means of egress from places of amusement, and some attempts to lessen the danger of fire in them. But there is nothing in the building laws, we believe, to prevent the interior of a theatre or hall from being made as combustible as a country barn, and we can think of one public hall, in a third story, where within a year an iron staircase has been replaced by a wooden one.

THE matter is now before a committee of the city government, and several hearings have been held, the discussion having been as yet confined chiefly, we understand, to certain alterations proposed by the inspector of buildings, which have been circulated for general criticism. As might be expected these alterations are all on the side of safety (except one which diminishes the rise of party walls above the roof, now required), and so are to be approved and encouraged. They go, however, but very little way, and leave the most serious difficulties almost untouched. The most important of them is the requirement that in all hotels, tenement and lodging houses, the hall and staircase partitions shall be built of brick, not less than eight inches thick, or of other incombustible material, carried continuously up from the cellar and above the roof with an incombustible coping, and plastered without furring against the stairs. If this is adopted, as we hope it may be, it will be in the line of genuine progress. Such a provision will be the first real acknowledgment of the duty of building with regard to security, and once applied in one class of buildings may gradually extend

itself to other like cases, till it shall become a fixed habit to guard at least the main communications in all buildings by fire-proof walls. It is, however, very incomplete and comparatively inefficient without the supplementary provision that the stairs themselves which are thus guarded shall be incombustible, as well as the landings and floors contiguous to them; for not only is it very difficult to shield combustible stairs even by fire-proof walls, but the stairs themselves are for one reason or another a peculiarly inviting point of attack for fire, as well as a very dangerous means of distributing it. Twice at least within a few weeks we have had to notice cases where fires were kindled under the stairs of tenement-houses: we recall one or two like cases in theatres, and the late fire in the Brooklyn (King's County) Penitentiary was started in this way. There are other buildings, too, in which such precaution is as important as in those that are cited, — in some even more so, — such as theatres, public halls, school-houses, and factories, or buildings used as such. We may hope, then, that it will not be necessary to stop where the proposed amendment now leaves the matter. The least enactment that will do credit to the knowledge, or the willingness to profit by experience, of the people of Boston will be one which requires that in buildings where men are accustomed to congregate they shall be furnished with stairs of fire-proof material, walled in with incombustibles.

ANOTHER need, which is touched but gingerly, is that of guarding lifting-apparatus. There is no provision for this except the very modest requirement that hatchways shall be closed with doors. The existing building laws in Boston were made before experience had shown how necessary it is to protect elevators from fire; to ignore this need nowadays would be, it seems to us, gross negligence. Passenger elevators are of no use for escape in case of fire, but they act as distributors of it even better than stairways; and when, as often happens, for the sake of compactness one is inscribed in a staircase, the two together make as pretty a combination as could well be devised of a fuse to set a building a-fire, with a trap to cut off escape from it. It ought to be obligatory to enclose elevators as well as stairs in shafts of brick or other material that will not burn, and then there would not be much temptation to put one inside the other. The provisions for protecting wooden floors by an inch of mortar, and for cutting off the flues between furrings on brick walls by projecting courses above the floors, are good in their way. Possibly it may not be practicable at this moment to carry through much more efficient restrictions, but we trust that at any rate it will not be long before the community can be led beyond this. The hollow boxes between floor-joists are more dangerous than the thinness of the floors, and it is even more important that the spaces behind plastering in walls should be closed beneath the floors than above them. It would not be a great advance, or a great oppression, to require that shops, warehouses, and factories at least should be well floored, and that the hollows in walls and partitions should be intercepted once or twice in each story. The architects of Boston, among them a committee from their chapter of the Institute, are in consultation with the authorities on these questions. The present building law is in a great degree the work of the architects. It is to be hoped that they may be influential now in substantially improving it.

THE President has spoken on the canal question. He has not concerned himself with any aspect of it but its relation to the Monroe doctrine, and on this his message is explicit. "The policy of this country," he says, "is a canal under American control," and we cannot surrender this control to any European power or powers. This, to our mind, is mixing up two ideas which might well be kept distinct. If the United States must really control the canal, that is one thing, and means that we must build it, — or else, since we do not seem likely at present to do this, we must continue to be the dog in the manger. On the other hand, if we simply say that European governments shall not control the canal, this is an intelligible, if unnecessary, application of the Monroe doctrine, as wide a stretch, we should think, as it will cover without violence, and is equivalent to saying: Let the canal be built under whatever local authority and by whatever private hands it may be, but European governments must keep their hands off it. It will be, says the President, "virtually a part of the coast line of the

United States." It would be if we owned it, but otherwise it is not clear why it should be so, any more than the coast of South America, which our eastern ships have now to skirt to get to San Francisco. It would be shorter, and therefore more convenient to us as well as to the rest of the world, but it does not appear why that should make it our own, virtually, or really, or apparently. The President thinks, however, that it is our right and duty to assert and maintain such authority over any isthmus canal as will protect our interests, and he intimates that if any treaties stand in the way of this they had better be abolished.

How much favor the President's message will find with Congress is uncertain when we write. That it will have some strong support is plain from the temper that has already been shown, and is indicated by a joint resolution which the House Committee on the Canal are said to have ready to report, and which, after reciting that any European protectorate or any scheme which carries the right of European interference is opposed to the Monroe doctrine and dangerous to us, declares the right of the United States "to have possession, direction, control, and government" of any inter-oceanic communication whatever; its duty to assert its right to possess and control, and the propriety of abrogating any treaty that interferes with this. The clear logic of all this and of the arguments of the press on the same question is this: If a foreign government, or a company chartered under a foreign government, owns the canal, that government will have to interfere for its protection and control; this will lead to a protectorate; the United States cannot allow a European protectorate, therefore it must assume control itself. The resulting conclusion the advocates of interference have refrained from stating, but it follows necessarily. The same conditions which under European control would lead to a European protectorate will under American control lead to an American protectorate, and it is to this, therefore, that the present course of politics would commit us. It is not the business of the *American Architect* to discuss protectorates, but it is well to see what conclusions follow from the intrusion of politics into this commercial and technical question. There are many people, however, who take a sober view of the question, and to whom it does not appear that our welfare, or even our doctrines, are as yet imperilled, and who find leisure to look at the abstract rights and practical conditions of the matter. We may call attention to the clear letter in the *New York Tribune* in which Professor Woolsey, of Yale, repels the application of the Monroe doctrine to the question. The effect of action by the Government in the spirit of the President's message would be probably to kill the whole scheme of an isthmus canal for the present, unless Americans are willing to build a canal themselves. Foreign governments are not likely to interpose nor foreign capitalists to invest, in the face of a manifesto from the United States. M. de Lesseps has been received in this country with personal cordiality, and the political opposition which he sees in his way is leading him, it is rumored, to propose to incorporate his company, of which he has hoped, or proposed, to sell half the stock here, under the authority of the United States.

As might be expected, the labor troubles seem not yet to have reached their height. Accounts of strikes come from all over the country: we hear of them in the mining regions and iron manufactories of Pennsylvania, in the manufacturing towns of New England, and among the trades all over the country. In many cases the masters, after short resistance, have yielded; in others they still wait. The movement seems to be spreading among the building trades, among which, in the United States, strikes have been comparatively rare. At our last accounts the carpenters of Boston were preparing for a demand on their employers, to be followed by a strike if it is not granted. That these things should accompany a fit of speculation and a general rise in prices was to be expected, but they are a great embarrassment to business, and a check to its returning current. It is even said that building-contractors in New York are preparing to forfeit their contracts rather than try to carry them out in the face of the advance in prices and uncertainty of wages. If this uncertainty continues, the check which will follow will be a severe blow to builders; and to architects, who have begun to take down their unused T-squares and fill their empty offices again with draughtsmen. From San Francisco come rumors of the concentration of troops in preparation for any violence from the unemployed. These rumors are denied, but the evident determination of the authorities to repress vio-

lence by force has had its effect, and Sand-lot oratory has grown much milder, counselling moderation. Kearney, indeed, has warned his followers that the oppressor is trying to stimulate them to unlawful outbreaks, that he may have an excuse to put them down with an armed hand. This will have a wholesome effect, and is at least a convenient cover for retreat. We learn that the Chinese are beginning to yield to the pressure upon them, and are withdrawing from San Francisco. The Chinese population on the Pacific coast is said to have considerably diminished within a year or two. This is due mainly to returns to China, but now we see the beginning of a movement eastward, and numbers of the Chinese are said to be on their way from San Francisco toward the Atlantic. There is also a report that Southern planters are looking to them to supply the places of the blacks lost by the northern emigration of a year past. There is probably no place where Chinese labor would provoke less hostility than on Southern plantations. What would be the effect on the Southern States of introducing another race question is not so clear.

A CASE which should have a steadying effect on the disturbers of other workmen's families was decided in an Ohio court, the other day. A firm of glass manufacturers in Gainesville, having been admonished by the glass-blowers' association, of which its workmen are members, that it must make no more than a given number of boxes of glass per week, discharged the men who refused to disregard the orders of the union, and imported a number of Belgians to take their places under a three years' contract. The Pittsburgh association sent its president, Mr. Shearer, to entice the new men away from their work, whereupon the employers procured an injunction from court restraining him from meddling with the workmen. On Mr. Shearer's application to have the injunction dissolved, the court decided, after a full hearing, that it must stand; and, reviewing the action of the trades-union, declared it in conflict with the laws of the State and of the United States,—on the ground, we presume, though we do not see it so stated, that it was an effort to impair the obligation of contracts. This point has been touched before in trades-union disputes, and it suggests the remedy to which employers are likely to be driven if workmen persist in turning business upside down, as they have been doing of late years. The contract system, in fact, carried to its logical conclusion, implies a contract between a contractor and his workmen, as well as between him and his employer. A resort to this, especially in building contracts, is the natural security of a man who must know how much the work will cost which he has promised to do for a given sum.

THE opportunities for revising and improving a large public building which must necessarily be many years in the hands of the workmen are many, and possibly Mr. Edwin May, the architect of the new state-house at Indianapolis, who died February 27, at Jacksonville, Florida, would have materially revised and improved his original design for that building, which must now be entrusted to another's understanding of his intentions. It is unfortunate that the state-houses of three large Western States should have been deprived of the care of their authors; but the state-houses at Springfield and at Des Moines were already well under way, and the drawings for the greater part of the unfinished work must have been prepared at the time of the death of their architects, while the Indiana State-House is hardly begun. Of Mr. May's early life we know but little. He was at the time of his death fifty-six years of age, and for more than twenty years had been in active and successful practice in Indianapolis, whither he had removed from Boston, it is said. Besides the state-house, which he considered the most brilliant achievement of his professional life, he was the architect of a number of court-houses, jails, and public institutions; amongst these are the Northern Prison, built in 1858, and the women's department of the new Insane Asylum, which is now nearly completed, at a cost of over \$700,000. Mr. May's death brings to notice the fact that although the designer of the state house, he was, strictly speaking, not the architect, but merely the supervising architect, of the building; in other words, an official dependent on the will of the Board of State-House Commissioners, since he had sold his drawings and specifications outright for the sum of \$6,000,—and if our readers will recall the onerous conditions of the original competition (see *American Architect* for March 24 and 31, 1877), they can judge for themselves how remunerative a bargain this was. We believe there is an English ruling that the heirs of a deceased

architect can recover only the fee due for work performed and completed; so in the light of events, perhaps Mr. May's action was after all fortunate.

THE project for a monument to Washington, in New York, moves with a rather staggering gait. A bill was introduced into the United States Senate by a Senator from Missouri a week or two ago, authorizing certain citizens of New York to set up on the steps of the Sub-Treasury in that city four statues, of Washington, Livingston, Hamilton, and Jay or Clinton, which was duly referred to committee. There is no visible reason why the intervention of Congress should be invoked for this undertaking, inasmuch as the Supervising Architect, with the consent of the Secretary of the Treasury, has authority in the case, and Congress has really no concern in it. It appears, however, that at the same time a bill is before Congress, introduced by a Representative from Missouri, which directs the Secretary of War to contract with a sculptor for a monument to the late General Custer. It appears that the "distinguished sculptor," whom we quoted before as the author of the project for the four statues in New York, is the one specified in the bill in favor of the Custer monument; and that a letter from the same distinguished sculptor was presently laid before the committee of twenty-five appointed by the New York Chamber of Commerce to consider the monument, inviting them to appoint a committee to act with the Citizens' Committee and carry out the project authorized by the bill before Congress. The committee, however, seemed not to fancy being handed over to the scheme of the other party, and gave notice of their intention to paddle their own canoe, in support of which Mr. Chittenden, of New York, has introduced a bill into Congress authorizing the Chamber of Commerce to set up a statue or group in memory of Washington on the front of the Sub-Treasury in New York. It is one of the lamentable conditions of art in the United States, that any movement that is started in favor of a work of public adornment is straightway captured in the interest of some distinguished artist, in a way that necessarily repels from it the interest of other distinguished artists and of the considerate public as well.

GOVERNMENT TESTS OF WROUGHT-IRON AND CHAIN-CABLES.¹ I.

THE original report, published by the United States Government in 1879 as part of Executive Document No. 98, House of Representatives, Forty-fifth Congress, Second Session, was an octavo of two hundred and sixty-seven pages, with thirteen heliotype-plates, and several wood-cuts. This abridgment has only one hundred and nineteen pages; but we judge from the preface that the contraction is due, mainly, to the omission of many detailed articles, not necessary to a full comprehension of the conclusions.

The compiler has done a good work in placing these experiments, and the conclusions deduced from them, within reach of many to whom the original work would be inaccessible. We have here the most elaborate record of tests of wrought-iron and of chain-cables that has ever been published; and even where the experiments are inconclusive and unsatisfactory, they point out the path for future research and investigation.

The first pages are devoted to the record of a very full set of experiments upon the round rolled bar from which the cable is made. Nearly two thousand bar test-pieces were tested to destruction by the strain of tension, over fifteen hundred by the strain of percussion, and nearly five hundred cable links, made in all respects as for service. The tension tests were made by the "chain-proving machine" at the Washington Navy Yard, and by the "Rodman Dynamometer." Prior to Kirkaldy's experiments the tenacity of iron was ordinarily expressed in the strength per square inch of the sectional area of the test-piece before its form has been changed by stress. Since his time the area of the fractured surface has become an important element, and the amount of elongation is always carefully measured. These experiments show, however, that mere percentage of elongation is of little value, unless the length of the test-piece is also known. Three pieces of the same bar, having lengths of 75, 20, and 10 inches, were elongated 18.64, 21.8, and 22.2 per cent before rupture. The strength also varies with the length of the test-piece, and it is recommended that none be used whose length is less than four diameters. On account of the difficulty of measuring with accuracy the fractured surface, the least diameter of the test-piece at the stress which marks the highest point of resistance to continually increasing strains is carefully noted, and the corresponding stress is called the *tensile limit*. If the specimen had rested, it would have recovered from its temporary weakness; whereas, if the stress be

continued, the bar is so much weakened that it would break under a much less stress.

The strength of round bars is shown to bear a direct relation to the amount of reduction in area from that of the piles from which they were rolled. The smaller the percentage of reduced area, the greater the tenacity. The effect of working is thus stated: "The indications are that if a bar is *underheated* it will have an unduly high tenacity and elastic limit, and that if *overheated* the reverse will be the case; further, if *underheated* the strength obtained by a cylinder turned from the core will be less than that which would be obtained by testing the entire bar, if the diameter be small, and greater if the cylinder is turned from a large bar."

The experiments made to show the effect produced by the form of the test-pieces are very instructive and quite conclusive. The tests

made upon cylindrical pieces having given results of tensile strength and elastic limit so low that the manufacturers were dissatisfied and expressed doubts of their correctness, an examination was made, leading to the discovery that the larger results had been obtained from test-pieces turned from the bars to a reduced diameter, which, at one point, was reduced by a groove to a much less one. The stock of contract-chain on hand, all of which had been considered to be of tensile strength, of sixty thousand pounds per square inch (the standard of the British navy), was then tested by means of grooved pieces and short cylinders. None of the cylinders came up to this standard, and the grooved pieces exceeded the cylinders in tensile strength by from fifteen to twenty-six per cent. This difference is greater in pure refined iron than it is in coarse material. Similar tests were made upon the various kinds of cable iron, giving in every case higher figures for the grooves, and leading to the general law that test-pieces should never be less than four diameters in length. By another series of tests it was proved, in seventy-two per cent of the trials, that bars were stronger in their normal state than when turned down to the same area from larger bars, the excess rising in one case to five per cent. This applies to small and medium bars which are well worked. In large bars the law would be reversed, as stated in the remarks upon *underheating*, and if a two and a quarter inch bar were computed from the tested strength of its core, it would probably be overestimated.

Having determined the comparative value of the various irons with respect to their resistance to direct tension, it remains to investigate their power to resist sudden strains applied transversely. This test is made by impact. A cast-iron hammer, of one hundred pounds weight, having a wedge-shaped impact surface on its lower face, traverses two vertical rods, and can be made to fall through various heights up to thirty feet, doing a maximum work of three thousand foot-pounds in one blow. At the foot of the rods is the anvil, a cast-iron block with a cylindrical opening eight inches in diameter. The test-pieces, not less than twelve diameters in length, were placed across the hole in the anvil, with their centres under the wedge-shaped hammer. When the iron offered a resistance beyond the limits of the machine, it was weakened by a circular score one thirty-second of an inch deep. The wedge is so shaped as to allow the bar to bend through an angle of one hundred and twenty degrees. These tests show that iron with high tensile strength has comparatively little resilience; it breaks with small deflection, the fractured surface is smooth as if the bar had been cut with a knife, the ends of the fibres showing, like steel, a fine, slightly granular surface.

A material which proves brittle under this test is not suited for cables. Also, an iron whose entire strength depends upon its remaining perfectly free from abrasion, or slight cracks, is unsuitable. A large quantity of such iron, which had been furnished to the government under contract, was found weak when subjected to the impact test. It was good material, but very little work had been expended upon it. When reworked and piled with old boiler-iron, the product was pronounced "at least equal, if not superior, to the best commercial iron, at less cost." The appearance of the fracture in the same bar will vary materially with the character and amount of the force by which it is produced. It is necessary to know *how* the bar was broken. Only one case was found in which crystallization was probably produced by alternations of severe stress, sudden strains, recoils, and rest. This was in the connecting rod of the chain-prover, five inches in diameter, which had been in use forty years. It had been repeatedly subjected to stress of 250,000 pounds, and broke under a stress of less than 200,000 pounds, the fracture showing "well defined crystallization, the facets being large and bright as mica."

Professor Thurston's discovery, made by his torsion-tests in 1873, that wrought-iron, after having been subjected to a steady stress up to the point of its ultimate strength, would, if then released from stress and permitted to rest, experience an elevation in both its elastic and tensile limit, has been repeatedly brought before the public. Commander Beardslee appears to have, independently,

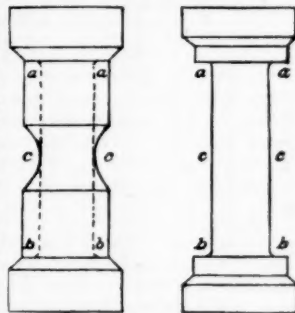


Fig. 1

¹ Experiments on the Strength of Wrought-Iron and of Chain-Cables. Report of the Committee of the United States Board appointed to test Iron, Steel, and other Metals, on Chain-Cables, Malleable Iron, and re-heating and re-rolling Wrought-Iron. By Commander L. A. Beardslee, U. S. N. Revised and abridged by William Kent, M. E.

made the same discovery, a short time after, while carrying on an investigation by tension. The report before us contains an account of a very instructive series of experiments under this head, but want of space obliges us to pass by these, with the single remark that the effect is most marked upon ductile, fibrous metal. In a series of experiments with two sets of test-pieces, one cut from bars in their normal condition, the other from the same bars after they had been pulled asunder by tension, the gain in strength rose as high as 39.9 per cent. There was a decided gain in every case where the material could be classed as wrought-iron, none when it was steel.

PROCEEDINGS OF THE THIRTEENTH ANNUAL CONVENTION OF THE AMERICAN INSTITUTE OF ARCHITECTS. I.

Held in New York, November 19, 1879.

FIRST DAY. MORNING SESSION.

THE Convention was called to order by the President at ten A. M. By request of the Committee of Arrangements, the chair was authorized to appoint at once special committees, to whom might be referred the various subjects presented to the Convention, and committees were appointed: On Membership; By-Laws; Finance; Meetings of Annual Conventions; Election of Officers and Standing Committees; and a Schedule of Professional Charges.

Mr. Hyde, President of the Equitable Life Assurance Company, welcomed the Convention in a few pleasant words, after which Mr. T. U. Walter, President of the Institute, delivered his Annual Address.

The Secretary read the report of the Board of Trustees, printed copies of which had also been distributed among the members of the Convention, in order that their attention might be better called to its suggestions.

The Treasurer's report was read by Mr. Hatfield, and referred to the Finance Committee.

Messrs. Stone and Le Brun were designated Auditing Committee.

Chapter reports were next read, the Albany and Cincinnati chapters alone failing to send any.

On suggestion of the Committee of Arrangements, the next regular business, the election of officers, was postponed, to allow the reading of papers, the first presented being by Mr. Baumann, C. E., of Chicago, on the subject, "The Proper Distribution of Weights to Secure Equal Pressure on Foundations in Soft Soils."

The Convention, after listening to this paper, which was read by Mr. Stone, voted the thanks of the Institute to Mr. Baumann.

Professor Russell Sturgis, of the College of the City of New York, followed with some remarks on the course of architectural study recently established and conducted by him in that college.

After explaining that his course was not in any sense such as would be given in a professional school, but was simply an elective or optional branch of the regular undergraduate curriculum, Professor Sturgis said that, following the method recognized as most efficient in teaching sciences or art, of beginning with practice, and introducing theory afterwards, he devoted the first of the two years through which the course extended to instruction in the simplest kind of drawing, such as is understood by the term "architectural drawing," calling the attention of students particularly to the nature of the diagrams by means of which forms are expressed for the use of builders. For instance, sketching in perspective on the blackboard a window with lintel of stone, and corbels in the jambs under the ends of the lintel, and assigning the dimensions of the several parts, he would require the class to construct the plan, section, and elevation of the window, explaining to them how these drawings would be understood alike by workmen of all countries, and wherever they might be sent for execution, the windows built from them would be the same. Following out his endeavor to realize in the minds of his hearers that which the drawings represented, he would, for example, insist upon the constructive necessity for the employment of the ornamental corbels under the ends of the lintel, which, being shown rather short, would otherwise have too small a bearing on the jambs. If the objection was made that lintels of any length could be procured in New York, he would reply that his window was to be built in New Jersey, where the material for the cut stone work must be found in the boulders dug out of the cellar, and the dimensions of these limited the length of his lintels, so that being only able to procure a stone five feet four inches long to span an opening five feet wide, and this plainly leaving too little bearing on the jambs, he was obliged to use corbels to diminish the span and increase the bearing. He would then point out how all purely architectural motives of decoration sprang in a similar manner from constructional necessities. This was a very simple exercise.

The next thing would perhaps be the use of the arch, and the students would be shown how the opening being still a little wider, or the available materials still smaller, it would be necessary to abandon the lintel, and resort to arch construction as the only ready means of spanning the opening in question. The definition of an arch then coming up, he would call attention to the difference between the engineer's and the architect's use of the term, following this by exhibiting cartoons showing the many forms of arches, in every case referring to the building in which the particular form was

found, and dwelling especially upon the constructional character of each.

The technical terms Professor Sturgis especially insisted upon. To understand the whole scope and bearing of the commoner technical terms used in building was to understand a great deal about building itself; to know all that was implied in the words "archivolt," "entablature," "architrave," and the like was to understand a great deal about the edifices in which those members were found, and about the styles which chiefly employed them.

Other arts than architecture were discussed during the junior year merely as they were used to assist in architecture, that is, in the decoration of buildings. Of course, all other arts in the great periods clustered themselves around that of architecture, even the decorative designs of pottery and jewelry submitting to the influence of the architectural art of the same epoch, but in the first year of the course there was little opportunity to insist upon any arts not immediately connected with building. In the second or senior year, it was, however, practicable to take a wider range, taking up the allied arts of the most important successive periods. He began with Egypt, continuing, with the endeavor to illustrate at all times as fully as possible, through the art of Greece and Rome to that of Europe between the tenth and sixteenth centuries. The isolated forms of artistic expression, as those of Assyria and Persopolis, he passed over with brief mention, it seeming to him more important to enlarge upon the unbroken and inevitable growth of European art than to turn aside to outlying schools, however interesting. He found difficulty, as was to be expected, in bringing to the comprehension of students the qualities and merits in the arts of the past which are almost unknown in those of the present day and especially in American art, while our country was, moreover, devoid of any remains of the art of a better period. To supply as far as possible this deficiency, he collected all the illustrations and examples which could be obtained, and thought these of far more use in elucidating what he wished to point out than any possible verbal explanations.

The college possessed a valuable collection of casts from antique sculpture, and he was so fortunate as to be able himself to supply upon occasion a considerable amount of illustrative material from his private collection, supplemented by loans which were kindly made him for the purpose. To make this illustrative material of the utmost use, he found it well to cause the students to draw, for instance, several examples of Greek vases, one at least of each particular form, and make a note of its essential characteristics.

In this way, connecting the theory with the history of art, the second year of the course was spent. He found it interesting and useful to show how, in the transition from one style to another, the point of view from which art is considered, and nature as represented by art, changes, and observed in his classes even now a singular and instinctive difference in the way in which the point of view, or mode of looking at art, of a given race in the past, recommended itself to minds of different nationality in the present day. For example, he uniformly found the Hebrews, who formed a considerable portion of his pupils, inclined to prefer the art of the most ancient times. The early Renaissance, or mediæval art, had no attraction for them, in comparison with the tranquil and restrained design of the classic ages. Even in color, their preference, if they showed any, was for the Egyptian polychromy, or the patterns of the more modern Orientals, rather than the decorative painting of the Middle Ages, or modern Europe.

A vote of thanks was passed for Professor Sturgis's interesting remarks, and Mr. Lewis W. Leeds then read a paper entitled "Proportion of Inlet and Outlet Shafts in Ventilation."

The President then presented to the Institute, on behalf of Mr. McArthur of Philadelphia, some models of details and sculpture for the new city building in Philadelphia, for which the Convention returned a vote of thanks, after which it adjourned to the following day.

HOUSE LOTS IN ENGLISH AND AMERICAN TOWNS.

WHY do shallow houses and lots prevail in English towns and cities, while deep lots and so deep houses prevail in American towns and cities?

A sufficient reason for the prevalence of shallow lots and so of shallow houses in English towns, as compared with what is common in America, seems to be found in the difference between owning and renting land. If we own land all futures seem not impossible to it, and its possible prospective value tempts us to possess and hold it. But with rented land it is only its present use, and its value to ourselves for the time, which concerns us. The value of a vacant bit of ground is not enhanced or lessened to him who rents it for a carpet-beating ground, or a clothes-drying yard, or for a playground for his children, whether it will one day command a great price as a building site or the reverse. A deep lot is thus a temptation to the land buyer, when it is no temptation to the land renter. The one buys often for a small sum what may ultimately yield him a fortune. The other pays out, at its full worth to him at the time, for all he makes use of; and so he is inclined to manage with the least amount of space possible, so as to pay less rent and keep back money for other uses. Experience shows that people will often decline the loan of property which they would be glad to accept the gift of. If this is true of a loan, a letting without a compensation, it is not surpris-

ing that it is true of a lease, a letting for which a compensation must be paid.

Of course other causes may have influence on the form of lots in England, as everywhere, such as the origins of cities, their having once been walled towns or camps, for instance, as has elsewhere been noticed; and there are old towns in England, and old parts of towns, where the influence of such causes may still be factors in the history of the shape of some of the lots to be found in them; but this does not apply to new English towns and to the new parts of old English towns. Again, a custom and a fashion in building may have an influence where the causes that lead to such fashions no longer exist; but we need not go to anything so remote to explain why shallow lots prevail in cities where the land on which most dwellings stand is not owned by, but is only rented by, those who live in them. Those who rent such dwellings do not care to pay rent for more land than just enough for their house to stand on and, in addition to it, only just as much yard room as they may think they actually require. Thus we see, in England particularly, where large pieces of land are laid out in city lots by great landed proprietors, shallow lots, as compared with our prevailing American standards. From this we see how great landholders in our American cities, if freed from our present deep-lot system (a system which is working in the interest of the real-estate speculator, and often to the interest of the buyer of land, but working against that of the renter, and so of the permanent letter of land), could, by following the example of the great English owners of land in towns, let their land to still better advantage than at present; and yet, so long as they retained the ownership of it, still be in a position to advantage by every possibility of the future. When a lot is sold the right of way to and from it, through the street on which it stands, cannot be taken away from it. But when a lot, or a house and lot, is rented, the like right of way can be taken back when the lease has expired, and a new deed of land can be made, should changed circumstances call for it.

Just as the renting instead of the buying of land leads to a demand for shallow rather than for deep lots, so does it lead to lots so shallow that there is no room on them for space other than just that covered by the house. And, though such lots are now rare, yet as yards in modern times are becoming less and less needed adjuncts to houses, so, in new cities, sooner or later, and in the case of rented property, where the large land owners are left free to consult their best interest, very soon, will a private yard to each dwelling be less and less the rule, and houses running through from street to street will become the most usual. And yet these houses, running through from street to street, will be shallow houses; for the same influences governing English landlords and land owners now, not only in laying out town lots, but also in the form of the houses built on them, will govern such American lots and the houses built on them. For not only is the English tenant reluctant to rent a deeper lot than will just suffice, along with a small yard, for his house to stand on; but he is also reluctant to rent a house deeper than he can live in to advantage. He wisely wants the house-room he pays rent for so disposed that it will give him the most health and comfort and pleasure possible. And, so far as he understands, or fancies he understands, what most conduces to that end, so far he will be influenced by those considerations in making choice of a house which he will rent. The advantages of cheerfulness, light, and air, possible sunshine and prospective health, which a shallow house has over the gloom, and want of air and light, and over the prospective unhealthiness of an over-deep one are so apparent, when an opportunity is given to compare them, that it is only because such opportunity is lacking in many of our American cities that the present unhappy state of affairs in them, evidenced by that fact, is allowed to continue. At present, in England, shallow houses, as well as shallow lots, are the rule; and a family of moderate means can get a house, of any desired size, every part of which is light, cheerful, and well-ventilated; a house combining every convenience desired, and built with every attention to sanitary requirements, so far as at present understood, and at a rent which, compared with rents in American cities, seems trifling. But that which can be had in England everywhere, at a low rent, cannot be had in some American cities at any price.

Yet as habits of living are much the same in England and America, and as in both countries the majority who rent houses cannot afford to rent large and expensive ones, there is the same need in both countries for small houses arranged so as to combine the highest sanitary advantages while occupying but little ground. Unfortunately for landlords and tenants the dividing up into lots of the ground in American cities is influenced, not by the needs of house-holders and tenants, but by the great cost of street making, the comparative cheapness of unimproved land, and the ease and cheapness with which the ownership of land can be conveyed, and it simplifies dealings in lots to have all lots of one size. It stimulates purchasers to have the lots large. It diminishes the cost of street making to each lot, the more lots there are having a frontage on a given length of street. Thus we see all our new towns laid out in narrow and deep lots, and most often in lots larger than experience has shown, both in England and in the older American cities, are wanted for the majority of rented houses. This is unfortunate for landlords and tenants just in proportion as their interests differ from those of the town lot speculator. Wherever in America, land owners, whether owning large or small parcels, are free to do so, and where land is purchased for use, rather than for a prospective rise in value, we see

them adopting other systems of dividing land than that just named, and we find a great variety in sizes of lots obtainable, and find smaller lots prevailing.

This is best accomplished in Philadelphia. Houses in that city are mostly owned by their occupants, and while deep lots are common, lots of all sizes are procurable, and small lots prevail. The system of dividing lots to suit varying needs, which works well for owners of houses, works well for landlords and tenants also. But on the other hand, where, as in New York and the cities or parts of cities planned in imitation of New York, an inflexible system prevails, by which lots other than what were once thought most convenient in size and shape are still unprocurable, we find a lack of such lots, and so of such houses, as the interest of landlords and tenants elsewhere calls for.

The lots in New York being all laid out one hundred feet deep each, shallower lots, on which shallow houses, such as are light and cheerful and well ventilated in every part, can be built with economy, are unobtainable, notwithstanding that such houses are those which are most in demand, not only in England but in every city, English and American, where they exist. This, which hampers owners of single lots, need not hamper, however, those who have large parcels of ground still to be improved. It is to the interest of those who would have houses to rent to supply those which will rent most readily; and, where they have large pieces of property to lay out, to study the methods which have been found most profitable in England, where the renting of dwellings most prevails. And should such studies, like the present, lead to the iteration of ideas already put forward, that only evidences, to thoughtful minds, the value of those ideas, and the importance of reiterating them until their value is perceived not only by the few but by the many.

HOUSE-BUILDING TWO CENTURIES AGO.

[We think the following letter, which we quote from the Massachusetts Historical Collections, will be of interest to our readers. It was addressed to the son and namesake of the famous Governor Winthrop. The date assigned to it is 1637.]

To the Right Worshipfull his much honored brother John Winthrop of Ipswich, Esqr: speed this I pray.

Good Sir, — I have received your lettre, I thanke you for it: it hath bin my earnest desire to have had an opportunity longe ere this to have bene with you againe, but was hindered by the weather, and still my desire lasts, but now I cannot by reason that my wife her tyme draweth very neare. Concerneing the bargaine that I have made with you for Argilla, my wife is well content, & it seemes that my father Peter hath imparted it to the Governor, who (he tells me) approves of it very well, alsoe, soe I hope I shall now meete with noe rub in that businesse; but goe on comfortably, accordinge as I have & daily doe dispose my affaires for Ipswich. Concerninge the frame of the howse, I thanke you kindly for your love & care to further my busines. I could be well content to leave much of the contrivance to your owne liberty vpon what we have talked together about it already. I am indifferent whether it be 30 foote or 35 foote longe; 16 or 18 foote broad. I would have wood chimnies at each end, the frames of the chimnies to be stronger than ordinary, to beare good heavy load of clay for security against fire. You may let the chimnies be all the breadth of the howse, if you thinke good; the 2 lower dores to be in the middle of the howse, one opposite to the other. Be sure that all the dorewaies in every place be soe high that any man may goe vpright vnder. The staiers I thinke had best be placed close by the dore. It makes noe great matter though there be noe partition vpon the first flore; if there be, make one bigger then the other. For windowes, let them not be over large in any room, & as few as conveniently may be; let all have current shutting draw-windowes, having respect both to present & future vse. I thinke to make it a girt howse will make it more chargeable than neede; however, the side bearers for the second story being to be loaden with corne, &c. must not be pinned on, but rather eyther lett in to the studds or borne vp with false studds, & soe tenented in at the ends; I leave it to you & the carpenters. In this story over the first, I would have a partition, whether in the midst or over the partition vnder, I leave it. In the garrett noe partition, but let there be one or two luccarne¹ windowes, if two, both on one side. I desire to have the spars reach downe pretty deep at the eves to preserve the walls the better from the wether, I would have it sillered all over, & soe the frame of the howse accordingly from the bottom. I would have the howse stronge in timber, though plaine & well brazed. I would have it covered with very good oake-hart inch board, for the present, to be tacked on onely for the present, as you tould me. Let the frame begin from the bottom of the seller, & soe in the ordinary way vpright, for I can hereafter (to save the timber within ground) run vp a thin brickworke without. I thinke it best to have the walls without to be all clapboarded besides the clay walls. It were not amisse to leave a dore-way or two within the seller, that soe hereafter one may make comings in from without, & let them be both vpon that side which the luccarne window or windowes be.

I desire to have the house in your bargaineing to be as compleatly mentioned in particulars as may be, at least soe far as you bargain for, & as speedily done alsoe as you can. I thinke it not best too have

¹ Luccarne or Luthern.

too much timber felled near the howse place westward, &c. Here are as many remembrances as come to minde. I desire you to be in my stead herein & what ever you doe shall please me.

I desire you would talke with Mr. Boreman, & with his helpe, buy for me a matter of 40 bushells of good Indian corne, of him or of some honest man, to be paidd for now in ready mony, & to be deliuered at any tyme in the sumer as I please to vse it. I would deale with such a man as will not repent if corne rise, as I will not if it fall. Thus acknowledging my bouldnes, I desire to present our respectfull love to you, my sister, & your litle one, not forgetting my daughter. I cease, committing you to him that is mercy & wisdome it selfe, and soe rest
Yours ever, S. SYMONDS.¹

My wife desires her spetiall love to be remembered to you both, & to let you vnderstand that she is very glad that she shal be your neighbour at Ipswich.

I have herewith sent you inclosed 50*li*. for yourselfe, in part of payment, as my father Peter willed me from you to doe, & twenty pounds more to be disposed in corne to workemen as you please; & for the payment for the rest, as you are willing to let my father Peter set downe the tyme, soe am I.

My wife & I desire to be kindly remembered to your good neighbours, Mr. Boreman & his wife & the rest of our friends. I could haue wished he had written one word by Mr. Tuttel how those 3 bullocks be disposed of. Our desire now is to hasten to Ipswich as fast as we can, at least our servants.

I heare that your Church hath settled the choyce of your mini-sters in their offices, & that now things are likely to goe on very well & comfortably, which ministers matter of great ioy to all that love Jesus Christ. And truely the peace of any Church (because pretious) is soe difficult to preserve, in respect of the subtilty & mallice of the common enmy, that it requires answerable cautelousnes on all hands, every one waighing well that one sentence of the Apostle, Let every one esteeme an other better then him selfe, & study the vally-way to rise to true honour.

THE ILLUSTRATIONS.

SKETCH FOR THE NEW YORK INTERNATIONAL EXHIBITION BUILDING, 1883. MR. WILLIAM G. PRESTON, ARCHITECT, BOSTON.

THE site proposed, as shown by the diagram, is at the upper part of New York city, just above Central Park, between One Hundred and Tenth and One Hundred and Twenty-fifth Streets. The ground is an elevated plateau, about 150 feet above the level of the Hudson River, and from it the views up the river are very beautiful and extensive. With sixty feet of water at low tide at the piers beside the grounds, the largest foreign steamships may bring their freights literally to the doors of the exhibition building, and by means of travelling cranes running out over the decks the goods can be set in place with absolutely no extra transportation. The facilities for reaching the exhibition consist of ferries, horse-cars, river steamboats, the Hudson River Railroad and all its connections, and the Elevated Railroad, which now runs up as far as the Harlem River (One Hundred and Fifty-ninth Street), and by that route a visitor can leave the site and in twenty minutes be at the St. Nicholas Hotel. No exhibition has ever been held in a location having anything approaching the advantages offered by this; but the plan of building proposed could be readily adapted to any site sufficiently large. The leading idea determining the principal characteristic of the building is not novel; on the other hand, the classification and general arrangement of exhibits at the Paris Exhibition, 1867, seem to have met with general approval.

As will be seen, the drawings are merely suggestive of a plan which offers space, economy, classification, and convenience. The oval form of the French exhibition building has been adopted, but enclosed within an oblong structure. The special advantages of the French system already recognized are that while all important departments are covered by one roof, they are so arranged as to be studied either by countries or by subjects as the visitor may prefer: in the first case walking from the outer edge to the centre, and so remaining in one country; and in the other case following the product, raw or manufactured, concentrically through all countries. The plan as shown indicates an area within the straight lines of the building of 110 acres: of this amount 25 acres are devoted to the proposed park enclosed by the oval. Herein should be the art gallery, perfectly isolated and secure from any danger from fire. The distance around the oblong building is one mile and three fifths; the total length of the concentric walks, about twelve miles. An internal railroad 7,200 feet long (nearly one and a half miles) is proposed, to be run by compressed air. Arrangements to be made for eight stations in the circuit, all connected by electricity, so that eight trains would follow one another, making a stop of a half minute at each station. The outside square structure of the building may convey the idea of grace, magnitude, and dignity, while the interior curved portion being simply for the preservation and shelter of exhibits, and be-

ing seen only from within, the addition of purely ornamental features would be superfluous. Four spandrel-shaped spaces, of about three and a half acres each, are left at the interior angles of the oblong. It is proposed to utilize these for separate buildings, indicating Europe, Asia, Africa, and America, affording an opportunity for typifying the architecture of the four quarters of the globe, and for landscape gardening, decoration, and for pleasant light-and-air spaces. In the centre of the enclosed oval it is proposed to place the art gallery, a building of brick, terra-cotta, and iron, decorated with polished granite and bronze, and intended to remain as a permanent memorial. This would be a hollow square 300 by 300 feet; each side of the square about 65 feet, and with a dividing wall running parallel to the outside walls of the building.

About 50,000 square feet of wall-space would be secured on the second story, which, having largely top-light, could be given up to paintings. The first story would be devoted to sculpture, engravings, cabinet pictures, etc., with side-light. As this building, fire-proof in itself, would be 250 feet from the main building at the nearest point, there would be no hesitation in placing within its walls any available works of art. When the exhibition building should be torn down the art gallery could remain, fronting on One Hundred and Fourteenth Street, as one of the public buildings of New York.

It would probably be financially impracticable to build the main building of so-called "fire-proof" construction, but it could be built with iron framework, planked roofs, and mill floors on the "slow-burning" plan.

At the northern portion of the grounds may be placed such buildings as it would be impracticable to include within the main building, such as the conservatories, cotton-mill, iron foundry, gasometer, steam-boilers, etc. The whole exhibition grounds would include an area of some 175 acres.

HOUSE FOR MR. ROBERT FULTON, MONTCLAIR, N. J. MESSRS. SEE & BERG, ARCHITECTS, NEW YORK, N. Y.

This house is now nearly finished.

OLD STAIRCASE IN THE LEE MANSION AT MARBLEHEAD, MASS.

HOUSE OF DR. A. H. THAYER, GRAFTON, W. VA. MR. THOMAS BOYD, ARCHITECT, PITTSBURGH, PA.

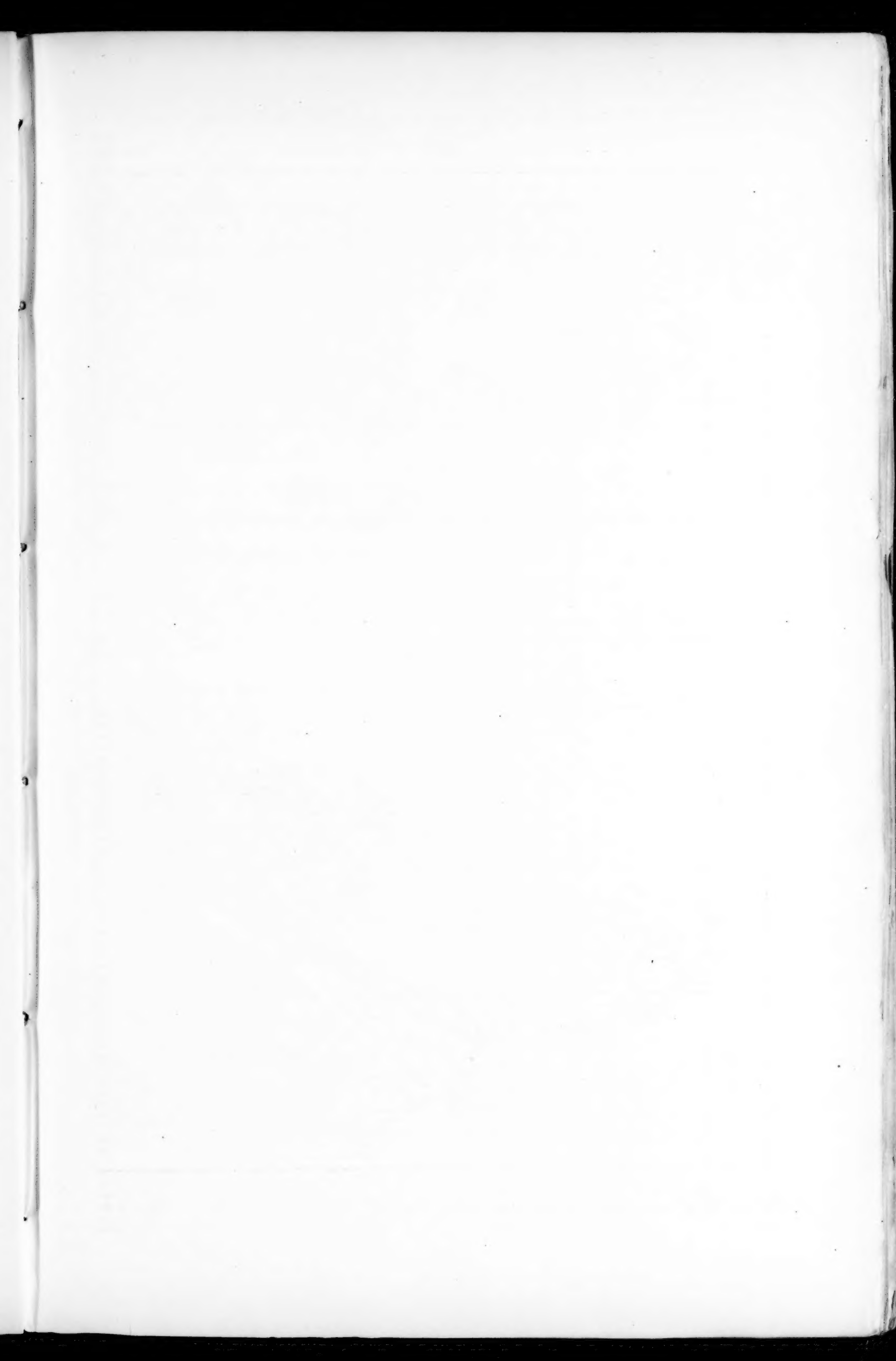
The building will be set on a hill commanding a fine view, and will be built of brick and stone. The inside will be finished with hard wood throughout.

ANTIQUE SCULPTURE IN BERLIN.

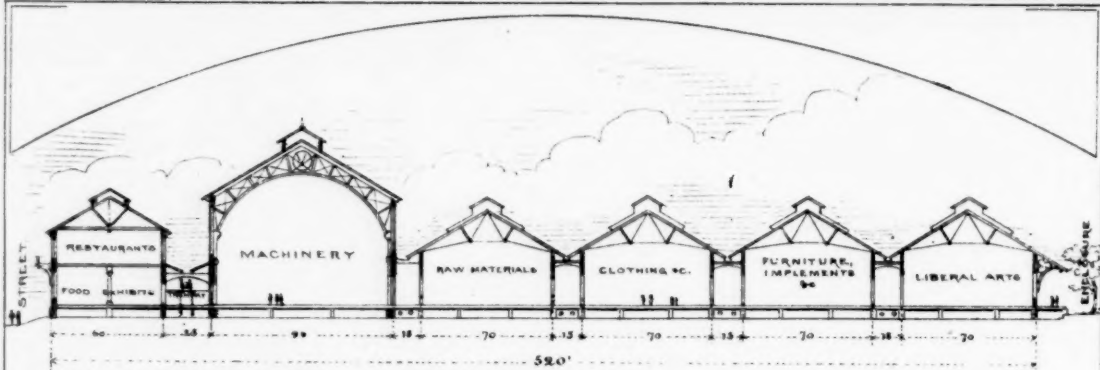
MOST civilized nations try very hard to persuade themselves just now that they take a wide and genuine interest in art. That some of them take a *growing* interest cannot be questioned. But in most of them the individuals to whom art has become a vital and indispensable thing may still be included in a class of specialists more or less professional — artists, critics, and connoisseurs whose whole life is devoted to its service. Only in Germany and only with regard to music do we see an entire people making a place for it among the necessities of ordinary life, appreciating it by instinct and enjoying it without affectation through all the strata of society. We have had concrete evidence during the last ten years of the world's comparative indifference to the arts of design. When we think of the passionate search for relics of classic art in the time of the Renaissance, when we think of the emulous strife for their possession among popes and kings, artists and burghers, humanists, fine ladies, statesmen, and *condottieri*, when we contrast such a popular sentiment with the manner in which we have greeted the discoveries of our generation, — enormous alike in extent, in variety, in rarity, and in absolute artistic worth, — how great the difference! It is a picture as striking as that of Leo X., passionate connoisseur and munificent patron, followed in the Vatican by a Hollander who shuts the sculpture galleries with a scornful "*sunt idola antiquorum*." Nay, we have not even Adrian's excuse of motivated hostility to give for our indifference. It is not our theology which makes us cold to the magnificent recovered relics of antiquity. There has been no time since the Renaissance when so much has been rescued from oblivion as during the last very few years. Not only are our beliefs about the best known periods of antiquity being confirmed on the one hand or corrected on the other, but we are gathering evidence as to periods about which we had known little or nothing. To Etruscan and Cyprian and archaic Grecian finds have been added the Tanagra figurines — testifying to an almost unsuspected phase of ancient art. And while Olympia, the middle point of Grecian life, has yielded treasures beyond the hope of the most sanguine to complete our knowledge of the noblest epochs, from the scarce less classic sites of Asia Minor we are filling the gap between Alexandrine and imperial days. Never, perhaps, except when the British Museum opened to receive the superb stolen goods of Lord Elgin, has so great a treasure been added at once to the possessions of Northern Europe as the museum of Berlin has received of late.

But outside a very limited artistic class how have these discoveries been estimated? How do any but specialists appreciate the labors of Di Cesnola? What would the popular interest in Schliemann amount to, were it not for the added literary zest supplied by the possible value of his Homeric speculations? Can we not guess how the city of Lorenzo or of Leo would have made jubilee over the dis-

¹ Samuel Symonds, a gentleman of ancient family at Yeldham in Essex, and a cursitor in chancery for that county, married, first, Dorothy, daughter of Thomas Harlakenden of Colne, and had ten children before coming to New England in 1637. His second wife was Martha, daughter of Edmund Beade, and widow of Daniel Eppe. He settled in Ipswich; was representative in 1638; an assistant in 1643, and by successive elections for thirty years after. In 1673 he was chosen Deputy-Governor; and died in that office, 12th October, 1678. Felt (History of Ipswich, 161-163) makes honorable mention of him. — Pedigree of Symonds in the *Diary of the Marches of the Royal Army*, etc.; *Savage's General Dict.*; *Proceedings of Mass. Hist. Soc.*, 1882-83, 254-258.

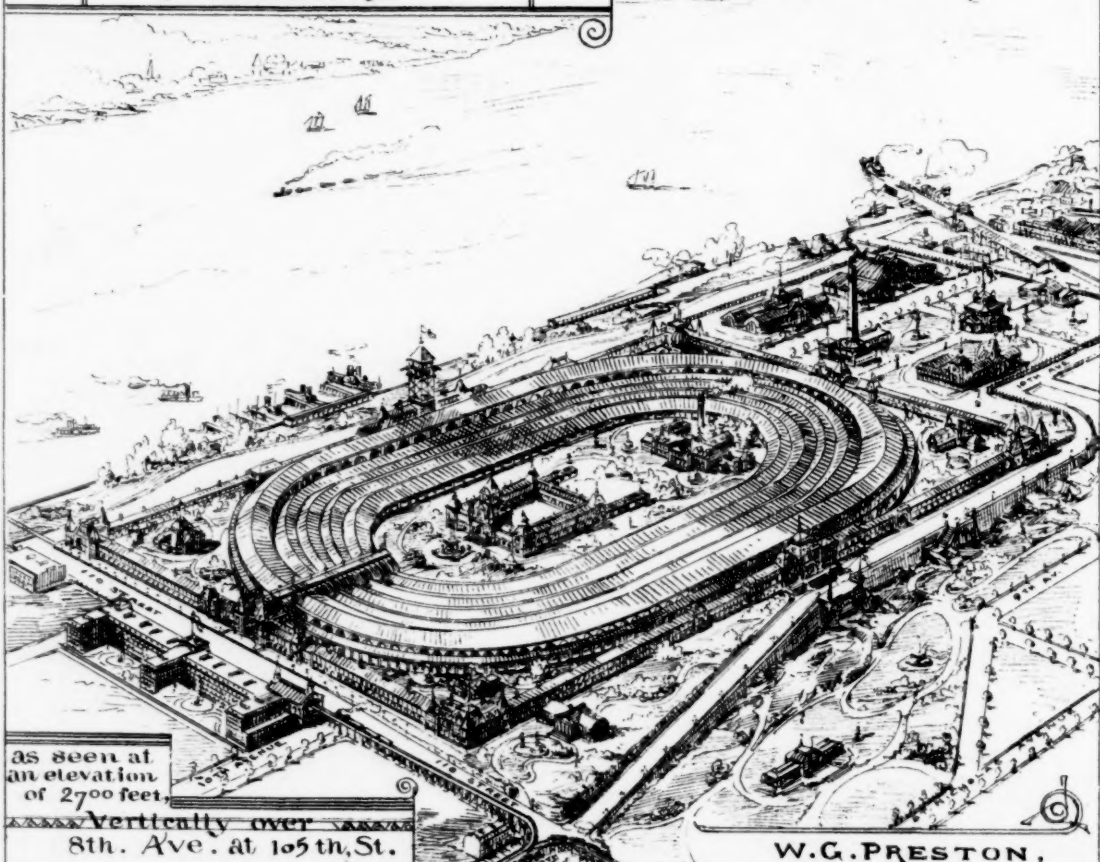


INTERNATIONAL EXHIBITION



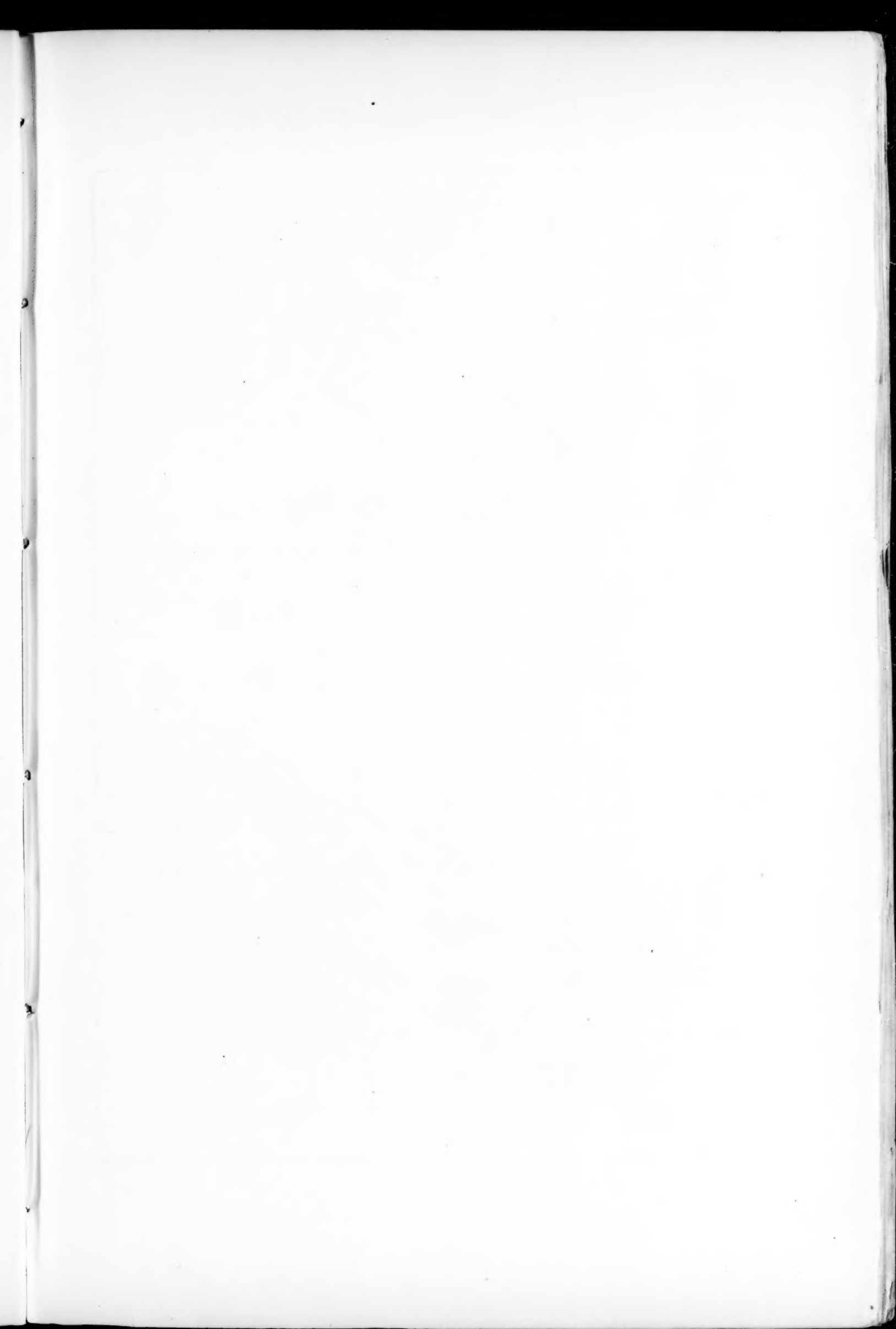
TRANSVERSE SECTION
THROUGH ONE SIDE OF EXHIBITION BUILDING
FROM STREET TO CENTRAL ENCLOSURE

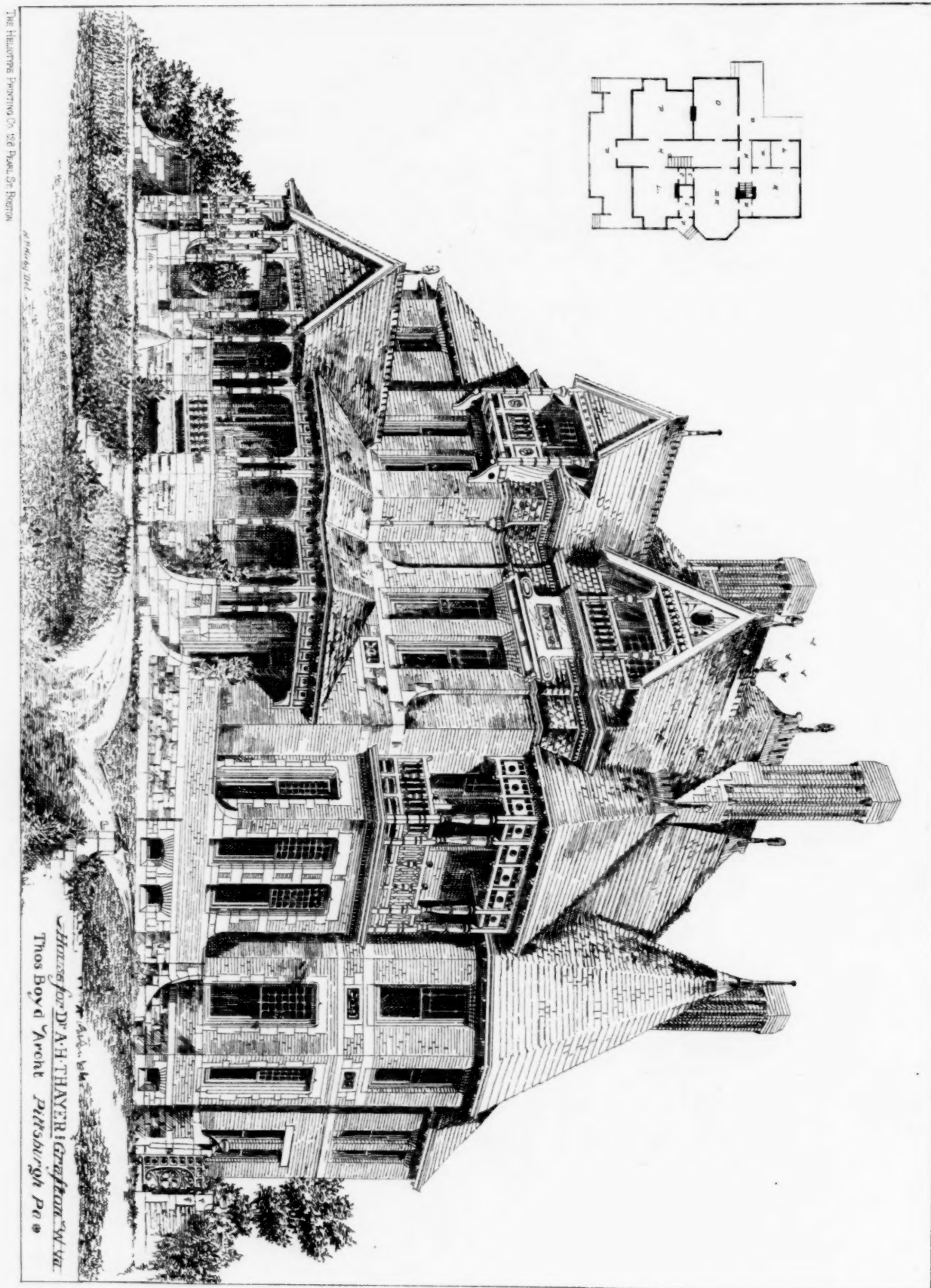
18. Balloon View of the EXHIBITION GROUNDS NEW YORK 83.



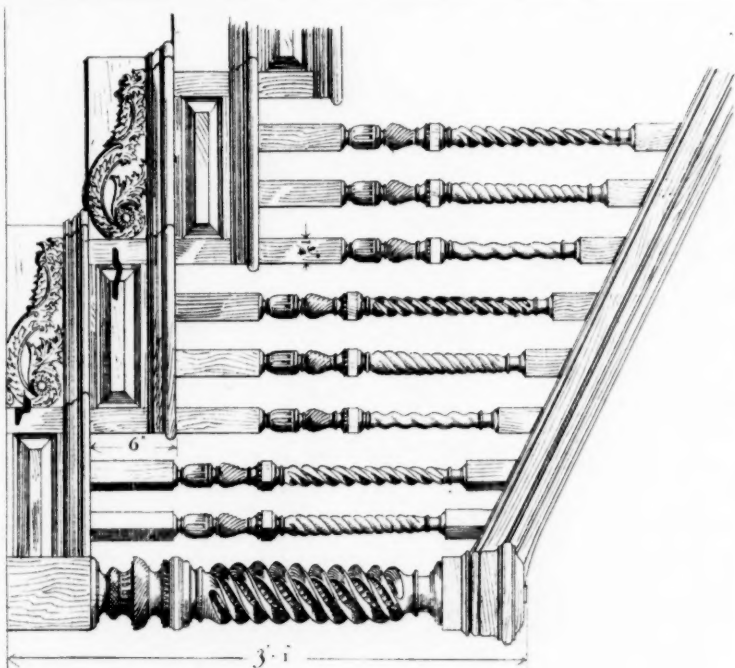
as seen at an elevation of 2700 feet, Vertically over 8th. Ave. at 105th St.

W. G. PRESTON,
ARCHITECT.

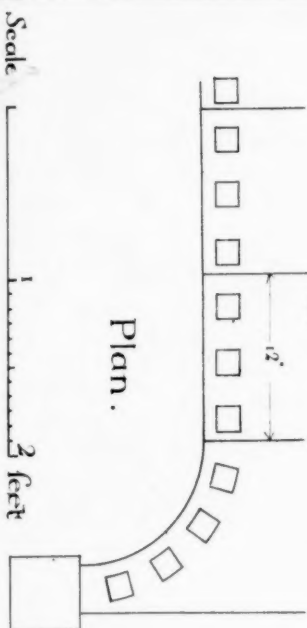




House for Dr A.H. THAYER; Green Mt W Va
Thos Boyd Vrent Pittsburgh Pa

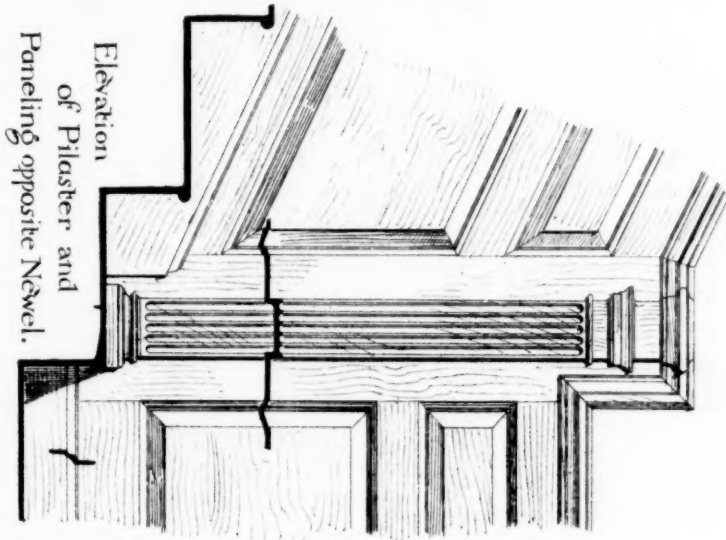


Elevation of Side.

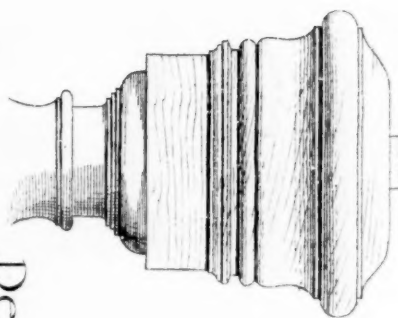
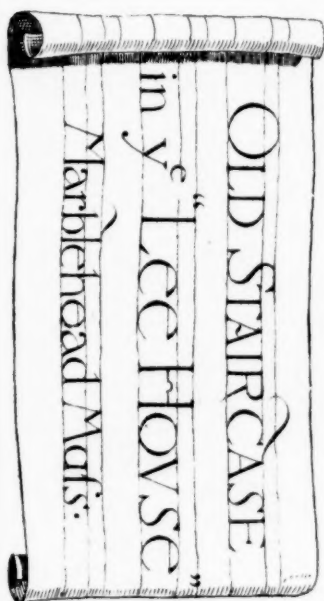


Plan.

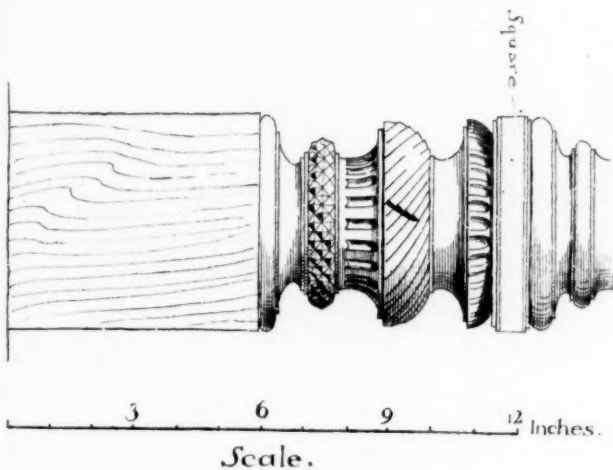
Scale 3 feet

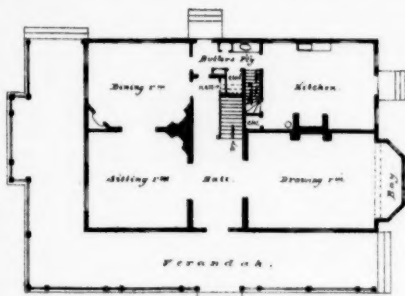


Elevation of Pilaster and Paneling opposite Nèwel.

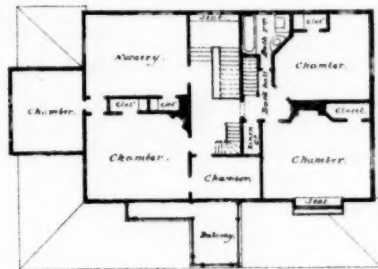


Detail of Nèwel.





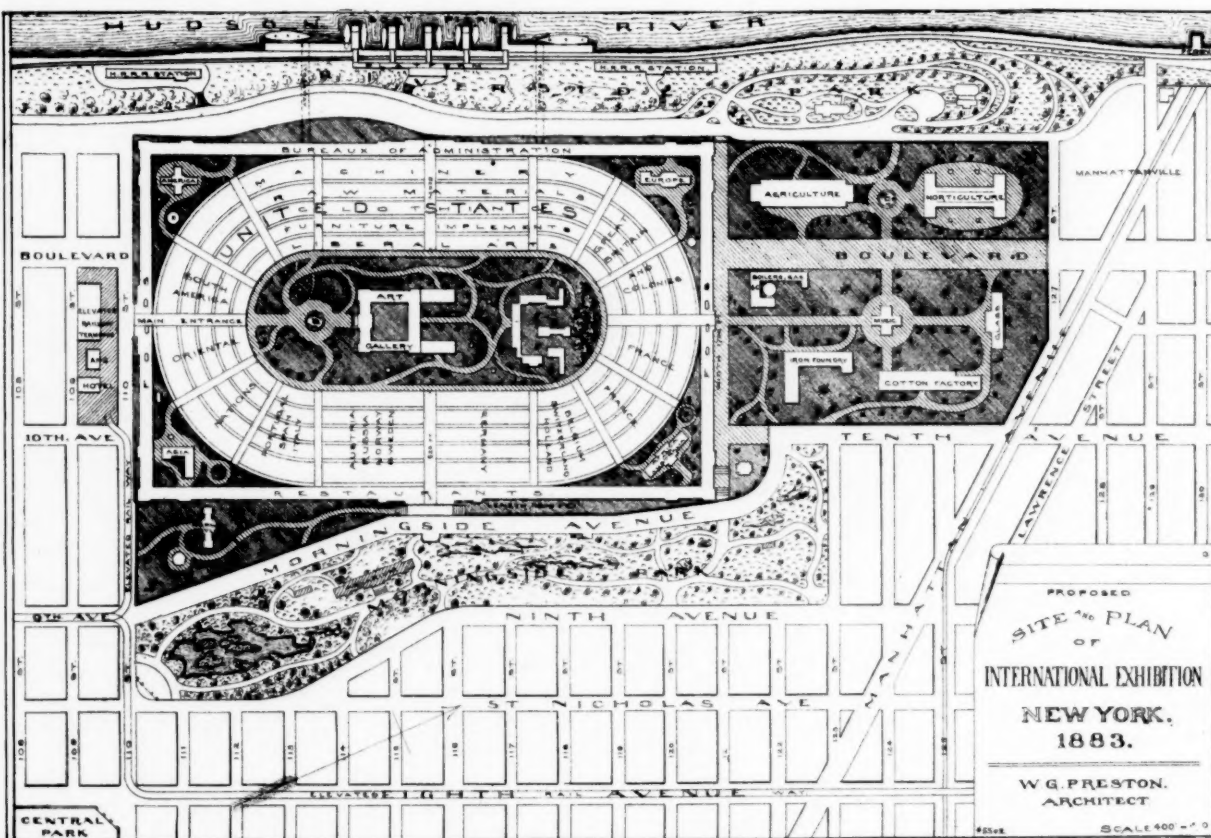
First Story Plan.



Second Story Plan.



MR. ROBERT FULTON'S HOUSE.
Montclair, N.J.
Milton See & Louis D. Berg,
Architects, N.Y.



covery of an undoubted original, doubly immortal through the chisel of Praxiteles and the pen of Pausanias, or over the advent of even a reproduction thereof such as we have in Boston? And can we not imagine the pilgrims that would have sought Olympia, had it been as accessible to them as it is to the tourist of to-day?

Let me point my words by considering for a moment the results of the very latest finding. A full set of casts from the Olympia sculptures has been sent year by year to Berlin. They are exhibited as nearly as may be in their proper position, and those obtained during the first two years' work have been often described for those especially interested in such subjects, though the general public has still but misty ideas in reference to them. The trophies of the third year, which have just been added, confirm in great part the disposition already made, and supplement it in the most satisfactory way. The third volume of the superb illustrated work describing the explorations has also just appeared.¹ From this book alone, or in conjunction with a fine series of photo-lithographs issued by a Dresden house,² one may get a valuable idea of the whole result. It is unnecessary, I hope, to describe again the east gable of the main temple, where we have the handiwork of Paionios — known to us until these discoveries by name alone — or the west gable of Alcamenes, who marks the transition from Phidias to the younger Attic school. The Hermes of Praxiteles and the magnificent colossal Nike of Paionios are the best known to us, perhaps, of all, so we note with satisfaction that the very latest despatches from Olympia announce that the head of the latter has at last been found. The face, unfortunately, is said to be much mutilated.

Till now less has been told us of the second great building of Olympia — of the Heraion — than of all these. It is doubly interesting, nevertheless, as it deviates very greatly from the ways of Greek construction previously known to us. The portico is of unusual plan, its proportion being six to ten, and the columns are of the greatest diversity. Of architrave, triglyphs, or cornice, not a trace has been found, though the temple and its foundations now lie bare. So it is to be presumed with certainty that the archaic wooden construction had been here in part retained. A gradual replacing of wooden by stone supports may account for the diversity of those remaining to us. The Philippeion, a circular building with external columns of the Ionic order, bears a definite date, that of the seventh decade of the fourth century B. C. Among the minor relics discovered are many of archaic workmanship highly valuable as showing the development of Greek art from its Asiatic and Egyptian sources. It has been said that they alone are worth all the trouble and cost of the explorations. Commenting upon them, Herr Bernhard Förster³ points out how a small bronze figure of Aphrodite, fully draped, but in the attitude known to us in such statues as the Venus de' Medici and the Capitoline, proves the exquisite tact with which artists of the classic period could adapt the honored traditions of earlier days. The posture which with them expresses the most delicate modesty was derived from such earlier works as this little bronze, where it was probably one of the symbols of fertility so common in Asiatic art.

Less known to us even than the Olympic treasures are the still later trophies of exploring skill, to which I have referred as being now in the Berlin Museum. They are a magnificent collection of sculptures from Bergame, the ancient Pergamos, and Germany owns them this time not in plaster copies, but in the precious originals. Their discovery and acquisition were due in great part to Herr Conze, whose explorations in Samothrace have already been noticed in this journal. These newer and more important finds are with certainty to be referred to the date presumed by him for the Samothracian relics, to the time of the Diadochi. They are indisputably the chief works of that distinct and famous school of art known to have flourished in Pergamos under the successors of Alexander. Corresponding in time, in importance, and, to a certain extent, in character with the school of Rhodes, the school of Pergamos derived immediately from Lysippus its style and execution, carrying still further than he an excessive refinement of finish as well as a tendency to excited action and passionate or pathetic effects. Its culminating point was in the time of Eumenes and Attalus I., princes of Pergamos, in the middle of the third century B. C. The Rhodian school showed its tendency toward complicated grouping and so-called "picture-like" effects by such monuments as the Laocoön and the Farnese Bull, and the Wrestlers of the Florentine Tribune. But the Pergamian school, while seeking like effects, seems to have drawn its materials very often from local, contemporary life. It found a grateful subject in the wars waged by Attalus and Eumenes against the invading Gauls, and the punishment which they of all the Macedonian princes were the first to inflict upon them. In Athens, still the intellectual and æsthetic centre of the world, Attalus dedicated a monument composed of four distinct but coördinated groups, which showed, respectively, the battle of the gods and giants, the combat of Theseus and the Amazons, the victory of the Athenians at Marathon, and the conquest of Attalus himself over the Gauls. This monument⁴ stood by the south wall of the Acropolis, and the traces of its basement, discovered in recent years, measure 50 by 16 feet. Undoubted fragments of its groups are in our possession to-day, — three figures in Venice, all of conquered Gauls; four in Naples, one an Amazon, one a

giant, and the others apparently soldiers of Persia and of Pergamos; one in the Vatican, a Gaul; and another similar one in the Castellani collection. From the proportions of the pedestal, and the size of the figures, — somewhat less than life, — it is evident that the groups instead of being ordered on a single plane, like those of a gable, were disposed in a sort of perspective through the sixteen feet of depth possessed by the base. Probably the celebrated groups of Lysippus were built in the same way, of which we have, too, a smaller example in the Rhodian Bull.

It had, furthermore, always been believed that Attalus adorned his own city with a still more splendid memorial, and critics had come of late to regard as fragments of such the so-called Dying Gladiator, — more correctly, Wounded Gaul, — of the Capitol, and the group at the Villa Ludovisi, which bears the equally apparent misnomer of Arria and Pætus. It is this long-presumed monument that has now been actually unearthed at Pergamos by Herr Conze and his comrades. Its substructure has been found, and from an old Byzantine wall have been rescued the fragments of about half the mighty frieze which once surrounded it, many of the slabs being in perfect preservation. The monument seems to have been a sort of huge altar, if we may so call it, measuring 140 metres in circumference at the base, though in what proportion of length to breadth my authority⁵ does not state. The frieze, which represents once more the contest of the gods and giants, remains in slabs 2.30 metres in height, and of various lengths. It probably contained in all about 300 square metres, and of these the Berlin Museum possesses 106 square metres, together with some 1,500 fragments of greater or less dimensions. The disposition of the monument, as nearly as can now be gathered, was as follows: The substructure, which supported a peripteral temple, was encircled on three sides by the frieze. The fourth side was occupied by a massive flight of steps leading up to the temple. This last was decorated by another smaller frieze, showing the legend of Telephos, ancestor of the Attalid race. Of this about 30 slabs, measuring 1.57 metres in height by .70 or .90 in length have been received at Berlin, but in December last had not yet been unpacked. In addition, we are told that a large number of inscriptions of the greatest value have been unearthed, together with relics of sculpture of all kinds and of all periods. All of these will, it seems, pass into German possession. Remarkable among them is a female head of exquisite beauty, dating from an earlier, more classic period than the major part of the discoveries, and resembling in style the Venus de Milo.

Fortunately it is the most important portions of the great frieze that have been most perfectly preserved, notably, Zeus himself with the ægis in his hand and the stricken giants at his feet, and the slabs representing Athene, — said to be of exceptional beauty, — Poseidon, Phæbus, Artemis, Dionysus, and Ge, the earth-mother, who, half emerging from the ground, laments the destruction of her sons. The conception of the whole frieze is of the most daring description, showing the wildest rage of battle, and the most complicated anatomical problems. We are told, however, that these difficulties have been dealt with — æsthetically and technically — in a style of consummate mastery. Our authority does not suggest the rôle probably played in the monument by such figures as those I have referred to in the Capitoline and Ludovisi collections, although he notes their probable relation to it. Part of a gable group they could hardly have been. They are equally finished all round, and the Samothracian pediments showed that in the time of the Diadochi this was considered a waste of labor, where the back was not to be seen. Moreover, the foundation slab of each is complete in itself. May we not suppose that if they were connected with the monument it was as parts of perspective groups, such as those erected by Attalus at Athens?

It is too early yet for any detailed criticism and estimate of these discoveries to have been published from competent hands. But even from what we already hear we may conclude that the find is of unexceeded value. Great in extent, and remarkable for preservation, it does us the signal service, moreover, of first definitely revealing an almost unknown school. Art as it existed under the Diadochi had long been guessed at and reconstructed in imagination from scanty remains and literary notices. It is now at last before us, a visible, coherent, and historically important thing.

M. G. VAN RENSSLAER.

THE CONDITION OF ARCHITECTURE IN THE WESTERN STATES. I.

ARCHITECTURAL progress in the West has not been the same with all classes of structures; and the reason for this is that uniform architectural talent is not employed on public and private work. As a rule, the public buildings in the West have employed inferior talent, and private ones have had the best available. Therefore, to intelligently understand the present condition of the art, public and private buildings must be considered separately.

Public buildings naturally comprise those erected for state, county, and municipal purposes. Private buildings are mainly for business and residence. Churches form a class by themselves.

With very few exceptions the public buildings of the Western States have been erected within the lifetime of the present genera-

¹ Published by Ernst Wasmuth: *Die Ausgraben zu Olympia*.

² Römmer und Jones.

³ *Im Neuen Reich*, 1879, No. 45.

⁴ Lübke, *Geschichte der Plastik*.

⁵ *Im Neuen Reich*, 1879, No. 49 (December).

tion. Those which are exceptional reflect the tendency, so general in the early days of the republic, to adopt Greek types in architecture, and were carried out in whatever material proved to be handy, without regard to structural propriety. Many of these have been superseded, within the memory of man, by modern structures; and in fact there are no public buildings over thirty years of age which are now suited to the purposes for which they were intended.

The prevalent custom of public architectural competitions has resulted in the selection of architects for these buildings whose talents are below the average. It is needless here to discuss the competition question, except so far as its results are concerned. But it is a fact that very seldom do the best architects enter such contests, and the choice of designs being controlled by men whose only abilities are in the field of politics, it is generally a matter of chance whose design is accepted; and those which please the eye the most are such as happen to be suited to the comprehension of the intellectual mediocrities who sit in judgment on them.

In the styles of architecture employed in public buildings in the West there is as yet no evidence of any tendency toward a national style, of which we see evidences in private architectural works everywhere. To prevent any misunderstanding as to what is meant by national style, I will explain that it is the tendency of a number of architects — whether working in concert or not — to follow nearly uniform principles in construction and design, uncontrolled by the traditions of previously existing styles. I say uncontrolled, though I think they may be *influenced*, a word of less comprehensive import. Of such is the prevalent tendency in domestic and commercial architecture to employ straight lintels placed flush with the walls and in connection with horizontal band courses; also continuous sills and visible bond courses in piers, cornices for wall protection only, and not for shadow effects; and, generally, ornamentation of the surface of walls and *within* the surface plane. The design of such buildings, though it has little in common with any historical style, has been largely *influenced* by the study of mediæval Gothic architecture and the works of Viollet-le-Duc, which have had such extensive circulation in this country. I shall have occasion to speak of this tendency of domestic architecture in another place.

The architecture of our public buildings has simply been ringing the changes on the styles of Greece and Rome, but more especially upon those of Rome. The architects call it Renaissance, but it has little in common with the historical Renaissance of Italy or France. It has more in common with the so-called "Italian" of England, which has been in favor from the days of Inigo Jones and Wren to the Gothic revival of our own time. It received its greatest impetus from the erection of Saint Paul's, and its latest from the London club-houses. England never had a Renaissance of classic architecture. She simply copied the works done in that name by the architects of Italy and France. The nearest approach to it was the picturesque combinations of classic details with Gothic forms of the time of James I. and Elizabeth, now called Jacobean, and revived to cater to fashionable tastes. But even that style, if style it may be called, was inspired by the picturesque and artistic late Flamboyant and early Renaissance of Normandy and Flanders.

Considering the average intelligence of the brains through which Greek and Roman details have been sifted in order to evolve the designs of our public buildings in the West, we might conclude that the merits and demerits of these buildings, as works of architecture, were not worth serious discussion. So far as their value as actual monuments is concerned, this is so. But their size and prominence, combined with that attribute to which the public attach so much importance, their cost, and the fact that many will stand for ages in their respective localities without rivals in these qualifications for popular renown, have given them such a position in the public eye that, in spite of all that may be said, they will always stand as public educators of the most powerful sort.

The earliest were — like the old public buildings of the Eastern States erected after the last war with England — attempts to revive the temple architecture of Greece. The latest are dubbed Neo-Grec, and are in truth *copied out of French books* containing illustrations of the modern French work of the Second Empire, which followed the innovations of Labrousse. With both, and with all the intermediate styles, the dome has been introduced almost without exception. Ten years ago mansard roofs came to be considered as essential to all public as well as private buildings, but they have now fallen into disfavor. The State-House at Springfield, Illinois, representing an expenditure of three and a half millions, and still unfinished, has mansard roofs on the two wings only, for want of any other place to put them. For the main cornice is on one level, and the central building is covered by a dome; consequently the mansards are built up above the actual top of the building.

The most prominent public building now in course of erection in the Western States is the twin public building of the city of Chicago. It occupies an entire square in the centre of the city, and will have cost, when completed, in the neighborhood of four million dollars. It consists of two structures almost exactly the same in design, but differing slightly in the materials used. One half is for county purposes and the other is for the use of the city government. Each building has one long front and two short ones. But they are to be connected at the ends by large arches covering the approaches to interior courts, and in the centre by a rotunda

common to both buildings. In this twin building, the arrangement of which for county and city purposes is novel, no mansard roofs have been introduced. But in one important respect it makes a departure from the vernacular public building, — it will have no dome. And the reason why it will have none is that public opinion, and nothing else, has condemned the idea. A dome, or rather domical tower, was designed to stand where the rotunda is now to be placed, and the work was actually commenced. But the agitation of the question of dome or no dome was so long continued, that it became the theme of popular conversation in the city. And when the people talked they naturally began to inquire as to the proprieties of the matter, without regard to precedents. Two arguments prevailed: One was that a dome would be of no practical use, and, inasmuch as it would be purely an ornamental appendage if erected, it was found that it would be more than useless, for the reason that it could not be seen to advantage from the streets of the city. The argument in favor of economy certainly had weight in preventing the erection of a great and costly dome, but it is doubtful whether it would have been vetoed had not a popular agitation resulted in making evident the absurdity of erecting a dome that was of no use, and could not be seen except from the suburbs. So here we have a case in which popular opinion has had a direct influence upon the design of the most prominent building in a large city. There can be no doubt but that the example will become a precedent, and it is safe to predict that this structure will mark an important departure in the use of domes on public buildings. The decision in this case was doubtless influenced by the present condition of the dome on the unfinished State-House at Springfield, Illinois, a building which the present generation will not be likely to see finished, and which another generation will have too much good taste to complete.

The new State-House at Des Moines, Iowa, has a dome of iron and copper, just completed, and of small dimensions, suggesting in a measure a decreased sense of the importance of domes generally. The State of Indiana has just commenced its new Capitol, which is designed to have a dome of stone and iron. It will be many years in course of erection, and may prove to be the last of the domical State capitols. All these buildings are in the American Renaissance style. They are all costly and elaborate.

Thus far no state or county building in the Western States has been erected in any other style. But there is a class of public buildings, of which a large number have been erected of late years, in which a greater originality of style and more perfect adaptability to their purpose has been displayed. These are what may be generically termed "public institutions," erected for various charitable purposes.

The great improvements lately made in the management of public institutions, such as hospitals and insane asylums, the introduction of machinery for performing much of the labor required in their care and maintenance, and improved systems of heating, ventilating, lighting, and cooking, have all contributed toward giving a utilitarian character to such establishments. And this has not failed to have a direct influence upon their architecture. The disposition of the buildings with reference to giving them the best positions for obtaining light and air, and their arrangement to meet the several conveniences of communication, have brought them into picturesque groupings. The necessity for having tall chimneys and ventilating shafts has led to the treatment of such necessary accessories in an artistic manner, giving them prominence rather than attempting to hide them. Clocks are desirable on such buildings, and hence clock-towers are introduced, while other towers are required for water-tanks.

For such requirements the old conventional forms of classic architecture are inappropriate: Hence architects have exercised more freedom in architectural treatment. But still another influence has been felt in the erection of such structures, which is found in the materials of construction employed. When it is proposed to erect a state-house or a city-hall, the design is first made, and the material is procured to carry out the design. In such cases it is not thought inappropriate to send to great distances for stones of a certain color or texture, while those which might be equally appropriate, and to which the designs could be readily adapted, are found in the vicinity. Thus the granite for the Cincinnati Custom-House is brought from Maine, and stone for the Chicago Custom-House is brought from the vicinity of Cincinnati. In the case of the erection of asylums and hospitals the appropriations are generally small at first, and the necessity for economy compels the adoption of a stone which is near at hand. The designs must be adapted to such stone, hence the buildings are likely to have a character in consonance with the qualities and possibilities of the stone employed. The history of architecture, through all time, shows that the best architectural forms have always been developed from a necessity to work in a given material. Still there is another reason why the public institutions of the West are more elastic in design than all others. It is found in the fact that so many are built of brick. The use of bricks has always given architects great freedom in design. The use of a material which is generally considered to have no beauty in itself has always led designers to seek beauty in the disposition of masses rather than details.

Taking all these circumstances together, we find good reason for the fact that a decided improvement has taken place of late years in the design of public buildings of this class. This result has come from natural and legitimate causes, and whether such

works have been intrusted to architects of ability and education, or to the average of those who may be found in the Western States, they have been architecturally more satisfactory than the more pretentious court-houses and State Capitols. The style commonly called Gothic, but which has only a vague resemblance to historical examples of that style, has lately predominated in buildings of this class. The best of them are those in which ideas of style have been least prominent, and in all of them there is evidence of a tendency toward a national architecture. It is useless, in the limits of this paper, to name any number of these buildings. From the very nature of their objects they are of necessity isolated structures, often built in places where they are seen by few persons beside the residents of the neighboring city or village. Hence as standing examples of architectural art they can exert but a limited influence as public educators. — *P. B. Wight in the American Art Review.*

ANCIENT AMERICAN POTTERY.

MR. F. W. PUTNAM made a communication at a late meeting of the Boston Natural History Society, on the principles involved in the ornamentation of the pottery of some of the ancient nations of America, with particular reference to that from the Cumberland Valley in Tennessee, and from Nicaragua; illustrating his subject by a fine series of vessels of various shapes, selected from the Peabody Museum of American Archaeology and Ethnology.

After a general review of the methods of ornamentation employed by American nations of the past, he showed that, by a study of such large collections as those in the Peabody Museum, the artistic development of the ancient peoples of America was far greater than generally stated by writers; and that the art of ornamentation had, in many instances, risen above the simple patterns made by incised lines, rude stamps, and other early and crude forms. Both in color and in plastic work, a realistic art had been produced which had often resulted in conventionalisms of great interest.

He also stated that a study of this ancient pottery, with these principles of conventionalism borne in mind, would not only place some of these ancient American nations in a much higher artistic period than formerly supposed, but would also lead to the understanding of many of the singular ornaments on the ancient vessels, many of which, without this knowledge of the existence of realistic and conventional art, would be looked upon as crude and meaningless attempts at ornament, whereas, as he showed by several series of specimens, the simple knobs arranged symmetrically about a pot or water-bottle, were instances of pure conventionalism from realistic forms, and prove that a comparatively high attainment in the decorative art had been reached.

A proper and careful study of the principles involved in this interpretation of the artistic development of the ceramic art in America, he thought, would in time furnish means of making comparisons in regard to the probable connection of one ancient American nation with another, and also an understanding of many of the singular resemblances between widely separated peoples. Still, he said, the whole subject was yet in its infancy, and the connection of one ancient people with another in America can at present only be suggested from very unsatisfactory data.

OLD FURNITURE IN WASHINGTON.

THE amount of second-hand furniture bought and sold in Washington is extraordinary. It is greatly owing to the floating population that the auctions have come to be a permanent feature of the streets of the national capital. The mania for the antique draws into the second-hand stores the boundless household resources of all this old Maryland and Virginia country. New England has been swept and dusted for the last ten years, until I should fancy there are no new antiques left, but in Washington the demand is more recent and the supply larger. Old homesteads have been broken up by the fortune of war and subsequent misfortune, and the flotsam and jetsam floats up to the wreckers. The second-hand stores are full of sideboards and mirrors and stately chairs that have seen better days. One day some months ago I stopped to look in Thompson's window on the avenue at a brass fender, a perfect Grand Patriarch of a fender. And then I caught sight of a carved bed-post, in the old English carving of a hundred years ago, solid mahogany, good as gold and warm as wine. And then, having got the *entrée* to this old curiosity shop, I was taken through all the debris, away back to the room where the "renovating" is done, and dull and dingy furniture "suffers a sea-change" into something as much better than new as is old wine than new. It has the warm rich tone that is without money and without price, and which only age can bring. Mr. Thompson has fitted up a number of rooms in old mahogany for Washington people of wealth and taste.

At the great sale at the Gales mansion a while ago, bric-à-brac of all sorts was set adrift. Most of it was bought on the spot by private individuals, though some fell into the hands of the dealers. I saw in a store afterward a quaint old mirror which came from there. It was about thirty by twenty inches, and made with leaves hinged on and folding over in Japanese fashion, and mounted with strong brass rings for hanging—a mirror made to travel round the world without breaking—and it brought only \$2.50! Down on the Eastern

Shore, a friend who lives there tells me, there go for a song at country sales andirons that for beauty of workmanship would command a high price in decorative-art rooms. I remember an artist who once told me of andirons he had seen in the interior provinces of France that were poems in iron. My friend declares that at a breaking-up sale near Norfolk, the other day, she bought a pair of sonnets in brass. — *Calista Halsey, in the Art Amateur.*

ROMAN ARCHEOLOGY.

ROME will soon have a new theatre on the street just completed, between the old and the new quarters of the city. It has been built by Signor Costanzi, at a cost of two hundred and fifty thousand dollars. This is an extraordinary undertaking for one person, as generally there is little enterprise here, and the Government is expected to do everything of the kind. In digging the foundations of this theatre, which is situated on the Esquiline, and not far from the Baths of Diocletian, a beautiful statue was found, which Signor Costanzi exhibits and would sell. An ancient mural painting was also found here which he proposed giving to the city. It represented a sacrifice to Jove, and was unique of its kind; but, unfortunately, in moving it it was broken into fragments which could not be united. In the excavations now making for the sewers and for the gas and water pipes at the Piazza de Termini, a Doric column of *giallo antico* was found. The capital was discovered at a short distance. Two hundred men are employed here to prepare three gardens or public squares, which will convert the now desert region near the Baths of Diocletian into a pleasant resort. At the Baths of Caracalla the excavations have laid bare the floor of the large gymnasium. A vineyard which occupies the site of the ruins on this side will be purchased by the Government, in order to continue the excavations. The whole of this marvellous edifice cannot be displayed until this is done. At the Palatine the Imperial Stadium is gradually undergoing restoration to its original form, and the Roman Forum is in process of excavation near the ancient Temple of Romulus, now the Church of Saints Cosmo and Damiano.

Also at Ostia new discoveries have been made. Beside the Imperial Palace, the Temple of Vulcan, and other buildings, there are now to be seen the remains of the ancient grain magazines at that port. During the last inundation of the Tiber some of the excavations already made on the border of the stream were filled with mud, which it is necessary to remove, besides building a wall to protect these points in future. It has been found that the Tiber is gradually encroaching on the ruins of Ostia, and, by a calculation recently made, it has advanced one hundred and fifty feet since the year 1812. It will be necessary to raise an embankment to protect them, the cost of which will be not less than ten thousand dollars.

It is the fashion now among certain correspondents for English papers to accuse the Italian Government of great negligence of the ancient objects of art found beneath its soil, and of the churches and monuments. But the fact is that the archaeologists of Italy display a febrile activity for the preservation of these treasures, and the Government devotes annually a not indifferent sum of money to this purpose. Not only are the monuments of Rome carefully guarded, but, as far as the money will go, those of other parts of Italy. Thus, for instance, it has long been known that the remains of a celebrated temple of Apollo exist at Terracina, upon which had been erected another building. The Committee for Monuments has recently ordered the removal of the construction, in order that the majesty of the primitive edifice may be brought to view. At Tolf, near Civita Vecchia, a great quantity of objects—the remains of an ancient Etruscan city—have been found, and the committee has taken measures to preserve them, so they may not be carried to other countries. At Frascati, in the Church of the Vivario, are some valuable frescoes of the fifteenth century, which are hidden behind a wall in the choir, built a century later. These frescoes will be taken care of so that they may serve as studies for painters. An ancient Pelasgian citadel at Alatri, which has been neglected, will be restored. The disputes among the archaeologists, who are as jealous of each other as doctors, often become warm. One calls Fiorelli, the superintendent, the "archaeological pope," and blames him for neglecting the frescoes found in the ancient Roman house on the bank of the Tiber. Forthwith the Minister of Public Instruction calls the whole Academy of St. Luke to decide whether they shall remain as they are on the old walls, or be transferred to canvas. The decision of the Academy was that the frescoes are suffering injury in their present condition, and something will immediately be done to preserve them. Photographs have already been taken by Signor Tuminello. — *New York Evening Post.*

UNDERCUTTING ARCHITECTS.

DES MOINES, IOWA, March 1, 1880.

TO THE EDITOR OF THE AMERICAN ARCHITECT:

Sir, — Your remark in a recent issue in regard to a competition for the plans of a court-house in Palo Alto County will apply with equal and more force to a recent competition in this city. The supervisors of Palo Alto County were ignorant of the customary and regular fees for the service they required, and, on being properly posted, manifested their good sense by paying five per cent on the cost of the work. But in this city, where are located five prac-

tising architects, a building committee, consisting of a bishop, a clergyman, an editor, a contractor, and three lawyers, invited all the architects to compete for the plans of a church to cost about \$40,000, with no stipulations as to fees, presumably expecting to pay full regular fees of five per cent.

After wrangling for several weeks without definite results, the architects were again requested to compete for the price of their services. The work was awarded to the lowest bidders, who offer the full service of plans and superintendence for the sum of \$350, less than one per cent of the estimated cost. Whether this building committee, consisting of leading citizens, all of them standing at the head of their respective professions, or the gentlemen who are pleased to call themselves architects, to whom the plans were awarded, are most to blame for this pitiful and degrading remuneration, I leave for your readers to judge.

Your excellent journal has done valuable missionary work for Western architects who are conscientiously striving to maintain the standing and dignity of the profession, and I will take this occasion to say that by some of us it is highly appreciated.

Yours, etc.,

B.

NOTES AND CLIPPINGS.

THE BALTIMORE SOCIETY OF DECORATIVE ART.—An afternoon and an evening course of art instruction is now open under care of the Baltimore Decorative Art Society in the rooms of the Maryland Historical Society's Building, comprising classes in Charcoal Drawing, Water Colors, China Painting, Theory of Design, etc., for both ladies and gentlemen. It is proposed to have an informal weekly sketch class Friday evenings, opened to all members of the society and to all pupils. It is also proposed to have a monthly social meeting for all members of the society and all pupils, when a short instructive lecture or reading will be given on some art subject. A second course, similar to the first, will extend from April 1 to July 1.

THE TEMPERATURE OF SEWAGE.—Appropos of the cold, a writer in the *Revue d'Hygiène* has drawn attention to a curious fact which cannot fail to interest all those who have followed the question of the utility, from an agricultural point of view, of the sewage of the great capital [Paris]. During the recent cold, when the thermometer marked in the streets nearly zero (Fahrenheit), the temperature in the drains remained always above freezing-point, notwithstanding which, the authorities stopped the machines which pump a certain quantity of the sewage on to the plain of Gennevilliers. The market-gardeners of this important suburb asked the engineers to continue the sewage irrigations, to clear away the mass of snow which covered their fields, as also to save their vegetables frozen up with the soil. The irrigations were, therefore, continued at Gennevilliers during the most severe cold, and the vegetables from this suburb contributed to a large extent to provision Paris when from the other usual sources the market-gardeners were unable to send in any vegetables. Thermometric observations showed that the sewage, after having been filtered through the soil, still retained a temperature of $+10^{\circ}$ and $+12^{\circ}$ Centigrade (that is, more than 50° Fahrenheit) when it issued from the drain and ran into the Seine. This is a fact worthy of attention at a moment when the value of sewage as a means of irrigation is under discussion. It may be added also that between Clichy and Argenteuil, the Seine, which receives between those two points the greater part of the outlets of the Paris drains, was not frozen when the ice between the bridges was more than a foot thick. The recent statistics which have shown how at Croydon and elsewhere the death-rate has sensibly diminished, since the use of sewage for irrigation, have attracted not a little notice on this side of the Channel, where the discussion rages with as much warmth as on the other side. If as one result of the late frost we on the banks of the Seine have had to content ourselves without vegetables and fruit, we have not had to suffer like our Venetian friends, who, we hear, have been entirely deprived of their at-all-times insufficient supply of water. — *Paris Correspondence of the Builder.*

THE WAY OF THE STRIKER.—An almost amusing illustration of the peculiar ways of strikers comes from the mines of the Houtzdale, Penn., region. The coal miners demand an advance of 10 cents per ton; and this might be granted if the operators could have assurance that it would finally settle matters. But there have been nine strikes in three months. First they struck for a check weighman, upon the plea that the operators were cheating them. This was granted with the proviso that the weighman should be paid by the men themselves. Then they struck to have the said weighman placed upon the company's payroll, and carried that point. Then the drivers struck for an advance of 25 cents per day, and got it. Then the trappers struck for an advance of 10 cents per day, and got it. Then the miners struck for 10 cents per ton advance for mining, and got it. Then the drivers struck for an advance of 25 cents per day, and for "ten hours," and got both their claims allowed. Then the miners organized the present strike, and the drivers propose to follow suit. In view of these constant and repeated demands, the operators have come to the conclusion that it is necessary to draw the line somewhere. In fact, if the thing is to go on, the mines themselves might as well be deeded as a free gift to the workmen. For it is impossible to carry on any business successfully or even intelligently if wages are thus to be kept uncertain, and always on the rise at that. — *New York Tribune.*

A CASE FOR THE ANTI-RESTORATIONISTS.—When Washington was on his way to Red Bank one hundred years ago, he slept one night in Chew's Landing, a New Jersey village. Next morning he was surprised to find that half the inhabitants had formed themselves into a delegation to ask of him a contribution toward a new Episcopal church. He not only gave the contribution, but signed the church book, and so did Carroll of Carrollton. The book has been religiously preserved in the vestry, and every Governor of New Jersey has for many years given something to keep the building in order. Now, however, it is to be torn down and a commonplace brick church built in its stead.

WOMEN ARTISTS AS ACADEMICIANS.—It has been rumored for some time that the Royal Academy has determined to throw open the distinction of its membership to women as well as men, and it is now said that the determination only wants the Queen's assent to be carried into effect. Her Majesty is scarcely likely to affront her own sex by refusing her ratification to a very sensible resolution. The precedent of Angelica Kaufmann occurs at once and naturally to the mind which after the English manner seeks for and is comforted by precedent. But in truth no such corroboration is required. There can be nothing in the nature or functions of a Royal Academy of Arts to exclude lady candidates who have proved their competence in an art for which their sex has long ago proved its aptitude. It would be invidious to suggest the names of any such candidates at the present moment, but no frequenter of galleries will have any difficulty in recalling several. We shall hope that the extension of the privilege will not be accompanied by any of the somewhat absurd and unreasonable restrictions which sometimes attend concessions of this kind. Some rumors, for instance, have been set abroad about an intended exclusion of lady associates and academicians from the annual dinner, which seems to some people the most important of the academic functions. Considering that bishops frequently assist at this solemnity, there surely can be no reason why ladies should not be present likewise. If their presence restrained the guests from depositing cigar ashes in convenient horse-hoofs as a tribute to the excellence of the statuary, it would perhaps be no very great loss. Burlington House is quite large enough to enable a smoking room to be set apart. — *London News, January 31.*

THE LOUISIANA STATE-HOUSE.—The joint committee appointed by the General Assembly of Louisiana to examine the old Capitol at Baton Rouge and make an estimate of the cost of repairing and refitting it for State purposes, report that it would probably cost \$197,000 to place the building in a proper condition. The old walls must be torn down to the first floor, and two additional stories of brick and stone built. It will also require new heating apparatus, complete drainage pipes, vaults for the Treasurer and the State records, painting, etc. An additional expense, which is not included in the above estimate, must be made in the purchase of furniture, carpets, the fitting up of the different departments, etc.

NEW PUBLIC BATHS IN PARIS.—The Paris Municipal Council has under consideration a plan to construct four large swimming baths in different parts of the city, where for 25 centimes one will be able to bathe all the year round in a current of clear water kept at a suitable temperature and protected from the weather. Four sites are to be chosen in the most popular districts, the Quay de Billy, La Villette, the Pont d'Austerlitz and Ménilmontant. The construction will be solid, and the basins will be 75 metres long by 15 metres wide. In order to secure a proper temperature for the water, the city will cede to the contractors the condensed steam from its engines, but in return it will require 600,000 tickets of admission at one penny, and certain hours to be fixed at which the pupils of the communal schools shall be admitted free.

HERR GUSTAVE KLOTZ.—The death of the architect of the Cathedral at Strasburg, Herr Gustave Klotz, is recorded.

GOLD IN RUSSIAN ARCHITECTURE.—The report of Russia's wish to negotiate a new loan, and the undoubted fact of her paper ruble being now worth only fifty cents instead of seventy-five, suggest some curious ideas in connection with the magnificent church now being completed in Moscow, with a thick plating of gold on its dome and cross. This fashion of gilding church towers is universal in Russia, and it has been calculated that enough gold is thus lying idle to pay off the national debt. The Isaac Cathedral in St. Petersburg has a plating of gold three quarters of an inch thick over the whole of a dome as large as that of St. Paul's in London. The Church of Our Lady of Kazan has a massive altar furniture of solid silver. During the great fire of Moscow, in 1812, the molten gold and silver were seen flowing like water from the churches, and the new addition to them which is about to be consecrated represents an outlay of fully \$15,000,000. — *Illustrated News.*

THE CAMPANILE AT FLORENCE.—In a new edition of Vasari's Lives of the Artists it will be shown by unpublished documents that Giotto erected only the first stage of the Campanile at Florence; and that, after he died, the work was carried on by Francesco Talenti, and not by Taddeo Gaddi, as has been supposed.

WHO WILL REFORM THE REFORMERS.—The *Sanitary Engineer* says that the Vergennes, Vt., Reform School is so crowded, that one hundred and twenty-two boys sleep in a room 46 by 40 feet, and that although the beds have but the narrowest spaces between them, some of the beds have to be double-deckers, so to speak, to accommodate this number.

"KANSAS NATURAL LIME."—A Kansas gentleman who noticed in a Western paper an article on "Kansas Lime" copied from the *American Architect* writes: "I thought that the description was of gypsum; it resembles it very closely. Gypsum is abundant here, there being a stratum of it of from three to seven feet thick overlaying about one third of the centre surface of this county. There seem to be three kinds of it, one kind that can be dug with a spade, and the other two are harder. I have an egg cup that was turned out of gypsum by a hand lathe four years ago. I have boiled vinegar in it, and melted glue in it, and thrown it in many ways, trying to break it, but cannot. In appearance it resembles red, streaked marble. Gypsum is much used here for building, as a mortar; is set very quickly, somewhat like 'water lime.' There is a brick made of it here that is destined to find its way into your market, being at once a cheap and attractive building material."

THE PEABODY BUILDINGS, LONDON.—It is charged that the Peabody Buildings in London are let at such high rates and so managed that instead of being occupied by the working classes they are taken up by people who can well afford to pay a higher rent, and those for whom they were designed get no benefit whatever from them.

BUILDING INTELLIGENCE.

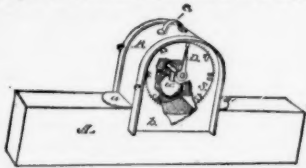
[Reported for the American Architect and Building News.]

[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.

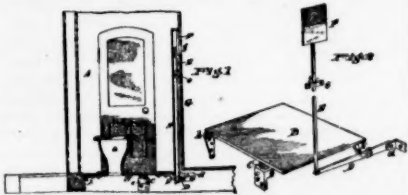
[Printed specifications of any patents here mentioned, together with full detail illustrations, may be obtained of the Commissioner of Patents, at Washington, for twenty-five cents.]

223,343. PLUMB-LEVEL. — Mordecai Harrison, Columbia, S. C. This invention relates to plumb levels wherein a needle is made to traverse a protractor and indicate the angle which the level makes with the horizontal or vertical planes. A designates a straight-edge and B a metallic box, having a plane front and back, and secured to the straight-edge by the flanges *a* and *b*. The upper end of this box is provided with a ring, *c*, by means of which it is conveniently handled. C is a horizontal pivot, having its bearings in the front and back of the box, and is provided, inside of the box, with a projecting arm, *d*, having at its end a weight, *e*, and it turns readily in its bearings, so that the weighted arm will always depend vertically therefrom, whatever be the inclination of the straight-edge.



The ends of C project beyond the box, and are each provided with an index, D, which traverses a graduated scale, S, engraved on the face-plates of the box. The scales are laid off from 0° to 90°, completing the circle in four subdivisions, the subdivisions being again subdivided into graduations of 45° and fractional parts thereof, usually five degrees. In very fine work the scale may be laid off in degrees. The flanges, *e*, serve to prevent the indexes from being jammed, and protect them from being bent or displaced. The entire box and its attachments, except the straight-edge, which is preferably of wood, are made of metal, and the box is weather and dust proof. This device is of great utility in adjusting matters at a proper angle, and for other analogous purposes, and the indicator being on top of the straight-edge and the scale laid off for three hundred and sixty degrees in subdivisions of ninety degrees, the instrument may be used in erecting perpendiculars, levelling on the ground or overhead, and for all purposes wherever the plumb and level are now separately employed. In all these operations the box B serves as a handle. Being above the straight-edge or level, the figures of the dial may be read off readily, even though the straight-edge be let down into a trench or between two beams upon a third between them.

224,125. SIGNAL FOR WATER-CLOSERS. — Delos R. Baker, Cincinnati, O. This invention has for its object to indicate by signal the occupancy of the water-closet. It consists in the arrangement of a shifting signal, in connection



with a movable floor in the closet, so that the weight of the occupant of the closet will operate to display the signal. A represents the water-closet of a railway-car, having the usual commode-seat. The floor is hinged at *b*, and its free end rests upon spring-buffers, C, and is provided with an arm, *b'*, to engage with a horizontal lever, D, pivoted at *d* to a lug upon the car-sill. The extreme end of the lever D is secured to a rod, E, which moves in guides, and carries a signal-board F. The rod E and signal-board F are inside the water-closet, close to the partition or wall G, and are concealed by boxing, H. The side of the signal-board which faces the opening *g*, in the partition, is painted in two colors. When a person enters the closet his weight compresses the floor, and motion is communicated through *b'*, lever D, and rod E, to signal-board F, which falls so as to display the contrasting color through opening *g*. When the occupant leaves the closet the floor rises by virtue of the spring-buffers C, and the signal-board rises so as to display the color harmonizing with the outside finish.

225,004. HANDLE FOR FILES. — Crawford M. Fairbanks, Central Falls, Pawtucket, R. I.

225,021. WINDOW-NETTING. — Charles T. Phelan, New York, N. Y.

225,033. WEATHER-STRIP. — James T. Westbrook, Baseo, Ill.

225,055. COMBINED HOUSE SPEAKING AND SIGNALLING APPARATUS. — Charles Heiser, St. Louis, Mo.

225,060. COMBINED CAPITAL AND BASE FOR METALLIC COLUMNS. — Job Johnson, Brooklyn, N. Y.

225,061. TUBULAR PILE. — Job Johnson, Brooklyn, N. Y.

225,065. BUILDING HOUSES, BARN, FENCES, ETC. — Joseph M. Leeds, Kokomo, Ind.

225,083. HOT-AIR REGISTER. — Edward A. Tuttle, New York, N. Y.

225,084. HOT-AIR REGISTER. — Edward A. Tuttle, New York, N. Y.

225,085. HOT-AIR REGISTER. — Silas Tuttle, Jr., Brooklyn, N. Y.

225,094. ROOFING COMPOSITION. — Geo. W. Bender, Canton, O.

225,107. MOULD FOR BRICK MACHINE. — George Carnell, Philadelphia, Penn.

225,116. SHUTTER-WORKER. — Russell G. Dudley, Jersey City, N. J.

225,117. WINDOW-POLISH. — John M. Farrier, Dayton, Ohio.

225,119. GLUE CEMENT. — John Frimbach, Brooklyn, N. Y.

225,135. WRENCH. — Harrison P. Hood, Indianapolis, Ind.

225,180. SASH-SUPPORTER. — Wm. W. Sweetland, Edwardsburg, Mich.

225,192. APPARATUS FOR COOLING AIR. — Walter S. Wilkinson, Baltimore, Md.

225,193. CISTERN-PUMP. — Martin Weiser, Armstrong, Kan.

9,181. KNOB ATTACHMENT. — (Re-issue.) William H. Gonne, Chatham, Ontario, Can.

SUMMARY OF THE WEEK.

Baltimore.

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

John Hysler, 2 three-story brick buildings, N. Gay St., between Bond and Broadway, 13' x 58'.

Mary Mumma, three-story brick building, 162 Greenmount Ave.

Elizabeth Burnap, two-story mansard roof dwell., cor. Calvert and Chase Sts., 22' x 79'.

G. Muller, two-story brick building, 103 Wolf St., between Gough and Bank Sts.

J. Q. Codling, 3 three-story brick buildings, on Fort Ave., between Howard and Charles Sts.

J. Q. Codling, 3 three-story brick buildings, Randall St., between Hanover and Charles Sts.

Dr. Sappington, addition and improvement to store, No. 168 Lexington St.

Mrs. Wiesenfeld, four-story warehouse, No. 31 Howard St., between German and Lombard Sts.

James Rieman, two-story brick building, Paca St., between Baltimore and German Sts.

Hannis Distilling Co., one-story brick warehouse, cor. Ostend and Russell Sts., 58' x 120'.

Geo. Blake, 4 three-story brick buildings, cor. Charles and John Sts.

Sixty-seven permits were issued during February by the Appeal Tax Court.

HOUSE. — Messrs. Wyatt & Sperry, architects, are preparing drawings for a suburban cottage for Chester Turnbull, Esq.; cost, \$4,000.

MARKET-HOUSES. — Mr. Beutley, Inspector of Buildings, recommends improvements to market-houses, as follows: Broadway, \$2,500; Belair, \$2,000; Lexington, \$5,500; Hollins, \$200; Richmond, \$900; Hanover, \$1,000; Centre, \$600; Lafayette, \$30.

POST-OFFICE. — The bill appropriating \$550,000 for the purchase of a site for the new post-office in this city having become a law, the work of tearing down the old buildings will soon commence.

ASYLUM. — The legislative committee recommend an appropriation of \$50,000 for additional buildings, and \$10,000 for sewer drainage and improved water supply for the Spring Grove Insane Asylum.

CHURCH. — Work is progressing on the Harlem Park M. E. Church. It is intended, during the coming summer, to extend the building so as to cover the entire lot of 61 feet by 157 feet. Baltimore County blue-stone, with Ohio-stone finish, and granite sills and steps, are used. The style is Gothic, with open-timber roof of entirely new design, and of a very ornamental character; cost, about \$12,000. Messrs. Dixon & Carson, architects; Wm. Ferguson, builder.

Boston.

BUILDING PERMITS. — Since our last report the building permits granted are as follows: —

Brick. — 327 Commonwealth Ave., 1 dwell., 25' x 71'; three stories; J. W. Tobey, owner and builder.

47 Pleasant St., for Estate of M. Cutler, 1 tenement-house, 34' x 50'; four stories; W. M. Rumery, builder; A. Frink, architect.

806 Washington St., for U. Crocker, 1 store, 18' x 70'; T. J. Whidden, builder.

Howard St., Ward 20, for Globe Nail Co., 1 gas house, 30' x 54'.

Wood. — Centre St., Ward 23, for R. Marsh, 1 dwell., 33' x 27'.

Washington St., cor. Melville Ave., for E. Torrep, 1 dwell., 47' x 49'; S. H. L. Pierce, builder; Cabot & Chandler, architects.

Jamaica St., Ward 23, for M. Flynn, 1 dwell., 23' x 30'; M. D. Ayers, builder.

Wilmont St. and Walnut Ave., for Chas. A. Dean, 3 dwells., 24' x 35'; A. Frink, architect.

622 Warren Ave., for A. Dunyor, 1 dwell., 25' x 37'; G. M. Harding, architect.

Mount Bowdoin Ave., for H. Stevens, 1 dwell., 35' x 55'; E. E. Chapin, builder.

Hancock St., for A. N. Shepard, 1 dwell., 23' x 39'; W. H. Gordon, builder.

Centre St., for A. French, 1 stable, 33' x 38'; J. D. Wester, builder.

Everett St., Ward 23, for R. F. Hyde, 1 dwell., 31' x 25'; J. D. Wester, builder.

HOUSES. — On St. James Avenue, nearly adjoining the Art Museum, is to be built this spring a block of six houses for Mr. Henry B. Williams. The only stone-work will be the sills. Each house has a different arrangement, the depth varying from 63 to 83 feet, while the width of each (24 feet) is the same. Mr. Ralph W. Emerson is the architect.

Brooklyn.

BUILDING PERMITS. — Fifteenth St., 1 two-story frame dwell., 20' x 38'; cost, \$1,100; owner, M. Brenen, on premises; builders, Cliff & Co.

Sumpter St., 1 two-story frame dwell., 25' x 40'; cost, \$1,600; owner, Matthea Barke, Chauncey St., near Ralph Ave.; builders, M. Costillon and Chas. Burton.

Portland Ave., 1 four-story brown-stone dwell., 20' x 50'; cost, \$18,000; owner, G. W. Brown, 46 South Portland Ave.; architect, C. B. Sheldon; builder, Levy Brown.

Marcy Ave., cor. Ellery St., 1 three-story frame tenement, 27' 6" x 55'; owner, F. Miller, Lewis Ave., cor. Hart St.; architect, Geo. Lehrian, Jr.; builders, Geo. Lehrian and J. Rueger.

Flushing Ave., 1 three-story frame store and tenement, 25' x 50'; cost, \$2,500; owner, Raimond Williams, 232 Ellery St.; architect, B. Kramme; builders, M. Mott and P. Creamer.

Ellery St., 1 two-story frame tenement, 30' x 36'; owner, F. Miller, Lewis Ave., cor. Hart St.; architect, Geo. Lehrian, Jr.; builders, Geo. Lehrian and J. Rueger.

South Second St., 1 four-story brick factory, 100' x 44'; owner, E. Ketcham & Co., New York; architect, John J. Clyde; builder, Stephen J. Barrows.

Wiloughby Ave., 1 two-story brown-stone dwell., 20' x 40'; owner, John D. Lipe; builder, James Lock.

Atlantic Ave., 1 two-story brick stable, 50' x 85'; cost, \$7,000; owner, Atlantic Avenue Railroad Co., Third Ave. and Atlantic Ave.; architects, W. H. Hazzard & Son; builder, John D. Anderson.

Sabring St., cor. Richards St., 1 three-story brick factory, 50' x 50'; owner, R. A. Cheesborough, Delevan, cor. Richards St.; builder, P. Carlin.

Buffalo.

STORES. — Gibson T. Williams, Exchange Street; cost \$10,000; M. E. Beebe, architect.

Three-story brick store, Niagara Street; Henry Zink; F. W. Caulkins, architect.

HOTEL. — Bronson C. Rumsey and others, brick hotel, Exchange Street; cost, \$20,000; M. E. Beebe, architect.

REPAIRING. — Messrs. Bronner & Co. clothing house, enlargement; cost, \$3,000; Holmes & Little, architects.

OFFICE BUILDING. — Delany Forge & Iron Company, office, 17 by 56 feet; F. W. Caulkins, architect.

HOUSE. — Frame house, C. H. Lyman; cost, \$5,000; F. W. Caulkins, architect.

Chicago.

BUILDING PERMITS. — Dearborn and Sixteenth Sts., repairs of Imperial Mills, for Douglas & Stewart; cost, \$39,000.

Noble St., near Milwaukee Ave., two-story store and dwell., for J. Wojtalowicz; cost, \$2,900.

Dashiel St., No. 31, two-story dwell., for Wahrmann Brothers; cost, \$2,000.

Lake St., No. 166, four-story warehouse for C. Busby; cost, \$3,000.

Rumsey St., No. 135, two-story dwell., for Aug. Schach; cost, \$2,500.

Wessen St., No. 82, two-story dwell., for O. A. Lumberg; cost, \$4,000.

Evening and Clinton Sts., two-story dwell., for F. Dnorah; cost, \$3,500.

Canal St., near Carroll, machine shop, for C. A. McDonald; cost, \$6,000.

Ogden Ave., No. 221, two-story store and dwell., for A. B. Bristol; cost, \$4,000.

State and Illinois Sts., 3 three-story dwells., for Catherine Price; cost, \$15,000; and a three-story dwell., for the same, at 139 Ontario St.; cost, \$5,000.

McGregor St., No. 133, two-story dwell., for Peter Birelbach; cost, \$3,000.

Wabash Ave., Nos. 267 and 269, repairs of burned building, for Dr. W. H. Ryder; cost, \$6,000.

Dearborn Ave., cor. Oak, three-story stone-front dwell., for Misses McDonald; cost, \$14,000.

Twenty-ninth and Butler Sts., building for John Ernst; cost, \$2,800.

North Clark St., Nos. 487 and 489, 2 three-story dwells., for Eldridge Haney; cost, \$15,000.

Chicago Ave. and Armour St., two-story dwell., for Geo. Elterman; cost, \$2,500.

Frank St., No. 71, two-story store and dwell., for Peter Labbe; cost, \$3,500.

Ashland Ave. and Thirty-second St., a stock-house, cost, \$8,000; blast furnace, cost, \$9,000; a casting house, cost, \$25,000; a two-story engine-house, cost, \$5,000; all for the Union Rolling-Mill Company.

West Madison St., No. 276, three-story building, for John Spry; cost, \$13,000.

West Ohio St., Nos. 224 and 226, four-story factory, for Banerle & Stark; cost, \$10,000.

River St., Nos. 42 and 44, addition to the warehouse of Norton Bros.; cost, \$2,500.

DUPON. — Mr. F. Slataper, Chief Engineer of the Pennsylvania Company, has completed the plans for the new Union Depot, between Canal Street and the river, and Madison and Van Buren Streets, and contracts will be awarded immediately and work commenced as soon as the weather will permit. It will measure 135 by 1,360 feet.

Cincinnati.

BUILDING PERMITS. — The following permits for buildings were issued during the month of February: —

Matthews & Dugar, two-story brick; cost, \$2,000.

I. C. Cross, three-story brick; cost, \$2,800.

H. Berens, 4 one-story frames.

H. Diekmann, three-story brick; cost, \$5,200.

A. Oesterman, three-story brick; cost, \$4,200.

J. L. Driver, 8 three-story stone fronts; cost, \$32,000.

C. D. Palmer, two-story brick; cost, \$4,000.

H. Mueller, three-story brick; cost, \$5,000.

W. Shaw, two-story brick; cost, \$2,000.

J. Washar & Son, two-story brick; cost, \$2,500.

J. D. Jones, four-story brick; cost, \$5,000.

H. Schwegerman, three-story brick; cost, \$4,000.

J. P. Sehar, two-story brick; cost, \$2,500.

H. Sumhorst, four-story brick; cost, \$4,800.

E. Wittebrock, four-story brick; cost, \$4,700.

M. Poff, three-story brick; cost, \$4,000.

Evan & Berry, one-story frame; cost, \$800.

G. Thawa, four-story brick; cost, \$5,400.

J. Mayer, two-story brick; cost, \$3,000.

H. Borgedus, two-story brick; cost, \$1,600.

Eighteen permits for repairs, \$6,260.

Total permits for the month, 41.

Total cost for the month, \$106,800.

Total permits to date, 86.

Total cost to date, \$190,475.

Cleveland.

HOTEL. — Mr. S. Lane, architect, is preparing plans for a large six story hotel, which may be built by Mr. L. E. Holden, at an outlay of \$100,000.

New York.

BUILDING PERMITS. — Sixty-ninth St., two first-class houses, 20' 6" x 61' 6", four stories and basement, brown-stone fronts; Lamb & Wheeler, architects; A. Mowbray, owner and builder; cost, \$40,000.

Fifty-seventh St., W., No. 34, four-sty brown-stone house, 25' x 83', for Mrs. Amelia W. Chapman; Messrs. Jas. C. Hoe & Co., builders; cost, \$45,000.

Second Ave., No. 682, a five-sty brick tenement and store, 25' x 67' 4", for Jacob Schvesser; W. J. Hoffman, architect; cost, \$11,500.

Alterations.—Tenth St., No. 19, W., four-sty brick dwell., internal alterations; cost, \$5,500; owner, Wm. Man, 56 Wall St.; architect, John B. Snook; masons, Robinson & Wallace; carpenter, John Byrne.

Carlaers St., rear, one-sty brick car stables, 70' x 114', to have a second story added; cost, \$13,000; owners, Dry Dock, E. B. & B. R. Co.; architect, John Corrigan; mason, R. R. Darragh; carpenter, Edward Gridley.

Maiden Lane, No. 115, four-sty and attic brick store, damaged by fire to be repaired; cost, \$2,000; agent, C. G. Stedman, 79 Cedar St.; builder, Wm. S. Barton.

Eighth Ave., cor. One Hundred and Twenty-fifth St., two-sty stores and dwell., corner building to be raised to three stories, internal alterations; cost, corner house \$1,800; house on avenue, \$1,000; owner, Alrah H. Walker, 43 West One Hundred and Thirtieth St.; architect, Theo. E. Thomson.

Broadway, 1074, four-sty brick office building, an additional story to be built, and internal alterations; cost, \$12,000; owner, Peter Marie, 48 West Nineteenth St.; architect, D. Lienau; mason, John Banta; carpenter, L. W. Williams.

Front St., No. 96, five-sty brick warehouse, internal alterations; cost, \$4,000; owners, Estate of John Cassell; architect, Charles C. Haight; mason, J. M. Dodd, Jr.; carpenter, L. Williams.

Eighty-first St., No. 80, E., four-sty brick dwell., damaged by fire to be repaired; cost, \$3,920; owner, E. P. Shaw, on the premises; builder, Henry Wallace.

Fifth St., No. 214, three-sty brick store and dwell., three-sty brick extension, 25' x 38', to be built, internal alteration; cost, \$4,500; owner, L. Berndt; architect, Wm. José.

Elizabeth St., Nos. 85, 87, and 89, five-sty brick factory, a one-sty brick extension, 50' x 27', on rear; cost, \$1,500; owner and builder, Wm. A. Colt; architects, Thom & Wilson.

Twenty-fifth St., Nos. 413 and 415, E., four-sty brick factory, to be raised to five stories; cost, \$2,000; owner, Charles Wagner, 327 East Sixty-fifth St.

Pearl St., No. 436, five-sty brick factory, repair damage by fire; cost, \$5,000; owner, Estate of Ellen A. Johnson; builder, W. C. Hanna.

Great Jones St., No. 17, four-sty brick dwell., four-sty extension on rear; also, interior alterations; cost, \$8,000; owner, John T. Lord, London; architect, Theo. G. Smith; builder, Thomas Cockerill.

Kingsbridge Road, cor. Bathgate Lane, one-sty brick church, interior alterations; cost, \$3,500; owner, Fordham Reformed Church; architect, James Stroud; builder, C. V. Folin.

Washington St., Nos. 78, 80, and 82, seven and eight-sty brick soap factory, No. 80 to be raised to eight stories; cost, \$2,000; owner, B. T. Babbitt, on premises.

First Ave., No. 75, four-sty brick factory, four-sty extension on rear; cost, \$2,500; owner, Edward Burger, on premises; architect, F. W. Klemt.

Broadway, Nos. 156 and 158, will have an extra story, an elevator put in, and other improvements made, at a cost of about \$10,000. Mr. S. D. Hatch is the architect.

Tenth St., W., No. 192, is to be altered into an apartment-house from the designs of Messrs. G. F. Babb and Walter Cook.

Broadway, Nos. 922 and 924, is to be altered and an extension added, at a cost of about \$10,000. Messrs. Morton & Chesley, carpenters; Messrs. Robinson & Wallace, masons.

Madison Ave., cor. Thirtieth St., residence to be changed into apartment-house; Mr. Arthur Gilman, architect.

West Tenth St., No. 19, is to be remodelled at a cost of about \$5,000. Messrs. Robinson & Wallace, contractors. **Factory.**—On Fifty-eighth Street, a brick factory is to be built for Messrs. Wm. C. C. & Co., 50 by 100 feet. Mr. Wm. Kuhles, architect.

Houses.—On Fifty-ninth Street, between Eighth and Ninth Avenues, four brown-stone flats are to be built by Mr. F. Heerlein, at a cost of about \$70,000. Two are 24' by 88', and the others 30' by 88'. Mr. William José is the architect.

Mr. Wm. Kuhles has drawn plans for Mr. Jno. J. Freedman for a house, stable, and riding-school, on West One Hundred and Twenty-fifth Street, near Sixth Avenue. The house will be of brick, with stone finish.

Malt Storage House.—For Mr. Edward Schwyer, a malt storage house of brick, 25 by 100 feet, is to be built on Ninth Avenue, near Forty-third Street, at a cost of about \$14,000. It will be six stories high. Mr. Wm. José, architect.

School House.—A Catholic school-house is to be built on Eighty-seventh Street. Mr. A. H. Blankenstein is the architect.

Store.—Messrs. Degraaf & Taylor, of 47 West Fourteenth Street, have purchased the building, No. 58 West Fifteenth Street, in the rear of their present store. They will rebuild, giving them a front of 25 feet on Fifteenth Street. They will raise the building they at present occupy to five stories. Mr. George E. Harding is the architect.

Philadelphia.

Asylum.—Sanders Street, corner Powelton Avenue, one three-story building (Old Men's Home), 48 by 95 feet; architects, Wilson Brothers & Co.; contractor, H. T. Richards; cost not given.

Factories.—Third and Dauphin Sts., 1 boiler-house, 39' x 25'; 1 three-sty factory, 41' x 114'; wing, 32' x 90'; owners and builders, the Enterprise Manufacturing Co.; cost not given.

South St. and Schuylkill River, 1 two-sty factory, 48' x 150', for the National Fire Brick Works; C. Capelhart, contractor; cost not given.

Houses.—Broad St., below Federal, 1 three-sty brown-stone dwell., 21' x 87'; John Risdale, owner; contractor, J. S. Culbertson; cost, \$12,000.

Twenty-fourth, cor. Thompson St., 7 three-sty dwells., 8 two-sty dwells., 1 three-sty store; each, 18' x 40'; owner, J. L. Caven, architect, Willis G. Hale; cost, \$26,000.

Thirtieth, cor. Centre St., 2 three-sty dwells., pressed brick fronts, 60' x 18'; owner, J. O'Neil; contractor, T. H. Doan; cost, \$7,000.

Thirty-third and Story Sts., 4 three-sty brick dwells., each 16' x 44'; owner and builder, H. B. Chapman; cost, \$8,000.

Twenty-first, cor. Spruce St., 1 two-sty and mansard, brick and brown-stone dwell., 19' 6" x 80'; owner, Lucien Moss; contractor, Benj. Ketcham; cost, \$16,000; architect, G. W. Hewitt.

Review of the Month.—The Building Inspectors issued 175 permits during the month of February for the construction of new buildings and alteration of old structures. Of these permits 66 were given for alterations and additions, 26 for back buildings, 4 for one-story stores, 1 for two-story store, 7 for three-story stores and dwellings, 1 for four-story store, 3 for five-story stores, 21 for two-story dwellings, 20 for three-story dwellings, 7 factories, 1 warehouse, 1 boiler-house, 2 storehouses, 3 offices, 1 knitting-mill, 6 stables, 2 shops, 1 ice-house, 1 slaughter-house, and 1 dye-house.

Messrs. Wilson Brothers & Company have been appointed inspecting engineers for bridges and viaducts, now under contract with the Edgemore Iron Company, of this city, for the South Australian Government.

St. Louis.

Building Permits.—Thirty permits have been issued since our last report, of which ten are for frame structures of slight importance. Of the rest, those worth \$2,500 and over are as follows:—

Owners.	Use.	Stories.	Rooms.	Cost.
W. Ocker.	Dwelling.	2	6	\$3,700
H. E. Crawford.	Dwelling.	2	10	10,000
Miss Mary Yeager.	Dwelling.	3	12	3,500
H. Jurgens.	Dwelling.	2	15	5,000
C. Walter.	Dwelling.	2	8	3,000
D. F. Prior.	Dwelling.	2	6	4,000
G. H. Sudhoff.	Dwelling.	2	6	4,000
J. D. Perry.	Dwelling.	3	16	20,000
D. R. Francis.	Dwelling.	3	16	10,000

General Notes.

ANNAPOLIS, MD.—C. H. Roney, architect, of Philadelphia, last fall made plans for a large summer hotel at Tolles Point, three miles below Annapolis. The building will be three stories, 56 by 96 feet; wing, 72 by 58 feet; pavilion, 50 by 34 feet; owners, the Chesapeake Bay Steamboat Company. Work will be commenced at once; contractor, George Payne, Philadelphia.

AVOCA, ILL.—F. Rosenau, architect, of Council Bluffs, Io., has just finished plans for a house for M. H. Verver, Esq., to cost, \$4,000.

BELLOWS FALLS, VT.—In the spring Moore & Ames are to build a paper-mill, 135 feet long, 50 feet wide, with an L 100 feet in length.

A new woollen-mill is also projected.

BINGHAMTON, N. Y.—The Delaware & Hudson Company does not intend to build a new passenger depot here, but only an engine-house and freight depot.

BRIDGEWATER, MASS.—The Prison Commissioners propose to build, at the State Farm, a reformatory prison for male convicts. The estimated cost is \$25,000, and the idea is to put up a prison which will accommodate from 75 to 100 prisoners.

CAMDEN, N. J.—The wharf and buildings for the new depot of the Camden & Atlantic Railroad at Cooper Point are being pushed rapidly forward, and will be ready for occupancy by the opening of next season.

CANAJOHARIE, N. Y.—The contractors will commence to build the new Methodist church about April 1.

COUNCIL BLUFFS, IOWA.—Max Mohr is building a new hotel, cost \$12,000, from designs prepared by F. Rosenau, architect.

C. Lauzerdorfer is building a house to cost \$8,000; F. R. Senau is the architect.

Fred Rosenau, architect, has just prepared plans for a block of stores, 40 by 100 feet, three stories, for Hon. Horace Everett, to cost \$10,000.

DETROIT, MICH.—Mrs. Dena Boland, addition to brick hotel, 89 Atwater Street; cost, \$1,700.

James Anderson, brick dwell., 45 Miami Avenue; cost, \$2,000.

Mr. M. A. Edwards, brick dwell., 55 Edmund Street; cost, \$1,000.

C. P. Rabaut, brick dwell., 183 Henry Street; cost, \$5,000.

Milo A. Smith, 5 frame dwells, and one brick dwell., two on Second Street, near Canfield Street, the others on Canfield Street; cost, \$14,000.

DEQUETTE, IOWA.—F. D. Hyde, architect, has plans under way for the following work:—

Addition to the residence of F. D. Start, Esq., to cost \$2,500.

Mansard roof and other alterations to the residence of Franklin Hinds, Esq., to cost about \$3,000.

New front and other improvements to the Thedeuga Block, to cost about \$1,200.

Sexton's cottage, chapel, and entrance gates at Linwood Cemetery, to cost about \$3,500.

The *Telegraph* says the building season will open with only about 70,000 brick in the hands of the manufacturers. Sellers are asking \$7 per 1,000. The price last year was \$3.90 and \$4.

FLEMINGTON, N. J.—G. W. Hewitt, architect, of Philadelphia, has just finished plans for a church to cost about \$3,000.

HARLAN, IOWA.—Fred Rosenau, architect, of Council Bluffs, Io., has prepared plans for a block of stores, 60 by 80 feet, for James Long, Esq., to cost \$10,000.

C. J. & D. M. Myland have commenced to build a new bank building. The front will be of cut stone, tile panels, and terra-cotta cornices; cost, \$8,000. F. Rosenau, of Council Bluffs, Io., is the architect.

J. B. Staatsman is preparing to build a block of stores, cost \$5,000, from designs prepared by F. Rosenau, architect, of Council Bluffs, Io.

HOUSTON, TEXAS.—The Monument Mills Company is to build an addition 100 feet long to the north end of No. 1 mill.

LAKE, N. Y.—Alexander Brothers are building a new flax mill in place of one recently burned.

LOUISVILLE, KY.—Kentucky Distilling Company, one-sty frame cattle stable on Story Ave., near the Shelbyville Pike; cost, \$2,000; owner, the architect.

T. Hollenkamp, to alter two-sty brick store and dwell., Second and College Sts.; cost, \$2,500.

Dr. J. T. Berry, to alter two-sty brick stable on Second St., between Main and Market Sts.; cost, \$1,100.

Adam Schuster, one-sty brick dwell., cor. Hancock and Mechanic Sts.; cost, \$1,800.

James Mitchell, to alter one-sty brick dwell., on Fifth, between Breckinridge and Kentucky Sts.; cost, \$1,600.

Louisville Building Company, two-and-a-half-sty brick dwell., cor. Sixth and Breckinridge Sts.; cost, \$5,500.

LOWELL, MASS.—The Prescott Mills are to have an addition 20 feet in width, five stories high, made to one of their mills, and they are also to increase their weaving mill by two stories.

Whitehead & Atherton are to build their new machine shop the coming summer. It is to be 200 by 45 feet, three stories high.

The Tremont and Suffolk Mills are to build a new mill, 282 feet long, 55 feet wide, five stories high, and a new storehouse, 190 feet long, 80 feet wide, and five stories high.

LYNCH, MD.—A new Methodist Protestant church is to be built here.

MANCHESTER, N. H.—A joint-stock opera-house company has been formed here, and will begin building in the spring.

NAUGATUCK, CONN.—The Goodyear India Rubber Company is to build two new shops.

NEW HAVEN, CONN.—C. Mix is building a block on the corner of Hill and West Water Streets, to be of brick, with marble finish; three stories; for stores and tenements.

NEW LONDON, CONN.—The scythe company is to build a new shop, 120 by 38 feet, and several houses for employees.

NIANTIC, CONN.—The Sturtevant Woollen Mill, burned recently, is to be immediately rebuilt.

NORFOLK, VA.—Messrs. Niernède & Son, architects, of Baltimore, are preparing plans for the opera-house which is to be built by H. D. Van Wyck.

OLEAN, N. Y.—Mr. Barre, of the Exchange National Bank, thinks of building a new bank building.

PALMYRA, N. J.—A large piece of ground has been purchased by the Pennsylvania Railway Company, contiguous to their station, on which is soon to be built a depot.

PAWTUCKET, R. I.—Littlefield Brothers are building a new mill for manufacturing threads and yarn.

SALEM, N. J.—Mr. G. W. Hewitt, architect, of Philadelphia, has made plans for alterations to a church; cost, \$5,500.

SANTA ROSA, CAL.—A committee of architects, having examined the court-house, pronounced it unsafe, as with a crowd in the court-room the floor is liable to go down; to temporarily give relief to the present pressure upon the walls, the cupola has been taken down.

SPRINGFIELD, O.—In addition to the new passenger depot, the Pan-Handle officials are to make alterations in the freight-house also.

STONEHAM, MASS.—The chapel soon to be built by the Congregationalists is to cost \$2,600.

TAUNTON, MASS.—Rhodes & Sons are to build an addition to their shoe button manufacturing establishment.

WASHINGTON, D. C.—Mr. J. C. Cadz, architect, of New York, is preparing plans for a double brick house, to cost in the neighborhood of \$20,000.

WILKINSONVILLE, MASS.—The Sutton Cotton Manufacturing Company is to build a new mill three stories high, 65 by 60 feet, and an addition to the old mill of 25 by 30 feet, one story high.

WILLIMANTIC, CONN.—The Willimantic Linen Company has broken ground for a new one-story mill, 840 feet long and 168 feet wide, with L's for the engine-room, picker-room, and finishing-room. It will cover about three and a half acres.

WILMINGTON, ILL.—Messrs. J. C. Cogan are to establish cutlery works here.

Bids and Contracts.

BOSTON, MASS.—Proposals lately received by the Water Board, to supply cast-iron water-pipe, were as follows:—

	COCHEATE.
Warren Foundry and Machine Co., of Phillipsburg, N. J.	\$52,748 75
R. D. Wood & Co., of Philadelphia	64,718 75
A. H. McNeale & Brother, of Burlington, N. J.	36,130 50
Jesse W. Starr, of Camden, N. J.	46,270 00

MYSTIC.
The Warren Foundry and Machine Co., of Phillipsburg, N. J.

 R. D. Wood & Co., of Philadelphia | 10,724 50 |

Gloucester Iron Works, of Gloucester, N. J. | 12,350 00 |

A. H. McNeale & Brother, Burlington, N. J. | 11,599 00 |

Jesse W. Starr, Camden, N. J. | 9,380 00 |

Both contracts were awarded to Jesse W. Starr, of Camden, N. J. | |

The Committee on Improved Sewerage has recently awarded the contract for building Old Harbor Pier, beyond the pumping station at Old Harbor Point, to Edwards, Deery, Cavanagh Brothers, and Sylvester, Boston parties, for \$197,800.30. The other bidders were as follows: J. V. Quackenbush, Mohawk, N. Y., \$199,929; W. H. Ward, Lowell, Mass., \$213,380; Trumbull Granite Company, \$215,622.65; W. C. McCallan, Springfield, Mass., \$241,827; J. B. Dacey & Co., Boston, Mass., \$256,745; Cummins, McDuffee & Co., Boston and Lawrence, \$275,421.25. By the terms of the accepted proposal the work on the pier will be done at the following rates: Rip-rap, per ton, 88 cents; ballasting, per yard, \$1.10; gravel filling, 55 cents per yard; dredging, \$2,660; vertical piles, each, \$3.18; inclined piles, \$5.50; hard pine capping, per thousand, \$44; spruce planking, per thousand, \$24.20; granite masonry, per yard, \$11.60; concrete, \$4.40; brick masonry, \$15.40. | |

LENEX, MASS.—P. H. Mullaney & Bro., of Pittsfield, have the contract for the stone for the addition to the residence of ex-Secretary Robeson, at Lenox, to be built this summer. | |

NEW YORK, N. Y.—The Warren Foundry and Machine Company has received the contracts for furnishing cast-iron water pipes and special castings, to the amount of \$73,849. | |

The contract for building a club-house for the New York Jockey Club, on Coney Island, has been taken by Messrs. Austin, Corbin & Co. Messrs. Lord & Breeze are the architects. | |

Mr. E. Snediker, of Brooklyn, is the contractor for the large hotel which is to be built at Manhattan Beach after the designs of Messrs. Wm. Field & Son, also of Brooklyn. The hotel will contain 400 bed-rooms. | |

WINONA, MINN.—The City Council has awarded the bridge contract to John Stettin for \$6,330, rip-rapping \$5 per cord, he being the lowest of ten bidders. | |